# Capacitors

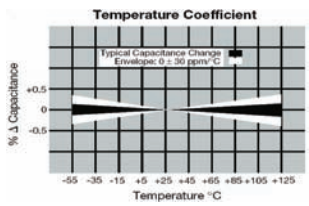

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## Ceramic - Multilayer Chip

### MLCC Dielectics

A multilayer ceramic capacitor (MLCC) is a monolithic block of ceramic containing two sets of offset, interleaved planar electrodes that extend to two opposite surfaces of the ceramic dielectric. This deceivingly simple structure requires a considerable amount of sophistication, both in material and in manufacture, to produce it in the quantities used in today's electronic equipment.

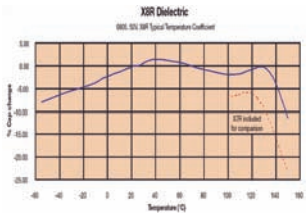
**NP0**




NP0 dielectric exhibits ultra stability in terms of time, temperature, frequency and voltage variations. Typical applications are in tuned circuits, timing circuits and fast rise time circuits.

| | |
|---|---|
| Operating temperature | -55°C to 125°C |
| Cap variation with temperature | 0+/-30ppm/°C |
| Aging characteristic | No |

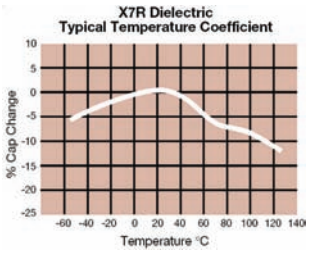
**X8R**




X8R dielectric is specifically formulated to provide predicted performance at elevated temperatures. Applications include on-engine sensors and drilling equipment.

| | |
|---|---|
| Operating temperature | -55°C to 150°C |
| Cap variation with temperature | +/-15% |
| Aging characteristic | Yes |

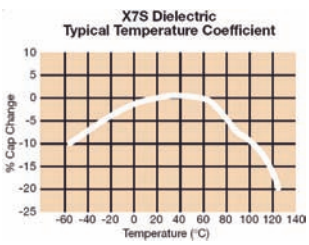
**X7R**




These dielectics offer the greater volumetric efficiency whilst maintaining stability within the defined limits. Applications would include bypass, coupling and filtering circuits.

| | |
|---|---|
| Operating temperature | -55°C to 125°C |
| Cap variation with temperature | +/-15% |
| Aging characteristic | Yes |

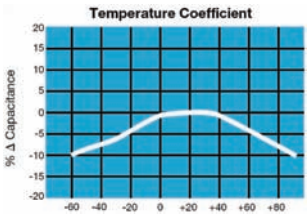
**X7S**




X7S dielectric chip usage covers the broad spectrum of industrial applications where known changes in capacitance due to applied voltages are acceptable.

| | |
|---|---|
| Operating temperature | -55°C to 125°C |
| Cap variation with temperature | +/-22% |
| Aging characteristic | Yes |

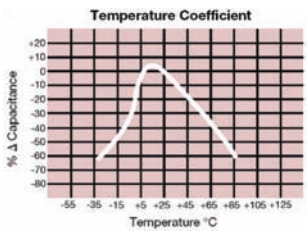
**X5R**




The X5R range of MLCCs is targeted for general purpose applications including filtering and decoupling. This ceramic formulation allows a high capacitance offering.

| | |
|---|---|
| Operating temperature | -55°C to 85°C |
| Cap variation with temperature | +/-15% |
| Aging characteristic | Yes |

**Y5V**




Y5V dielectric offers the highest volumetric efficiency. Applications would include bypass and decoupling circuits where temperature dependence is not of major importance.

| | |
|---|---|
| Operating temperature | -30°C to 85°C |
| Cap variation with temperature | +22%-82% |
| Aging characteristic | Yes |

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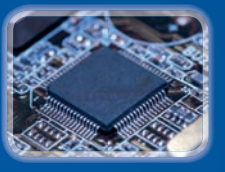
# Industrial Products

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## General DC voltage Applications







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Power Supply



Automotive

**The new dimension of miniaturisation**

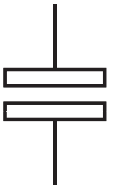
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# Ceramic - Multilayer Chip - Multicomp

## General Purpose Commodity MLCC



| 0201 | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| 6.3 V dc | Characteristic | Tolerance | Code | 100+ | 500+ | 1K+ |
| 0.01 µF | X5R | ± 10% | 175-8840 | | | |
| 0.015 µF | X5R | ± 10% | 175-8841 | | | |
| 0.022 µF | X5R | ± 10% | 175-8842 | | | |
| 0.033 µF | X5R | ± 10% | 175-8843 | | | |
| 0.047 µF | X5R | ± 10% | 175-8844 | | | |
| 0.068 µF | X5R | ± 10% | 175-8845 | | | |
| **10 V dc** | | | | | | |
| 1000 pF | X7R | ± 10% | 175-8847 | | | |
| 1500 pF | X7R | ± 10% | 175-8848 | | | |
| 2200 pF | X7R | ± 10% | 175-8849 | | | |
| 3300 pF | X5R | ± 10% | 175-8850 | | | |
| 4700 pF | X5R | ± 10% | 175-8851 | | | |
| 6800 pF | X5R | ± 10% | 175-8852 | | | |
| 0.01 µF | X5R | ± 10% | 175-8853 | | | |
| **16 V dc** | | | | | | |
| 56 pF | C0G / NP0 | ± 5% | 175-8854 | | | |
| 68 pF | C0G / NP0 | ± 5% | 175-8855 | | | |
| 82 pF | C0G / NP0 | ± 5% | 175-8856 | | | |
| 100 pF | C0G / NP0 | ± 5% | 175-8857 | | | |
| 1500 pF | X7R | ± 10% | 175-8859 | | | |
| 2200 pF | X7R | ± 10% | 175-8861 | | | |
| **25 V dc** | | | | | | |
| 0.5 pF | C0G / NP0 | ± 0.25pF | 175-8862 | | | |
| 1 pF | C0G / NP0 | ± 0.25pF | 175-8863 | | | |
| 1.5 pF | C0G / NP0 | ± 0.25pF | 175-8864 | | | |
| 10 pF | C0G / NP0 | ± 1% | 175-8865 | | | |
| 12 pF | C0G / NP0 | ± 5% | 175-8866 | | | |
| 15 pF | C0G / NP0 | ± 5% | 175-8867 | | | |
| 18 pF | C0G / NP0 | ± 5% | 175-8868 | | | |
| 22 pF | C0G / NP0 | ± 5% | 175-8869 | | | |
| 27 pF | C0G / NP0 | ± 5% | 175-8870 | | | |
| 33 pF | C0G / NP0 | ± 5% | 175-8872 | | | |
| 150 pF | X7R | ± 10% | 175-8873 | | | |
| 220 pF | X7R | ± 10% | 175-8874 | | | |
| 330 pF | X7R | ± 10% | 175-8875 | | | |
| 470 pF | X7R | ± 10% | 175-8876 | | | |
| 680 pF | X7R | ± 10% | 175-8877 | | | |
| 1000 pF | X7R | ± 10% | 175-8878 | | | |

| 0402 | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| 6.3 V dc | Characteristic | Tolerance | Code | 100+ | 500+ | 1K+ |
| 1 µF | Y5V | -20%, +80% | 175-8879 | | | |
| **10 V dc** | | | | | | |
| 0.22 µF | Y5V | -20%, +80% | 175-8880 | | | |
| **16 V dc** | | | | | | |
| 5600 pF | X7R | ± 10% | 175-8881 | | | |
| 6800 pF | X7R | ± 10% | 175-8882 | | | |
| 8200 pF | X7R | ± 10% | 175-8884 | | | |
| 0.01 µF | X7R | ± 10% | 175-8885 | | | |
| 0.012 µF | X7R | ± 10% | 175-8886 | | | |
| 0.015 µF | X7R | ± 10% | 175-8887 | | | |
| 0.015 µF | Y5V | -20%, +80% | 175-8888 | | | |
| 0.018 µF | X7R | ± 10% | 175-8889 | | | |
| 0.022 µF | X7R | ± 10% | 175-8890 | | | |
| 0.022 µF | Y5V | -20%, +80% | 175-8891 | | | |
| 0.033 µF | Y5V | -20%, +80% | 175-8892 | | | |
| 0.047 µF | Y5V | -20%, +80% | 175-8893 | | | |
| 0.068 µF | Y5V | -20%, +80% | 175-8894 | | | |
| 0.1 µF | X7R | ± 10% | 175-8896 | | | |
| 0.1 µF | Y5V | -20%, +80% | 175-8897 | | | |
| **25 V dc** | | | | | | |
| 100 pF | X7R | ± 10% | 175-8898 | | | |
| 120 pF | X7R | ± 10% | 175-8899 | | | |
| 150 pF | X7R | ± 10% | 175-8900 | | | |
| 180 pF | X7R | ± 10% | 175-8902 | | | |
| 220 pF | X7R | ± 10% | 175-8903 | | | |
| 270 pF | X7R | ± 10% | 175-8904 | | | |
| 330 pF | X7R | ± 10% | 175-8905 | | | |
| 390 pF | X7R | ± 10% | 175-8906 | | | |

| 0402 | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| 6.3 V dc | Characteristic | Tolerance | Code | 100+ | 500+ | 1K+ |
| **25 V dc** | | | | | | |
| 470 pF | X7R | ± 10% | 175-8907 | | | |
| 560 pF | X7R | ± 10% | 175-8908 | | | |
| 680 pF | X7R | ± 10% | 175-8909 | | | |
| 820 pF | X7R | ± 10% | 175-8910 | | | |
| 1000 pF | X7R | ± 10% | 175-8911 | | | |
| 1200 pF | X7R | ± 10% | 175-8912 | | | |
| 1500 pF | X7R | ± 10% | 175-8914 | | | |
| 1800 pF | X7R | ± 10% | 175-8915 | | | |
| 2200 pF | X7R | ± 10% | 175-8916 | | | |
| 2700 pF | X7R | ± 10% | 175-8917 | | | |
| 3300 pF | X7R | ± 10% | 175-8918 | | | |
| 3900 pF | X7R | ± 10% | 175-8919 | | | |
| 4700 pF | X7R | ± 10% | 175-8920 | | | |
| 5600 pF | X7R | ± 10% | 175-8921 | | | |
| 6800 pF | X7R | ± 10% | 175-8922 | | | |
| 8200 pF | X7R | ± 10% | 175-8923 | | | |
| 0.01 µF | X7R | ± 10% | 175-8924 | | | |
| 0.01 µF | Y5V | -20%, +80% | 175-8926 | | | |
| 0.015 µF | Y5V | -20%, +80% | 175-8927 | | | |
| 0.022 µF | Y5V | -20%, +80% | 175-8928 | | | |
| **50 V dc** | | | | | | |
| 0.5 pF | C0G / NP0 | ± 0.25pF | 175-8929 | | | |
| 1 pF | C0G / NP0 | ± 0.25pF | 175-8930 | | | |
| 1.5 pF | C0G / NP0 | ± 0.25pF | 175-8931 | | | |
| 2 pF | C0G / NP0 | ± 0.25pF | 175-8932 | | | |
| 3 pF | C0G / NP0 | ± 0.25pF | 175-8933 | | | |
| 4 pF | C0G / NP0 | ± 0.25pF | 175-8934 | | | |
| 5 pF | C0G / NP0 | ± 0.25pF | 175-8935 | | | |
| 6 pF | C0G / NP0 | ± 0.5pF | 175-8936 | | | |
| 7 pF | C0G / NP0 | ± 0.5pF | 175-8938 | | | |
| 8 pF | C0G / NP0 | ± 0.5pF | 175-8939 | | | |
| 9 pF | C0G / NP0 | ± 0.5pF | 175-8940 | | | |
| 10 pF | C0G / NP0 | ± 0.5pF | 175-8941 | | | |
| 11 pF | C0G / NP0 | ± 5% | 175-8942 | | | |
| 12 pF | C0G / NP0 | ± 5% | 175-8943 | | | |
| 13 pF | C0G / NP0 | ± 5% | 175-8944 | | | |
| 15 pF | C0G / NP0 | ± 5% | 175-8945 | | | |
| 16 pF | C0G / NP0 | ± 5% | 175-8946 | | | |
| 18 pF | C0G / NP0 | ± 5% | 175-8947 | | | |
| 20 pF | C0G / NP0 | ± 5% | 175-8948 | | | |
| 22 pF | C0G / NP0 | ± 5% | 175-8951 | | | |
| 24 pF | C0G / NP0 | ± 5% | 175-8952 | | | |
| 27 pF | C0G / NP0 | ± 5% | 175-8953 | | | |
| 30 pF | C0G / NP0 | ± 5% | 175-8954 | | | |
| 33 pF | C0G / NP0 | ± 5% | 175-8955 | | | |
| 36 pF | C0G / NP0 | ± 5% | 175-8956 | | | |
| 39 pF | C0G / NP0 | ± 5% | 175-8957 | | | |
| 43 pF | C0G / NP0 | ± 5% | 175-8958 | | | |
| 47 pF | C0G / NP0 | ± 5% | 175-8959 | | | |
| 51 pF | C0G / NP0 | ± 5% | 175-8960 | | | |
| 56 pF | C0G / NP0 | ± 5% | 175-8961 | | | |
| 62 pF | C0G / NP0 | ± 5% | 175-8963 | | | |
| 68 pF | C0G / NP0 | ± 5% | 175-8964 | | | |
| 75 pF | C0G / NP0 | ± 5% | 175-8965 | | | |
| 82 pF | C0G / NP0 | ± 5% | 175-8966 | | | |
| 91 pF | C0G / NP0 | ± 5% | 175-8967 | | | |
| 100 pF | X7R | ± 10% | 175-8968 | | | |
| 100 pF | C0G / NP0 | ± 5% | 175-8969 | | | |
| 110 pF | C0G / NP0 | ± 5% | 175-8970 | | | |
| 120 pF | X7R | ± 10% | 175-8971 | | | |
| 120 pF | C0G / NP0 | ± 5% | 175-8972 | | | |
| 130 pF | C0G / NP0 | ± 5% | 175-8973 | | | |
| 150 pF | X7R | ± 10% | 175-8975 | | | |
| 150 pF | C0G / NP0 | ± 5% | 175-8976 | | | |
| 160 pF | C0G / NP0 | ± 5% | 175-8977 | | | |
| 180 pF | X7R | ± 10% | 175-8978 | | | |
| 180 pF | C0G / NP0 | ± 5% | 175-8979 | | | |
| 200 pF | C0G / NP0 | ± 5% | 175-8980 | | | |
| 220 pF | X7R | ± 10% | 175-8981 | | | |
| 220 pF | C0G / NP0 | ± 5% | 175-8982 | | | |
| 270 pF | X7R | ± 10% | 175-8983 | | | |
| 330 pF | X7R | ± 10% | 175-8984 | | | |
| 390 pF | X7R | ± 10% | 175-8985 | | | |
| 470 pF | X7R | ± 10% | 175-8987 | | | |
| 560 pF | X7R | ± 10% | 175-8988 | | | |
| 680 pF | X7R | ± 10% | 175-8989 | | | |
| 820 pF | X7R | ± 10% | 175-8990 | | | |
| 1000 pF | X7R | ± 10% | 175-8991 | | | |
| 1200 pF | X7R | ± 10% | 175-8992 | | | |
| 1500 pF | X7R | ± 10% | 175-8993 | | | |
| 1800 pF | X7R | ± 10% | 175-8994 | | | |

# Ceramic - Multilayer Chip - Multicomp - continued

## General Purpose Commodity MLCC - continued

| 0402 | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| 6.3 V dc | Characteristic | Tolerance | Code | 100+ | 500+ | 1K+ |
| **50 V dc** | | | | | | |
| 2200 pF | X7R | ± 10% | 175-8995 | | | |
| 2700 pF | X7R | ± 10% | 175-8996 | | | |
| 3300 pF | X7R | ± 10% | 175-8997 | | | |
| 3900 pF | X7R | ± 10% | 175-8999 | | | |
| 0.01 µF | Y5V | -20%, +80% | 175-9001 | | | |

| 0603 | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| 6.3 V dc | Characteristic | Tolerance | Code | 100+ | 500+ | 1K+ |
| 0.68 µF | Y5V | -20%, +80% | 175-9002 | | | |
| **16 V dc** | | | | | | |
| 0.01 µF | X7R | ± 10% | 175-9003 | | | |
| 0.012 µF | X7R | ± 10% | 175-9004 | | | |
| 0.015 µF | X7R | ± 10% | 175-9005 | | | |
| 0.018 µF | X7R | ± 10% | 175-9006 | | | |
| 0.022 µF | X7R | ± 10% | 175-9007 | | | |
| 0.027 µF | X7R | ± 10% | 175-9008 | | | |
| 0.033 µF | X7R | ± 10% | 175-9009 | | | |
| 0.039 µF | X7R | ± 10% | 175-9010 | | | |
| 0.047 µF | X7R | ± 10% | 175-9011 | | | |
| 0.056 µF | X7R | ± 10% | 175-9013 | | | |
| 0.068 µF | X7R | ± 10% | 175-9014 | | | |
| 0.082 µF | X7R | ± 10% | 175-9015 | | | |
| 0.1 µF | X7R | ± 10% | 175-9016 | | | |
| 0.1 µF | Y5V | -20%, +80% | 175-9017 | | | |
| 0.15 µF | Y5V | -20%, +80% | 175-9018 | | | |
| 0.22 µF | Y5V | -20%, +80% | 175-9019 | | | |
| 0.33 µF | Y5V | -20%, +80% | 175-9020 | | | |
| 0.47 µF | Y5V | -20%, +80% | 175-9021 | | | |
| **25 V dc** | | | | | | |
| 0.01 µF | X7R | ± 10% | 175-9022 | | | |
| 0.012 µF | X7R | ± 10% | 175-9023 | | | |
| 0.015 µF | X7R | ± 10% | 175-9025 | | | |
| 0.018 µF | X7R | ± 10% | 175-9026 | | | |
| 0.022 µF | X7R | ± 10% | 175-9027 | | | |
| 0.027 µF | X7R | ± 10% | 175-9028 | | | |
| 0.033 µF | X7R | ± 10% | 175-9029 | | | |
| 0.039 µF | X7R | ± 10% | 175-9030 | | | |
| 0.047 µF | X7R | ± 10% | 175-9031 | | | |
| 0.056 µF | X7R | ± 10% | 175-9032 | | | |
| 0.068 µF | X7R | ± 10% | 175-9033 | | | |
| 0.068 µF | Y5V | -20%, +80% | 175-9034 | | | |
| 0.082 µF | X7R | ± 10% | 175-9035 | | | |
| 0.1 µF | X7R | ± 10% | 175-9037 | | | |
| 0.1 µF | Y5V | -20%, +80% | 175-9038 | | | |
| 1 µF | Y5V | -20%, +80% | 175-9039 | | | |
| **50 V dc** | | | | | | |
| 0.5 pF | C0G / NP0 | ± 0.25pF | 175-9040 | | | |
| 1 pF | C0G / NP0 | ± 0.25pF | 175-9041 | | | |
| 1.5 pF | C0G / NP0 | ± 0.25pF | 175-9042 | | | |
| 2 pF | C0G / NP0 | ± 0.25pF | 175-9043 | | | |
| 3 pF | C0G / NP0 | ± 0.25pF | 175-9044 | | | |
| 4 pF | C0G / NP0 | ± 0.25pF | 175-9045 | | | |
| 5 pF | C0G / NP0 | ± 0.25pF | 175-9046 | | | |
| 6 pF | C0G / NP0 | ± 0.5pF | 175-9047 | | | |
| 7 pF | C0G / NP0 | ± 0.5pF | 175-9049 | | | |
| 8 pF | C0G / NP0 | ± 0.5pF | 175-9051 | | | |
| 9 pF | C0G / NP0 | ± 0.5pF | 175-9052 | | | |
| 10 pF | C0G / NP0 | ± 0.5pF | 175-9053 | | | |
| 12 pF | C0G / NP0 | ± 5% | 175-9054 | | | |
| 15 pF | C0G / NP0 | ± 5% | 175-9055 | | | |
| 18 pF | C0G / NP0 | ± 5% | 175-9056 | | | |
| 22 pF | C0G / NP0 | ± 5% | 175-9057 | | | |
| 27 pF | C0G / NP0 | ± 5% | 175-9058 | | | |
| 33 pF | C0G / NP0 | ± 5% | 175-9059 | | | |
| 39 pF | C0G / NP0 | ± 5% | 175-9060 | | | |
| 47 pF | C0G / NP0 | ± 5% | 175-9062 | | | |
| 56 pF | C0G / NP0 | ± 5% | 175-9063 | | | |
| 68 pF | C0G / NP0 | ± 5% | 175-9064 | | | |
| 82 pF | C0G / NP0 | ± 5% | 175-9065 | | | |
| 100 pF | C0G / NP0 | ± 5% | 175-9066 | | | |
| 120 pF | C0G / NP0 | ± 5% | 175-9067 | | | |
| 150 pF | C0G / NP0 | ± 5% | 175-9068 | | | |
| 180 pF | C0G / NP0 | ± 5% | 175-9069 | | | |
| 220 pF | X7R | ± 10% | 175-9070 | | | |
| 220 pF | C0G / NP0 | ± 5% | 175-9071 | | | |

| 0603 | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| 6.3 V dc | Characteristic | Tolerance | Code | 100+ | 500+ | 1K+ |
| **50 V dc** | | | | | | |
| 270 pF | X7R | ± 10% | 175-9072 | | | |
| 270 pF | C0G / NP0 | ± 5% | 175-9074 | | | |
| 330 pF | X7R | ± 10% | 175-9075 | | | |
| 330 pF | C0G / NP0 | ± 5% | 175-9076 | | | |
| 390 pF | X7R | ± 10% | 175-9077 | | | |
| 390 pF | C0G / NP0 | ± 5% | 175-9078 | | | |
| 470 pF | X7R | ± 10% | 175-9079 | | | |
| 470 pF | C0G / NP0 | ± 5% | 175-9080 | | | |
| 560 pF | X7R | ± 10% | 175-9081 | | | |
| 560 pF | C0G / NP0 | ± 5% | 175-9082 | | | |
| 680 pF | X7R | ± 10% | 175-9083 | | | |
| 680 pF | C0G / NP0 | ± 5% | 175-9084 | | | |
| 820 pF | X7R | ± 10% | 175-9086 | | | |
| 820 pF | C0G / NP0 | ± 5% | 175-9087 | | | |
| 1000 pF | X7R | ± 10% | 175-9088 | | | |
| 1000 pF | C0G / NP0 | ± 5% | 175-9089 | | | |
| 1200 pF | X7R | ± 10% | 175-9090 | | | |
| 1500 pF | X7R | ± 10% | 175-9091 | | | |
| 1800 pF | X7R | ± 10% | 175-9092 | | | |
| 2200 pF | X7R | ± 10% | 175-9093 | | | |
| 2700 pF | X7R | ± 10% | 175-9094 | | | |
| 3300 pF | X7R | ± 10% | 175-9095 | | | |
| 3900 pF | X7R | ± 10% | 175-9096 | | | |
| 4700 pF | X7R | ± 10% | 175-9098 | | | |
| 5600 pF | X7R | ± 10% | 175-9099 | | | |
| 6800 pF | X7R | ± 10% | 175-9100 | | | |
| 8200 pF | X7R | ± 10% | 175-9101 | | | |
| 0.01 µF | X7R | ± 10% | 175-9102 | | | |
| 0.01 µF | Y5V | -20%, +80% | 175-9104 | | | |
| 0.012 µF | X7R | ± 10% | 175-9105 | | | |
| 0.015 µF | X7R | ± 10% | 175-9106 | | | |
| 0.015 µF | Y5V | -20%, +80% | 175-9107 | | | |
| 0.018 µF | X7R | ± 10% | 175-9108 | | | |
| 0.022 µF | X7R | ± 10% | 175-9109 | | | |
| 0.022 µF | Y5V | -20%, +80% | 175-9110 | | | |
| 0.027 µF | X7R | ± 10% | 175-9111 | | | |
| 0.033 µF | X7R | ± 10% | 175-9112 | | | |
| 0.033 µF | Y5V | -20%, +80% | 175-9113 | | | |
| 0.039 µF | X7R | ± 10% | 175-9114 | | | |
| 0.047 µF | X7R | ± 10% | 175-9116 | | | |
| 0.047 µF | Y5V | -20%, +80% | 175-9117 | | | |
| 0.056 µF | X7R | ± 10% | 175-9118 | | | |
| 0.068 µF | X7R | ± 10% | 175-9119 | | | |
| 0.068 µF | Y5V | -20%, +80% | 175-9120 | | | |
| 0.082 µF | X7R | ± 10% | 175-9121 | | | |
| 0.1 µF | X7R | ± 10% | 175-9122 | | | |
| 0.1 µF | Y5V | -20%, +80% | 175-9123 | | | |
| **100 V dc** | | | | | | |
| 15 pF | C0G / NP0 | ± 5% | 175-9124 | | | |
| 22 pF | C0G / NP0 | ± 5% | 175-9125 | | | |
| 33 pF | C0G / NP0 | ± 5% | 175-9126 | | | |
| 47 pF | C0G / NP0 | ± 5% | 175-9128 | | | |
| 68 pF | C0G / NP0 | ± 5% | 175-9129 | | | |
| 100 pF | C0G / NP0 | ± 5% | 175-9130 | | | |
| 220 pF | X7R | ± 10% | 175-9131 | | | |
| 330 pF | X7R | ± 10% | 175-9132 | | | |
| 470 pF | X7R | ± 10% | 175-9133 | | | |
| 680 pF | X7R | ± 10% | 175-9134 | | | |
| 1000 pF | X7R | ± 10% | 175-9135 | | | |

| 0805 | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| 6.3 V dc | Characteristic | Tolerance | Code | 100+ | 500+ | 1K+ |
| 10 µF | Y5V | -20%, +80% | 175-9136 | | | |
| **16 V dc** | | | | | | |
| 0.047 µF | X7R | ± 10% | 175-9137 | | | |
| 0.056 µF | X7R | ± 10% | 175-9138 | | | |
| 0.068 µF | X7R | ± 10% | 175-9141 | | | |
| 0.082 µF | X7R | ± 10% | 175-9142 | | | |
| 0.1 µF | X7R | ± 10% | 175-9143 | | | |
| 0.1 µF | Y5V | -20%, +80% | 175-9144 | | | |
| 0.12 µF | X7R | ± 10% | 175-9145 | | | |
| 0.15 µF | X7R | ± 10% | 175-9146 | | | |
| 0.15 µF | Y5V | -20%, +80% | 175-9147 | | | |
| 0.18 µF | X7R | ± 10% | 175-9148 | | | |
| 0.22 µF | X7R | ± 10% | 175-9149 | | | |
| 0.22 µF | Y5V | -20%, +80% | 175-9150 | | | |
| 0.27 µF | X7R | ± 10% | 175-9151 | | | |
| 0.33 µF | X7R | ± 10% | 175-9153 | | | |
| 0.33 µF | Y5V | -20%, +80% | 175-9154 | | | |
| 0.39 µF | X7R | ± 10% | 175-9155 | | | |
| 0.47 µF | X7R | ± 10% | 175-9156 | | | |


RoHS ● Compliant ▲ Non-compliant

| 0805 | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| 6.3 V dc | Characteristic | Tolerance | Code | 100+ | 500+ | 1K+ |
| **16 V dc** | | | | | | |
| 0.47 µF | Y5V | -20%, +80% | **175-9157** | | | |
| 0.68 µF | Y5V | -20%, +80% | **175-9158** | | | |
| **25 V dc** | | | | | | |
| 0.039 µF | X7R | ± 10% | **175-9159** | | | |
| 0.047 µF | X7R | ± 10% | **175-9160** | | | |
| 0.056 µF | X7R | ± 10% | **175-9161** | | | |
| 0.068 µF | X7R | ± 10% | **175-9162** | | | |
| 0.068 µF | Y5V | -20%, +80% | **175-9163** | | | |
| 0.082 µF | X7R | ± 10% | **175-9165** | | | |
| 0.1 µF | X7R | ± 10% | **175-9166** | | | |
| 0.1 µF | Y5V | -20%, +80% | **175-9167** | | | |
| 0.12 µF | X7R | ± 10% | **175-9168** | | | |
| 0.15 µF | X7R | ± 10% | **175-9169** | | | |
| 0.15 µF | Y5V | -20%, +80% | **175-9170** | | | |
| 0.18 µF | X7R | ± 10% | **175-9171** | | | |
| 0.22 µF | X7R | ± 10% | **175-9172** | | | |
| 0.22 µF | Y5V | -20%, +80% | **175-9173** | | | |
| 0.33 µF | Y5V | -20%, +80% | **175-9174** | | | |
| 0.47 µF | Y5V | -20%, +80% | **175-9175** | | | |
| 2.2 µF | Y5V | -20%, +80% | **175-9177** | | | |
| **50 V dc** | | | | | | |
| 0.5 pF | C0G / NP0 | ± 0.25pF | **175-9178** | | | |
| 1 pF | C0G / NP0 | ± 0.25pF | **175-9179** | | | |
| 1.5 pF | C0G / NP0 | ± 0.25pF | **175-9180** | | | |
| 2 pF | C0G / NP0 | ± 0.25pF | **175-9181** | | | |
| 3 pF | C0G / NP0 | ± 0.25pF | **175-9182** | | | |
| 4 pF | C0G / NP0 | ± 0.25pF | **175-9183** | | | |
| 5 pF | C0G / NP0 | ± 0.25pF | **175-9184** | | | |
| 6 pF | C0G / NP0 | ± 0.5pF | **175-9185** | | | |
| 7 pF | C0G / NP0 | ± 0.5pF | **175-9186** | | | |
| 8 pF | C0G / NP0 | ± 0.5pF | **175-9187** | | | |
| 9 pF | C0G / NP0 | ± 0.5pF | **175-9189** | | | |
| 10 pF | C0G / NP0 | ± 0.5pF | **175-9191** | | | |
| 12 pF | C0G / NP0 | ± 5% | **175-9192** | | | |
| 15 pF | C0G / NP0 | ± 5% | **175-9193** | | | |
| 18 pF | C0G / NP0 | ± 5% | **175-9194** | | | |
| 22 pF | C0G / NP0 | ± 5% | **175-9195** | | | |
| 27 pF | C0G / NP0 | ± 5% | **175-9196** | | | |
| 33 pF | C0G / NP0 | ± 5% | **175-9197** | | | |
| 39 pF | C0G / NP0 | ± 5% | **175-9198** | | | |
| 47 pF | C0G / NP0 | ± 5% | **175-9199** | | | |
| 56 pF | C0G / NP0 | ± 5% | **175-9200** | | | |
| 68 pF | C0G / NP0 | ± 5% | **175-9201** | | | |
| 82 pF | C0G / NP0 | ± 5% | **175-9202** | | | |
| 100 pF | C0G / NP0 | ± 5% | **175-9203** | | | |
| 120 pF | C0G / NP0 | ± 5% | **175-9204** | | | |
| 150 pF | C0G / NP0 | ± 5% | **175-9205** | | | |
| 180 pF | C0G / NP0 | ± 5% | **175-9207** | | | |
| 220 pF | X7R | ± 10% | **175-9208** | | | |
| 220 pF | C0G / NP0 | ± 5% | **175-9209** | | | |
| 270 pF | X7R | ± 10% | **175-9210** | | | |
| 270 pF | C0G / NP0 | ± 5% | **175-9211** | | | |
| 330 pF | X7R | ± 10% | **175-9212** | | | |
| 330 pF | C0G / NP0 | ± 5% | **175-9213** | | | |
| 390 pF | X7R | ± 10% | **175-9214** | | | |
| 390 pF | C0G / NP0 | ± 5% | **175-9215** | | | |
| 470 pF | X7R | ± 10% | **175-9216** | | | |
| 470 pF | C0G / NP0 | ± 5% | **175-9217** | | | |
| 560 pF | X7R | ± 10% | **175-9219** | | | |
| 560 pF | C0G / NP0 | ± 5% | **175-9221** | | | |
| 680 pF | X7R | ± 10% | **175-9222** | | | |
| 680 pF | C0G / NP0 | ± 5% | **175-9223** | | | |
| 820 pF | X7R | ± 10% | **175-9224** | | | |
| 820 pF | C0G / NP0 | ± 5% | **175-9225** | | | |
| 1000 pF | X7R | ± 10% | **175-9226** | | | |
| 1000 pF | C0G / NP0 | ± 5% | **175-9227** | | | |
| 1200 pF | X7R | ± 10% | **175-9228** | | | |
| 1200 pF | C0G / NP0 | ± 5% | **175-9229** | | | |
| 1500 pF | C0G / NP0 | ± 5% | **175-9230** | | | |
| 1500 pF | X7R | ± 10% | **175-9232** | | | |
| 1800 pF | X7R | ± 10% | **175-9233** | | | |
| 1800 pF | C0G / NP0 | ± 5% | **175-9234** | | | |
| 2200 pF | X7R | ± 10% | **175-9235** | | | |
| 2200 pF | C0G / NP0 | ± 5% | **175-9236** | | | |
| 2700 pF | X7R | ± 10% | **175-9237** | | | |
| 2700 pF | C0G / NP0 | ± 5% | **175-9238** | | | |
| 3300 pF | X7R | ± 10% | **175-9239** | | | |
| 3900 pF | X7R | ± 10% | **175-9240** | | | |
| 4700 pF | X7R | ± 10% | **175-9241** | | | |
| 5600 pF | X7R | ± 10% | **175-9242** | | | |
| 6800 pF | X7R | ± 10% | **175-9244** | | | |

| 0805 | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| 6.3 V dc | Characteristic | Tolerance | Code | 100+ | 500+ | 1K+ |
| **16 V dc** | | | | | | |
| 8200 pF | X7R | ± 10% | **175-9245** | | | |
| 0.01 µF | X7R | ± 10% | **175-9246** | | | |
| 0.01 µF | Y5V | -20%, +80% | **175-9247** | | | |
| 0.012 µF | X7R | ± 10% | **175-9248** | | | |
| 0.015 µF | X7R | ± 10% | **175-9249** | | | |
| 0.015 µF | Y5V | -20%, +80% | **175-9250** | | | |
| 0.018 µF | X7R | ± 10% | **175-9251** | | | |
| 0.022 µF | X7R | ± 10% | **175-9252** | | | |
| 0.022 µF | Y5V | -20%, +80% | **175-9253** | | | |
| 0.027 µF | X7R | ± 10% | **175-9254** | | | |
| 0.033 µF | Y5V | -20%, +80% | **175-9256** | | | |
| 0.033 µF | X7R | ± 10% | **175-9257** | | | |
| 0.039 µF | X7R | ± 10% | **175-9258** | | | |
| 0.047 µF | Y5V | -20%, +80% | **175-9259** | | | |
| 0.047 µF | X7R | ± 10% | **175-9260** | | | |
| 0.056 µF | X7R | ± 10% | **175-9261** | | | |
| 0.068 µF | X7R | ± 10% | **175-9262** | | | |
| 0.068 µF | Y5V | -20%, +80% | **175-9263** | | | |
| 0.082 µF | X7R | ± 10% | **175-9264** | | | |
| 0.1 µF | X7R | ± 10% | **175-9265** | | | |
| 0.1 µF | Y5V | -20%, +80% | **175-9266** | | | |
| 0.15 µF | Y5V | -20%, +80% | **175-9268** | | | |
| 0.22 µF | Y5V | -20%, +80% | **175-9269** | | | |
| **100 V dc** | | | | | | |
| 15 pF | C0G / NP0 | ± 5% | **175-9270** | | | |
| 22 pF | C0G / NP0 | ± 5% | **175-9271** | | | |
| 33 pF | C0G / NP0 | ± 5% | **175-9272** | | | |
| 47 pF | C0G / NP0 | ± 5% | **175-9273** | | | |
| 68 pF | C0G / NP0 | ± 5% | **175-9274** | | | |
| 100 pF | C0G / NP0 | ± 5% | **175-9275** | | | |
| 150 pF | C0G / NP0 | ± 5% | **175-9276** | | | |
| 220 pF | X7R | ± 10% | **175-9277** | | | |
| 220 pF | C0G / NP0 | ± 5% | **175-9278** | | | |
| 330 pF | X7R | ± 10% | **175-9281** | | | |
| 330 pF | C0G / NP0 | ± 5% | **175-9282** | | | |
| 470 pF | X7R | ± 10% | **175-9283** | | | |
| 470 pF | C0G / NP0 | ± 5% | **175-9284** | | | |
| 680 pF | X7R | ± 10% | **175-9285** | | | |
| 680 pF | C0G / NP0 | ± 5% | **175-9286** | | | |
| 1000 pF | X7R | ± 10% | **175-9287** | | | |
| 1000 pF | C0G / NP0 | ± 5% | **175-9288** | | | |
| 1500 pF | X7R | ± 10% | **175-9289** | | | |
| 2200 pF | X7R | ± 10% | **175-9290** | | | |
| 3300 pF | X7R | ± 10% | **175-9291** | | | |
| 4700 pF | X7R | ± 10% | **175-9293** | | | |
| 6800 pF | X7R | ± 10% | **175-9294** | | | |
| 0.01 µF | X7R | ± 10% | **175-9295** | | | |
| 0.015 µF | X7R | ± 10% | **175-9296** | | | |

| 1206 | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| 16 V dc | Characteristic | Tolerance | Code | 10+ | 250+ | 1K+ |
| 0.1 µF | X7R | ± 10% | **175-9297** | | | |
| 0.12 µF | X7R | ± 10% | **175-9298** | | | |
| 0.15 µF | X7R | ± 10% | **175-9299** | | | |
| 0.18 µF | X7R | ± 10% | **175-9300** | | | |
| 0.22 µF | X7R | ± 10% | **175-9301** | | | |
| 0.27 µF | X7R | ± 10% | **175-9302** | | | |
| 0.33 µF | X7R | ± 10% | **175-9303** | | | |
| 0.39 µF | X7R | ± 10% | **175-9304** | | | |
| 0.47 µF | X7R | ± 10% | **175-9305** | | | |
| 0.56 µF | X7R | ± 10% | **175-9306** | | | |
| 0.68 µF | X7R | ± 10% | **175-9307** | | | |
| 0.68 µF | Y5V | -20%, +80% | **175-9308** | | | |
| 0.82 µF | X7R | ± 10% | **175-9311** | | | |
| **25 V dc** | | | | | | |
| 0.1 µF | X7R | ± 10% | **175-9312** | | | |
| 0.12 µF | X7R | ± 10% | **175-9313** | | | |
| 0.15 µF | X7R | ± 10% | **175-9314** | | | |
| 0.18 µF | X7R | ± 10% | **175-9315** | | | |
| 0.22 µF | X7R | ± 10% | **175-9316** | | | |
| 0.27 µF | X7R | ± 10% | **175-9317** | | | |
| 0.33 µF | X7R | ± 10% | **175-9318** | | | |
| 0.39 µF | X7R | ± 10% | **175-9319** | | | |
| 0.47 µF | X7R | ± 10% | **175-9320** | | | |
| 0.47 µF | Y5V | -20%, +80% | **175-9321** | | | |
| 0.56 µF | X7R | ± 10% | **175-9323** | | | |
| 0.68 µF | X7R | ± 10% | **175-9324** | | | |
| 0.68 µF | Y5V | -20%, +80% | **175-9325** | | | |
| 0.82 µF | X7R | ± 10% | **175-9326** | | | |

# Ceramic - Multilayer Chip - Multicomp - continued

## General Purpose Commodity MLCC - continued

| 1206 | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| **16 V dc** | Characteristic | Tolerance | **Code** | 10+ | 250+ | 1K+ |
| **50 V dc** | | | | | | |
| 100 pF | C0G / NP0 | ± 5% | **175-9327** | | | |
| 220 pF | X7R | ± 10% | **175-9328** | | | |
| 270 pF | X7R | ± 10% | **175-9329** | | | |
| 330 pF | X7R | ± 10% | **175-9330** | | | |
| 390 pF | X7R | ± 10% | **175-9331** | | | |
| 470 pF | X7R | ± 10% | **175-9332** | | | |
| 560 pF | X7R | ± 10% | **175-9333** | | | |
| 680 pF | X7R | ± 10% | **175-9335** | | | |
| 820 pF | X7R | ± 10% | **175-9336** | | | |
| 1000 pF | X7R | ± 10% | **175-9337** | | | |
| 1200 pF | X7R | ± 10% | **175-9338** | | | |
| 1500 pF | X7R | ± 10% | **175-9339** | | | |
| 1800 pF | X7R | ± 10% | **175-9340** | | | |
| 2200 pF | X7R | ± 10% | **175-9341** | | | |
| 2700 pF | X7R | ± 10% | **175-9342** | | | |
| 3300 pF | X7R | ± 10% | **175-9343** | | | |
| 3900 pF | X7R | ± 10% | **175-9344** | | | |
| 4700 pF | X7R | ± 10% | **175-9345** | | | |
| 5600 pF | X7R | ± 10% | **175-9347** | | | |
| 6800 pF | X7R | ± 10% | **175-9348** | | | |
| 8200 pF | X7R | ± 10% | **175-9349** | | | |
| 0.01 µF | X7R | ± 10% | **175-9350** | | | |
| 0.012 µF | X7R | ± 10% | **175-9351** | | | |
| 0.015 µF | X7R | ± 10% | **175-9352** | | | |
| 0.018 µF | X7R | ± 10% | **175-9353** | | | |
| 0.022 µF | X7R | ± 10% | **175-9354** | | | |
| 0.027 µF | X7R | ± 10% | **175-9355** | | | |
| 0.033 µF | X7R | ± 10% | **175-9356** | | | |
| 0.039 µF | X7R | ± 10% | **175-9357** | | | |
| 0.047 µF | X7R | ± 10% | **175-9359** | | | |
| 0.1 µF | X7R | ± 10% | **175-9361** | | | |
| 0.22 µF | X7R | ± 10% | **175-9362** | | | |
| **100 V dc** | | | | | | |
| 0.022 µF | X7R | ± 10% | **175-9363** | | | |
| 0.033 µF | X7R | ± 10% | **175-9364** | | | |
| 0.047 µF | X7R | ± 10% | **175-9365** | | | |
| 0.1 µF | X7R | ± 10% | **175-9366** | | | |

546880

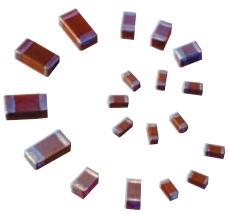
| 1210 | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| **6.3 V dc** | Characteristic | Tolerance | **Code** | 10+ | 250+ | 1K+ |
| 47 µF | Y5V | -20%, +80% | **175-9367** | | | |
| **100 V dc** | | | | | | |
| 0.22 µF | X7R | ± 10% | **175-9369** | | | |
| 0.47 µF | X7R | ± 10% | **175-9370** | | | |
| 0.68 µF | X7R | ± 10% | **175-9372** | | | |

## Automotive MLCC

**AEC-Q200 Qualified**

NEW

multicomp



- Multilayer ceramic capacitors developed and tested for the automotive market
- AEC-Q200 qualified
- Flexiterm terminations available
- Specific automotive part number
- Base metal electrode system

### 0402 Case Size

**Order Multiple=100**

| Capacitance | Mftrs. List No. | Order Code | Price Each 100+ | 500+ | 1K+ | 10K+ |
|---|---|---|---|---|---|---|
| **10 Volt d.c. NPO** | | | | | | |
| 10pF | MCCA000892 | **185-6041** | | | | |
| 15pF | MCCA000893 | **185-6043** | | | | |
| 22pF | MCCA000894 | **185-6044** | | | | |
| 33pF | MCCA000895 | **185-6045** | | | | |
| 47pF | MCCA000896 | **185-6046** | | | | |
| 68pF | MCCA000897 | **185-6047** | | | | |
| 100pF | MCCA000898 | **185-6048** | | | | |
| **16 Volt d.c. NPO** | | | | | | |
| 10pF | MCCA000899 | **185-6049** | | | | |
| 15pF | MCCA000900 | **185-6050** | | | | |
| 22pF | MCCA000901 | **185-6051** | | | | |
| 33pF | MCCA000902 | **185-6052** | | | | |
| 47pF | MCCA000903 | **185-6053** | | | | |
| 68pF | MCCA000904 | **185-6055** | | | | |
| 100pF | MCCA000905 | **185-6056** | | | | |
| **25 Volt d.c. NPO** | | | | | | |
| 10pF | MCCA000906 | **185-6057** | | | | |
| 15pF | MCCA000907 | **185-6058** | | | | |
| 22pF | MCCA000908 | **185-6059** | | | | |
| 33pF | MCCA000909 | **185-6060** | | | | |
| 47pF | MCCA000910 | **185-6061** | | | | |
| 68pF | MCCA000911 | **185-6062** | | | | |
| 100pF | MCCA000912 | **185-6063** | | | | |
| **50 Volt d.c. NPO** | | | | | | |
| 10pF | MCCA000913 | **185-6064** | | | | |
| 15pF | MCCA000914 | **185-6065** | | | | |
| 22pF | MCCA000915 | **185-6067** | | | | |
| 33pF | MCCA000916 | **185-6068** | | | | |
| 47pF | MCCA000917 | **185-6069** | | | | |
| 68pF | MCCA000918 | **185-6070** | | | | |
| 100pF | MCCA000919 | **185-6071** | | | | |

### 0603 Case Size

| | List No. | Order Code | 100+ | 500+ | 1K+ | 4K+ |
|---|---|---|---|---|---|---|
| **10 Volt d.c. NPO** | | | | | | |
| 1pF | MCCA000920 | **185-6072** | | | | |
| 1.5pF | MCCA000921 | **185-6073** | | | | |
| 2.2pF | MCCA000922 | **185-6074** | | | | |
| 3.3pF | MCCA000923 | **185-6075** | | | | |
| 4.7pF | MCCA000924 | **185-6076** | | | | |
| 6.8pF | MCCA000925 | **185-6077** | | | | |
| 10pF | MCCA000926 | **185-6079** | | | | |
| 15pF | MCCA000927 | **185-6081** | | | | |
| 22pF | MCCA000928 | **185-6082** | | | | |
| 33pF | MCCA000929 | **185-6083** | | | | |
| 47pF | MCCA000930 | **185-6084** | | | | |
| 68pF | MCCA000931 | **185-6085** | | | | |
| 100pF | MCCA000932 | **185-6086** | | | | |
| 150pF | MCCA000933 | **185-6087** | | | | |
| 220pF | MCCA000934 | **185-6088** | | | | |
| 330pF | MCCA000935 | **185-6089** | | | | |
| 470pF | MCCA000936 | **185-6090** | | | | |
| 680pF | MCCA000937 | **185-6092** | | | | |
| 1000pF | MCCA000938 | **185-6093** | | | | |
| **16 Volt d.c. NPO** | | | | | | |
| 1pF | MCCA000939 | **185-6094** | | | | |
| 1.5pF | MCCA000940 | **185-6095** | | | | |
| 2.2pF | MCCA000941 | **185-6096** | | | | |
| 3.3pF | MCCA000942 | **185-6097** | | | | |
| 4.7pF | MCCA000943 | **185-6098** | | | | |
| 6.8pF | MCCA000944 | **185-6099** | | | | |
| 10pF | MCCA000945 | **185-6100** | | | | |
| 15pF | MCCA000946 | **185-6101** | | | | |
| 22pF | MCCA000947 | **185-6102** | | | | |
| 33pF | MCCA000948 | **185-6103** | | | | |
| 47pF | MCCA000949 | **185-6104** | | | | |
| 68pF | MCCA000950 | **185-6105** | | | | |
| 100pF | MCCA000951 | **185-6106** | | | | |
| 150pF | MCCA000952 | **185-6107** | | | | |
| 220pF | MCCA000953 | **185-6109** | | | | |
| 330pF | MCCA000954 | **185-6111** | | | | |
| 470pF | MCCA000955 | **185-6112** | | | | |
| 680pF | MCCA000956 | **185-6113** | | | | |
| 1000pF | MCCA000957 | **185-6114** | | | | |
| **25 Volt d.c. NPO** | | | | | | |
| 1pF | MCCA000958 | **185-6115** | | | | |
| 1.5pF | MCCA000959 | **185-6116** | | | | |
| 2.2pF | MCCA000960 | **185-6117** | | | | |
| 3.3pF | MCCA000961 | **185-6118** | | | | |
| 4.7pF | MCCA000962 | **185-6119** | | | | |
| 6.8pF | MCCA000963 | **185-6120** | | | | |
| 10pF | MCCA000964 | **185-6122** | | | | |
| 15pF | MCCA000965 | **185-6123** | | | | |
| 22pF | MCCA000966 | **185-6124** | | | | |
| 33pF | MCCA000967 | **185-6125** | | | | |
| 47pF | MCCA000968 | **185-6126** | | | | |
| 68pF | MCCA000969 | **185-6127** | | | | |
| 100pF | MCCA000970 | **185-6128** | | | | |
| 150pF | MCCA000971 | **185-6129** | | | | |
| 220pF | MCCA000972 | **185-6130** | | | | |
| 330pF | MCCA000973 | **185-6131** | | | | |
| 470pF | MCCA000974 | **185-6132** | | | | |
| 680pF | MCCA000975 | **185-6134** | | | | |
| 1000pF | MCCA000976 | **185-6135** | | | | |
| **50 Volt d.c. NPO** | | | | | | |
| 1pF | MCCA000977 | **185-6136** | | | | |



RoHS ● Compliant ▲ Non-compliant

| | List No. | Order Code | 100+ | 500+ | 1K+ | 4K+ |
|---|---|---|---|---|---|---|
| 1.5pF | MCCA000978 | **185-6137** | | | | |
| 2.2pF | MCCA000979 | **185-6138** | | | | |
| 3.3pF | MCCA000980 | **185-6139** | | | | |
| 4.7pF | MCCA000981 | **185-6140** | | | | |
| 6.8pF | MCCA000982 | **185-6141** | | | | |
| 10pF | MCCA000983 | **185-6142** | | | | |
| 15pF | MCCA000984 | **185-6143** | | | | |
| 22pF | MCCA000985 | **185-6144** | | | | |
| 33pF | MCCA000986 | **185-6146** | | | | |
| 47pF | MCCA000987 | **185-6147** | | | | |
| 68pF | MCCA000988 | **185-6148** | | | | |
| 100pF | MCCA000989 | **185-6149** | | | | |
| 150pF | MCCA000990 | **185-6150** | | | | |
| 220pF | MCCA000991 | **185-6151** | | | | |
| 330pF | MCCA000992 | **185-6152** | | | | |
| 470pF | MCCA000993 | **185-6153** | | | | |
| 680pF | MCCA000994 | **185-6154** | | | | |
| 1000pF | MCCA000995 | **185-6155** | | | | |
| 1pF | MCCA000996 | **185-6156** | | | | |
| 1.5pF | MCCA000997 | **185-6158** | | | | |
| 2.2pF | MCCA000998 | **185-6159** | | | | |
| 3.3pF | MCCA000999 | **185-6160** | | | | |
| 4.7pF | MCCA001000 | **185-6161** | | | | |
| 6.8pF | MCCA001001 | **185-6162** | | | | |
| 10pF | MCCA001002 | **185-6163** | | | | |
| 15pF | MCCA001003 | **185-6164** | | | | |
| 22pF | MCCA001004 | **185-6165** | | | | |
| 33pF | MCCA001005 | **185-6166** | | | | |
| 47pF | MCCA001006 | **185-6167** | | | | |
| 68pF | MCCA001007 | **185-6168** | | | | |
| 100pF | MCCA001008 | **185-6171** | | | | |

### 0805 Case Size

618960

**Order Multiple=100**

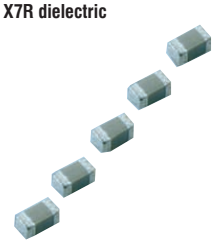
| Capacitance | Mftrs. List No. | Order Code | Price Each 100+ | 500+ | 1K+ | 4K+ |
|---|---|---|---|---|---|---|
| **10 Volt d.c. NPO** | | | | | | |
| 1pF | MCCA001009 | **185-6172** | | | | |
| 1.5pF | MCCA001010 | **185-6173** | | | | |
| 2.2pF | MCCA001011 | **185-6174** | | | | |
| 3.3pF | MCCA001012 | **185-6175** | | | | |
| 4.7pF | MCCA001013 | **185-6176** | | | | |
| 6.8pF | MCCA001014 | **185-6177** | | | | |
| 10pF | MCCA001015 | **185-6178** | | | | |
| 15pF | MCCA001016 | **185-6179** | | | | |
| 22pF | MCCA001017 | **185-6180** | | | | |
| 33pF | MCCA001018 | **185-6181** | | | | |
| 47pF | MCCA001019 | **185-6183** | | | | |
| 68pF | MCCA001020 | **185-6184** | | | | |
| 100pF | MCCA001021 | **185-6185** | | | | |
| 150pF | MCCA001022 | **185-6186** | | | | |
| 220pF | MCCA001023 | **185-6187** | | | | |
| 330pF | MCCA001024 | **185-6188** | | | | |
| 470pF | MCCA001025 | **185-6189** | | | | |
| 680pF | MCCA001026 | **185-6190** | | | | |
| 1000pF | MCCA001027 | **185-6191** | | | | |
| **16 Volt d.c. NPO** | | | | | | |
| 1pF | MCCA001028 | **185-6192** | | | | |
| 1.5pF | MCCA001029 | **185-6193** | | | | |
| 2.2pF | MCCA001030 | **185-6195** | | | | |
| 3.3pF | MCCA001031 | **185-6196** | | | | |
| 4.7pF | MCCA001032 | **185-6197** | | | | |
| 6.8pF | MCCA001033 | **185-6198** | | | | |
| 10pF | MCCA001034 | **185-6199** | | | | |
| 15pF | MCCA001035 | **185-6201** | | | | |
| 22pF | MCCA001036 | **185-6202** | | | | |
| 33pF | MCCA001037 | **185-6203** | | | | |
| 47pF | MCCA001038 | **185-6204** | | | | |
| 68pF | MCCA001039 | **185-6205** | | | | |
| 100pF | MCCA001040 | **185-6206** | | | | |
| 150pF | MCCA001041 | **185-6207** | | | | |
| 220pF | MCCA001042 | **185-6208** | | | | |
| 330pF | MCCA001043 | **185-6209** | | | | |
| 470pF | MCCA001044 | **185-6210** | | | | |
| 680pF | MCCA001045 | **185-6211** | | | | |
| 1000pF | MCCA001046 | **185-6213** | | | | |
| **25 Volt d.c. NPO** | | | | | | |
| 1pF | MCCA001047 | **185-6214** | | | | |
| 1.5pF | MCCA001048 | **185-6215** | | | | |
| 2.2pF | MCCA001049 | **185-6216** | | | | |
| 3.3pF | MCCA001050 | **185-6217** | | | | |
| 4.7pF | MCCA001051 | **185-6218** | | | | |
| 6.8pF | MCCA001052 | **185-6219** | | | | |
| 10pF | MCCA001053 | **185-6220** | | | | |
| 15pF | MCCA001054 | **185-6221** | | | | |
| 22pF | MCCA001055 | **185-6222** | | | | |
| 33pF | MCCA001056 | **185-6223** | | | | |
| 47pF | MCCA001057 | **185-6225** | | | | |
| 68pF | MCCA001058 | **185-6226** | | | | |
| 100pF | MCCA001059 | **185-6227** | | | | |
| 150pF | MCCA001060 | **185-6228** | | | | |
| 220pF | MCCA001061 | **185-6229** | | | | |
| 330pF | MCCA001062 | **185-6230** | | | | |
| 470pF | MCCA001063 | **185-6231** | | | | |
| 680pF | MCCA001064 | **185-6232** | | | | |
| 1000pF | MCCA001065 | **185-6233** | | | | |
| **50 Volt d.c. NPO** | | | | | | |
| 1pF | MCCA001066 | **185-6234** | | | | |
| 1.5pF | MCCA001067 | **185-6235** | | | | |
| 2.2pF | MCCA001068 | **185-6237** | | | | |
| 3.3pF | MCCA001069 | **185-6238** | | | | |
| 4.7pF | MCCA001070 | **185-6239** | | | | |
| 6.8pF | MCCA001071 | **185-6240** | | | | |
| 10pF | MCCA001072 | **185-6241** | | | | |
| 15pF | MCCA001073 | **185-6242** | | | | |
| 22pF | MCCA001074 | **185-6243** | | | | |
| 33pF | MCCA001075 | **185-6244** | | | | |
| 47pF | MCCA001076 | **185-6245** | | | | |
| 68pF | MCCA001077 | **185-6246** | | | | |
| 100pF | MCCA001078 | **185-6247** | | | | |
| 150pF | MCCA001079 | **185-6249** | | | | |
| 220pF | MCCA001080 | **185-6251** | | | | |
| 330pF | MCCA001081 | **185-6252** | | | | |
| 470pF | MCCA001082 | **185-6253** | | | | |
| 680pF | MCCA001083 | **185-6254** | | | | |
| 1000pF | MCCA001084 | **185-6255** | | | | |
| **100 Volt d.c. NPO** | | | | | | |
| 1pF | MCCA001085 | **185-6256** | | | | |
| 1.5pF | MCCA001086 | **185-6257** | | | | |
| 2.2pF | MCCA001087 | **185-6258** | | | | |
| 3.3pF | MCCA001088 | **185-6259** | | | | |
| 4.7pF | MCCA001089 | **185-6260** | | | | |
| 6.8pF | MCCA001090 | **185-6262** | | | | |
| 10pF | MCCA001091 | **185-6263** | | | | |
| 15pF | MCCA001092 | **185-6264** | | | | |
| 22pF | MCCA001093 | **185-6265** | | | | |
| 33pF | MCCA001094 | **185-6266** | | | | |
| 47pF | MCCA001095 | **185-6267** | | | | |
| 68pF | MCCA001096 | **185-6268** | | | | |
| 100pF | MCCA001097 | **185-6269** | | | | |
| 150pF | MCCA001098 | **185-6270** | | | | |
| 220pF | MCCA001099 | **185-6271** | | | | |
| 330pF | MCCA001100 | **185-6272** | | | | |
| 470pF | MCCA001101 | **185-6274** | | | | |
| 680pF | MCCA001102 | **185-6275** | | | | |
| 1000pF | MCCA001103 | **185-6276** | | | | |

## MLCC with Flexible Termination

**X7R dielectric**

NEW

multicomp



- Multilayer ceramic capacitors developed for the automotive application
- Base metal electrode system
- Flexible termination system
- AEC-Q200 qualified

### 0603 Case Size

| | Mftrs. List No. | Order Code | Price Each 100+ | 500+ | 1K+ | 4K+ | + |
|---|---|---|---|---|---|---|---|
| **10 Volt d.c. X7R** | | | | | | | |
| 100pF | MCCA001104 | **185-6287** | | | | | |
| 150pF | MCCA001105 | **185-6288** | | | | | |
| 220pF | MCCA001106 | **185-6289** | | | | | |
| 330pF | MCCA001107 | **185-6290** | | | | | |
| 470pF | MCCA001108 | **185-6291** | | | | | |
| 680pF | MCCA001109 | **185-6292** | | | | | |
| 1000pF | MCCA001110 | **185-6293** | | | | | |
| 1500pF | MCCA001111 | **185-6294** | | | | | |
| 2200pF | MCCA001112 | **185-6295** | | | | | |
| 3300pF | MCCA001113 | **185-6296** | | | | | |
| 4700pF | MCCA001114 | **185-6298** | | | | | |
| 6800pF | MCCA001115 | **185-6299** | | | | | |
| 0.01µF | MCCA001116 | **185-6300** | | | | | |
| 0.015µF | MCCA001117 | **185-6301** | | | | | |

# Ceramic - Multilayer Chip - Multicomp - continued

## MLCC with Flexible Termination - continued

### X7R dielectric - continued

| | Mftrs. List No. | Order Code | Price Each 100+ | 500+ | 1K+ | 4K+ | + |
|---|---|---|---|---|---|---|---|
| **10 Volt d.c. X7R** | | | | | | | |
| 0.022µF | MCCA001118 | **185-6302** | | | | | |
| 0.033µF | MCCA001119 | **185-6304** | | | | | |
| 0.047µF | MCCA001120 | **185-6305** | | | | | |
| 0.068µF | MCCA001121 | **185-6306** | | | | | |
| 0.1µF | MCCA001122 | **185-6307** | | | | | |
| 0.15µF | MCCA001123 | **185-6308** | | | | | |
| 0.22µF | MCCA001124 | **185-6309** | | | | | |
| 0.33µF | MCCA001125 | **185-6310** | | | | | |
| 0.47µF | MCCA001126 | **185-6311** | | | | | |
| 0.68µF | MCCA001127 | **185-6312** | | | | | |
| **16 Volt d.c. X7R** | | | | | | | |
| 100pF | MCCA001129 | **185-6314** | | | | | |
| 150pF | MCCA001130 | **185-6316** | | | | | |
| 220pF | MCCA001131 | **185-6317** | | | | | |
| 330pF | MCCA001132 | **185-6318** | | | | | |
| 470pF | MCCA001133 | **185-6319** | | | | | |
| 680pF | MCCA001134 | **185-6320** | | | | | |
| 1000pF | MCCA001135 | **185-6321** | | | | | |
| 1500pF | MCCA001136 | **185-6322** | | | | | |
| 2200pF | MCCA001137 | **185-6323** | | | | | |
| 3300pF | MCCA001138 | **185-6324** | | | | | |
| 4700pF | MCCA001139 | **185-6325** | | | | | |
| 6800pF | MCCA001140 | **185-6326** | | | | | |
| 0.01µF | MCCA001141 | **185-6328** | | | | | |
| 0.015µF | MCCA001142 | **185-6329** | | | | | |
| 0.022µF | MCCA001143 | **185-6330** | | | | | |
| 0.033µF | MCCA001144 | **185-6331** | | | | | |
| 0.047µF | MCCA001145 | **185-6332** | | | | | |
| 0.068µF | MCCA001146 | **185-6333** | | | | | |
| 0.1µF | MCCA001147 | **185-6334** | | | | | |
| 0.15µF | MCCA001148 | **185-6335** | | | | | |
| 0.22µF | MCCA001149 | **185-6336** | | | | | |
| 0.33µF | MCCA001150 | **185-6337** | | | | | |
| 0.47µF | MCCA001151 | **185-6338** | | | | | |
| **25 Volt d.c. X7R** | | | | | | | |
| 100pF | MCCA001152 | **185-6341** | | | | | |
| 150pF | MCCA001153 | **185-6342** | | | | | |
| 220pF | MCCA001154 | **185-6343** | | | | | |
| 330pF | MCCA001155 | **185-6344** | | | | | |
| 470pF | MCCA001156 | **185-6345** | | | | | |
| 680pF | MCCA001157 | **185-6346** | | | | | |
| 1000pF | MCCA001158 | **185-6347** | | | | | |
| 1500pF | MCCA001159 | **185-6348** | | | | | |
| 2200pF | MCCA001160 | **185-6349** | | | | | |
| 3300pF | MCCA001161 | **185-6350** | | | | | |
| 4700pF | MCCA001162 | **185-6351** | | | | | |
| 6800pF | MCCA001163 | **185-6353** | | | | | |
| 0.01µF | MCCA001164 | **185-6354** | | | | | |
| 0.015µF | MCCA001165 | **185-6355** | | | | | |
| 0.022µF | MCCA001166 | **185-6356** | | | | | |
| 0.033µF | MCCA001167 | **185-6357** | | | | | |
| 0.047µF | MCCA001168 | **185-6358** | | | | | |
| 0.068µF | MCCA001169 | **185-6359** | | | | | |
| 0.1µF | MCCA001170 | **185-6360** | | | | | |
| 0.15µF | MCCA001171 | **185-6361** | | | | | |
| 0.22µF | MCCA001172 | **185-6362** | | | | | |
| 0.33µF | MCCA001173 | **185-6363** | | | | | |
| 0.47µF | MCCA001174 | **185-6365** | | | | | |
| **50 Volt d.c. X7R** | | | | | | | |
| 100pF | MCCA001175 | **185-6366** | | | | | |
| 150pF | MCCA001176 | **185-6367** | | | | | |
| 220pF | MCCA001177 | **185-6368** | | | | | |
| 330pF | MCCA001178 | **185-6369** | | | | | |
| 470pF | MCCA001179 | **185-6370** | | | | | |
| 680pF | MCCA001180 | **185-6371** | | | | | |
| 1000pF | MCCA001181 | **185-6372** | | | | | |
| 1500pF | MCCA001182 | **185-6373** | | | | | |
| 2200pF | MCCA001183 | **185-6374** | | | | | |
| 3300pF | MCCA001184 | **185-6375** | | | | | |
| 4700pF | MCCA001185 | **185-6377** | | | | | |
| 6800pF | MCCA001186 | **185-6378** | | | | | |
| 0.01µF | MCCA001187 | **185-6379** | | | | | |
| 0.015µF | MCCA001188 | **185-6380** | | | | | |
| 0.022µF | MCCA001189 | **185-6381** | | | | | |

| | Mftrs. List No. | Order Code | Price Each 100+ | 500+ | 1K+ | 4K+ | + |
|---|---|---|---|---|---|---|---|
| **50 Volt d.c. X7R** | | | | | | | |
| 0.033µF | MCCA001190 | **185-6382** | | | | | |
| 0.047µF | MCCA001191 | **185-6383** | | | | | |
| 0.068µF | MCCA001192 | **185-6384** | | | | | |
| 0.1µF | MCCA001193 | **185-6385** | | | | | |
| **100 Volt d.c. X7R** | | | | | | | |
| 100pF | MCCA001194 | **185-6386** | | | | | |
| 150pF | MCCA001195 | **185-6387** | | | | | |
| 220pF | MCCA001196 | **185-6389** | | | | | |
| 330pF | MCCA001197 | **185-6391** | | | | | |
| 470pF | MCCA001198 | **185-6392** | | | | | |
| 680pF | MCCA001199 | **185-6393** | | | | | |
| 1000pF | MCCA001200 | **185-6394** | | | | | |
| 1500pF | MCCA001201 | **185-6395** | | | | | |
| 2200pF | MCCA001202 | **185-6396** | | | | | |
| 3300pF | MCCA001203 | **185-6397** | | | | | |
| 4700pF | MCCA001204 | **185-6398** | | | | | |
| 6800pF | MCCA001205 | **185-6399** | | | | | |
| 0.01µF | MCCA001206 | **185-6400** | | | | | |

## 0805 Case Size

| | Mftrs. List No. | Order Code | Price Each 100+ | 500+ | 1K+ | 3K+ | + |
|---|---|---|---|---|---|---|---|
| **10 Volt d.c. X7R** | | | | | | | |
| 100pF | MCCA001207 | **185-6401** | | | | | |
| 150pF | MCCA001208 | **185-6402** | | | | | |
| 220pF | MCCA001209 | **185-6403** | | | | | |
| 330pF | MCCA001210 | **185-6404** | | | | | |
| 470pF | MCCA001211 | **185-6405** | | | | | |
| 680pF | MCCA001212 | **185-6407** | | | | | |
| 1000pF | MCCA001213 | **185-6408** | | | | | |
| 1500pF | MCCA001214 | **185-6409** | | | | | |
| 2200pF | MCCA001215 | **185-6410** | | | | | |
| 3300pF | MCCA001216 | **185-6411** | | | | | |
| 4700pF | MCCA001217 | **185-6412** | | | | | |
| 6800pF | MCCA001218 | **185-6413** | | | | | |
| 0.01µF | MCCA001219 | **185-6414** | | | | | |
| 0.015µF | MCCA001220 | **185-6415** | | | | | |
| 0.022µF | MCCA001221 | **185-6416** | | | | | |
| 0.033µF | MCCA001222 | **185-6417** | | | | | |
| 0.047µF | MCCA001223 | **185-6419** | | | | | |
| 0.068µF | MCCA001224 | **185-6421** | | | | | |
| 0.1µF | MCCA001225 | **185-6422** | | | | | |
| 0.15µF | MCCA001226 | **185-6423** | | | | | |
| 0.22µF | MCCA001227 | **185-6424** | | | | | |
| **16 Volt d.c. X7R** | | | | | | | |
| 100pF | MCCA001228 | **185-6425** | | | | | |
| 150pF | MCCA001229 | **185-6426** | | | | | |
| 220pF | MCCA001230 | **185-6427** | | | | | |
| 330pF | MCCA001231 | **185-6428** | | | | | |
| 470pF | MCCA001232 | **185-6429** | | | | | |
| 680pF | MCCA001233 | **185-6430** | | | | | |
| 1000pF | MCCA001234 | **185-6432** | | | | | |
| 1500pF | MCCA001235 | **185-6433** | | | | | |
| 2200pF | MCCA001236 | **185-6434** | | | | | |
| 3300pF | MCCA001237 | **185-6435** | | | | | |
| 4700pF | MCCA001238 | **185-6436** | | | | | |
| 6800pF | MCCA001239 | **185-6437** | | | | | |
| 0.01µF | MCCA001240 | **185-6438** | | | | | |
| 0.015µF | MCCA001241 | **185-6439** | | | | | |
| 0.022µF | MCCA001242 | **185-6440** | | | | | |
| 0.033µF | MCCA001243 | **185-6441** | | | | | |
| 0.047µF | MCCA001244 | **185-6442** | | | | | |
| 0.068µF | MCCA001245 | **185-6444** | | | | | |
| 0.1µF | MCCA001246 | **185-6445** | | | | | |
| 0.15µF | MCCA001247 | **185-6446** | | | | | |
| 0.22µF | MCCA001248 | **185-6447** | | | | | |
| **25 Volt d.c. X7R** | | | | | | | |
| 100pF | MCCA001249 | **185-6448** | | | | | |
| 150pF | MCCA001250 | **185-6449** | | | | | |
| 220pF | MCCA001251 | **185-6450** | | | | | |
| 330pF | MCCA001252 | **185-6451** | | | | | |
| 470pF | MCCA001253 | **185-6452** | | | | | |
| 680pF | MCCA001254 | **185-6453** | | | | | |
| 1000pF | MCCA001255 | **185-6454** | | | | | |
| 1500pF | MCCA001256 | **185-6456** | | | | | |
| 2200pF | MCCA001257 | **185-6457** | | | | | |
| 3300pF | MCCA001258 | **185-6458** | | | | | |
| 4700pF | MCCA001259 | **185-6459** | | | | | |
| 6800pF | MCCA001260 | **185-6460** | | | | | |
| 0.01µF | MCCA001261 | **185-6461** | | | | | |


RoHS ● Compliant ▲ Non-compliant

| | Mftrs. List No. | Order Code | Price Each 100+ | 500+ | 1K+ | 3K+ | + |
|---|---|---|---|---|---|---|---|
| **25 Volt d.c. X7R** | | | | | | | |
| 0.015µF | MCCA001262 | **185-6462** | | | | | |
| 0.022µF | MCCA001263 | **185-6463** | | | | | |
| 0.033µF | MCCA001264 | **185-6464** | | | | | |
| 0.047µF | MCCA001265 | **185-6465** | | | | | |
| 0.068µF | MCCA001266 | **185-6466** | | | | | |
| 0.1µF | MCCA001267 | **185-6468** | | | | | |
| 0.15µF | MCCA001268 | **185-6469** | | | | | |
| 0.22µF | MCCA001269 | **185-6470** | | | | | |
| **50 Volt d.c. X7R** | | | | | | | |
| 100pF | MCCA001270 | **185-6471** | | | | | |
| 150pF | MCCA001271 | **185-6472** | | | | | |
| 220pF | MCCA001272 | **185-6473** | | | | | |
| 330pF | MCCA001273 | **185-6474** | | | | | |
| 470pF | MCCA001274 | **185-6475** | | | | | |
| 680pF | MCCA001275 | **185-6476** | | | | | |
| 1000pF | MCCA001276 | **185-6477** | | | | | |
| 1500pF | MCCA001277 | **185-6478** | | | | | |
| 2200pF | MCCA001278 | **185-6481** | | | | | |
| 3300pF | MCCA001279 | **185-6482** | | | | | |
| 4700pF | MCCA001280 | **185-6483** | | | | | |
| 6800pF | MCCA001281 | **185-6484** | | | | | |
| 0.01µF | MCCA001282 | **185-6485** | | | | | |
| 0.015µF | MCCA001283 | **185-6486** | | | | | |
| 0.022µF | MCCA001284 | **185-6487** | | | | | |
| 0.033µF | MCCA001285 | **185-6488** | | | | | |
| 0.047µF | MCCA001286 | **185-6489** | | | | | |
| 0.068µF | MCCA001287 | **185-6490** | | | | | |
| 0.1µF | MCCA001288 | **185-6491** | | | | | |
| 0.15µF | MCCA001289 | **185-6493** | | | | | |
| 0.22µF | MCCA001290 | **185-6494** | | | | | |
| **100 Volt d.c. X7R** | | | | | | | |
| 100pF | MCCA001291 | **185-6495** | | | | | |
| 150pF | MCCA001292 | **185-6496** | | | | | |
| 220pF | MCCA001293 | **185-6497** | | | | | |
| 330pF | MCCA001294 | **185-6498** | | | | | |
| 470pF | MCCA001295 | **185-6499** | | | | | |
| 680pF | MCCA001296 | **185-6500** | | | | | |
| 1000pF | MCCA001297 | **185-6501** | | | | | |
| 1500pF | MCCA001298 | **185-6502** | | | | | |
| 2200pF | MCCA001299 | **185-6503** | | | | | |
| 3300pF | MCCA001300 | **185-6504** | | | | | |
| 4700pF | MCCA001301 | **185-6505** | | | | | |
| 6800pF | MCCA001302 | **185-6506** | | | | | |
| 0.01µF | MCCA001303 | **185-6507** | | | | | |
| 0.015µF | MCCA001304 | **185-6508** | | | | | |
| 0.022µF | MCCA001305 | **185-6511** | | | | | |
| 0.033µF | MCCA001306 | **185-6512** | | | | | |
| 0.047µF | MCCA001307 | **185-6513** | | | | | |
| 0.068µF | MCCA001308 | **185-6514** | | | | | |
| 0.1µF | MCCA001309 | **185-6515** | | | | | |

## 1206 Case Size

619011

| | Mftrs. List No. | Order Code | Price Each 100+ | 500+ | 1K+ | 3K+ | + |
|---|---|---|---|---|---|---|---|
| **10 Volt d.c. X7R** | | | | | | | |
| 150pF | MCCA001310 | **185-6516** | | | | | |
| 220pF | MCCA001312 | **185-6518** | | | | | |
| 470pF | MCCA001319 | **185-6526** | | | | | |
| 680pF | MCCA001324 | **185-6531** | | | | | |
| 1000pF | MCCA001325 | **185-6532** | | | | | |
| 1500pF | MCCA001326 | **185-6533** | | | | | |
| 2200pF | MCCA001333 | **185-6541** | | | | | |
| 3300pF | MCCA001340 | **185-6549** | | | | | |
| 4700pF | MCCA001347 | **185-6556** | | | | | |
| 6800pF | MCCA001354 | **185-6565** | | | | | |
| 0.01µF | MCCA001355 | **185-6566** | | | | | |
| 0.015µF | MCCA001356 | **185-6567** | | | | | |
| 0.022µF | MCCA001363 | **185-6575** | | | | | |
| 0.033µF | MCCA001370 | **185-6582** | | | | | |
| 0.047µF | MCCA001377 | **185-6590** | | | | | |
| 0.068µF | MCCA001384 | **185-6598** | | | | | |
| 0.1µF | MCCA001385 | **185-6599** | | | | | |
| 0.15µF | MCCA001386 | **185-6600** | | | | | |
| 0.22µF | MCCA001393 | **185-6608** | | | | | |
| 0.33µF | MCCA001400 | **185-6616** | | | | | |
| 0.47µF | MCCA001407 | **185-6623** | | | | | |
| 0.68µF | MCCA001414 | **185-6631** | | | | | |
| 1µF | MCCA001415 | **185-6632** | | | | | |

| | Mftrs. List No. | Order Code | Price Each 100+ | 500+ | 1K+ | 3K+ | + |
|---|---|---|---|---|---|---|---|
| **16 Volt d.c. X7R** | | | | | | | |
| 150pF | MCCA001313 | **185-6519** | | | | | |
| 220pF | MCCA001317 | **185-6524** | | | | | |
| 330pF | MCCA001322 | **185-6529** | | | | | |
| 470pF | MCCA001329 | **185-6537** | | | | | |
| 680pF | MCCA001336 | **185-6544** | | | | | |
| 1000pF | MCCA001337 | **185-6545** | | | | | |
| 1500pF | MCCA001338 | **185-6547** | | | | | |
| 2200pF | MCCA001345 | **185-6554** | | | | | |
| 3300pF | MCCA001352 | **185-6563** | | | | | |
| 4700pF | MCCA001359 | **185-6570** | | | | | |
| 6800pF | MCCA001366 | **185-6578** | | | | | |
| 0.01µF | MCCA001367 | **185-6579** | | | | | |
| 0.015µF | MCCA001368 | **185-6580** | | | | | |
| 0.022µF | MCCA001375 | **185-6588** | | | | | |
| 0.033µF | MCCA001382 | **185-6596** | | | | | |
| 0.047µF | MCCA001389 | **185-6604** | | | | | |
| 0.068µF | MCCA001396 | **185-6611** | | | | | |
| 0.1µF | MCCA001397 | **185-6612** | | | | | |
| 0.15µF | MCCA001398 | **185-6614** | | | | | |
| 0.22µF | MCCA001405 | **185-6621** | | | | | |
| 0.33µF | MCCA001406 | **185-6622** | | | | | |
| 0.47µF | MCCA001413 | **185-6630** | | | | | |
| 0.68µF | MCCA001419 | **185-6636** | | | | | |
| 1µF | MCCA001420 | **185-6638** | | | | | |
| **25 Volt d.c. X7R** | | | | | | | |
| 150pF | MCCA001316 | **185-6523** | | | | | |
| 220pF | MCCA001321 | **185-6528** | | | | | |
| 330pF | MCCA001328 | **185-6536** | | | | | |
| 470pF | MCCA001335 | **185-6543** | | | | | |
| 680pF | MCCA001342 | **185-6551** | | | | | |
| 1000pF | MCCA001343 | **185-6552** | | | | | |
| 1500pF | MCCA001344 | **185-6553** | | | | | |
| 2200pF | MCCA001351 | **185-6562** | | | | | |
| 3300pF | MCCA001358 | **185-6569** | | | | | |
| 4700pF | MCCA001365 | **185-6577** | | | | | |
| 6800pF | MCCA001372 | **185-6585** | | | | | |
| 0.01µF | MCCA001373 | **185-6586** | | | | | |
| 0.015µF | MCCA001374 | **185-6587** | | | | | |
| 0.022µF | MCCA001381 | **185-6594** | | | | | |
| 0.033µF | MCCA001388 | **185-6603** | | | | | |
| 0.047µF | MCCA001395 | **185-6610** | | | | | |
| 0.068µF | MCCA001402 | **185-6618** | | | | | |
| 0.1µF | MCCA001403 | **185-6619** | | | | | |
| 0.15µF | MCCA001404 | **185-6620** | | | | | |
| 0.22µF | MCCA001411 | **185-6628** | | | | | |
| 0.33µF | MCCA001412 | **185-6629** | | | | | |
| 0.47µF | MCCA001418 | **185-6635** | | | | | |
| 0.68µF | MCCA001422 | **185-6640** | | | | | |
| 1µF | MCCA001423 | **185-6641** | | | | | |
| **50 Volt d.c. X7R** | | | | | | | |
| 150pF | MCCA001320 | **185-6527** | | | | | |
| 220pF | MCCA001327 | **185-6535** | | | | | |
| 330pF | MCCA001334 | **185-6542** | | | | | |
| 470pF | MCCA001341 | **185-6550** | | | | | |
| 680pF | MCCA001348 | **185-6557** | | | | | |
| 1000pF | MCCA001349 | **185-6559** | | | | | |
| 1500pF | MCCA001350 | **185-6561** | | | | | |
| 2200pF | MCCA001357 | **185-6568** | | | | | |
| 3300pF | MCCA001364 | **185-6576** | | | | | |
| 4700pF | MCCA001371 | **185-6584** | | | | | |
| 6800pF | MCCA001378 | **185-6591** | | | | | |
| 0.01µF | MCCA001379 | **185-6592** | | | | | |
| 0.015µF | MCCA001380 | **185-6593** | | | | | |
| 0.022µF | MCCA001387 | **185-6602** | | | | | |
| 0.033µF | MCCA001394 | **185-6609** | | | | | |
| 0.047µF | MCCA001401 | **185-6617** | | | | | |
| 0.068µF | MCCA001408 | **185-6624** | | | | | |
| 0.1µF | MCCA001409 | **185-6626** | | | | | |
| 0.15µF | MCCA001410 | **185-6627** | | | | | |
| 0.22µF | MCCA001416 | **185-6633** | | | | | |
| 0.33µF | MCCA001417 | **185-6634** | | | | | |
| 0.47µF | MCCA001421 | **185-6639** | | | | | |
| 0.68µF | MCCA001424 | **185-6642** | | | | | |
| 1µF | MCCA001425 | **185-6643** | | | | | |
| **100 Volt d.c. X7R** | | | | | | | |
| 150pF | MCCA001311 | **185-6517** | | | | | |
| 220pF | MCCA001314 | **185-6520** | | | | | |
| 330pF | MCCA001318 | **185-6525** | | | | | |
| 470pF | MCCA001323 | **185-6530** | | | | | |
| 680pF | MCCA001330 | **185-6538** | | | | | |

# Ceramic - Multilayer Chip - Multicomp - continued

## MLCC with Flexible Termination - continued

### X7R dielectric - continued

| | Mftrs. List No. | Order Code | Price Each 100+ | 500+ | 1K+ | 3K+ | + |
|---|---|---|---|---|---|---|---|
| **100 Volt d.c. X7R** | | | | | | | |
| 1000pF | MCCA001331 | **185-6539** | | | | | |
| 1500pF | MCCA001332 | **185-6540** | | | | | |
| 2200pF | MCCA001339 | **185-6548** | | | | | |
| 3300pF | MCCA001346 | **185-6555** | | | | | |
| 4700pF | MCCA001353 | **185-6564** | | | | | |
| 6800pF | MCCA001360 | **185-6572** | | | | | |
| 0.01µF | MCCA001361 | **185-6573** | | | | | |
| 0.015µF | MCCA001362 | **185-6574** | | | | | |
| 0.022µF | MCCA001369 | **185-6581** | | | | | |
| 0.033µF | MCCA001376 | **185-6589** | | | | | |
| 0.047µF | MCCA001383 | **185-6597** | | | | | |
| 0.068µF | MCCA001390 | **185-6605** | | | | | |
| 0.1µF | MCCA001391 | **185-6606** | | | | | |
| 0.15µF | MCCA001392 | **185-6607** | | | | | |
| 0.22µF | MCCA001399 | **185-6615** | | | | | |

**Capacitance Conversion Table**

| | | | | |
|---|---|---|---|---|
| 0.000001µF | = | 0.001nF | = | 1pF |
| 0.00001µF | = | 0.01nF | = | 10pF |
| 0.0001µF | = | 0.1nF | = | 100pF |
| 0.001µF | = | 1nF | = | 1000pF |
| 0.01µF | = | 10nF | = | 10000pF |
| 0.1µF | = | 100nF | = | 100000pF |
| 1µF | = | 1000nF | = | 1000000pF |
| 10µF | = | 10000nF | = | 10000000pF |
| 100µF | = | 100000nF | = | 100000000pF |

# Ceramic - Multilayer Chip - AVX

## Surface Mount – Nickel Barrier



- Multilayer ceramic chip capacitors
- Nickel barrier terminations
- High performance and reliability
- 0402, 0603, 0805, 1206, 1210 and 1812 case size

| Case Size | L | W | H | Qty per reel |
|---|---|---|---|---|
| 0201 | 0.6 ± 0.03 | 0.3 ± 0.03 | 0.33 max | 15000 |
| 0402 | 1 ± 0.05 | 0.5 ± 0.05 | 1 to 0.55 | 10000 |
| 0603 | 1.6 ± 0.15 | 0.8 ± 0.15 | 0.8 to 0.98 | 4000 |
| 0805 | 2 ± 0.2 | 1.25 ± 0.2 | 0.95 to 1.4 | 3000 |
| 1206 | 3.2 ± 0.2 | 1.6 ± 0.2 | 1.05 to 1.6 | 3000 |
| 1210 | 3.2 ± 0.3 | 2.5 ± 0.2 | 1.6 max | 2500 |
| 1812 | 4.5 ± 0.3 | 3.2 ± 0.25 | 1.4 to 2.0 | 1000 |

Note AVX reserve the right to change maximum voltage ratings as technology improves.

## 0201 Case Size

### C0G (NP0) Dielectric

| | Mftrs. List No. | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **25 Volt d.c. C0G** | | | | | | |
| 10 pF | 02013A100JAT2A | **174-0561** | | | | |
| 12 pF | 02013A120JAT2A | **174-0562** | | | | |
| 18 pF | 02013A180JAT2A | **174-0563** | | | | |
| 47 pF | 02013A470JAT2A | **165-7909** RL | | | | |
| 56 pF | 02013A560JAT2A | **165-7910** RL | | | | |
| 68 pF | 02013A680JAT2A | **165-7911** RL | | | | |

### X7R Dielectric

| | Mftrs. List No. | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **10 Volt d.c. X7R** | | | | | | |
| 1500 pF | 0201ZC152KAT2A | **165-7920** RL | | | | |
| 2200 pF | 0201ZC222KAT2A | **165-7921** RL | | | | |
| 3300 pF | 0201ZC332KAT2A | **165-7922** RL | | | | |
| 4700 pF | 0201ZC472KAT2A | **165-7923** RL | | | | |
| 6800 pF | 0201ZC682KAT2A | **165-7924** RL | | | | |
| 0.01 µF | 0201ZC103KAT2A | **165-7919** RL | | | | |
| **16 Volt d.c. X7R** | | | | | | |
| 120 pF | 0201YC121KAT2A | **174-0564** | | | | |
| 150 pF | 0201YC151KAT2A | **165-7918** RL | | | | |
| 180 pF | 0201YC181KAT2A | **174-0565** | | | | |
| 470 pF | 0201YC471KAT2A | **165-8858** RL | | | | |
| 1000 pF | 0201YC102KAT2A | **174-0566** | | | | |

### X5R Dielectric

| | Mftrs. List No. | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **6.3 Volt d.c. X5R** | | | | | | |
| 0.022 µF | 02016D223KAT2A | **165-7915** RL | | | | |
| 0.033 µF | 02016D333KAT2A | **165-7916** RL | | | | |
| 0.047 µF | 02016D473KAT2A | **165-7917** RL | | | | |
| 0.1 µF | 02016D104KAT2A | **165-7913** RL | | | | |

## 0402 Case Size

### C0G (NP0) Dielectric

| | Order Code | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **16 Volt d.c. C0G** | | | | | | |
| 330 pF | CM05CG331J16AH | **121-6532** | | | | |
| **25 Volt d.c. C0G** | | | | | | |
| 100 pF | 04023A101JAT2A | **132-7622** | | | | |
| **50 Volt d.c. C0G** | | | | | | |
| 10 pF | 04025A100JAT2A | **174-0571** | | | | |
| 10 pF | 04025A100DAT2A | **132-7626** | | | | |
| 18 pF | 04025A180JAT2A | **174-0572** | | | | |
| 20 pF | 04025A200JAT2A | **174-0573** | | | | |
| 22 pF | CM05CG220J50AH | **121-6541** | | | | |
| 22 pF | 04025A220JAT2A | **132-7634** | | | | |
| 22 pF | CM05CG220J50AH | **121-6541** | | | | |
| 27 pF | 04025A270JAT2A | **174-0574** | | | | |
| 47 pF | CM05CG470J50AH | **121-6542** | | | | |
| 56 pF | 04025A560JAT2A | **165-8861** RL | | | | |
| 68 pF | 04025A680JAT2A | **165-8862** RL | | | | |
| 82 pF | 04025A820FAT2A | **174-0575** | | | | |
| 100 pF | CM05CG101J50AH | **121-6543** | | | | |
| 100 pF | 04025A101KAT2A | **174-0576** | | | | |
| 100 pF | CM05CG101J50AH | **121-6543** | | | | |
| 120 pF | 04025A121JAT2A | **174-0577** | | | | |
| 150 pF | 04025A151KAT2A | **174-0578** | | | | |
| 180 pF | 04025A181JAT2A | **174-0579** | | | | |
| 220 pF | 04025A221JAT2A | **165-8860** RL | | | | |
| 330 pF | 04025A331JAT2A | **165-7925** RL | | | | |
| 470 pF | 04025A471JAT2A | **165-7927** RL | | | | |

### X7R Dielectric

| | Mftrs. List No. | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **16 Volt d.c. X7R** | | | | | | |
| 0.01 µF | CM05X7R103K16AH | **121-6548** | | | | |
| 0.012 µF | 0402YC123KAT2A | **174-0580** | | | | |
| 0.022 µF | CM05X7R223K16AH | **121-6534** | | | | |
| 0.1 µF | 0402YC104KAT2A | **183-3861** | | | | |
| **25 Volt d.c. X7R** | | | | | | |
| 6800 pF | 04023C682JAT2A | **174-0583** | | | | |
| 0.01 µF | 04023C103KAT2A | **132-7624** | | | | |
| 0.1 µF | 04023C104KAT2A | **186-7948** | | | | |
| **50 Volt d.c. X7R** | | | | | | |
| 1000 pF | CM05X7R102K50AT | **121-6544** | | | | |
| 1500 pF | 04025C152JAT2A | **174-0584** | | | | |
| 2200 pF | 04025C222JAT2A | **174-0585** | | | | |

### Y5V Dielectric

| | Mftrs. List No. | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **16 Volt d.c. Y5V** | | | | | | |
| 0.1 µF | CM05Y5V104Z16AH | **121-6535** | | | | |

## 0603 Case Size

### X5R Dielectric

| | Order Code | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **6.3 Volt d.c. X5R** | | | | | | |
| 0.47 µF | 04026D474KAT2A | **174-0587** | | | | |
| **16 Volt d.c. X5R** | | | | | | |
| 0.1 µF | 0402YD104KAT2A | **132-7666** | | | | |
| **25 Volt d.c. X5R** | | | | | | |
| 0.01 µF | 04023D103KAT2A | **174-0589** | | | | |
| 0.1 µF | 04023D104KAT2A | **183-3862** | | | | |


RoHS ● Compliant ▲ Non-compliant

### C0G (NP0) Dielectric

| | Mftrs. List No. | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **10 Volt d.c. C0G** | | | | | | |
| 10 pF | 06031A100JAT2A | **165-8863** RL | | | | |
| **50 Volt d.c. C0G** | | | | | | |
| 4.7 pF | 06035A4R7CAT2A | **183-3866** | | | | |
| 10 pF | 06035A100JAT2A | **499-110** RL | | | | |
| 15 pF | 06035A150JAT2A | **146-2442** | | | | |
| 22 pF | 06035A220JAT2A | **498-543** RL | | | | |
| 33 pF | 06035A330JAT2A | **498-555** RL | | | | |
| 47 pF | 06035A470JAT2A | **498-567** RL | | | | |
| 100 pF | 06035A101JAT2A | **499-122** RL | | | | |
| 180 pF | 06035A181JAT2A | **174-0590** | | | | |
| 220 pF | 06035A221JAT2A | **498-579** RL | | | | |
| 330 pF | 06035A331JAT2A | **316-660** RL | | | | |
| 470 pF | 06035A471JAT2A | **316-672** RL | | | | |
| 560 pF | 06035A561JAT2A | **174-0591** | | | | |
| 1000 pF | 06035A102JAT2A | **317-202** RL | | | | |
| 10 pF | 06035A100JAT2A | **499-110** RL | | | | |
| 22 pF | 06035A220JAT2A | **498-543** RL | | | | |
| 33 pF | 06035A330JAT2A | **498-555** RL | | | | |
| 47 pF | 06035A470JAT2A | **498-567** RL | | | | |
| 100 pF | 06035A101JAT2A | **499-122** RL | | | | |
| 220 pF | 06035A221JAT2A | **498-579** RL | | | | |
| 330 pF | 06035A331JAT2A | **316-660** RL | | | | |
| 470 pF | 06035A471JAT2A | **316-672** RL | | | | |
| 1000 pF | 06035A102JAT2A | **317-202** RL | | | | |
| **100 Volt d.c. C0G** | | | | | | |
| 12 pF | 06031A120JAT2A | **174-0592** | | | | |
| 15 pF | 06031A150JAT2A | **174-0594** | | | | |
| 18 pF | 06031A180JAT2A | **174-0595** | | | | |
| 22 pF | 06031A220JAT2A | **174-0596** | | | | |
| 27 pF | 06031A270JAT2A | **174-0597** | | | | |
| 33 pF | 06031A330JAT2A | **174-0598** | | | | |
| 39 pF | 06031A390JAT2A | **174-0599** | | | | |
| 47 pF | 06031A470JAT2A | **174-0601** | | | | |
| 51 pF | 06031A510JAT2A | **174-0602** | | | | |
| 68 pF | 06031A680JAT2A | **174-0603** | | | | |
| 82 pF | 06031A820JAT2A | **174-0604** | | | | |
| 100 pF | 06031A101JAT2A | **174-0605** | | | | |
| 150 pF | 06031A151JAT2A | **174-0606** | | | | |
| 220 pF | 06031A221JAT2A | **174-0607** | | | | |
| 270 pF | 06031A271JAT2A | **174-0608** | | | | |

### X8R Dielectric

| Capacitance | Mftrs. List No. | Order Code | Price Each 5+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **50 Volt d.c. X8R** | | | | | | |
| 0.033 µF | 06035F333KAT2A | **130-1801** | | | | |
| 0.1 µF | CM105X7R104K16AT | **121-6538** | | | | |

### X7R Dielectric

| Capacitance | Mftrs. List No. | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **10 Volt d.c. X7R** | | | | | | |
| 0.12 µF | 0603ZC124KAT2A | **174-0609** | | | | |
| 0.15 µF | 0603ZC154KAT2A | **174-0610** | | | | |
| **16 Volt d.c. X7R** | | | | | | |
| 0.1 µF | CM105X7R104K16AT | **121-6538** | | | | |
| 0.1 µF | 0603YC104KAT2A | **132-7679** | | | | |
| 0.1 µF | 0603YC104JAT2A | **174-0612** | | | | |
| 0.1 µF | 0603YC104K4T4A | **183-3863** | | | | |
| **25 Volt d.c. X7R** | | | | | | |
| 0.022 µF | 06033C223KAT2A | **578-174** RL | | | | |
| 0.022 µF | 06033C223KAT2A | **578-174** RL | | | | |
| 0.047 µF | CM105X7R473K25AT | **121-6549** | | | | |
| 0.047 µF | 06033C473JAT2A | **174-0613** | | | | |
| 0.047 µF | 06033C473KAT2A | **183-3864** | | | | |
| 0.1 µF | 06033C104JAT2A | **174-0614** | | | | |
| 0.22 µF | 06033C224KAT2A | **183-3865** | | | | |
| 0.47 µF | 06033C474KAT2A | **186-7949** | | | | |
| **50 Volt d.c. X7R** | | | | | | |
| 220 pF | 06035C221KAT2A | **183-3873** | | | | |
| 470 pF | 06035C471KAT2A | **498-580** RL | | | | |
| 1000 pF | 06035C102KAT2A | **499-134** RL | | | | |
| 1200 pF | 06035C122KAT2A | **183-3867** | | | | |
| 2200 pF | 06035C222KAT2A | **498-592** RL | | | | |
| 3300 pF | 06035C332KAT2A | **317-251** RL | | | | |
| 4700 pF | 06035C472KAT2A | **317-263** RL | | | | |
| 4700 pF | 06035C472K4T4A | **183-3869** | | | | |
| 470 pF | 06035C471KAT2A | **498-580** RL | | | | |
| 1000 pF | 06035C102KAT2A | **499-134** RL | | | | |
| 2200 pF | 06035C222KAT2A | **498-592** RL | | | | |
| 3300 pF | 06035C332KAT2A | **317-251** RL | | | | |
| 4700 pF | 06035C472KAT2A | **317-263** RL | | | | |
| 0.01 µF | 06035C103JAZ2A | **174-0615** | | | | |
| 0.01 µF | 06035C103KAT2A | **132-7675** | | | | |
| 0.01 µF | 06035C103JAT2A | **183-3871** | | | | |
| 0.015 µF | 06035C153JAT2A | **174-0616** | | | | |
| 0.022 µF | 06035C223KAT2A | **165-8869** RL | | | | |
| 0.027 µF | 06035C273KAT2A | **174-0617** | | | | |
| 0.033 µF | 06035C333JAT2A | **174-0618** | | | | |
| 0.039 µF | 06035C393KAT2A | **174-0619** | | | | |
| 0.047 µF | 06035C473KAT2A | **165-7929** RL | | | | |
| 0.068 µF | 06035C683KAT2A | **183-3872** | | | | |
| 0.1 µF | 06035C104KAT2A | **130-1804** | | | | |
| 0.1 µF | 06035C104JAT2A | **174-0621** | | | | |
| **100 Volt d.c. X7R** | | | | | | |
| 180 pF | 06031C181KAT2A | **174-0622** | | | | |
| 330 pF | 06031C331KAT2A | **174-0624** | | | | |
| 390 pF | 06031C391KAT2A | **174-0625** | | | | |
| 470 pF | 06031C471JAT2A | **174-0626** | | | | |
| 1000 pF | 06031C102JAT2A | **174-0627** | | | | |
| 1000 pF | 06031C102KAT2A | **183-3874** | | | | |
| 1200 pF | 06031C122KAT2A | **165-8865** RL | | | | |
| 1500 pF | 06031C152JAT2A | **174-0628** | | | | |
| 1800 pF | 06031C182JAT2A | **174-0629** | | | | |
| 2200 pF | 06031C222KAT2A | **165-8866** RL | | | | |
| 2700 pF | 06031C272KAT2A | **174-0630** | | | | |
| 3300 pF | 06031C332KAT2A | **165-8867** RL | | | | |
| 3900 pF | 06031C392KAT2A | **174-0631** | | | | |
| 4700 pF | 06031C472JAT2A | **174-0632** | | | | |
| 4700 pF | 06031C472KAT2A | **183-3875** | | | | |
| 5600 pF | 06031C562JAT2A | **174-0633** | | | | |
| 8200 pF | 06031C822KAT2A | **174-0634** | | | | |
| 0.01 µF | 06031C103KAT2A | **132-7671** | | | | |
| 0.01 µF | 06031C103JAT2A | **183-3876** | | | | |
| 0.012 µF | 06031C123KAT2A | **174-0636** | | | | |
| 0.47 µF | 0603ZG474ZA2A | **317-275** RL | | | | |
| **200 Volt d.c. X7R** | | | | | | |
| 1000 pF | 06032C102KAT2A | **174-0637** | | | | |

### X5R Dielectric

| Capacitance | Mftrs. List No. | Oredr Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **16 Volt d.c. X5R** | | | | | | |
| 0.22 µF | 0603YD224KAT2A | **174-0639** | | | | |
| 0.33 µF | 0603YD334KAT2A | **132-7681** | | | | |
| 0.47 µF | 0603YD474KAT2A | **132-7682** | | | | |

### Y5V Dielectric

| Capacitance | Mftrs. List No. | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **25 Volt d.c. Y5V** | | | | | | |
| 0.1 µF | **06033G104ZAT2A** | **317-287** RL | | | | |
| 0.01 µF | **06035G103ZAT2A** | **317-433** RL | | | | |
| **50 Volt d.c. Y5V** | | | | | | |
| 0.047 µF | **06035G473ZAT2A** | **317-445** RL | | | | |

## 0805 Case Size

### C0G (NP0) Dielectric

| Capacitance | Mftrs. List No. | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **50 Volt d.c. C0G** | | | | | | |
| 390 pF | 08055A391JAT2A | **174-0645** | | | | |
| 470 pF | 08055A471FAT2A | **174-0646** | | | | |
| 510 pF | 08055A511JAT2A | **174-0648** | | | | |
| 820 pF | 08055A821JAT2A | **174-0649** | | | | |
| 1000 pF | 08055A102JAT2A | **317-457** RL | | | | |
| 1000 pF | 08055A102FAT2A | **174-0641** | | | | |
| 1500 pF | 08055A152JAT2A | **174-0642** | | | | |
| 1800 pF | 08055A182JAT2A | **174-0643** | | | | |
| 2200 pF | CM21CG222J50AT | **121-6556** | | | | |
| 2200 pF | 08055A222JAT2A | **174-0644** | | | | |
| **100 Volt d.c. C0G** | | | | | | |
| 10 pF | 08051A100JAT2A | **499-158** RL | | | | |
| 12 pF | 08051A120JAT2A | **174-0650** | | | | |
| 15 pF | 08051A150JAT2A | **165-8873** RL | | | | |
| 18 pF | 08051A180JAT2A | **174-0651** | | | | |
| 22 pF | 08051A220JAT2A | **317-500** RL | | | | |
| 27 pF | 08051A270JAT2A | **174-0652** | | | | |
| 30 pF | 08051A300JAT2A | **174-0653** | | | | |

# Ceramic - Multilayer Chip - AVX - continued

## 2220 Case Size - continued

### X5R Dielectric - continued

| Capacitance | Mftrs. List No. | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **100 Volt d.c. C0G** | | | | | | |
| 33 pF | 08051A330JAT2A | **317-603** RL | | | | |
| 47 pF | 08051A470JAT2A | **499-160** RL | | | | |
| 51 pF | 08051A510JAT2A | **174-0654** | | | | |
| 82 pF | 08051A820JAT2A | **174-0656** | | | | |
| 100 pF | 08051A101JAT2A | **499-171** RL | | | | |
| 120 pF | 08051A121JAT2A | **174-0657** | | | | |
| 150 pF | 08051A151JAT2A | **174-0658** | | | | |
| 180 pF | 08051A181FAT2A | **174-0661** | | | | |
| 220 pF | 08051A221JAT2A | **498-609** RL | | | | |
| 330 pF | 08051A331JAT2A | **499-183** RL | | | | |
| 470 pF | 08051A471JAT2A | **499-195** RL | | | | |
| 1000 pF | 08051A102JAT2A | **174-0662** | | | | |
| **200 Volt d.c. C0G** | | | | | | |
| 10 pF | 08052A100JAT2A | **174-0663** | | | | |
| 47 pF | 08052A470JAT2A | **174-0664** | | | | |

### X8R Dielectric

| Capacitance | Mftrs. List No. | Order Code | 5+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **50 Volt d.c. X8R** | | | | | | |
| 1000 pF | 08055F102KAT2A | **130-1788** | | | | |
| 1500 pF | 08055F152KAT2A | **130-1773** | | | | |
| 2200 pF | 08055F222KAT2A | **130-1778** | | | | |
| 4700 pF | 08055F472KAT2A | **130-1781** | | | | |
| 6800 pF | 08055F682KAT2A | **130-1782** | | | | |
| 0.01 µF | 08055F103KAT2A | **130-1791** | | | | |
| 0.015 µF | 08055F153KAT2A | **130-1783** | | | | |
| 0.047 µF | 08055F473KAT2A | **130-1785** | | | | |
| 0.1 µF | 08055F104KAT2A | **130-1790** | | | | |

### X7R Dielectric

| Capacitance | Mftrs. List No. | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **10 Volt d.c. X7R** | | | | | | |
| 10 µF | 0805ZC106KAT2A | NEW **209-4042** | | | | |
| **16 Volt d.c. X7R** | | | | | | |
| 0.22 µF | CM21X7R224K16AT | **121-6539** RL | | | | |
| 0.22 µF | 0805YC224KAT2A | **183-3877** | | | | |
| 0.33 µF | CM21X7R334K16AT | **121-6551** | | | | |
| 0.47 µF | CM21X7R474K16AT | **121-6552** | | | | |
| 0.22 µF | 08055C224KAT2A | **165-8878** RL | | | | |
| 1 µF | 08055C105KAT2A | NEW **209-4043** | | | | |
| **25 Volt d.c. X7R** | | | | | | |
| 0.1 µF | 08053C104KAT2A | **174-0665** | | | | |
| 0.15 µF | 08053C154KAT2A | **174-0666** | | | | |
| 0.22 µF | 08053C224JAT2A | **174-0667** | | | | |
| 0.22 µF | 08053C224KAT2A | **146-2434** | | | | |
| 0.33 µF | 08053C334KAT2A | **183-3878** | | | | |
| **50 Volt d.c. X7R** | | | | | | |
| 1000 pF | 08055C102KAT2A | **499-201** RL | | | | |
| 1000 pF | 08055C102JAT2A | **183-3879** | | | | |
| 1200 pF | 08055C122KAT2A | **183-3880** | | | | |
| 2200 pF | 08055C222KAT2A | **498-610** RL | | | | |
| 2200 pF | 08055C222JAT2A | **183-3882** | | | | |
| 4700 pF | 08055C472KAT2A | **499-213** RL | | | | |
| 4700 pF | 08055C472JAT2A | **174-0668** | | | | |
| 0.01 µF | 08055C103JAT2A | **174-0669** | | | | |
| 0.01 µF | 08055C103KAT2A | **499-225** RL | | | | |
| 0.022 µF | 08055C223KAT2A | **578-198** RL | | | | |
| 0.022 µF | 08055C223JAT2A | **183-3884** | | | | |
| 0.033 µF | 08055C333JAT2A | **174-0670** | | | | |
| 0.047 µF | 08055C473JAT2A | **174-0671** | | | | |
| 0.047 µF | CM21X7R473K50AT | **121-6550** | | | | |
| 0.056 µF | 08055C563KAT2A | **165-8879** RL | | | | |
| 0.1 µF | 08055C104JAT2A | **174-0673** | | | | |
| 0.1 µF | 08055C104KAT2A | **499-687** RL | | | | |
| 0.33 µF | 08055C334KAT2A | **165-7934** RL | | | | |
| 0.47 µF | 08055C474KAT2A | **165-7935** RL | | | | |
| 0.47 µF | 08055C474K4T2A | **183-3885** | | | | |
| **100 Volt d.c. X7R** | | | | | | |
| 1200 pF | 08051C122KAT2A | **174-0674** | | | | |
| 1500 pF | 08051C152KAT2A | **174-0675** | | | | |
| 2200 pF | 08051C222JAT2A | **174-0676** | | | | |
| 2700 pF | 08051C272KAT2A | **174-0677** | | | | |
| 3300 pF | 08051C332KAT2A | **165-8875** RL | | | | |
| 0.01 µF | 08051C103KAT2A | **165-8874** RL | | | | |

| Capacitance | Mftrs. List No. | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **100 Volt d.c. X7R** | | | | | | |
| 0.012 µF | 08051C123KAT2A | **174-0678** | | | | |
| 0.018 µF | 08051C183KAT2A | **174-0679** | | | | |
| 0.022 µF | 08051C223KAT2A | **174-0680** | | | | |
| 0.033 µF | 08051C333KAT2A | **183-3886** | | | | |
| 0.047 µF | 08051C473KAT2A | **183-3887** | | | | |
| 0.1 µF | 08051C104KAT2A | **174-0681** | | | | |
| 0.1 µF | 08051C104K4T2A | **183-3888** | | | | |
| **200 Volt d.c. X7R** | | | | | | |
| 270 pF | 08052C271KAT2A | **174-0682** | | | | |
| 470 pF | 08052C471KAT2A | **174-0683** | | | | |
| 560 pF | 08052C561KAT2A | **174-0685** | | | | |
| 680 pF | 08052C681KAT2A | **174-0686** | | | | |
| 1000 pF | 08052C102KAT2A | **174-0687** | | | | |
| 2200 pF | 08052C222KAT2A | **174-0688** | | | | |
| 0.01 µF | 08052C103KAT2A | **174-0689** | | | | |

### X5R Dielectric
### Y5V Dielectric

| Capacitance | Mftrs. List No. | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **50 Volt d.c. Y5V** | | | | | | |
| 0.1 µF | 08055G104ZAT2A | **183-3883** | | | | |
| 0.1 µF | 08055G104ZAT1A | **317-676** RL | | | | |

## 1206 Case Size

### C0G (NP0) Dielectric

| Capacitance | Mftrs. List No. | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **25 Volt d.c. C0G** | | | | | | |
| 4700 pF | CM316CG472J50AT | **121-6559** RL | | | | |
| 0.01 µF | CM316CG103J25AT | **121-6560** RL | | | | |
| 0.01 µF | 12063A103JAT2A | **165-8883** RL | | | | |
| **50 Volt d.c. C0G** | | | | | | |
| 1000 pF | 12065A102KAT2A | **174-0690** | | | | |
| 2200 pF | 12065A222JAT2A | **183-3892** | | | | |
| 3300 pF | 12065A332JAT2A | **183-3894** | | | | |
| **100 Volt d.c. C0G** | | | | | | |
| 10 pF | 12061A100JAT2A | **499-237** RL | | | | |
| 15 pF | 12061A150JAT2A | **174-0692** | | | | |
| 22 pF | 12061A220JAT2A | **499-249** RL | | | | |
| 27 pF | 12061A270JAT2A | **174-0693** | | | | |
| 33 pF | 12061A330JAT2A | **499-250** RL | | | | |
| 47 pF | 12061A470JAT2A | **499-262** RL | | | | |
| 82 pF | 12061A820JAT2A | **174-0694** | | | | |
| 100 pF | 12061A101JAT2A | **499-274** RL | | | | |
| 220 pF | 12061A221JAT2A | **499-286** RL | | | | |
| 330 pF | 12061A331JAT2A | **499-298** RL | | | | |
| 470 pF | 12061A471JAT2A | **499-304** RL | | | | |
| 680 pF | 12061A681JAT2A | **174-0695** | | | | |
| 1000 pF | 12061A102JAT2A | **499-316** RL | | | | |
| 2200 pF | 12061A222JAT2A | **183-3898** | | | | |
| 3300 pF | 12061A332JAT2A | **174-0697** | | | | |
| **200 Volt d.c. C0G** | | | | | | |
| 47 pF | 12062A470JAT2A | **174-0698** | | | | |
| 150 pF | 12062A151JAT2A | **174-0699** | | | | |
| 330 pF | 12062A331JAT2A | **174-0700** | | | | |

### X7R Dielectric

| Capacitance | Mftrs. List No. | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **10 Volt d.c. X7R** | | | | | | |
| 22 µF | 1206ZC226KAT2A | NEW **209-4045** | | | | |
| **16 Volt d.c. X7R** | | | | | | |
| 0.47 µF | CM316X7R474K16AT | **121-6540** | | | | |
| 0.47 µF | 1206YC474KAT2A | **183-3889** | | | | |
| **25 Volt d.c. X7R** | | | | | | |
| 0.22 µF | 12063C224KAT2A | **183-3890** | | | | |
| 0.33 µF | CM316X7R334K25AT | **121-6554** | | | | |
| 0.33 µF | 12063C334KAT2A | **183-3891** | | | | |
| 10 µF | 12063C106KAT2A | NEW **209-4044** | | | | |
| **50 Volt d.c. X7R** | | | | | | |
| 1000 pF | 12065C102KAT2A | **499-328** RL | | | | |
| 2200 pF | 12065C222KAT2A | **499-330** RL | | | | |
| 3300 pF | 12065C332KAT2A | **498-622** RL | | | | |
| 4700 pF | 12065C472KAT2A | **499-341** RL | | | | |
| 0.01 µF | 12065C103KAT2A | **499-353** RL | | | | |
| 0.015 µF | 12065C153KAT2A | **183-3895** | | | | |
| 0.022 µF | 12065C223KAT2A | **499-365** RL | | | | |
| 0.033 µF | 12065C333KAT2A | **498-634** RL | | | | |


RoHS ● Compliant ▲ Non-compliant

| Capacitance | Mftrs. List No. | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **50 Volt d.c. X7R** | | | | | | |
| 0.047 µF | 12065C473KAT2A | **499-377** RL | | | | |
| 0.1 µF | 12065C104KAT2A | **499-389** | | | | |
| 0.12 µF | 12065C124KAT2A | **174-0701** | | | | |
| 0.22 µF | 12065C224JAT2A | **174-0703** | | | | |
| 0.22 µF | CM316X7R224K50AT | **121-6553** | | | | |
| 0.27 µF | 12065C274KAT2A | **174-0704** | | | | |
| 0.33 µF | 12065C334KAT2A | **165-8885** RL | | | | |
| 0.47 µF | 12065C474JAT2A | **174-0705** | | | | |
| 0.47 µF | 12065C474KAT2A | **183-3897** | | | | |
| **100 Volt d.c. X7R** | | | | | | |
| 1000 pF | 12061C102KAT2A | **174-0707** | | | | |
| 2200 pF | 12061C222KAT2A | **174-0708** | | | | |
| 3300 pF | 12061C332KAT2A | **174-0709** | | | | |
| 4700 pF | 12061C472KAT2A | **174-0710** | | | | |
| 6800 pF | 12061C682KAT2A | **174-0711** | | | | |
| 8200 pF | 12061C822KAT2A | **174-0712** | | | | |
| 0.01 µF | 12061C103JAT2A | **174-0713** | | | | |
| 0.015 µF | 12061C153KAT2A | **174-0715** | | | | |
| 0.022 µF | 12061C223JAT2A | **174-0716** | | | | |
| 0.039 µF | 12061C393KAT2A | **174-0717** | | | | |
| 0.047 µF | 12061C473KAT2A | **174-0718** | | | | |
| 0.1 µF | 12061C104KAT2A | **132-7703** | | | | |
| 0.47 µF | 12061C474KAT2A | **183-3899** | | | | |
| 1 µF | 12061C105KAT2A | **165-7939** RL | | | | |
| **200 Volt d.c. X7R** | | | | | | |
| 2200 pF | 12062C222KAT2A | **174-0719** | | | | |
| 4700 pF | 12062C472KAT2A | **174-0720** | | | | |
| 0.033 µF | 12062C333KAT2A | **165-8882** RL | | | | |
| 0.1 µF | 12062C104KAT2A | **186-7950** | | | | |

**Y5V Dielectric**

| Capacitance | Mftrs. List No. | Order Code | Price Each 5+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **50 Volt d.c. Y5V** | | | | | | |
| 0.1 µF | 12065G104ZAT2A | **499-390** RL | | | | |
| 0.22 µF | 12065G224ZAT2A | **499-407** RL | | | | |

## 1210 Case Size

**X7R Dielectric**

| Capacitance | Mftrs. List No. | Order Code | Price Each 5+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **25 Volt d.c. X7R** | | | | | | |
| 0.47 µF | 12103C474KAT2A | **183-3901** | | | | |
| **50 Volt d.c. X7R** | | | | | | |
| 0.22 µF | 12105C224KAT2A | **183-3902** | | | | |
| 10 µF | 12105C106KAT2A | NEW **209-4047** | | | | |
| **100 Volt d.c. X7R** | | | | | | |
| 0.68 µF | 12101C684KAT2A | **165-8887** RL | | | | |
| **200 Volt d.c. X7R** | | | | | | |
| 0.01 µF | 12102C103KAT2A | **174-0724** | | | | |
| 0.015 µF | 12102C153KAT2A | **174-0725** | | | | |
| 0.047 µF | 12102C473KAT2A | **174-0727** | | | | |
| 0.1 µF | 12102C104KAT2A | **174-0728** | | | | |

**C0G (NP0) Dielectric**

| | Mftrs. List No. | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **200 Volt d.c. C0G** | | | | | | |
| 1500 pF | 12102A152JAT2A | **174-0722** | | | | |

**Y5V Dielectric**

## 1812 Case Size

| Capacitance | Mftrs. List No. | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **50 Volt d.c. X7R** | | | | | | |
| 0.22 µF | 18125C224KAT2A | **499-419** RL | | | | |
| 0.22 µF | 18125C224KAT2A. | **183-3903** | | | | |
| 0.33 µF | 18125C334KAT2A | **540-481** RL | | | | |
| 0.33 µF | 18125C334KAT2A.. | **183-3904** | | | | |
| 0.47 µF | 18125C474KAT2A | **540-493** RL | | | | |
| 0.47 µF | 18125C474KAT2A.. | **183-3905** | | | | |
| **100 Volt d.c. X7R** | | | | | | |
| 0.33 µF | 18121C334KAT2A | **183-3906** | | | | |
| 0.68 µF | 18121C684MAT2A | **130-1821** | | | | |
| **200 Volt d.c. X7R** | | | | | | |
| 0.1 µF | 18122C104KAT2A | **183-3907** | | | | |

## 2220 Case Size

208437

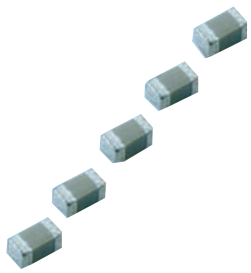
| Capacitance | Mftrs. List No. | Order Code | Price Each 5+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **100 Volt d.c. X7R** | | | | | | |
| 0.47 µF | 22201C474KAT2A | **183-3908** | | | | |

**Capacitance Conversion Table**

| | | | | |
|---|---|---|---|---|
| 0.000001µF | = | 0.001nF | = | 1pF |
| 0.00001µF | = | 0.01nF | = | 10pF |
| 0.0001µF | = | 0.1nF | = | 100pF |
| 0.001µF | = | 1nF | = | 1000pF |
| 0.01µF | = | 10nF | = | 10000pF |
| 0.1µF | = | 100nF | = | 100000pF |
| 1µF | = | 1000nF | = | 1000000pF |
| 10µF | = | 10000nF | = | 10000000pF |
| 100µF | = | 100000nF | = | 100000000pF |

## MLCC with Flexible Termination

**X8R & X7R dielectric**



The soft termination is designed to enhance the mechanical flexure and temperature cycling performance of a standard ceramic capacitor with an X7R dielectric. The industry standard for flexure is 2mm minimum, with Soft Termination AVX guarantee a minimum flexure of 5mm, without any internal cracks. Beyond 5mm, Open Circuit Failure Mode. The industry standard for temperature cycling is 1000 cycles, AVX guarantee 3000 cycles. As well as for automotive applications the Soft Termination will provide Design Engineers with a satisfactory solution when designing PCBs which may be subject to high levels of board flexure.

- Flexible termination system
- High mechanical performance able to withstand, 5mm bend test guaranteed
- Open circuit failure mode is apparent when products are overstressed by 5mm
- Increased temperature cycling performance, 3000 cycle and beyond
- Reduction in circuit board flex failures
- Base metal electrode system

**0603 Case Size**

| Capacitance | Mftrs. List No. | Order Code | Price Each 5+ | + | + | + | + |
|---|---|---|---|---|---|---|---|
| **50 Volt d.c. X8R** | | | | | | | |
| 0.047 µF | 06035F473KAZ2A | **130-1802** | | | | | |
| **16 Volt d.c. X7R** | | | | | | | |
| 0.068 µF | 0603YC683KAZ2A | **130-1893** | | | | | |
| 0.1 µF | 0603YC104KAZ2A | **756-9556** RL | | | | | |
| **25 Volt d.c. X7R** | | | | | | | |
| 0.1 µF | 06033C104KAZ2A | **183-3840** | | | | | |
| **50 Volt d.c. X7R** | | | | | | | |
| 1000 pF | 06035C102KAZ2A | **756-9513** RL | | | | | |
| 1000 pF | 06035C102K4Z2A | **183-3841** | | | | | |
| 2200 pF | 06035C222KAZ2A | **756-9521** RL | | | | | |
| 4700 pF | 06035C472KAZ2A | **756-9530** RL | | | | | |
| 0.01 µF | 06035C103KAZ2A | **756-9548** RL | | | | | |
| 0.01 µF | 06035C103K4Z2A | **183-3842** | | | | | |
| 0.015 µF | 06035C153KAZ2A | **174-0537** | | | | | |
| 0.022 µF | 06035C223KAZ2A | **130-1890** | | | | | |
| 0.033 µF | 06035C333KAZ2A | **130-1891** | | | | | |
| 0.047 µF | 06035C473KAZ2A | **130-1892** | | | | | |
| 0.1 µF | 06035C104KAZ2A | **130-1894** | | | | | |
| 0.1 µF | 06035C104K4Z2A | **183-3843** | | | | | |
| **100 Volt d.c. X7R** | | | | | | | |
| 470 pF | 06031C471KAZ2A | **130-1888** | | | | | |
| 2200 pF | 06031C222KAZ2A | **174-0536** | | | | | |
| 4700 pF | 06031C472KAZ2A | **130-1889** | | | | | |

**0805 Case Size**

| Capacitance | Mftrs. List No. | Order Code | Price Each 5+ | 100+ | 500+ | 1K+ | 3K+ |
|---|---|---|---|---|---|---|---|
| **50 Volt d.c. X8R** | | | | | | | |
| 1000 pF | 08055F102KAZ2A | **130-1794** | | | | | |
| 1800 pF | 08055F182KAZ2A | **130-1795** | | | | | |
| 0.015 µF | 08055F153KAZ2A | **130-1784** | | | | | |
| **10 Volt d.c. X7R** | | | | | | | |
| 0.68 µF | 0805ZC684KAZ2A | **130-1900** | | | | | |
| 1 µF | 0805ZC105KAZ2A | **130-1902** | | | | | |
| **16 Volt d.c. X7R** | | | | | | | |
| 0.47 µF | 0805YC474KAZ2A | **756-9580** RL | | | | | |
| **25 Volt d.c. X7R** | | | | | | | |
| 0.22 µF | 08053C224KAZ1A | **756-9572** RL | | | | | |
| 1 µF | 08053C105KAZ2A | **130-1807** | | | | | |
| 1 µF | 08053C105K4Z2A | **183-3845** | | | | | |

## MLCC with Flexible Termination - continued

### 2220 Case Size - continued

| Capacitance | Mftrs. List No. | Order Code | Price Each 5+ | 100+ | 500+ | 1K+ | 3K+ |
|---|---|---|---|---|---|---|---|
| **50 Volt d.c. X7R** | | | | | | | |
| 4700 pF | 08051C472KAZ2A | **130-1896** | | | | | |
| 0.01 µF | 08051C103KAZ2A | **130-1898** | | | | | |
| 0.01 µF | 08055C103K4Z2A | **183-3846** | | | | | |
| 0.022 µF | 08055C223KAZ2A | **174-0538** | | | | | |
| 0.047 µF | 08055C473K4Z2A | **183-3847** | | | | | |
| 0.1 µF | 08051C104KAZ2A | **130-1805** | | | | | |
| 0.1 µF | 08055C104KAZ2A | **756-9564** RL | | | | | |
| 0.47 µF | 08055C474KAZ2A | **130-1806** | | | | | |
| 0.47 µF | 08055C474K4Z2A | **183-3848** | | | | | |
| **100 Volt d.c. X7R** | | | | | | | |
| 1000 pF | 08051C102K4Z2A | **183-3849** | | | | | |
| 0.01 µF | 08051C103K4Z2A | **183-3850** | | | | | |
| 0.1 µF | 08051C104K4Z2A | **183-3851** | | | | | |
| 0.47 µF | 08051C474K4Z2A | **186-7963** | | | | | |

### 1206 Case Size

| Capacitance | Mftrs. List No. | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **16 Volt d.c. X7R** | | | | | | | |
| 1 µF | 1206YC105KAZ2A | **756-9599** RL | | | | | |
| **25 Volt d.c. X7R** | | | | | | | |
| 2.2 µF | 12063C225KAZ2A | **130-1808** | | | | | |
| **50 Volt d.c. X7R** | | | | | | | |
| 0.047 µF | 12065C473KAZ2A | **174-0542** | | | | | |
| 0.1 µF | 12065C104KAZ2A | **130-1906** | | | | | |
| 0.22 µF | 12065C224KAZ2A | **130-1907** | | | | | |
| 0.22 µF | 12065C224K4Z2A | **183-3852** | | | | | |
| 1 µF | 12065C105KAZ2A | **183-3853** | | | | | |
| **100 Volt d.c. X7R** | | | | | | | |
| 1000 pF | 12061C102KAZ2A | **130-1903** | | | | | |
| 5600 pF | 12061C562KAZ2A | **130-1904** | | | | | |
| 0.015 µF | 12061C153KAZ2A | **174-0541** | | | | | |
| 0.047 µF | 12061C473KAZ1A | **130-1905** | | | | | |
| 0.1 µF | 12061C104KAZ2A | **174-0540** | | | | | |
| 0.22 µF | 12061C224KAZ2A | **183-3854** | | | | | |
| 0.33 µF | 12061C334KAZ2A | **130-1812** | | | | | |
| 1 µF | 12061C105K4Z2A | **183-3855** | | | | | |

### 1210 Case Size

| Capacitance | Mftrs. List No. | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **16 Volt d.c. X7R** | | | | | | | |
| µF4.7 | 1210YC475KAZ2A | **138-0918** | | | | | |
| **25 Volt d.c. X7R** | | | | | | | |
| 10 µF | 12103C106K4Z2A | **183-3857** | | | | | |
| **50 Volt d.c. X7R** | | | | | | | |
| 0.1 µF | 12105C104KAZ2A | **130-1908** | | | | | |
| µF0.47 | 12105C474KAZ2A | **130-1909** | | | | | |
| µF4.7 | 12105C475KAZ2A | **183-3858** | | | | | |
| µF4.7 | 12105C475K4Z2A | **186-7964** | | | | | |
| **100 Volt d.c. X7R** | | | | | | | |
| 0.47 µF | 12101C474KAZ2A | **130-1813** | | | | | |
| 1 µF | 12101C105KAZ2A | **130-1910** | | | | | |
| 2.2 µF | 12101C225KAZ2A | **183-3859** | | | | | |
| 2.2 µF | 12101C225K4Z2A | **186-7965** | | | | | |

### 1812 Case Size

| Capacitance | Mftrs. List No. | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **50 Volt d.c. X7R** | | | | | | | |
| 0.68 µF | 18125C684KAZ2A | **130-1912** | | | | | |
| 1 µF | 18125C105KAZ2A | **756-9602** RL | | | | | |
| 4.7 µF | 18125C475KAZ2A | **130-1819** | | | | | |
| **100 Volt d.c. X7R** | | | | | | | |
| 0.33 µF | 18121C334KAZ2A | **130-1911** | | | | | |
| 1 µF | 18121C105KAZ2A | **130-1820** | | | | | |
| 2.2 µF | 18121C225KAZ2A | **130-1914** | | | | | |

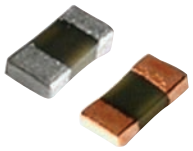
### 2220 Case Size

| Capacitance | Mftrs. List No. | Order Code | Price Each 5+ | 100+ | 500+ | + | + |
|---|---|---|---|---|---|---|---|
| **25 Volt d.c. X7R** | | | | | | | |
| 22 µF | 22203C226M4Z2A | **186-7966** | | | | | |
| **50 Volt d.c. X7R** | | | | | | | |
| 10 µF | 22205C106K4Z2A | **186-7967** | | | | | |
| **100 Volt d.c. X7R** | | | | | | | |
| 4.7 µF | 22201C475K4Z2A | **183-3860** | | | | | |

339481

## Ultra Thin Ceramic Capacitor

### UT Series



**Features.**
- Fine Copper Termination which provides unbeatable flattness and repeatability

**Applications Include**
- Smart Cards
- Memory Modules
- High Density SIM Cards
- Mobile Phones
- MP3 Players
- Embedded Solutions

| Mftrs List No | µF | Tolerance | Voltage Rating | Case style | Dielectric Characteristic | Order Code |
|---|---|---|---|---|---|---|
| UT023D103MAT2D | 0.01µF | ± 20% | 25V | 0402 | X5R | 209-9802 |
| UT026D104MAT2E | 0.1µF | ± 20% | 6.3V | 0402 | X5R | 209-9803 |
| UT026D104MAC2E | 0.1µF | ± 20% | 6.3V | 0402 | X5R | 209-9804 |
| UT026D104MAC2F | 0.1µF | ± 20% | 6.3V | 0402 | X5R | 209-9805 |
| UT026D103MAC2F | 0.01µF | ± 20% | 6.3V | 0402 | X5R | 209-9806 |

656175

| | Order Code | Price Each 1+ | 100+ | 1K+ | 5K+ | 15K+ |
|---|---|---|---|---|---|---|
| 0.01µFAll Values | **209-9802** | | | | | |

## AVX Ultra Broad Band Capacitor

### GX Series



**Applications**
- Semi-conductor data
- Communications Customers
- Receiver optical sub-assemblies
- Transimpedance amplifier customers
- Test equipment manufacturers

**Advantages**
- Ultra low insertion loss
- XR5 and XR7 characteristics
- Excellent return loss

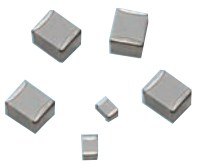
| Mftrs Part No | µF | Tolerance | Capacitor Case | Voltage DC @85°C | @125°C | Characteristics of dielectric @8 °C | @125°C |
|---|---|---|---|---|---|---|---|
| GX01ZD103PATD-500 | 0.01 | GMV | 0201 | 10 | 6.3 | X5R | X7S |
| GX02YD104KAT2-500 | 0.1 | ± 10% | 0402 | 16 | 10 | X5R | X7S |
| GX02YD104KA72-500 | 0.1 | ± 10% | 0402 | 16 | 10 | X5R | X7S |

656021

| Mftrs. List No. | Order Code | Price Each 1+ | 10+ | 100+ | 500+ | + |
|---|---|---|---|---|---|---|
| GX01ZD103PATD-500 | SMD **209-4035** | | | | | |
| GX02YD104KAT2-500 | SMD **209-4036** | | | | | |
| GX02YD104KA72-500 | SMD **209-4037** | | | | | |

## Tip & Ring MLCC

### 250V, X7R



| Case Size | L | W | H(mm) |
|---|---|---|---|
| 0805 | 1.25 | 2.01 | 1.3 |
| 1206 | 1.6 | 3.2 | 1.5 |
| 1210 | 2.5 | 3.2 | 1.78 |
| 1812 | 3.2 | 4.5 | 2 |
| 1825 | 6.34 | 4.5 | 2 |
| 2225 | 6.35 | 5.6 | 2 |

AVX "Tip & Ring" Multilayer Ceramic Chip Capacitors are designed as a standard telecom filter to block -48 Volts DC telephone line voltage and pass subscriber's AC signal pulse (16 to 25Hz, 70 to 90Vrms).
- Multilayer ceramic chip capacitors
- High performance and reliability
- Operating Temperature Range: -55°C to +125°C
- Capacitance Tolerance: ±10% (*±20%)
- 0805, 1206, 1210, 1812, 1825 and 2225 case sizes.

### 0805 Case Size

| | Order Code | Price Each 10+ | 50+ | 100+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| 680 pF | **178-0932** | | | | | |
| 1900 pF | **178-0936** | | | | | |
| 4700 pF | **178-0939** | | | | | |
| 0.012 µF | **178-0941** | | | | | |
| 0.018 µF | **178-0942** | | | | | |




RoHS Compliant Non-compliant

### 1206 Case Size

| | Order Code | Price Each 10+ | 50+ | 100+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| 3300 pF | 178-0945 | | | | | |
| 8200 pF | 178-0947 | | | | | |
| 0.018 µF | 178-0949 | | | | | |
| 0.047 µF | 178-0952 | | | | | |

### 1210 Case Size

| | Order Code | Price Each 10+ | 50+ | 100+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| 1000 pF | 178-0954 | | | | | |
| 4700 pF | 178-0956 | | | | | |
| 0.01 µF | 178-0957 | | | | | |
| 0.033 µF | 178-0958 | | | | | |
| 0.047 µF | 178-0959 | | | | | |
| 0.068 µF | 178-0960 | | | | | |

### 1812 Case Size

| | Order Code | Price Each 10+ | 50+ | 100+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| 1000 pF | 178-0961 | | | | | |
| 2200 pF | 178-0962 | | | | | |
| 0.033 µF | 178-0964 | | | | | |
| 0.12 µF | 178-0965 | | | | | |
| 0.27 µF | 178-0969 | | | | | |

### 1825 Case Size

| | Order Code | Price Each 10+ | 50+ | 100+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| 0.33 µF | 178-0970 | | | | | |
| 0.39 µF | 178-0971 | | | | | |
| 0.68 µF | 178-0972 | | | | | |
| 0.82 µF | 178-0973 | | | | | |

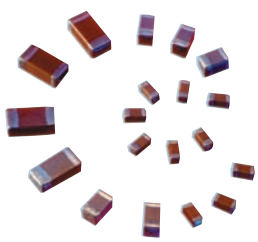
### 2225 Case Size

600012

| | Order Code | Price Each 10+ | 50+ | 100+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| 0.47 µF | 178-0974 | | | | | |
| 1 µF * | 178-0976 | | | | | |
| 1.2 µF * | 178-0977 | | | | | |

## Automotive MLCC

**AECQ200 Qualified**



- Multilayer ceramic capacitors developed and tested for the automotive market
- AECQ200 qualified
- Flexiterm terminations available
- Specific automotive part number
- Base metal electrode system

### 0603 Case Size

| Capacitance | Mftrs. List No. | Order Code | Price Each 5+ | 50+ | 250+ | 1K+ |
|---|---|---|---|---|---|---|
| **50 Volt d.c. NP0** | | | | | | |
| 470 pF | 06035A471J4T2A | 130-1710 | | | | |
| **50 Volt d.c. X8L** | | | | | | |
| 0.1 µF | 06035L104K4T2A | 186-7968 | | | | |
| **16 Volt d.c. X7R** | | | | | | |
| 0.1 µF | 0603YC104K4Z2A | 130-1716 | | | | |
| **50 Volt d.c. X7R** | | | | | | |
| 0.1 µF | 06035C104K4T2A | 130-1713 | | | | |
| **100 Volt d.c. X7R** | | | | | | |
| 1000 pF | 06031C102K4Z2A | 130-1714 | | | | |
| 0.01 µF | 06031C103K4Z2A | 130-1715 | | | | |
| 1000 pF | 06035F102K4T2A | 174-0498 | | | | |
| 0.01 µF | 06035F103K4T2A | 174-0499 | | | | |

### 0805 Case Size

| Capacitance | Mftrs. List No. | Order Code | Price Each 5+ | 50+ | 250+ | 1K+ |
|---|---|---|---|---|---|---|
| **50 Volt d.c. X8R** | | | | | | |
| 1000 pF | 08055F102K4Z2A | 130-1727 | | | | |
| 1800 pF | 08055F182K4Z2A | 130-1728 | | | | |
| 2200 pF | 08055F222K4T2A | 174-0501 | | | | |
| 0.01 µF | 08055F103K4T2A | 130-1725 | | | | |
| 0.1 µF | 08055F104K4T2A | 174-0500 | | | | |

| Capacitance | Mftrs. List No. | Order Code | Price Each 5+ | 50+ | 250+ | 1K+ |
|---|---|---|---|---|---|---|
| **25 Volt d.c. X8L** | | | | | | |
| 0.47 µF | 08053L474K4T2A | 186-7971 | | | | |
| **50 Volt d.c. X7R** | | | | | | |
| 0.1 µF | 08055C104K4Z2A | 130-1717 | | | | |
| **100 Volt d.c. NP0** | | | | | | |
| 1000 pF | 08051A102J4T2A | 130-1711 | | | | |

### 1206 Case Size

| Capacitance | Mftrs. List No. | Order Code | Price Each 5+ | 50+ | 250+ | 1K+ |
|---|---|---|---|---|---|---|
| **100 Volt d.c. NP0** | | | | | | |
| 1000 pF | 12061A102J4T2A | 130-1712 | | | | |
| **50 Volt d.c. X8R** | | | | | | |
| 6800 pF | 12065F682K4T2A | 130-1724 | | | | |
| **16 Volt d.c. X8L** | | | | | | |
| 1 µF | 1206YL105K4T2A | 186-7972 | | | | |
| **50 Volt d.c. X8L** | | | | | | |
| 0.47 µF | 12065L474K4T2A | 186-7973 | | | | |
| **50 Volt d.c. X7R** | | | | | | |
| 0.1 µF | 12065C104K4Z2A | 130-1719 | | | | |
| 0.22 µF | 12065C224K4T2A | 130-1721 | | | | |
| **100 Volt d.c. X7R** | | | | | | |
| 2.2 µF | 12063C225K4Z2A | 174-0502 | | | | |

### 1210 Case Size

452060

| Capacitance | Mftrs. List No. | Order Code | Price Each 5+ | 50+ | 250+ | 1K+ |
|---|---|---|---|---|---|---|
| **100 Volt d.c. X7R** | | | | | | |
| 1 µF | 12101C105K4Z2A | 130-1722 | | | | |

RL **FREE Re-reeling service.** Only buy what you need and improve assembly efficiency. For more information visit **local website**

## RH Series

**Stacked Ceramic Capacitors in a Surface Mountable Lead Frame**



The Stacked capacitor configuration gives a very high capacitance value whilst the surface mount leadframe provides the component with excellent resistance to mechanical damage.

- Uses high CV manufacture and stack configuration to offer very high cap values on small PCB footprint
- Low ESR / ESL
- None of the build costs associated with thru hole technology

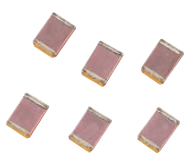
Operating temperature -55°C to +125°C
Tolerance ± 20%
Dielectric X7R

527530

| Mftrs. List No. | Order Code | Price Each 1+ | 10+ | 100+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| **50 Volt d.c** | | | | | | |
| 4.7 µF RH215C475MAARA3 | 167-2281 RL | | | | | |
| 10 µF RH215C106MAARA3 | 167-2279 RL | | | | | |
| 22 µF RH225C226MAARA3 | 167-2278 RL | | | | | |
| **100 Volt d.c** | | | | | | |
| 4.7 µF RH221C475MAARA3 | 167-2280 RL | | | | | |

# Ceramic - Multilayer Chip - Kemet

## Ceramic Chip Capacitors



- Multilayer ceramic chip capacitors
- 0201,0402, 0603, 0805, 1206, 1210 & 1812 case sizes
- Standard end metalization: Tin-plate over nickel barrier

| | X5R | X7R | X8L | X8R | Z5R |
|---|---|---|---|---|---|
| Operating Temperature | -55°C to +85°C | -55°C to +125°C | -55°C to +150°C | -55°C to +150°C | -55°C to +85°C |
| Temperature coefficient | ±% | ±15% | | | |
| Tolerance | ±20% | ±10% | ± 5% / ± 10% | ± 5% / ± 10% | ± 5% / ± 10% |

### 0201 Case Size

| 6.3 Volt d.c. X5R | Order Code | Price Each 10+ | 100+ | 1K+ | 4K+ | 10K+ |
|---|---|---|---|---|---|---|
| 0.1 µF | NEW 190-7036 | | | | | |

| 16 Volt d.c. X5R | Order Code | Price Each 10+ | 100+ | 1K+ | 4K+ | 10K+ |
|---|---|---|---|---|---|---|
| 0.01 µF | NEW 190-7038 | | | | | |

# Ceramic - Multilayer Chip - Kemet - continued

## Ceramic Chip Capacitors - continued

### 0201 Case Size - continued

**25 Volt d.c. NPO**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 4K+ | 10K+ |
|---|---|---|---|---|---|---|
| 12 pF | NEW 190-7039● | | | | | |
| 15 pF | NEW 190-7040● | | | | | |
| 18 pF | NEW 190-7041● | | | | | |
| 22 pF | NEW 190-7042● | | | | | |
| 27 pF | NEW 190-7043● | | | | | |
| 33 pF | NEW 190-7044● | | | | | |
| 39 pF | NEW 190-7045● | | | | | |
| 47 pF | NEW 190-7046● | | | | | |
| 56 pF | NEW 190-7047● | | | | | |
| 68 pF | NEW 190-7048● | | | | | |
| 82 pF | NEW 190-7051● | | | | | |
| 100 pF | NEW 190-7052● | | | | | |

### 0402 Case Size

**6.3 Volt d.c. X5R**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 4K+ | 10K+ |
|---|---|---|---|---|---|---|
| 0.22 µF | 157-2610● | | | | | |

**10 Volt d.c. X5R**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 2K+ |
|---|---|---|---|---|---|
| 0.1 µF | 128-8282● RL | | | | |

**16 Volt d.c. X7R**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 2K+ |
|---|---|---|---|---|---|---|
| 0.1 µF | 128-8252● RL | | | | | |
| 0.015 µF | 157-2612● | | | | | |
| 0.033 µF | 141-4591● | | | | | |
| 0.056 µF | 186-5441● | | | | | |
| 0.068 µF | 157-2613● | | | | | |
| 0.082 µF | 186-5442● | | | | | |

**25 Volt d.c. NPO**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 2K+ |
|---|---|---|---|---|---|---|
| 470 pF | 145-7724● | | | | | |
| 1000 pF | 145-7725● | | | | | |
| 1800 pF | 180-0793● | | | | | |
| 2000 pF | 186-5411● | | | | | |
| 2200 pF | 153-5555● | | | | | |

**25 Volt d.c. X7R**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 2K+ |
|---|---|---|---|---|---|---|
| 0.01 µF | 169-2285● | | | | | |
| 0.027 µF | 186-5443● | | | | | |
| 0.039 µF | 186-5440● | | | | | |
| 0.047 µF | 141-4595● | | | | | |

**50 Volt d.c. NPO**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 2K+ |
|---|---|---|---|---|---|---|
| 1 pF | 180-0794● | | | | | |
| 1.2 pF | 186-5412● | | | | | |
| 1.5 pF | 186-5413● | | | | | |
| 1.8 pF | 186-5414● | | | | | |
| 2.2 pF | 180-0795● | | | | | |
| 2.7 pF | 186-5415● | | | | | |
| 3.3 pF | 180-0797● | | | | | |
| 3.9 pF | 186-5416● | | | | | |
| 4.7 pF | 180-0798● | | | | | |
| 5.6 pF | 186-5417● | | | | | |
| 6.8 pF | 180-0799● | | | | | |
| 8.2 pF | 186-5418● | | | | | |
| 10 pF | 141-4571● | | | | | |
| 11 pF | 186-5421● | | | | | |
| 11 pF | 186-5421● | | | | | |
| 12 pF | 141-4576● | | | | | |
| 13 pF | 186-5422● | | | | | |
| 15 pF | 141-4577● | | | | | |
| 16 pF | 186-5423● | | | | | |
| 18 pF | 157-2614● | | | | | |
| 20 pF | 186-5424● | | | | | |
| 22 pF | 141-4580● | | | | | |
| 24 pF | 186-5425● | | | | | |
| 27 pF | 141-4584● | | | | | |
| 30 pF | 186-5426● | | | | | |
| 33 pF | 141-4588● | | | | | |
| 36 pF | 186-5427● | | | | | |
| 39 pF | 157-2615● | | | | | |
| 43 pF | 186-5428● | | | | | |
| 47 pF | 141-4592● | | | | | |
| 51 pF | 186-5429● | | | | | |

**50 Volt d.c. NPO**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 2K+ |
|---|---|---|---|---|---|---|
| 56 pF | 157-2616● | | | | | |
| 62 pF | 186-5430● | | | | | |
| 68 pF | 141-4596● | | | | | |
| 75 pF | 186-5431● | | | | | |
| 82 pF | 157-2617● | | | | | |
| 91 pF | 186-5433● | | | | | |
| 100 pF | 141-4572● | | | | | |
| 120 pF | 157-2618● | | | | | |
| 150 pF | 141-4578● | | | | | |
| 180 pF | 157-2619● | | | | | |
| 200 pF | 186-5434● | | | | | |
| 220 pF | 141-4581● | | | | | |
| 270 pF | 141-4585● | | | | | |
| 330 pF | 141-4589● | | | | | |
| 390 pF | 180-0800● | | | | | |
| 470 pF | 153-5556● | | | | | |
| 510 pF | 186-5435● | | | | | |
| 560 pF | 157-2620● | | | | | |
| 680 pF | 153-5557● | | | | | |
| 750 pF | 186-5436● | | | | | |
| 820 pF | 180-0801● | | | | | |
| 910 pF | 186-5437● | | | | | |
| 1000 pF | 153-5558● | | | | | |
| 1100 pF | 186-5438● | | | | | |
| 1200 pF | 180-0803● | | | | | |
| 1300 pF | 186-5439● | | | | | |
| 1500 pF | 153-5561● | | | | | |
| 7500 pF | 186-5463● | | | | | |

**50 Volt d.c. X7R**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 2K+ |
|---|---|---|---|---|---|---|
| 150 pF | 186-5446● | | | | | |
| 180 pF | 186-5447● | | | | | |
| 220 pF | 186-5448● | | | | | |
| 270 pF | 186-5449● | | | | | |
| 330 pF | 186-5450● | | | | | |
| 390 pF | 186-5451● | | | | | |
| 470 pF | 141-4593● | | | | | |
| 560 pF | 186-5452● | | | | | |
| 680 pF | 186-5453● | | | | | |
| 820 pF | 186-5454● | | | | | |
| 1000 pF | 141-4573● | | | | | |
| 1200 pF | 186-5455● | | | | | |
| 1500 pF | 141-4579● | | | | | |
| 1800 pF | 186-5457● | | | | | |
| 2200 pF | 141-4582● | | | | | |
| 2700 pF | 141-4587● | | | | | |
| 3300 pF | 141-4590● | | | | | |
| 3900 pF | 186-5458● | | | | | |
| 4700 pF | 141-4594● | | | | | |
| 5600 pF | 186-5459● | | | | | |
| 6800 pF | 141-4597● | | | | | |
| 8200 pF | 186-5460● | | | | | |
| 0.01 µF | 141-4575● | | | | | |
| 0.012 µF | 186-5461● | | | | | |
| 0.015 µF | 186-5462● | | | | | |
| 0.022 µF | 141-4583● | | | | | |

**100 Volt d.c. NPO**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 2K+ |
|---|---|---|---|---|---|---|
| 100 pF | 180-0804● | | | | | |
| 220 pF | 180-0805● | | | | | |
| 470 pF | 153-5562● | | | | | |
| 1000 pF | 153-5563● | | | | | |

### 0603 Case Size

**16 Volt d.c. X5R**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 4K+ |
|---|---|---|---|---|---|
| 0.68 µF | 157-2624● | | | | |

**16 Volt d.c. X7R**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 4K+ |
|---|---|---|---|---|---|---|
| 0.1 µF | 165-0834● | | | | | |
| 0.1 µF | 141-4610● | | | | | |
| 0.27 µF | 186-5526● | | | | | |
| 0.33 µF | 141-4637● | | | | | |
| 0.39 µF | 186-5527● | | | | | |
| 0.47 µF | 141-4644● | | | | | |


RoHS ● Compliant ▲ Non-compliant

**25 Volt d.c. NPO**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 2K+ |
|---|---|---|---|---|---|---|
| 2200 pF | 145-7726 | | | | | |
| 4700 pF | 145-7727 | | | | | |
| 7500 pF | 186-5463 | | | | | |
| 8200 pF | 186-5464 | | | | | |
| 9100 pF | 186-5465 | | | | | |
| 0.01 µF | 145-7729 | | | | | |
| 0.012 µF | 186-5466 | | | | | |
| 0.015 µF | 153-5564 | | | | | |

**25 Volt d.c. X7R**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 4K+ |
|---|---|---|---|---|---|---|
| 0.18 µF | 186-5528 | | | | | |
| 0.22 µF | 141-4626 | | | | | |

**25 Volt d.c. X8L**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|
| 0.15 µF | 178-9713 | | | | |

**25 Volt d.c. X8R**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|
| 0.01 µF | 178-9714 | | | | |

**50 Volt d.c. NPO**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 4K+ |
|---|---|---|---|---|---|---|
| 1 pF | *141-4611 | | | | | |
| 2.2 pF | *181-3415 | | | | | |
| 2.7 pF | *186-5467 | | | | | |
| 3.3 pF | *181-3416 | | | | | |
| 4.7 pF | *141-4645 | | | | | |
| 5.6 pF | 186-5469 | | | | | |
| 6.8 pF | *141-4651 | | | | | |
| 8.2 pF | 186-5471 | | | | | |
| 10 pF | *141-4599 | | | | | |
| 10 pF | 141-4601 | | | | | |
| 11 pF | 186-5472 | | | | | |
| 12 pF | 141-4612 | | | | | |
| 13 pF | 186-5473 | | | | | |
| 15 pF | 141-4614 | | | | | |
| 16 pF | 186-5474 | | | | | |
| 18 pF | 141-4620 | | | | | |
| 20 pF | 186-5475 | | | | | |
| 22 pF | 141-4622 | | | | | |
| 24 pF | 186-5476 | | | | | |
| 27 pF | 141-4627 | | | | | |
| 30 pF | 186-5477 | | | | | |
| 33 pF | 141-4633 | | | | | |
| 36 pF | 186-5478 | | | | | |
| 39 pF | 157-2626 | | | | | |
| 43 pF | 186-5479 | | | | | |
| 47 pF | 141-4639 | | | | | |
| 51 pF | 186-5480 | | | | | |
| 56 pF | 157-2627 | | | | | |
| 62 pF | 186-5482 | | | | | |
| 68 pF | 141-4647 | | | | | |
| 75 pF | 186-5483 | | | | | |
| 91 pF | 186-5484 | | | | | |
| 120 pF | 141-4613 | | | | | |
| 150 pF | 141-4615 | | | | | |
| 180 pF | 141-4621 | | | | | |
| 100 pF | 141-4603 | | | | | |
| 220 pF | 141-4623 | | | | | |
| 270 pF | 141-4629 | | | | | |
| 330 pF | 141-4634 | | | | | |
| 390 pF | 141-4638 | | | | | |
| 470 pF | 141-4640 | | | | | |
| 560 pF | 141-4646 | | | | | |
| 680 pF | 141-4648 | | | | | |
| 1000 pF | 141-4605 | | | | | |
| 1100 pF | 186-5485 | | | | | |
| 1300 pF | 186-5486 | | | | | |
| 1500 pF | 186-5487 | | | | | |
| 1600 pF | 186-5488 | | | | | |
| 2000 pF | 186-5489 | | | | | |
| 2200 pF | *153-5565 | | | | | |
| 2400 pF | 186-5490 | | | | | |
| 3000 pF | 186-5491 | | | | | |
| 3300 pF | *153-5566 | | | | | |
| 3600 pF | 186-5492 | | | | | |
| 4300 pF | 186-5494 | | | | | |
| 4700 pF | *153-5567 | | | | | |
| 5100 pF | 186-5495 | | | | | |
| 6200 pF | 186-5496 | | | | | |
| 6800 pF | *153-5568 | | | | | |

* Tolerance = ±0.25pF

**50 Volt d.c. X7R**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 4K+ |
|---|---|---|---|---|---|---|
| 1000 pF | 141-4608 | | | | | |
| 1200 pF | 186-5529 | | | | | |
| 1500 pF | 141-4617 | | | | | |
| 1800 pF | 186-5530 | | | | | |
| 2200 pF | 141-4624 | | | | | |
| 2700 pF | 141-4631 | | | | | |
| 3300 pF | 141-4635 | | | | | |
| 3900 pF | 186-5531 | | | | | |
| 4700 pF | 141-4642 | | | | | |
| 5600 pF | 186-5532 | | | | | |
| 6800 pF | 141-4649 | | | | | |
| 8200 pF | 186-5533 | | | | | |
| 0.01 µF | 141-4609 | | | | | |
| 0.012 µF | 186-5534 | | | | | |
| 0.015 µF | 141-4618 | | | | | |
| 0.018 µF | 186-5536 | | | | | |
| 0.022 µF | 141-4625 | | | | | |
| 0.027 µF | 141-4632 | | | | | |
| 0.033 µF | 141-4636 | | | | | |
| 0.039 µF | 186-5537 | | | | | |
| 0.047 µF | 141-4643 | | | | | |
| 0.056 µF | 186-5538 | | | | | |
| 0.068 µF | 141-4650 | | | | | |
| 0.082 µF | 186-5539 | | | | | |
| 0.1 µF | 128-8255 RL | | | | | |
| 0.1 µF | 169-2286 | | | | | |
| 0.12 µF | 179-3828 | | | | | |
| 0.15 µF | 141-4619 | | | | | |

**50 Volt d.c. X8R**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|
| 470 pF | 178-9716 | | | | |
| 680 pF | 178-9717 | | | | |
| 1000 pF | 178-9718 | | | | |
| 1500 pF | 178-9719 | | | | |
| 2200 pF | 178-9720 | | | | |
| 3300 pF | 178-9721 | | | | |
| 4700 pF | 178-9722 | | | | |
| 6800 pF | 178-9723 | | | | |

**100 Volt d.c. NPO**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 4K+ |
|---|---|---|---|---|---|---|
| 1 pF | 186-5497 | | | | | |
| 1.5 pF | 186-5498 | | | | | |
| 2.2 pF | 186-5499 | | | | | |
| 3.3 pF | 186-5501 | | | | | |
| 4.7 pF | 186-5502 | | | | | |
| 6.8 pF | 186-5503 | | | | | |
| 10 pF | 141-4600 | | | | | |
| 12 pF | 181-3426 | | | | | |
| 15 pF | 181-3427 | | | | | |
| 18 pF | 181-3428 | | | | | |
| 22 pF | 181-3429 | | | | | |
| 27 pF | 181-3430 | | | | | |
| 33 pF | 181-3431 | | | | | |
| 39 pF | 186-5504 | | | | | |
| 47 pF | 181-3433 | | | | | |
| 56 pF | 186-5505 | | | | | |
| 68 pF | 181-3434 | | | | | |
| 82 pF | 186-5506 | | | | | |
| 100 pF | 141-4602 | | | | | |
| 120 pF | 186-5507 | | | | | |
| 150 pF | 181-3435 | | | | | |
| 180 pF | 181-3436 | | | | | |
| 220 pF | 181-3437 | | | | | |
| 270 pF | 181-3438 | | | | | |
| 330 pF | 181-3439 | | | | | |
| 390 pF | 186-5508 | | | | | |
| 470 pF | 181-3440 | | | | | |
| 560 pF | 181-3441 | | | | | |
| 680 pF | 181-3442 | | | | | |
| 1000 pF | 181-3443 | | | | | |
| 1200 pF | 186-5509 | | | | | |
| 1500 pF | 153-5569 | | | | | |
| 2200 pF | 186-5510 | | | | | |
| 2700 pF | 186-5512 | | | | | |
| 3300 pF | 181-3445 | | | | | |
| 3900 pF | 186-5513 | | | | | |
| 4700 pF | 181-3446 | | | | | |
| 1.5 | 186-5498 | | | | | |
| 2.2 | 186-5499 | | | | | |
| 3.3 | 186-5501 | | | | | |
| 4.7 | 186-5502 | | | | | |

## Ceramic Chip Capacitors - continued

### 0201 Case Size - continued

**100 Volt d.c. NPO**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 4K+ |
|---|---|---|---|---|---|---|
| 6.8 | 186-5503 | | | | | |
| 10 | 141-4600 | | | | | |
| 12 | 181-3426 | | | | | |
| 15 | 181-3427 | | | | | |
| 18 | 181-3428 | | | | | |
| 22 | 181-3429 | | | | | |
| 27 | 181-3430 | | | | | |
| 33 | 181-3431 | | | | | |
| 39 | 186-5504 | | | | | |
| 47 | 181-3433 | | | | | |
| 56 | 186-5505 | | | | | |
| 68 | 181-3434 | | | | | |
| 82 | 186-5506 | | | | | |
| 100 | 141-4602 | | | | | |
| 120 | 186-5507 | | | | | |
| 150 | 181-3435 | | | | | |
| 180 | 181-3436 | | | | | |
| 220 | 181-3437 | | | | | |
| 270 | 181-3438 | | | | | |
| 330 | 181-3439 | | | | | |
| 390 | 186-5508 | | | | | |
| 470 | 181-3440 | | | | | |
| 560 | 181-3441 | | | | | |
| 680 | 181-3442 | | | | | |
| 1000 | 181-3443 | | | | | |
| 1200 | 186-5509 | | | | | |
| 1500 | 153-5569 | | | | | |
| 2200 | 186-5510 | | | | | |
| 2700 | 186-5512 | | | | | |
| 3300 | 181-3445 | | | | | |
| 3900 | 186-5513 | | | | | |
| 4700 | 181-3446 | | | | | |

**100 Volt d.c. X7R**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 4K+ |
|---|---|---|---|---|---|---|
| 1000 pF | 141-4606 | | | | | |
| 1500 pF | 186-5540 | | | | | |
| 2200 pF | 186-5541 | | | | | |
| 3300 pF | 186-5542 | | | | | |
| 4700 pF | 186-5543 | | | | | |
| 6800 pF | 186-5544 | | | | | |
| 0.01 µF | 186-5545 | | | | | |
| 0.015 µF | 186-5546 | | | | | |
| 0.022 µF | 186-5548 | | | | | |
| 0.033 µF | 186-5549 | | | | | |
| 0.047 µF | 186-5550 | | | | | |

**200 Volt d.c. NPO**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 4K+ |
|---|---|---|---|---|---|---|
| 10 pF | 181-3447 | | | | | |
| 15 pF | 181-3448 | | | | | |
| 18 pF | 186-5514 | | | | | |
| 22 pF | 181-3449 | | | | | |
| 27 pF | 186-5515 | | | | | |
| 33 pF | 181-3450 | | | | | |
| 39 pF | 186-5516 | | | | | |
| 47 pF | 181-3451 | | | | | |
| 56 pF | 186-5517 | | | | | |
| 68 pF | 186-5518 | | | | | |
| 82 pF | 186-5519 | | | | | |
| 100 pF | 186-5520 | | | | | |
| 120 pF | 186-5521 | | | | | |
| 150 pF | 186-5522 | | | | | |
| 180 pF | 186-5524 | | | | | |
| 820 pF | 186-5525 | | | | | |

**200 Volt d.c. X7R**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 4K+ |
|---|---|---|---|---|---|---|
| 1000 pF | 141-4607 | | | | | |
| 1500 pF | 186-5551 | | | | | |
| 2200 pF | 186-5552 | | | | | |
| 3300 pF | 186-5553 | | | | | |
| 4700 pF | 186-5554 | | | | | |
| 6800 pF | 186-5555 | | | | | |
| 0.01 µF | 128-8254 RL | | | | | |

### 0805 Case Size

**16 Volt d.c. X7R**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 2K+ |
|---|---|---|---|---|---|
| 0.47 µF | 128-8279 RL | | | | |

**25 Volt d.c. NPO**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 2K+ |
|---|---|---|---|---|---|---|
| 4700 pF | 145-7733 | | | | | |
| 0.01 µF | 145-7736 | | | | | |
| 0.022 µF | 145-7738 | | | | | |
| 0.047 µF | 153-5570 | | | | | |

**25 Volt d.c. X7R**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 2K5+ |
|---|---|---|---|---|---|---|
| 0.33 µF | 141-4691 | | | | | |
| 0.47 µF | 128-8281 RL | | | | | |

**25 Volt d.c. X8L**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|
| 0.33 µF | 178-9725 | | | | |
| 0.47 µF | 178-9726 | | | | |
| 0.68 µF | 178-9728 | | | | |

**50 Volt d.c. NPO**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 4K+ |
|---|---|---|---|---|---|---|
| 1 pF | 180-0806 | | | | | |
| 2.2 pF | 180-0807 | | | | | |
| 3.3 pF | 180-0808 | | | | | |
| 4.7 pF | 180-0809 | | | | | |
| 6.8 pF | 180-0810 | | | | | |
| 10 pF | 141-4654 | | | | | |
| 12 pF | 141-4666 | | | | | |
| 15 pF | 141-4668 | | | | | |
| 18 pF | 141-4673 | | | | | |
| 22 pF | 141-4678 | | | | | |
| 27 pF | 141-4683 | | | | | |
| 33 pF | 141-4685 | | | | | |
| 47 pF | 141-4692 | | | | | |
| 68 pF | 141-4698 | | | | | |
| 100 pF | 141-4656 | | | | | |
| 120 pF | 141-4667 | | | | | |
| 150 pF | 141-4669 | | | | | |
| 180 pF | 141-4674 | | | | | |
| 220 pF | 141-4679 | | | | | |
| 270 pF | 141-4684 | | | | | |
| 330 pF | 141-4686 | | | | | |
| 470 pF | 141-4694 | | | | | |
| 680 pF | 141-4699 | | | | | |
| 1000 pF | 141-4658 | | | | | |
| 1500 pF | 180-0811 | | | | | |
| 1800 pF | 141-4675 | | | | | |
| 2200 pF | 180-0812 | | | | | |
| 3300 pF | 180-0813 | | | | | |
| 6800 pF | 153-5571 | | | | | |
| 0.01 µF | 153-5573 | | | | | |
| 0.015 µF | 153-5574 | | | | | |
| 0.022 µF | 153-5575 | | | | | |

**50 Volt d.c. X7R**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 4K+ |
|---|---|---|---|---|---|---|
| 220 pF | 141-4680 | | | | | |
| 1000 pF | 141-4660 | | | | | |
| 1500 pF | 141-4670 | | | | | |
| 2200 pF | 141-4681 | | | | | |
| 3300 pF | 141-4687 | | | | | |
| 4700 pF | 141-4696 | | | | | |
| 6800 pF | 141-4700 | | | | | |
| 0.01 µF | 141-4662 | | | | | |
| 0.015 µF | 141-4671 | | | | | |
| 0.022 µF | 141-4682 | | | | | |
| 0.033 µF | 141-4688 | | | | | |
| 0.047 µF | 141-4697 | | | | | |
| 0.068 µF | 141-4701 | | | | | |
| 0.01 µF | 169-2287 | | | | | |
| 0.1 µF | *141-4663 | | | | | |
| 0.1 µF | 141-4664 | | | | | |
| 0.15 µF | 141-4672 | | | | | |
| 0.22 µF | 128-8261 RL | | | | | |
| 0.68 µF | 141-4702 | | | | | |

* Tolerance = ±5%

**50 Volt d.c. X8L**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|
| 0.15 µF | 178-9729 | | | | |
| 0.22 µF | 178-9730 | | | | |




RoHS ● Compliant ▲ Non-compliant

**50 Volt d.c. X8R**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|
| 2200 pF | 178-9731 | | | | |
| 3300 pF | 178-9732 | | | | |
| 4700 pF | 178-9733 | | | | |
| 6800 pF | 178-9734 | | | | |
| 0.01 µF | 178-9735 | | | | |
| 0.015 µF | 178-9736 | | | | |
| 0.022 µF | 178-9737 | | | | |

**100 Volt d.c. NPO**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 2K+ |
|---|---|---|---|---|---|---|
| 10 pF | 141-4652 | | | | | |
| 15 pF | 180-0815 | | | | | |
| 22 pF | 141-4676 | | | | | |
| 33 pF | 180-0816 | | | | | |
| 47 pF | 180-0817 | | | | | |
| 68 pF | 180-0818 | | | | | |
| 100 pF | 141-4655 | | | | | |
| 220 pF | 180-0819 | | | | | |
| 470 pF | 141-4693 | | | | | |
| 1000 pF | 141-4657 | | | | | |
| 3300 pF | 153-5576 | | | | | |
| 4700 pF | 153-5577 | | | | | |

**100 Volt d.c. X7R**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 4K+ |
|---|---|---|---|---|---|---|
| 1000 pF | NEW 190-7054 | | | | | |
| 0.01 µF | 141-4661 | | | | | |
| 0.022 µF | NEW 190-7055 | | | | | |
| 0.033 µF | NEW 190-7056 | | | | | |
| 0.047 µF | NEW 190-7057 | | | | | |
| 0.1 µF | 165-0862 | | | | | |
| 0.12 µF | 128-8259 RL | | | | | |
| 0.22 µF | 179-3829 | | | | | |

**200 Volt d.c. NPO**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 2K+ |
|---|---|---|---|---|---|---|
| 10 pF | 180-0820 | | | | | |
| 22 pF | 180-0821 | | | | | |
| 47 pF | 180-0822 | | | | | |
| 100 pF | 180-0823 | | | | | |
| 220 pF | 180-0824 | | | | | |
| 470 pF | 180-0825 | | | | | |

**200 Volt d.c. X7R**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 4K+ |
|---|---|---|---|---|---|---|
| 1000 pF | 141-4659 | | | | | |
| 4700 pF | 141-4695 | | | | | |
| 0.01 µF | 179-3837 | | | | | |
| 0.022 µF | 179-3838 | | | | | |
| 0.033 µF | NEW 190-7058 | | | | | |
| 0.047 µF | NEW 190-7059 | | | | | |

**250 Volt d.c. X7R**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 4K+ |
|---|---|---|---|---|---|---|
| 1000 pF | NEW 190-7060 | | | | | |
| 0.01 µF | NEW 190-7061 | | | | | |
| 0.022 µF | NEW 190-7063 | | | | | |

## 1206 Case Size

**25 Volt d.c. NPO**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 2K5+ |
|---|---|---|---|---|---|---|
| 0.01 µF | 141-4711 | | | | | |
| 0.1 µF | 145-7748 | | | | | |

**25 Volt d.c. X8R**

| | Order Code | Price Each 5+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|
| 0.1 µF | 178-9745 | | | | |

**50 Volt d.c. NPO**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 4K+ |
|---|---|---|---|---|---|---|
| 10 pF | 141-4703 | | | | | |
| 0.015 µF | 153-5578 | | | | | |
| 0.022 µF | 153-5579 | | | | | |
| 0.033 µF | 153-5580 | | | | | |
| 0.047 µF | 153-5581 | | | | | |
| 0.068 µF | 153-5582 | | | | | |
| 15 pF | 180-0827 | | | | | |
| 22 pF | 141-4717 | | | | | |
| 33 pF | 141-4727 | | | | | |
| 47 pF | 141-4734 | | | | | |
| 68 pF | 180-0828 | | | | | |
| 100 pF | 141-4705 | | | | | |
| 150 pF | 180-0829 | | | | | |
| 220 pF | 141-4718 | | | | | |
| 330 pF | 141-4728 | | | | | |
| 470 pF | 141-4736 | | | | | |

**50 Volt d.c. NPO**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 4K+ |
|---|---|---|---|---|---|---|
| 680 pF | 180-0830 | | | | | |
| 1000 pF | 141-4709 | | | | | |
| 1500 pF | 141-4716 | | | | | |
| 2200 pF | 141-4721 | | | | | |
| 2700 pF | 141-4726 | | | | | |
| 3300 pF | 141-4729 | | | | | |
| 4700 pF | 141-4737 | | | | | |
| 0.01 µF | 180-0831 | | | | | |

**50 Volt d.c. X7R**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 4K+ |
|---|---|---|---|---|---|---|
| 1000 pF | 141-4710 | | | | | |
| 3300 pF | 141-4730 | | | | | |
| 4700 pF | 141-4738 | | | | | |
| 0.01 µF | 141-4713 | | | | | |
| 0.022 µF | 141-4723 | | | | | |
| 0.033 µF | 141-4731 | | | | | |
| 0.047 µF | 141-4740 | | | | | |
| 0.068 µF | 141-4742 | | | | | |
| 0.1 µF | 165-0887 | | | | | |
| 0.1 µF | 141-4715 | | | | | |
| 0.22 µF | 141-4725 | | | | | |
| 0.33 µF | 141-4733 | | | | | |
| 0.47 µF | 141-4741 | | | | | |
| 0.68 µF | 128-8263 RL | | | | | |

**50 Volt d.c. X8L**

| | Order Code | Price Each 5+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|
| 0.47 µF | 178-9746 | | | | |

**50 Volt d.c. X8R**

| | Order Code | Price Each 5+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|
| 6800 pF | 178-9747 | | | | |
| 0.01 µF | 178-9748 | | | | |
| 0.015 µF | 178-9749 | | | | |
| 0.022 µF | 178-9750 | | | | |
| 0.033 µF | 178-9751 | | | | |
| 0.047 µF | 178-9753 | | | | |
| 0.068 µF | 178-9754 | | | | |

**100 Volt d.c. NPO**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 2K+ |
|---|---|---|---|---|---|---|
| 10 pF | 180-0832 | | | | | |
| 22 pF | 180-0833 | | | | | |
| 100 pF | 141-4704 | | | | | |
| 1000 pF | 141-4706 | | | | | |
| 6800 pF | 153-5583 | | | | | |
| 0.01 µF | 180-0834 | | | | | |

**100 Volt d.c. X7R**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 4K+ |
|---|---|---|---|---|---|---|
| 0.022 µF | 141-4722 | | | | | |
| 0.047 µF | 141-4739 | | | | | |
| 0.1 µF | 141-4714 | | | | | |
| 0.22 µF | 141-4724 | | | | | |

**200 Volt d.c. NPO**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 2K+ |
|---|---|---|---|---|---|---|
| 10 pF | 180-0835 | | | | | |
| 100 pF | 180-0836 | | | | | |
| 470 pF | 141-4735 | | | | | |
| 1000 pF | 141-4708 | | | | | |

**200 Volt d.c. X7R**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 4K+ |
|---|---|---|---|---|---|---|
| 0.01 µF | 141-4712 | | | | | |
| 0.1 µF | 179-3839 | | | | | |

**25 Volt d.c. NPO**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 2K+ |
|---|---|---|---|---|---|---|
| 0.22 µF | 145-7760 | | | | | |

## 1210 Case Size

**50 Volt d.c. NPO**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 2K5+ |
|---|---|---|---|---|---|---|
| 0.1 µF | 153-5585 | | | | | |
| 0.15 µF | 153-5586 | | | | | |

**50 Volt d.c. X8L**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|
| 0.47 µF | 178-9761 | | | | |
| 0.68 µF | 178-9762 | | | | |

# Ceramic - Multilayer Chip - Kemet - continued

## Ceramic Chip Capacitors - continued

### 0201 Case Size - continued

**50 Volt d.c. X8R**

| | Order Code | Price Each 5+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|
| 0.015 µF | 178-9765 | | | | |
| 0.022 µF | 178-9766 | | | | |
| 0.033 µF | 178-9767 | | | | |
| 0.047 µF | 178-9768 | | | | |
| 0.068 µF | 178-9769 | | | | |
| 0.1 µF | 178-9770 | | | | |
| 0.15 µF | 178-9771 | | | | |

**100 Volt d.c. NPO**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 2K+ |
|---|---|---|---|---|---|---|
| 0.1 µF | 153-5587 | | | | | |

### 1812 Case Size

**50 Volt d.c. NPO**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|
| 0.033 µF | 167-9453 | | | | |
| 0.047 µF | 167-9455 | | | | |
| 0.22 µF | 167-9456 | | | | |

**50 Volt d.c. X7R**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 2K+ |
|---|---|---|---|---|---|
| 0.47 µF | 128-8285 RL | | | | |

**50 Volt d.c. X8R**

| | Order Code | Price Each 1+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|
| 0.1 µF | 178-9772 | | | | |
| 0.15 µF | 178-9773 | | | | |
| 0.22 µF | 178-9774 | | | | |

**100 Volt d.c. NPO**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|
| 0.1 µF | 167-9457 | | | | |
| 0.15 µF | 167-9458 | | | | |

### 2220 Case Size

**50 Volt d.c. NPO**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|
| 0.22 µF | 167-9459 | | | | |
| 0.47 µF | 167-9460 | | | | |

477535

**100 Volt d.c. NPO**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|
| 0.1 µF | 167-9461 | | | | |
| 0.15 µF | 167-9462 | | | | |
| 0.33 µF | 167-9463 | | | | |

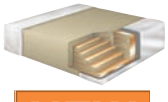
**Capacitance Conversion Table**

| | | | | |
|---|---|---|---|---|
| 0.000001µF | = | 0.001nF | = | 1pF |
| 0.00001µF | = | 0.01nF | = | 10pF |
| 0.0001µF | = | 0.1nF | = | 100pF |
| 0.001µF | = | 1nF | = | 1000pF |
| 0.01µF | = | 10nF | = | 10000pF |
| 0.1µF | = | 100nF | = | 100000pF |
| 1µF | = | 1000nF | = | 1000000pF |
| 10µF | = | 10000nF | = | 10000000pF |
| 100µF | = | 100000nF | = | 100000000pF |

## SMT Multilayer Ceramic Capacitors

SMD KEMET CHARGED.

### CBR Series



NEW

CBR series surface mount, multilayer capacitors (MLCC's) in C0G dielectric feature a robust and exceptionally stable base metal electrode dielectric system that provides an extremely low ESR and excellent low loss performance (High Q).

Operating temperature -55°C to +125°C to
Case size CBR02 = 0201
CBR04 = 0402
CBR06 = 0603
CBR08 = 0805

### 0201 Case Size

| | Mftrs. List No. | Order Code | Price Each 50+ | 250+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **25 Volt** | | | | | | |
| 0.1 pF | CBR02C108B3GAC | 197-2986 | | | | |
| 0.3 pF | CBR02C308B3GAC | 197-2987 | | | | |
| 0.5 pF | CBR02C508C3GAC | 197-2988 | | | | |
| 0.7 pF | CBR02C708C3GAC | 197-2989 | | | | |
| 0.9 pF | CBR02C908C3GAC | 197-2990 | | | | |
| 1.2 pF | CBR02C129C3GAC | 197-2991 | | | | |
| 1.8 pF | CBR02C189C3GAC | 197-2992 | | | | |
| 2.7 pF | CBR02C279C3GAC | 197-2993 | | | | |
| 3.9 pF | CBR02C399C3GAC | 197-2994 | | | | |
| 5.6 pF | CBR02C569D3GAC | 197-2995 | | | | |
| 8.2 pF | CBR02C829D3GAC | 197-2997 | | | | |
| 10 pF | CBR02C100J3GAC | 197-2998 | | | | |
| 11 pF | CBR02C110J3GAC | 197-2999 | | | | |
| 12 pF | CBR02C120J3GAC | 197-3000 | | | | |
| 13 pF | CBR02C130J3GAC | 197-3001 | | | | |
| 15 pF | CBR02C150J3GAC | 197-3002 | | | | |
| 16 pF | CBR02C160J3GAC | 197-3003 | | | | |
| 18 pF | CBR02C180J3GAC | 197-3004 | | | | |

### 0402 Case Size

| | Mftrs. List No. | Order Code | Price Each 50+ | 250+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **50 Volt** | | | | | | |
| 0.1 pF | CBR04C108B5GAC | 197-3005 | | | | |
| 0.2 pF | CBR04C208B5GAC | 197-3006 | | | | |
| 0.3 pF | CBR04C308B5GAC | 197-3007 | | | | |
| 0.4 pF | CBR04C408B5GAC | 197-3008 | | | | |
| 0.5 pF | CBR04C508C5GAC | 197-3011 | | | | |
| 0.6 pF | CBR04C608C5GAC | 197-3012 | | | | |
| 0.7 pF | CBR04C708C5GAC | 197-3013 | | | | |
| 0.8 pF | CBR04C808C5GAC | 197-3014 | | | | |
| 0.9 pF | CBR04C908C5GAC | 197-3015 | | | | |
| 1 pF | CBR04C109C5GAC | 197-3016 | | | | |
| 1.5 pF | CBR04C159C5GAC | 197-3017 | | | | |
| 2.2 pF | CBR04C229C5GAC | 197-3018 | | | | |
| 3.3 pF | CBR04C339C5GAC | 197-3019 | | | | |
| 4.7 pF | CBR04C479C5GAC | 197-3020 | | | | |
| 6.8 pF | CBR04C689D5GAC | 197-3021 | | | | |
| 10 pF | CBR04C100J5GAC | 197-3023 | | | | |
| 12 pF | CBR04C120J5GAC | 197-3024 | | | | |
| 15 pF | CBR04C150J5GAC | 197-3025 | | | | |
| 16 pF | CBR04C160J5GAC | 197-3026 | | | | |
| 18 pF | CBR04C180J5GAC | 197-3027 | | | | |
| 20 pF | CBR04C200J5GAC | 197-3028 | | | | |
| 22 pF | CBR04C220J5GAC | 197-3029 | | | | |

### 0603 Case Size

| | Mftrs. List No. | Order Code | Price Each 50+ | 250+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **250 Volt** | | | | | | |
| 0.3 pF | CBR06C308BAGAC | 197-3030 | | | | |
| 0.4 pF | CBR06C408BAGAC | 197-3031 | | | | |
| 0.5 pF | CBR06C508CAGAC | 197-3032 | | | | |
| 0.8 pF | CBR06C808CAGAC | 197-3033 | | | | |
| 1.2 pF | CBR06C129CAGAC | 197-3035 | | | | |
| 2.2 pF | CBR06C229CAGAC | 197-3036 | | | | |
| 3.9 pF | CBR06C399CAGAC | 197-3037 | | | | |
| 6.8 pF | CBR06C689DAGAC | 197-3038 | | | | |
| 10 pF | CBR06C100JAGAC | 197-3039 | | | | |
| 12 pF | CBR06C120JAGAC | 197-3040 | | | | |
| 15 pF | CBR06C150JAGAC | 197-3041 | | | | |
| 18 pF | CBR06C180JAGAC | 197-3042 | | | | |
| 22 pF | CBR06C220JAGAC | 197-3043 | | | | |
| 27 pF | CBR06C270JAGAC | 197-3044 | | | | |
| 33 pF | CBR06C330JAGAC | 197-3045 | | | | |
| 39 pF | CBR06C390JAGAC | 197-3047 | | | | |
| 47 pF | CBR06C470JAGAC | 197-3048 | | | | |

### 0805 Case Size

659660

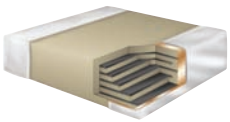
| | Mftrs. List No. | Order Code | Price Each 1+ | 250+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **250 Volt** | | | | | | |
| 2.2 pF | CBR08C229CAGAC | 197-3049 | | | | |
| 3.3 pF | CBR08C339BAGAC | 197-3050 | | | | |
| 4.7 pF | CBR08C479CAGAC | 197-3051 | | | | |
| 6.8 pF | CBR08C689BAGAC | 197-3052 | | | | |
| 10 pF | CBR08C100JAGAC | 197-3053 | | | | |
| 12 pF | CBR08C120JAGAC | 197-3054 | | | | |
| 15 pF | CBR08C150JAGAC | 197-3055 | | | | |
| 18 pF | CBR08C180JAGAC | 197-3056 | | | | |
| 22 pF | CBR08C220JAGAC | 197-3057 | | | | |
| 27 pF | CBR08C270JAGAC | 197-3059 | | | | |
| 33 pF | CBR08C330JAGAC | 197-3061 | | | | |
| 39 pF | CBR08C390JAGAC | 197-3062 | | | | |

| | Mftrs. List No. | Order Code | Price Each 1+ | 250+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **250 Volt** | | | | | | |
| 47 pF | CBR08C470JAGAC | **197-3063** | | | | |
| 56 pF | CBR08C560JAGAC | **197-3064** | | | | |
| 68 pF | CBR08C680JAGAC | **197-3065** | | | | |
| 82 pF | CBR08C820JAGAC | **197-3066** | | | | |
| 100 pF | CBR08C101JAGAC | **197-3067** | | | | |

## Kemet Arcshield Technology Capacitor, High Voltage, XR7 Dielectric.

NEW

KEMET CHARGED



Benefits
- -55°C to +125°C operating temperature range
- EIA 0805, 1206, 1210, 1808, & 1812 case sizes
- DC voltage ratings of 500V, 630V & 1KV
- Capacitance offerings ranging from 10pF to 0.33µF
- SnPb plated termination
- Flexible termination option

| | Voltage | Termination | Tolerance | Mftrs. LIst No. | Order Code |
|---|---|---|---|---|---|
| **0805 case** | | | | | |
| 3300pF | 500V | | ± 10% | C0805V332KCRAC TU | 208-5187 |
| 0.01µF | 500V | | ± 10% | C0805V103KCRAC TU | 208-5188 |
| 0.012µF | 500V | | ± 10% | C0805V123KCRAC TU | 208-5189 |
| 5600pF | 630V | | ± 10% | C0805V562KBRAC TU | 208-5190 |
| 8200pF | 630V | | ± 10% | C0805V822KBRAC TU | 208-5191 |
| 4700pF | 1kV | | ± 10% | C0805V472KDRAC TU | 208-5192 |
| 0.01µF | 500V | Flexible | ± 10% | C0805W103KCRAC TU | 208-5220 |
| 0.012µF | 500V | Flexible | ± 10% | C0805W123KCRAC TU | 208-5221 |
| 4700pF | 1kV | Flexible | ± 10% | C0805W472KDRAC TU | 208-5222 |
| **1206 Case** | | | | | |
| 0.022µF | 500V | | ± 10% | C1206V223KCRAC TU | 208-5193 |
| 0.022µF | 500V | | ± 10% | C1206V223KCRAC TU | 208-5193 |
| 0.047µF | 500V | | ± 10% | C1206V473KCRAC TU | 208-5194 |
| 0.068µF | 500V | | ± 10% | C1206V683KCRAC TU | 208-5195 |
| 0.022µF | 630V | | ± 10% | C1206V223KBRAC TU | 208-5196 |
| 0.033µF | 630V | | ± 10% | C1206V333KBRAC TU | 208-5198 |
| 0.022µF | 1kV | | ± 10% | C1206V223KDRAC TU | 208-5199 |
| 0.047µF | 500V | Flexible | ± 10% | C1206W473KCRAC TU | 208-5223 |
| 0.022µF | 630V | Flexible | ± 10% | C1206W223KBRAC TU | 208-5224 |
| **1210 case** | | | | | |
| 0.15µF | 500V | | ± 10% | C1210V154KCRAC TU | 208-5200 |
| 0.1µF | 500V | | ± 10% | C1210V104KCRAC TU | 208-5201 |
| 0.033µF | 500V | | ± 10% | C1210V333KCRAC TU | 208-5202 |
| 0.082µF | 630V | | ± 10% | C1210V823KBRAC TU | 208-5204 |
| 0.022µF | 630V | | ± 10% | C1210V223KBRAC TU | 208-5205 |
| 0.056µF | 1kV | | ± 10% | C1210V563KDRAC TU | 208-5206 |
| 0.047µF | 1kV | | ± 10% | C1210V473KDRAC TU | 208-5207 |
| 0.1µF | 500V | Flexible | ± 10% | C1210W104KCRAC TU | 208-5225 |
| 0.056µF | 1kV | Flexible | ± 10% | C1210W563KDRAC TU | 208-5226 |
| **1808 case** | | | | | |
| 0.15µF | 500V | | ± 10% | C1808V154KCRAC TU | 208-5208 |
| 0.15µF | 500V | | ± 10% | C1808V154KCRAC TU | 208-5208 |
| 0.1µF | 630V | | ± 10% | C1808V104KBRAC TU | 208-5209 |
| 0.068µF | 1kV | | ± 10% | C1808V683KDRAC TU | 208-5210 |
| 0.047µF | 1kV | | ± 10% | C1808V473KDRAC TU | 208-5211 |
| 0.022µF | 1kV | | ± 10% | C1808V223KDRAC TU | 208-5212 |
| 0.15µF | 500V | Flexible | ± 10% | C1808W154KCRAC TU | 208-5228 |
| **1812 Case** | | | | | |
| 0.33µF | 500V | | ± 10% | C1812V334KCRAC TU | 208-5213 |
| 0.1µF | 500V | | ± 10% | C1812V104KCRAC TU | 208-5214 |
| 0.15µF | 630V | | ± 10% | C1812V154KBRAC TU | 208-5216 |
| 0.033µF | 630V | | ± 10% | C1812V333KBRAC TU | 208-5217 |
| 0.1µF | 1kV | | ± 10% | C1812V104KDRAC TU | 208-5218 |
| 0.047µF | 1kV | | ± 10% | C1812V473KDRAC TU | 208-5219 |
| 0.1µF | 1kV | Flexible | ± 10% | C1812W104KDRAC TU | 208-5229 |
| 0.047µF | 1kV | Flexible | ± 10% | C1812W473KDRAC TU | 208-5230 |

654414

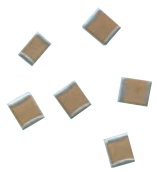
| | Order Code | Price Each 1+ | 10+ | 25+ | 50+ | 100+ |
|---|---|---|---|---|---|---|
| **0805 Case** | | | | | | |
| 3300pF | **208-5187** | | | | | |
| 0.01µF | **208-5188** | | | | | |
| 0.012µF | **208-5189** | | | | | |
| 5600pF | **208-5190** | | | | | |
| 8200pF | **208-5191** | | | | | |
| 4700pF | **208-5192** | | | | | |
| 0.01µF | **208-5220** | | | | | |
| 0.012µF | **208-5221** | | | | | |
| 4700pF | **208-5222** | | | | | |
| **1206 Case** | | | | | | |
| 0.022µF | **208-5193** | | | | | |
| 0.047µF | **208-5194** | | | | | |
| 0.068µF | **208-5195** | | | | | |
| 0.022µF | **208-5196** | | | | | |
| 0.033µF | **208-5198** | | | | | |
| 0.022µF | **208-5199** | | | | | |
| 0.047µF | **208-5223** | | | | | |
| 0.022µF | **208-5224** | | | | | |
| **1210 Case** | | | | | | |
| 0.15µF | **208-5200** | | | | | |
| 0.1µF | **208-5201** | | | | | |
| 0.033µF | **208-5202** | | | | | |

| | Order Code | Price Each 1+ | 10+ | 25+ | 50+ | 100+ |
|---|---|---|---|---|---|---|
| **1210 Case** | | | | | | |
| 0.082µF | **208-5204** | | | | | |
| 0.022µF | **208-5205** | | | | | |
| 0.056µF | **208-5206** | | | | | |
| 0.047µF | **208-5207** | | | | | |
| 0.1µF | **208-5225** | | | | | |
| 0.056µF | **208-5226** | | | | | |
| **1808 Case** | | | | | | |
| 0.15µF | **208-5208** | | | | | |
| 0.1µF | **208-5209** | | | | | |
| 0.068µF | **208-5210** | | | | | |
| 0.047µF | **208-5211** | | | | | |
| 0.022µF | **208-5212** | | | | | |
| 0.15µF | **208-5228** | | | | | |
| **1812 Case** | | | | | | |
| 0.33µF | **208-5213** | | | | | |
| 0.1µF | **208-5214** | | | | | |
| 0.15µF | **208-5216** | | | | | |
| 0.033µF | **208-5217** | | | | | |
| 0.1µF | **208-5218** | | | | | |
| 0.047µF | **208-5219** | | | | | |
| 0.1µF | **208-5229** | | | | | |
| 0.047µF | **208-5230** | | | | | |

## Open Mode Ceramic Capacitors

KEMET CHARGED

SMD



Open Mode ceramic surface mount capacitors are designed to significantly minimise the probability of a low IR or short cicuit condition when forced to failure in a board flex situation. This reduces the potential for causing catastrophic failures.

**Applications:**
- Input side filtering
- High current applications
- Circuits that cannot be fused to open when short circuits occur due to flex cracks

| | | | |
|---|---|---|---|
| Performance characteristics | | Performance characteristics | |
| Operating Temperature | X7R -55°C to +125°C | Tolerance | X7R ±10% |

| | Voltage Rating | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 2K+ |
|---|---|---|---|---|---|---|---|
| **0805 Case Size** | | | | | | | |
| 0.68 µF | 16 | **135-8502** | | | | | |
| 0.47 µF | 25 | **128-8274** RL | | | | | |
| 0.01 µF | 50 | **128-8268** RL | | | | | |
| 0.047 µF | 50 | **128-8270** RL | | | | | |
| 0.1 µF | 50 | **128-8272** RL | | | | | |
| 0.22 µF | 50 | **128-8273** RL | | | | | |
| 0.01 µF | 100 | NEW **186-9066** | | | | | |
| 0.022 µF | 100 | **128-8269** RL | | | | | |
| 0.068 µF | 100 | **135-8501** | | | | | |
| **1206 Case Size** | | | | | | | |
| 4.7 µF | 16 | **135-8506** | | | | | |
| 2.2 µF | 25 | **135-8505** | | | | | |
| 0.22 µF | 50 | **128-8276** RL | | | | | |
| 0.47 µF | 50 | **135-8504** | | | | | |
| 1 µF | 50 | **128-8277** RL | | | | | |
| 0.1 µF | 100 | **128-8275** RL | | | | | |
| 0.33 µF | 100 | **135-8503** | | | | | |
| **1210 Case Size** | | | | | | | |
| 4.7 µF | 25 | **135-8508** | | | | | |
| 1 µF | 50 | **128-8278** RL | | | | | |
| 2.2 µF | 50 | **135-8507** | | | | | |
| 0.47 µF | 100 | **157-2641** | | | | | |
| **1812 Case Size** | | | | | | | |
| 0.68 µF | 100 | **157-2643** | | | | | |
| 1 µF | 100 | **157-2642** | | | | | |

**Auto - AECQ-200 Qualified**

451531

| | Voltage Rating | Order Code | Price Each 10+ | 50+ | 100+ | 1K+ | 4K+ |
|---|---|---|---|---|---|---|---|
| **0805 Case Size** | | | | | | | |
| 0.47 µF | 25 | NEW **186-9051** | | | | | |
| 0.022 µF | 50 | NEW **186-9052** | | | | | |
| 0.047 µF | 50 | NEW **186-9053** | | | | | |
| 0.1 µF | 50 | NEW **186-9054** | | | | | |
| 1000 pF | 100 | NEW **186-9055** | | | | | |
| 2200 pF | 100 | NEW **186-9056** | | | | | |

# Ceramic - Multilayer Chip - Kemet - continued

## Open Mode Ceramic Capacitors - continued

**Auto - AECQ-200 Qualified** - continued

| | Voltage Rating | Order Code | Price Each 10+ | 50+ | 100+ | 1K+ | 4K+ |
|---|---|---|---|---|---|---|---|
| **0805 Case Size** | | | | | | | |
| 4700 pF | 100 | NEW 186-9057 | | | | | |
| 0.01 µF | 100 | NEW 186-9058 | | | | | |
| 0.022 µF | 100 | NEW 186-9059 | | | | | |
| **1206 Case Size** | | | | | | | |
| 0.47 µF | 50 | NEW 186-9060 | | | | | |
| 0.047 µF | 100 | NEW 186-9062 | | | | | |
| 0.22 µF | 100 | NEW 186-9063 | | | | | |
| **1210 Case Size** | | | | | | | |
| 1 µF | 50 | NEW 186-9064 | | | | | |
| 2.2 µF | 50 | NEW 186-9065 | | | | | |

## Capacitor Engineering Kits



A range of three ceramic capacitor engineering kits from Kemet ideal for use during test and development. Each kit contains 20 pieces of each value as well as complete data books.

| Kit | Number of Values | Order Code |
|---|---|---|
| Hi CV Ceramic Capacitors Engineering Kit | 20 | 128-8251 |
| Open Mode Cermic Chip Engineering Kit | 10 | 128-8267 |

451551

| Order Code | Price Each 1+ |
|---|---|
| All Kits | |

## FT-CAP Flexible Terminations



- Multi-layer ceramic capacitor, with unique, flexible termination system
- Conductive epoxy utilized between the conductive metallization and nickel barrier establishes pliability while maintaining terminal strength, solderability and electrical preformance
- Board flex stress is directed away from the ceramic body into the termination area
- This termination system mitigates the risk of low-IR or short-circuit failues associated with board flex

| | | | |
|---|---|---|---|
| Operating and storage temperature | -55°C to +125°C | Dielectric characteristic | X7R |
| Tolerance | ±10% | | |

### 0603 Case Size

| | Mftrs. List No. | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **16 Volt** | | | | | | |
| 0.1 µF | C0603X104K4RACTU | 141-4027 | | | | |
| 0.22 µF | C0603X224K4RACTU | 141-4032 | | | | |
| 0.47 µF | C0603X474K4RACTU | 141-4037 | | | | |
| **50 Volt** | | | | | | |
| 1000 pF | C0603X102K5RACTU | 141-4025 | | | | |
| 0.01 µF | C0603X103K5RACTU | 141-4026 | | | | |
| 0.033 µF | C0603X333K5RACTU | 141-4034 | | | | |
| 0.047 µF | C0603X473K5RACTU | 141-4036 | | | | |
| 0.1 µF | C0603X104K5RACTU | 141-4028 | | | | |
| **100 Volt** | | | | | | |
| 1000 pF | C0603X102K1RACTU | 141-4023 | | | | |

### 0805 Case Size

| | Mftrs. List No. | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **16 Volt** | | | | | | |
| 1 µF | C0805X105K4RACTU | 141-4042 | | | | |
| 2.2 µF | C0805X225K4RACTU | 141-4047 | | | | |
| **25 Volt** | | | | | | |
| 0.22 µF | C0805X224K3RACTU | 141-4046 | | | | |
| 0.47 µF | C0805X474K3RACTU | 141-4049 | | | | |
| **50 Volt** | | | | | | |
| 1000 pF | C0805X102K5RACTU | 141-4038 | | | | |
| 0.01 µF | C0805X103K5RACTU | 141-4040 | | | | |
| 0.1 µF | C0805X104K5RACTU | 141-4041 | | | | |
| **100 Volt** | | | | | | |
| 0.01 µF | C0805X103K1RACTU | 141-4039 | | | | |
| 0.022 µF | C0805X223K1RACTU | 141-4043 | | | | |

### 1206 Case Size

| | Mftrs. List No. | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **25 Volt** | | | | | | |
| 1 µF | C1206X105K3RACTU | 141-4054 | | | | |
| 4.7 µF | C1206X475K3RACTU | 141-4061 | | | | |
| **50 Volt** | | | | | | |
| 0.1 µF | C1206X104K5RACTU | 141-4053 | | | | |
| 0.22 µF | C1206X224K5RACTU | 141-4056 | | | | |
| 0.47 µF | C1206X474K5RACTU | 141-4060 | | | | |
| 1 µF | C1206X105K5RACTU | 141-4055 | | | | |
| 2.2 µF | C1206X225K5RACTU | 141-4058 | | | | |
| **100 Volt** | | | | | | |
| 0.01 µF | C1206X103K1RACTU | 141-4050 | | | | |
| 0.1 µF | C1206X104K1RACTU | 141-4052 | | | | |

### 1210 Case Size

| | Mftrs. List No. | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **25 Volt d.c.** | | | | | | |
| 10 µF | C1210X106K3RACTU | 141-4064 | | | | |
| **50 Volt d.c.** | | | | | | |
| 0.22 µF | C1210X224K5RACTU | 141-4065 | | | | |
| 1 µF | C1210X105K5RACTU | 141-4063 | | | | |
| 2.2 µF | C1210X225K5RACTU | 141-4066 | | | | |
| 4.7 µF | C1210X475K5RACTU | 141-4067 | | | | |
| **100 Volt d.c.** | | | | | | |
| 0.1 µF | C1210X104K1RACTU | 141-4062 | | | | |

### 1812 Case Size

| | Mftrs. List No. | Order Code | Price Each 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| **25 Volt** | | | | | | |
| 10 µF | C1812X106K3RACTU | 169-9296 | | | | |
| **50 Volt** | | | | | | |
| 0.1 µF | C1812X104K5RACTU | 169-9298 | | | | |
| 1 µF | C1812X105K5RACTU | 169-9299 | | | | |
| 4.7 µF | C1812X475K5RACTU | 169-9300 | | | | |
| **100 Volt** | | | | | | |
| 0.022 µF | C1812X223K1RACTU | 169-9302 | | | | |
| 0.047 µF | C1812X473K1RACTU | 169-9303 | | | | |
| 0.22 µF | C1812X224K1RACTU | 169-9304 | | | | |
| 0.47 µF | C1812X474K1RACTU | 169-9305 | | | | |

### 1825 Case Size

| | Mftrs. List No. | Order Code | Price Each 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| **50 Volt** | | | | | | |
| 2.2 µF | C1825X225K5RACTU | 169-9306 | | | | |

### 2220 Case Size

476164

| | Mftrs. List No. | Order Code | Price Each 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| **25 Volt** | | | | | | |
| 22 µF | C2220X226K3RACTU | 169-9307 | | | | |
| **50 Volt** | | | | | | |
| 0.47 µF | C2220X474K5RACTU | 169-9308 | | | | |
| 2.2 µF | C2220X225K5RACTU | 169-9309 | | | | |
| 10 µF | C2220X106K5RACTU | 169-9310 | | | | |
| **200 Volt** | | | | | | |
| 0.1 µF | C2220X104K2RACTU | 169-9311 | | | | |
| 0.22 µF | C2220X224K2RACTU | 169-9312 | | | | |
| 1 µF | C2220X105K2RACTU | 169-9314 | | | | |

**IMPROVED BACK ORDER DELIVERY**

Receive email updates with the exact status, due date and despatch information of all your back order items **farnell.com**



RoHS ● Compliant ▲ Non-compliant

## Floating Electrode MLCC

**FE Series**

NEW

KEMET CHARGED.



- A SMD MLCC which utilises a floating internal electrode design - the electrodes are configured to form multiple capacitors in series within a single MLCC package
- This not only yields inproved voltage and ESD performance over standard designs, but also mitigates the risk of low-IR or short-circuit failures that can occur due to board flex

SMD

| Performance characteristics | X7R | Performance characteristics | X7R |
|---|---|---|---|
| Operating Temperature | -55°C to +125°C | Tolerance | ± 10% |

495406

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 10K+ |
|---|---|---|---|---|---|---|
| **50 Volt d.c. 0603 Case Size X7R** | | | | | | |
| 330 pF | **152-0261** | | | | | |
| 680 pF | **152-0265** | | | | | |
| 1000 pF | **152-0252** | | | | | |
| 1500 pF | **152-0254** | | | | | |
| 2200 pF | **152-0256** | | | | | |
| 2700 pF | **152-0259** | | | | | |
| 3300 pF | **152-0262** | | | | | |
| 6800 pF | **152-0266** | | | | | |
| 0.01 µF | **152-0253** | | | | | |
| 0.022 µF | **152-0257** | | | | | |
| **50 Volt d.c. 0805 Case Size X7R** | | | | | | |
| 470 pF | **152-0274** | | | | | |
| 2200 pF | **152-0269** | | | | | |
| 3300 pF | **152-0272** | | | | | |
| 4700 pF | **152-0275** | | | | | |
| 0.022 µF | **152-0270** | | | | | |
| 0.033 µF | **152-0273** | | | | | |
| **50 Volt d.c. 1206 Case Size X7R** | | | | | | |
| 1000 pF | **152-0277** | | | | | |
| 4700 pF | **152-0282** | | | | | |
| 0.022 µF | **152-0281** | | | | | |
| 0.047 µF | **152-0284** | | | | | |
| **200 Volt d.c. 1206 Case Size X7R** | | | | | | |
| 0.01 µF | **152-0278** | | | | | |

## Floating Electrode MLCC with Flexible Termination

**FF Series**

KEMET CHARGED.

NEW



- The floating electrode component of these capacitors yields improved voltage and ESD performance over standard designs, and also mitigates the risk of low IR or short circuit failures associated with mechanical flex cracks

SMD

- The flexible termination component incorporates a measure of flexibility to the capacitor, shifting stress away from the ceramic body and into the termination area

| Performance characteristics | X7R | Performance characteristics | X7R |
|---|---|---|---|
| Operating Temperature | -55°C to +125°C | Tolerance | ± 10% |

495405

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 4K+ |
|---|---|---|---|---|---|---|
| **50 Volt d.c. 0603 Case Size X7R** | | | | | | |
| 220 pF | **152-0286** | | | | | |
| 470 pF | **152-0287** | | | | | |
| 2200 pF | **152-0289** | | | | | |
| 4700 pF | **152-0290** | | | | | |
| **50 Volt d.c. 0805 Case Size X7R** | | | | | | |
| 220 pF | **152-0293** | | | | | |
| 470 pF | **152-0294** | | | | | |
| 1000 pF | **152-0296** | | | | | |
| 4700 pF | **152-0298** | | | | | |
| 0.047 µF | **152-0303** | | | | | |
| **50 Volt d.c. 1206 Case Size X7R** | | | | | | |
| 2200 pF | **152-0305** | | | | | |
| 4700 pF | **152-0306** | | | | | |
| 0.01 µF | **152-0307** | | | | | |
| **200 Volt d.c. 1206 Case Size X7R** | | | | | | |
| 0.01 µF | **152-0308** | | | | | |
| **100 Volt d.c. 1210 Case Size X7R** | | | | | | |
| 2200 pF | **152-0312** | | | | | |
| 4700 pF | **152-0314** | | | | | |
| **200 Volt d.c. 1210 Case Size X7R** | | | | | | |
| 0.01 µF | **152-0315** | | | | | |

## Polymer Hybrid Type - ZA Series

**Type V**

Panasonic



- Surface mount type
- Low ESR and high ripple current

NEW

| | |
|---|---|
| Operating temperature | -55°C to +105°C |
| Endurance | 5000 hours @ 105°C |
| Tolerance | ± 20% |

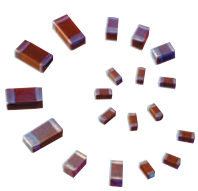
| Capacitance | Ripple current 100 kHz | ESR 100 kHz | Dimensions in mm Dia. | Length | Order Code |
|---|---|---|---|---|---|
| **25 Volt d.c** | | | | | |
| 33µF | 900mA | 0.08ohm | 5 | 5.8 | 209-5309 |
| 56µF | 1.3A | 0.08ohm | 6.3 | 5.8 | 190-7241 |
| 100µF | 2A | 0.03ohm | 6.3 | 7.7 | 209-5310 |
| 220µF | 2.3A | 0.027ohm | 8 | 10.2 | 209-5311 |
| 330µF | 2.5A | 0.02ohm | 10 | 10.2 | 209-5313 |
| **35 Volt d.c** | | | | | |
| 22µF | 900mA | 0.1ohm | 5 | 5.8 | 209-5314 |
| 27µF | 1.3A | 0.08ohm | 6.3 | 5.8 | 190-7242 |
| 68µF | 2A | 0.035ohm | 6.3 | 7.7 | 209-5315 |
| 150µF | 2.3A | 0.027ohm | 8 | 10.2 | 209-5316 |
| 270µF | 2.5A | 0.02ohm | 10 | 10.2 | 209-5317 |
| 47µF | 1.3A | 0.08ohm | 6.3 | 5.8 | 190-7243 |
| **50 Volt d.c** | | | | | |
| 10µF | 750mA | 0.12ohm | 5 | 5.8 | 209-5318 |
| 22µF | 1.1A | 0.1ohm | 6.3 | 5.8 | 190-7245 |
| 33µF | 1.6A | 0.04ohm | 6.3 | 7.7 | 209-5319 |
| 68µF | 1.8A | 0.03ohm | 8 | 10.2 | 209-5320 |
| 100µF | 2A | 0.028ohm | 10 | 10.2 | 209-5321 |
| **63 Volt d.c** | | | | | |
| 10µF | 1A | 0.12ohm | 6.3 | 5.8 | 209-5322 |
| 22µF | 1.5A | 0.08ohm | 6.3 | 7.7 | 209-5323 |
| 33µF | 1.6A | 0.04ohm | 8 | 10.2 | 209-5325 |
| 56µF | 1.8A | 0.03ohm | 10 | 10.2 | 209-5326 |

638885

| Capacitance | Mftrs. List No. | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **25 Volt d.c** | | | | | | | |
| 33µF | EEHZA1E330R | **209-5309** | | | | | |
| 56µF | EEHZA1E560P | **190-7241** | | | | | |
| 100µF | EEHZA1E101XP | **209-5310** | | | | | |
| 220µF | EEHZA1E221P | **209-5311** | | | | | |
| 330µF | EEHZA1E331P | **209-5313** | | | | | |
| **35 Volt d.c** | | | | | | | |
| 22µF | EEHZA1V220R | **209-5314** | | | | | |
| 27µF | EEHZA1V270P | **190-7242** | | | | | |
| 68µF | EEHZA1V680XP | **209-5315** | | | | | |
| 150µF | EEHZA1V151P | **209-5316** | | | | | |
| 270µF | EEHZA1V271P | **209-5317** | | | | | |
| 47µF | EEHZA1V470P | **190-7243** | | | | | |
| **50 Volt d.c** | | | | | | | |
| 10µF | EEHZA1H100R | **209-5318** | | | | | |
| 22µF | EEHZA1H220P | **190-7245** | | | | | |
| 33µF | EEHZA1H330XP | **209-5319** | | | | | |
| 68µF | EEHZA1H680P | **209-5320** | | | | | |
| 100µF | EEHZA1H101P | **209-5321** | | | | | |
| **63 Volt d.c** | | | | | | | |
| 10µF | EEHZA1J100P | **209-5322** | | | | | |
| 22µF | EEHZA1J220XP | **209-5323** | | | | | |
| 33µF | EEHZA1J330P | **209-5325** | | | | | |
| 56µF | EEHZA1J560P | **209-5326** | | | | | |

## High Temperature MLCC

KEMET CHARGED.



- Extremely low ESR and ESL
- High Thermal Stability
- High Ripple Current Capability
- Tolerance: ± 5%
- Minimal capacitance change with respect to temperature from -55°C to +200°C

NEW

610831

| | Voltage (V) | Mftrs. List No. | Order Code | Price Each 1+ | 50+ | 250+ | 500+ |
|---|---|---|---|---|---|---|---|
| **0402 Case** | | | | | | | |
| 1500 pF | 25 | C0402H152J3GACTU | **197-3069** | | | | |
| 10 pF | 50 | C0402H100J5GACTU | **197-3070** | | | | |
| 15 pF | 50 | C0402H150J5GACTU | **197-3072** | | | | |
| 22 pF | 50 | C0402H220J5GACTU | **197-3073** | | | | |
| 33 pF | 50 | C0402H330J5GACTU | **197-3074** | | | | |
| 47 pF | 50 | C0402H470J5GACTU | **197-3075** | | | | |
| 68 pF | 50 | C0402H680J5GACTU | **197-3076** | | | | |
| 100 pF | 50 | C0402H101J5GACTU | **197-3077** | | | | |

# Ceramic - Multilayer Chip - Kemet - continued

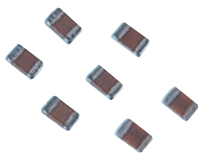
## High Temperature MLCC - continued

| | Voltage (V) | Mftrs. List No. | Order Code | Price Each 1+ | 50+ | 250+ | 500+ |
|---|---|---|---|---|---|---|---|
| **0402 Case** | | | | | | | |
| 150 pF | 50 | C0402H151J5GACTU | **197-3078** | | | | |
| 220 pF | 50 | C0402H221J5GACTU | **197-3079** | | | | |
| 330 pF | 50 | C0402H331J5GACTU | **197-3080** | | | | |
| 470 pF | 50 | C0402H471J5GACTU | **197-3081** | | | | |
| 680 pF | 50 | C0402H681J5GACTU | **197-3082** | | | | |
| 1000 pF | 50 | C0402H102J5GACTU | **197-3084** | | | | |
| **0603 Case** | | | | | | | |
| 0.01 µF | 25 | C0603H103J3GACTU | **182-6315** | | | | |
| 1000 pF | 100 | C0603H102J1GACTU | **182-6316** | | | | |
| 2200 pF | 100 | C0603H222J1GACTU | **182-6317** | | | | |
| 4700 pF | 100 | C0603H472J1GACTU | **182-6318** | | | | |
| **0805 Case** | | | | | | | |
| 0.01 µF | 50 | C0805H103J5GACTU | **182-6319** | | | | |
| 1000 pF | 100 | C0805H102J1GACTU | **182-6320** | | | | |
| 2200 pF | 100 | C0805H222J1GACTU | **182-6321** | | | | |
| 4700 pF | 100 | C0805H472J1GACTU | **182-6322** | | | | |
| 0.01 µF | 100 | C0805H103J1GACTU | **182-6324** | | | | |
| **1206 Case** | | | | | | | |
| 0.1 µF | 25 | C1206H104J3GACTU | **182-6325** | | | | |
| 0.01 µF | 50 | C1206H103J5GACTU | **182-6326** | | | | |
| 0.047 µF | 50 | C1206H473J5GACTU | **182-6327** | | | | |
| 0.01 µF | 100 | C1206H103J1GACTU | **182-6328** | | | | |
| 0.047 µF | 100 | C1206H473J1GACTU | **182-6329** | | | | |
| **1210 Case** | | | | | | | |
| 0.1 µF | 50 | C1210H104J5GACTU | **182-6330** | | | | |
| 0.1 µF | 100 | C1210H104J1GACTU | **182-6331** | | | | |
| **1812 Case** | | | | | | | |
| 0.1 µF | 50 | C1812H104J5GACTU | **182-6332** | | | | |
| 0.22 µF | 50 | C1812H224J5GACTU | **182-6333** | | | | |
| 0.1 µF | 100 | C1812H104J1GACTU | **182-6334** | | | | |

# Ceramic - Multilayer Chip - Murata

## Surface Mount – Chip ceramic

**GRM03/15/18/21/31 Series**



- Multilayer ceramic chip capacitors
- High performance and reliability
- 0201, 0402, 0603, 0805, and 1206 case sizes
- Nickel barrier terminations
- Conform to **IEC 384-10**

0201 case size L=0.6±0.03, W=0.3±0.03, H=0.03 ±0.3
0402 case size L=1.0±0.05, W=0.5±0.05, H=0.45 to 0.55, P=0.15 to 0.3
0603 case size L=1.6±0.1, W=0.8±0.1, H=0.7 to 0.9, P=0.25 to 0.65
0805 case size L=2.0±0.15, W=1.25±0.15, H=0.51 to 1.27, P=0.25 to 0.75
1206 case size L=3.2±0.15, W=1.60±0.15, H=0.51 to 1.60, P=0.25 to 0.75

Performance Characteristics

| | C0G | X7R | Y5V |
|---|---|---|---|
| Operating Temperature | -55°C to +125°C | -55°C to +125°C | -55°C to +85°C |
| Insulation resistance 100,000MΩ | Dielectric strength 2.5VR for 1 minute | | |

## 0201 Case Size

| | Tolerance | Reel Qty | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **6.3 Volt d.c. X5R, 0201 Case Size** | | | | | | | |
| 0.022 µF | ± 10% | 1000 | **177-5992** | | | | |
| 0.033 µF | ± 10% | 1000 | **177-5993** | | | | |
| 0.1 µF | ± 10% | 1000 | **177-5994** | | | | |
| **10 Volt d.c. X5R, 0201 Case Size** | | | | | | | |
| 2200 pF | ± 10% | 1000 | **177-5995** | | | | |
| **10 Volt d.c. X7R, 0201 Case Size** | | | | | | | |
| 3300 pF | ± 10% | 1000 | **177-5997** | | | | |
| 4700 pF | ± 10% | 1000 | **177-5998** | | | | |
| 6800 pF | ± 10% | 1000 | **177-5999** | | | | |
| 0.01 µF | ± 10% | 1000 | **177-6000** | | | | |

| | Tolerance | Reel Qty | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **25 Volt d.c. X7R, 0201 Case Size** | | | | | | | |
| 150 pF | ± 10% | 1000 | **177-6001** | | | | |
| 220 pF | ± 10% | 1000 | **177-6002** | | | | |
| 470 pF | ± 10% | 1000 | **177-6004** | | | | |
| 680 pF | ± 10% | 1000 | **177-6005** | | | | |
| 1000 pF | ± 10% | 1000 | **177-6006** | | | | |
| **25 Volt d.c. C0G, 0201 Case Size** | | | | | | | |
| 0.5 pF | ± 0.1pF | 1000 | **177-6007** | | | | |
| 1 pF | ± 0.25pF | 1000 | **177-6008** | | | | |
| 1.2 pF | ± 0.25pF | 1000 | **177-6011** | | | | |
| 1.8 pF | ± 0.25pF | 1000 | **177-6012** | | | | |
| 2 pF | ± 0.25pF | 1000 | **177-6013** | | | | |
| 2.2 pF | ± 0.25pF | 1000 | **177-6014** | | | | |
| 3 pF | ± 0.25pF | 1000 | **177-6015** | | | | |
| 3.9 pF | ± 0.25pF | 1000 | **177-6016** | | | | |
| 4 pF | ± 0.25pF | 1000 | **177-6017** | | | | |
| 4.7 pF | ± 0.25pF | 1000 | **177-6018** | | | | |
| 5.6 pF | ± 0.5pF | 1000 | **177-6020** | | | | |
| 6 pF | ± 0.5pF | 1000 | **177-6021** | | | | |
| 6.8 pF | ± 0.5pF | 1000 | **177-6023** | | | | |
| 7 pF | ± 0.5pF | 1000 | **177-6024** | | | | |
| 8 pF | ± 0.5pF | 1000 | **177-6025** | | | | |
| 8.2 pF | ± 0.5pF | 1000 | **177-6026** | | | | |
| 10 pF | ± 0.5pF | 1000 | **177-6028** | | | | |
| 100 pF | ± 5% | 1000 | **177-6029** | | | | |
| 12 pF | ± 5% | 1000 | **177-6030** | | | | |
| 15 pF | ± 5% | 1000 | **177-6031** | | | | |
| 18 pF | ± 5% | 1000 | **177-6032** | | | | |
| 22 pF | ± 5% | 1000 | **177-6033** | | | | |
| 27 pF | ± 5% | 1000 | **177-6035** | | | | |
| 33 pF | ± 5% | 1000 | **177-6036** | | | | |
| 47 pF | ± 5% | 1000 | **177-6038** | | | | |
| 68 pF | ± 5% | 1000 | **177-6040** | | | | |
| 82 pF | ± 5% | 1000 | **177-6041** | | | | |

| | Order Code | 1+ | 5+ | 10+ |
|---|---|---|---|---|
| GRM03 Design Kit | NEW **177-6042** | | | |

## 0402 Case Size

| | Tolerance | Reel Qty | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **6.3 Volt d.c. X5R, 0402 Case Size** | | | | | | | |
| 0.47 µF | ± 10% | 10000 | **881-9726** RL | | | | |
| **10 Volt d.c. X5R, 0402 Case Size** | | | | | | | |
| 0.1 µF | ± 10% | 10000 | **182-8862** | | | | |
| 0.22 µF | ± 10% | 10000 | **881-9718** RL | | | | |
| 0.47 µF | ± 10% | 10000 | **182-8863** | | | | |
| 0.1 µF | ± 10% | 10000 | **182-8860** | | | | |
| **16 Volt d.c. X7R, 0402 Case Size** | | | | | | | |
| 0.01 µF | ± 10% | 10000 | **182-8864** | | | | |
| 0.022 µF | ± 10% | 10000 | **182-8865** | | | | |
| 0.1 µF | -20%, +80% | 10000 | **182-8866** | | | | |
| 0.1 µF | ± 10% | 10000 | **881-9742** RL | | | | |
| **25 Volt d.c. X7R, 0402 Case Size** | | | | | | | |
| 0.01 µF | ± 10% | 10000 | **881-9734** RL | | | | |
| 0.033 µF | ± 10% | 10000 | **182-8867** | | | | |
| 0.047 µF | ± 10% | 10000 | **182-8868** | | | | |
| **50 Volt d.c. C0G, 0402 Case Size** | | | | | | | |
| 1 pF | ± 0.25% | 10000 | **881-9530** RL | | | | |
| 1.5 pF | ± 0.25pF | 10000 | **182-8869** | | | | |
| 1.8 pF | ± 0.25pF | 10000 | **182-8870** | | | | |
| 2.2 pF | ± 11% | 10000 | **881-9610** RL | | | | |
| 3.3 pF | ± 7% | 10000 | **881-9637** RL | | | | |
| 3.9 pF | ± 0.25pF | 10000 | **182-8871** | | | | |
| 4.7 pF | ± 5% | 10000 | **881-9661** RL | | | | |
| 5.6 pF | ± 0.25pF | 10000 | **182-8872** | | | | |
| 6.8 pF | ± 0.5pF | 10000 | **881-9696** RL | | | | |
| 8.2 pF | ± 0.25pF | 10000 | **182-8874** | | | | |
| 10 pF | ± 5% | 10000 | **881-9564** RL | | | | |
| 12 pF | ± 5% | 10000 | **182-8875** | | | | |
| 15 pF | ± 5% | 10000 | **881-9599** RL | | | | |
| 18 pF | ± 5% | 10000 | **182-8876** | | | | |
| 22 pF | ± 5% | 10000 | **881-9629** RL | | | | |
| 27 pF | ± 5% | 10000 | **182-8877** | | | | |
| 33 pF | ± 5% | 10000 | **881-9645** RL | | | | |
| 39 pF | ± 5% | 10000 | **182-8878** | | | | |
| 47 pF | ± 5% | 10000 | **881-9670** RL | | | | |
| 56 pF | ± 5% | 10000 | **182-8879** | | | | |
| 68 pF | ± 5% | 10000 | **881-9548** RL | | | | |
| 100 pF | ± 5% | 10000 | **881-9572** RL | | | | |


RoHS ● Compliant ▲ Non-compliant

| | Tolerance | Reel Qty | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **50 Volt d.c. C0G, 0402 Case Size** | | | | | | | |
| 150 pF | ± 5% | 10000 | **881-9602** RL | | | | |
| 220 pF | ± 5% | 10000 | **881-9580** RL | | | | |
| 330 pF | ± 5% | 10000 | **881-9653** RL | | | | |
| 470 pF | ± 5% | 10000 | **881-9688** RL | | | | |
| 680 pF | ± 5% | 10000 | **881-9700** RL | | | | |
| 1000 pF | ± 5% | 10000 | **881-9556** RL | | | | |
| **50 Volt d.c. X7R, 0402 Case Size** | | | | | | | |
| 220 pF | ± 10% | 10000 | **182-8880** | | | | |
| 470 pF | ± 10% | 10000 | **182-8881** | | | | |
| 1000 pF | ± 10% | 10000 | **182-8882** | | | | |
| 1500 pF | ± 10% | 10000 | **182-8883** | | | | |
| 2200 pF | ± 10% | 10000 | **182-8884** | | | | |
| 4700 pF | ± 10% | 10000 | **182-8886** | | | | |
| 0.01 µF | ± 10% | 10000 | **182-8887** | | | | |
| 0.022 µF | ± 10% | 10000 | **182-8888** | | | | |
| | | | **Order Code** | 1+ | 5+ | 10+ | |
| **GRM15 Design Kit** | | | **176-0700** | | | | |

## 0603 Case Size

| | Tolerance | Reel Qty | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **10 Volt d.c. X7R, 0603 Case Size** | | | | | | | |
| 0.22 µF | ± 10% | 4000 | **182-8889** | | | | |
| **16 Volt d.c. X7R, 0603 Case Size** | | | | | | | |
| 0.1 µF | ± 10% | 4000 | **182-8890** | | | | |
| 0.22 µF | ± 10% | 4000 | **182-8891** | | | | |
| 0.33 µF | ± 10% | 4000 | **182-8892** | | | | |
| 0.47 µF | ± 10% | 4000 | **182-8893** | | | | |
| **16 Volt d.c. X5R, 0603 Case Size** | | | | | | | |
| 0.47 µF | ± 10% | 4000 | **182-8894** | | | | |
| 0.47 µF | -20%, +80% | 4000 | **182-8895** | | | | |
| **25 Volt d.c. X7R, 0603 Case Size** | | | | | | | |
| 0.022 µF | ± 10% | 4000 | **182-8896** | | | | |
| 0.033 µF | ± 10% | 4000 | **182-8898** | | | | |
| 0.047 µF | ± 10% | 4000 | **882-0007** RL | | | | |
| 0.1 µF | ± 10% | 4000 | **182-8899** | | | | |
| 0.22 µF | ± 10% | 4000 | **182-8900** | | | | |
| 0.47 µF | ± 10% | 4000 | **182-8901** | | | | |
| 0.1 µF | -20%, +80% | 4000 | **182-8902** | | | | |
| **50 Volt d.c. C0G, 0603 Case Size** | | | | | | | |
| 1 pF | ± 25% | 4000 | **881-9750** RL | | | | |
| 1.5 pF | ± 16% | 4000 | **881-9769** RL | | | | |
| 2.2 pF | ± 0.25pF | 4000 | **881-9777** RL | | | | |
| 2.7 pF | ± 0.25pF | 4000 | **182-8904** | | | | |
| 3.3 pF | ± 7% | 4000 | **881-9785** RL | | | | |
| 3.9 pF | ± 0.25pF | 4000 | **182-8905** | | | | |
| 4.7 pF | ± 5% | 4000 | **881-9793** RL | | | | |
| 6.8 pF | ± 3% | 4000 | **881-9807** RL | | | | |
| 8.2 pF | ± 0.5pF | 4000 | **182-8906** | | | | |
| 10 pF | ± 5% | 4000 | **881-9815** RL | | | | |
| 12 pF | ± 5% | 4000 | **182-8907** | | | | |
| 15 pF | ± 5% | 4000 | **881-9823** RL | | | | |
| 18 pF | ± 5% | 4000 | **182-8908** | | | | |
| 22 pF | ± 5% | 4000 | **881-9831** RL | | | | |
| 27 pF | ± 5% | 4000 | **182-8909** | | | | |
| 33 pF | ± 5% | 4000 | **182-8910** | | | | |
| 47 pF | ± 5% | 4000 | **881-9840** RL | | | | |
| 56 pF | ± 5% | 4000 | **182-8911** | | | | |
| 68 pF | ± 5% | 4000 | **881-9858** RL | | | | |
| 100 pF | ± 5% | 4000 | **881-9866** RL | | | | |
| 150 pF | ± 5% | 4000 | **881-9874** RL | | | | |
| 220 pF | ± 5% | 4000 | **881-9882** RL | | | | |
| 330 pF | ± 5% | 4000 | **881-9890** RL | | | | |
| 470 pF | ± 5% | 4000 | **881-9904** RL | | | | |
| 560 pF | ± 5% | 4000 | **182-8912** | | | | |
| 680 pF | ± 5% | 4000 | **881-9912** RL | | | | |
| 1000 pF | ± 5% | 4000 | **881-9920** RL | | | | |
| 1000 pF | ± 1% | 4000 | **182-8913** | | | | |
| 1500 pF | ± 5% | 4000 | **881-9939** RL | | | | |
| 2200 pF | ± 5% | 4000 | **881-9947** RL | | | | |
| **50 Volt d.c. X7R, 0603 Case Size** | | | | | | | |
| 1000 pF | ± 10% | 4000 | **881-9955** RL | | | | |
| 2200 pF | ± 10% | 4000 | **881-9963** RL | | | | |
| 3300 pF | ± 10% | 4000 | **182-8914** | | | | |
| 4700 pF | ± 10% | 4000 | **881-9971** RL | | | | |
| 0.01 µF | ± 10% | 4000 | **881-9980** RL | | | | |
| 0.015 µF | ± 10% | 4000 | **182-8916** | | | | |
| 0.022 µF | ± 10% | 4000 | **881-9998** RL | | | | |
| 0.033 µF | ± 10% | 4000 | **182-8917** | | | | |
| 0.047 µF | ± 10% | 4000 | **882-0015** RL | | | | |
| 0.1 µF | ± 10% | 4000 | **882-0023** RL | | | | |
| **50 Volt d.c. Y5V, 0603 Case Size** | | | | | | | |
| 0.1 µF | -20%, +80% | 4000 | **182-8918** | | | | |
| **100 Volt d.c. C0G, 0603 Case Size** | | | | | | | |
| 100 pF | ± 5% | 4000 | **182-8919** | | | | |
| **100 Volt d.c. X7R, 0603 Case Size** | | | | | | | |
| 1000 pF | ± 10% | 4000 | **182-8920** | | | | |
| 0.1 µF | ± 10% | 4000 | **182-8921** | | | | |
| | | | **Order Code** | 1+ | 5+ | 10+ | |
| **GRM18 Design Kit** | | | **176-0702** | | | | |

## 0805 Case Size

| | Tolerance | Reel Qty | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **10 Volt d.c. X5R, 0805 Case Size** | | | | | | | |
| 4.7 µF | ± 10% | 3000 | **182-8922** | | | | |
| **10 Volt d.c. X7R, 0805 Case Size** | | | | | | | |
| 2.2 µF | ± 10% | 3000 | **182-8923** | | | | |
| **10 Volt d.c. Y5V, 0805 Case Size** | | | | | | | |
| 4.7 µF | -20%, +80% | 3000 | **182-8924** | | | | |
| **25 Volt d.c. X5R, 0805 Case Size** | | | | | | | |
| 0.22 µF | ± 10% | 4000 | **182-8925** | | | | |
| **25 Volt d.c. X7R, 0805 Case Size** | | | | | | | |
| 0.47 µF | ± 10% | 3000 | **182-8926** | | | | |
| 0.1 µF | ± 10% | 3000 | **182-8928** | | | | |
| **50 Volt d.c. C0G, 0805 Case Size** | | | | | | | |
| 10 pF | ± 5% | 4000 | **182-8929** | | | | |
| 22 pF | ± 5% | 4000 | **182-8930** | | | | |
| 33 pF | ± 5% | 4000 | **182-8931** | | | | |
| 47 pF | ± 5% | 4000 | **182-8932** | | | | |
| 100 pF | ± 5% | 4000 | **182-8933** | | | | |
| 220 pF | ± 5% | 4000 | **182-8934** | | | | |
| 330 pF | ± 5% | 4000 | **182-8935** | | | | |
| 470 pF | ± 5% | 4000 | **182-8936** | | | | |
| 1000 pF | ± 5% | 4000 | **182-8937** | | | | |
| 1500 pF | ± 5% | 4000 | **182-8938** | | | | |
| 2200 pF | ± 5% | 4000 | **882-0031** RL | | | | |
| 2700 pF | ± 5% | 4000 | **182-8941** | | | | |
| 3300 pF | ± 5% | 4000 | **882-0040** RL | | | | |
| 4700 pF | ± 5% | 4000 | **182-8942** | | | | |
| 4700 pF | ± 5% | 4000 | **882-0058** RL | | | | |
| 6800 pF | ± 5% | 4000 | **882-0066** RL | | | | |
| 0.01 µF | ± 5% | 4000 | **882-0074** RL | | | | |
| 0.022 µF | ± 5% | 3000 | **182-8943** | | | | |
| **50 Volt d.c. Y5V, 0805 Case Size** | | | | | | | |
| 0.1 µF | -20%, +80% | 4000 | **182-8944** | | | | |
| **50 Volt d.c. X7R, 0805 Case Size** | | | | | | | |
| 1000 pF | ± 10% | 4000 | **182-8945** | | | | |
| 2200 pF | ± 10% | 4000 | **182-8946** | | | | |
| 4700 pF | ± 10% | 4000 | **182-8947** | | | | |
| 4700 pF | ± 5% | 4000 | **882-0082** RL | | | | |
| 0.01 µF | ± 5% | 4000 | **882-0090** RL | | | | |
| 0.01 µF | ± 10% | 4000 | **182-8948** | | | | |
| 0.015 µF | ± 10% | 4000 | **182-8949** | | | | |
| 0.022 µF | ± 10% | 4000 | **882-0104** RL | | | | |
| 0.033 µF | ± 10% | 4000 | **182-8950** | | | | |
| 0.047 µF | ± 10% | 3000 | **882-0112** RL | | | | |
| 0.1 µF | ± 10% | 3000 | **882-0120** RL | | | | |
| 0.22 µF | ± 10% | 3000 | **882-0139** RL | | | | |
| 0.33 µF | ± 10% | 4000 | **182-8951** | | | | |
| 1 µF | ± 10% | 3000 | **182-8953** | | | | |
| **100 Volt d.c. C0G, 0805 Case Size** | | | | | | | |
| 100 pF | ± 5% | 4000 | **182-8954** | | | | |
| **250 Volt d.c. X7R, 0805 Case Size** | | | | | | | |
| 0.01 µF | ± 10% | 3000 | **182-8955** | | | | |

# Ceramic - Multilayer Chip - Murata - continued

## 1210 Case Size - continued

**GRM03/15/18/21/31 Series - continued**

## 1206 Case Size

| | Toler-ance | Reel Qty | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **25 Volt d.c. COG, 1206 Case Size** | | | | | | | |
| 0.1 µF | ± 5% | 2000 | **882-0210** RL | | | | |
| **50 Volt d.c. COG, 1206 Case Size** | | | | | | | |
| 6800 pF | ± 5% | 4000 | **882-0147** RL | | | | |
| 0.01 µF | ± 5% | 4000 | **882-0155** RL | | | | |
| 0.015 µF | ± 5% | 4000 | **882-0163** RL | | | | |
| 0.018 µF | ± 5% | 4000 | **882-0171** RL | | | | |
| 0.022 µF | ± 5% | 4000 | **882-0180** RL | | | | |
| 0.033 µF | ± 5% | 4000 | **882-0198** RL | | | | |
| 0.047 µF | ± 5% | 4000 | **882-0201** RL | | | | |
| **50 Volt d.c. X7R, 1206 Case Size** | | | | | | | |
| 0.1 µF | ± 10% | 4000 | **182-8956** | | | | |
| 0.1 µF | ± 10% | 2000 | **182-8957** | | | | |
| 0.47 µF | ± 10% | 3000 | **182-8958** | | | | |

## 1210 Case Size

| | Tolerance | Reel Qty | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **250 Volt d.c. X7R, 1210 Case Size** | | | | | | | |
| 0.22 µF | ± 10% | 1000 | **182-8959** | | | | |
| 0.1 µF | ± 10% | 1000 | **182-8960** | | | | |

## 1812 Case Size

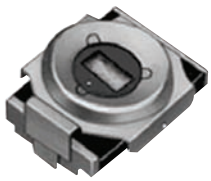
386676

| | Tolerance | Reel Qty | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| NEW **250 Volt d.c. X7R, 1812 Case Size** | | | | | | | |
| 0.47 µF | ± 10% | 1000 | **182-8961** | | | | |

## TZY2 Series – Miniature Ceramic

NEW

muRata innovator in Electronics



| | |
|---|---|
| Tolerance | 0%, +100% |
| Voltage Rating | 25V |
| Q (min) | (0.5pF to 0.65pF = 200 at 200 MHz Cmax)<br>(2.5pF to 4.5pF = 500 at 1MHz Cmax) |

| Mftrs. List No. | | Order Code | Mftrs. List No. | | Order Code |
|---|---|---|---|---|---|
| TZY2Z2R5A001B00 | = | 196-1300 | TZY2Z100A001B00 | = | 196-1303 |
| TZY2Z030A001B00 | = | 196-1301 | TZY2R200A001B00 | = | 196-1304 |
| TZY2Z060A001B00 | = | 196-1302 | | | |

659472

**Order Multiple=5**

| Range | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.65pF to 2.5pF | **196-1300** | | | | | |
| 1.5pF to 3pF | **196-1301** | | | | | |
| 2.5pF to 6pF | **196-1302** | | | | | |
| 3pF to 10pF | **196-1303** | | | | | |
| 4.5pF to 20pF | **196-1304** | | | | | |

RL **FREE Re-reeling service.** Only buy what you need and improve assembly efficiency. For more information visit **local website**

# Ceramic - Multilayer Chip - TDK

## Ceramic Multilayer Chip Capacitor - TDK

TDK



- Multilayer ceramic chip capacitors
- 0201, 1812, 2220 case sizes

NEW

| | C0G / NP0 | X7R | X5R | Y5V |
|---|---|---|---|---|
| Operating Temperature | -55°C to +125°C | -55°C to +125°C | -55°C to +85°C | -55°C to +85°C |
| Temperature coefficient | ±30% | ±15% | ±15% | +22, -82% |

## 0201 Case Size

| | | Tolerance | Order Code | Price Each 1K+ | 3K+ | 5K+ |
|---|---|---|---|---|---|---|
| **6.3 Volt d.c.** | | | | | | |
| 0.015 µF | X5R | ± 10% | **184-3112** | | | |
| 0.015 µF | X5R | ± 20% | **184-3113** | | | |
| 0.022 µF | X5R | ± 10% | **184-3115** | | | |
| 0.022 µF | X5R | ± 20% | **184-3116** | | | |
| 0.033 µF | X5R | ± 10% | **184-3117** | | | |
| 0.033 µF | X5R | ± 20% | **184-3118** | | | |
| 0.047 µF | X5R | ± 10% | **184-3119** | | | |
| 0.047 µF | X5R | ± 20% | **184-3120** | | | |
| 0.068 µF | X5R | ± 10% | **184-3121** | | | |
| 0.068 µF | X5R | ± 20% | **184-3122** | | | |
| 0.1 µF | X5R | ± 10% | **184-3123** | | | |
| 0.1 µF | X5R | ± 20% | **184-3124** | | | |
| **10 V d.c.** | | | | | | |
| 6800 pF | X5R | ± 10% | **184-3125** | | | |
| 0.01 µF | X5R | ± 10% | **184-3127** | | | |
| **16 V d.c.** | | | | | | |
| 4700 pF | X5R | ± 10% | **184-3128** | | | |
| 0.01 µF | Y5V | -20%, +80% | **184-3129** | | | |
| **25 V d.c.** | | | | | | |
| 0.5 pF | C0G / NP0 | ± 0.25pF | **184-3130** | | | |
| 0.75 pF | C0G / NP0 | ± 0.25pF | **184-3131** | | | |
| 1 pF | C0G / NP0 | ± 0.25pF | **184-3132** | | | |
| 1.5 pF | C0G / NP0 | ± 0.25pF | **184-3133** | | | |
| 2 pF | C0G / NP0 | ± 0.25pF | **184-3134** | | | |
| 3 pF | C0G / NP0 | ± 0.25pF | **184-3135** | | | |
| 4 pF | C0G / NP0 | ± 0.25pF | **184-3136** | | | |
| 5 pF | C0G / NP0 | ± 0.25pF | **184-3137** | | | |
| 6 pF | C0G / NP0 | ± 0.5pF | **184-3139** | | | |
| 7 pF | C0G / NP0 | ± 0.5pF | **184-3141** | | | |
| 8 pF | C0G / NP0 | ± 0.5pF | **184-3142** | | | |
| 9 pF | C0G / NP0 | ± 0.5pF | **184-3143** | | | |
| 10 pF | C0G / NP0 | ± 0.5pF | **184-3144** | | | |
| 12 pF | C0G / NP0 | ± 5% | **184-3145** | | | |
| 15 pF | C0G / NP0 | ± 5% | **184-3146** | | | |
| 18 pF | C0G / NP0 | ± 5% | **184-3147** | | | |
| 22 pF | C0G / NP0 | ± 5% | **184-3148** | | | |
| 27 pF | C0G / NP0 | ± 5% | **184-3149** | | | |
| 33 pF | C0G / NP0 | ± 5% | **184-3150** | | | |
| 39 pF | C0G / NP0 | ± 5% | **184-3152** | | | |
| 47 pF | C0G / NP0 | ± 5% | **184-3153** | | | |
| 56 pF | C0G / NP0 | ± 5% | **184-3154** | | | |
| 68 pF | C0G / NP0 | ± 5% | **184-3155** | | | |
| 82 pF | C0G / NP0 | ± 5% | **184-3156** | | | |
| 100 pF | C0G / NP0 | ± 5% | **184-3157** | | | |
| 1000 pF | X5R | ± 10% | **184-3158** | | | |
| 1500 pF | X5R | ± 10% | **184-3159** | | | |
| 2200 pF | X5R | ± 10% | **184-3160** | | | |
| 3300 pF | X5R | ± 10% | **184-3161** | | | |

## 1812 Case Size

| | | Tolerance | Order Code | Price Each 1+ | 50+ | 250+ |
|---|---|---|---|---|---|---|
| **6.3 Volt d.c.** | | | | | | |
| 100 µF | X5R | ± 20% | **184-3178** | | | |
| **10 V d.c.** | | | | | | |
| 68 µF | X5R | ± 20% | **184-3179** | | | |
| **16 V d.c.** | | | | | | |
| 33 µF | X7R | ± 20% | **184-3180** | | | |
| 47 µF | X7R | ± 20% | **184-3181** | | | |
| 100 µF | Y5V | -20%, +80% | **184-3182** | | | |
| **25 V d.c.** | | | | | | |
| 10 µF | X7R | ± 10% | **184-3183** | | | |
| 47 µF | Y5V | -20%, +80% | **184-3184** | | | |
| **50 V d.c.** | | | | | | |
| 10 µF | X5R | ± 10% | **184-3185** | | | |
| 10 µF | X5R | ± 20% | **184-3186** | | | |
| 10 µF | X7R | ± 10% | **184-3188** | | | |
| 10 µF | X7R | ± 20% | **184-3189** | | | |
| 22 µF | Y5V | -20%, +80% | **184-3190** | | | |
| **100 V d.c.** | | | | | | |
| 2.2 µF | X7R | ± 20% | **184-3191** | | | |
| 4.7 µF | X7R | ± 10% | **184-3192** | | | |
| 4.7 µF | X7R | ± 20% | **184-3193** | | | |
| **250 V d.c.** | | | | | | |
| 1 µF | X7R | ± 10% | **184-3194** | | | |



RoHS ● Compliant ▲ Non-compliant

## 2220 Case Size

616866

| 6.3 Volt d.c. | | | | Price Each | | |
|---|---|---|---|---|---|---|
| | | Tolerance | Order Code | 1+ | 50+ | 250+ |
| 100 µF | X5R | ± 20% | 184-3162 | | | |
| **10 V d.c.** | | | | | | |
| 100 pF | Y5V | -20%, +80% | 184-3164 | | | |
| **25 V d.c.** | | | | | | |
| 0.022 µF | C0G / NP0 | ± 5% | 184-3165 | | | |
| 22 µF | X5R | ± 20% | 184-3166 | | | |
| 22 µF | X7R | ± 20% | 184-3167 | | | |
| **50 V d.c.** | | | | | | |
| 0.22 µF | C0G / NP0 | ± 5% | 184-3168 | | | |
| 4.7 µF | X7R | ± 20% | 184-3169 | | | |
| 6.8 µF | X7R | ± 10% | 184-3170 | | | |
| 6.8 µF | X7R | ± 20% | 184-3171 | | | |
| 10 µF | Y5V | -20%, +80% | 184-3172 | | | |
| **100 V d.c.** | | | | | | |
| 0.1 µF | C0G / NP0 | ± 5% | 184-3173 | | | |
| 1 µF | X7R | ± 10% | 184-3174 | | | |
| 2.2 µF | X7R | ± 20% | 184-3176 | | | |
| **630 V d.c.** | | | | | | |
| 0.01 µF | C0G / NP0 | ± 5% | 184-3177 | | | |

## CKG Series

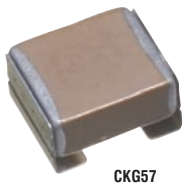
TDK



CKG32



CKG45



CKG57

NEW

- Twice the capacitance is obtainable on a single capacitor space
- The metal caps absorbs stress from thermal and mechanical shocks, ensuring excellent performance on aluminum circuit substrates
- Low ESR and ESL provides excellent characteristics for high frequency switching power supply
- No polarity and high reliablity

Operating Temperature -55°C to +125°C Dielectric Characteristic X7R
Capacitance Tolerance ± 20%

Dimensions in mm

| Type | H | W | D |
|---|---|---|---|
| CKG32K | 3.45 | 3.8 | 2.9 |
| CKG45K | 3 | 5.5 | 4 |
| CKG45N | 5.5 | 5.5 | 4 |
| CKG57K | 3.5 | 6.5 | 5.5 |
| CKG57N | 5.5 | 6.5 | 5.5 |

630610

| Capacitance | Voltage | Mftrs. | | Price Each | | | |
|---|---|---|---|---|---|---|---|
| | (V) | List No. | Order Code | 1+ | 50+ | 250+ | 1K+ |
| **CKG32K** | | | | | | | |
| 0.047 µF | 630 | CKG32KX7R2J473M | 188-6938 | | | | |
| 0.1 µF | 250 | CKG32KX7R2E104M | 188-6936 | | | | |
| 0.22 µF | 250 | CKG32KX7R2E224M | 188-6937 | | | | |
| 0.47 µF | 100 | CKG32KX7R2A474M | 188-6934 | | | | |
| 1 µF | 50 | CKG32KX7R1H105M | 188-6933 | | | | |
| 1 µF | 100 | CKG32KX7R2A105M | 188-6935 | | | | |
| 4.7 µF | 25 | CKG32KX7R1E475M | 188-6931 | | | | |
| 10 µF | 25 | CKG32KX7R1E106M | 188-6932 | | | | |
| **CKG45K** | | | | | | | |
| 0.1 µF | 630 | CKG45KX7R2J104M | 188-6951 | | | | |
| 0.22 µF | 250 | CKG45KX7R2E224M | 188-6949 | | | | |
| 0.47 µF | 250 | CKG45KX7R2E474M | 188-6950 | | | | |
| 1 µF | 100 | CKG45KX7R2A105M | 188-6947 | | | | |
| 1.5 µF | 50 | CKG45KX7R1H155M | 188-6944 | | | | |
| 2.2 µF | 100 | CKG45KX7R2A225M | 188-6948 | | | | |
| 3.3 µF | 50 | CKG45KX7R1H335M | 188-6945 | | | | |
| 4.7 µF | 25 | CKG45KX7R1E475M | 188-6943 | | | | |
| 4.7 µF | 50 | CKG45KX7R1H475M | 188-6946 | | | | |
| 10 µF | 16 | CKG45KX7R1C106M | 188-6941 | | | | |
| 22 µF | 16 | CKG45KX7R1C226M | 188-6942 | | | | |
| **CKG45N** | | | | | | | |
| 0.22 µF | 630 | CKG45NX7R2J224M | 188-6963 | | | | |
| 0.47 µF | 250 | CKG45NX7R2E474M | 188-6961 | | | | |
| 1 µF | 250 | CKG45NX7R2E105M | 188-6962 | | | | |
| 2.2 µF | 100 | CKG45NX7R2A225M | 188-6959 | | | | |
| 3.3 µF | 50 | CKG45NX7R1H335M | 188-6956 | | | | |
| 4.7 µF | 100 | CKG45NX7R2A475M | 188-6960 | | | | |
| 6.8 µF | 50 | CKG45NX7R1H685M | 188-6957 | | | | |
| 10 µF | 25 | CKG45NX7R1E106M | 188-6955 | | | | |

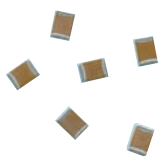
| Capacitance | Voltage | Mftrs. | | Price Each | | | |
|---|---|---|---|---|---|---|---|
| | (V) | List No. | Order Code | 1+ | 50+ | 250+ | 1K+ |
| **CKG45N** | | | | | | | |
| 10 µF | 50 | CKG45NX5R1H106M | 188-6958 | | | | |
| 22 µF | 16 | CKG45NX5R1C226M | 188-6954 | | | | |
| 47 µF | 16 | CKG45NX5R1C476M | 188-6953 | | | | |
| **CKG57K** | | | | | | | |
| 0.47 µF | 250 | CKG57KX7R2E474M | 188-6974 | | | | |
| 1 µF | 100 | CKG57KX7R2A105M | 188-6970 | | | | |
| 1 µF | 250 | CKG57KX7R2E105M | 188-6975 | | | | |
| 2.2 µF | 100 | CKG57KX7R2A225M | 188-6971 | | | | |
| 3.3 µF | 100 | CKG57KX7R2A335M | 188-6972 | | | | |
| 4.7 µF | 50 | CKG57KX7R1H475M | 188-6968 | | | | |
| 4.7 µF | 100 | CKG57KX7R2A475M | 188-6973 | | | | |
| 10 µF | 25 | CKG57KX7R1E106M | 188-6966 | | | | |
| 10 µF | 50 | CKG57KX7R1H106M | 188-6969 | | | | |
| 22 µF | 25 | CKG57KX7R1E226M | 188-6967 | | | | |
| 47 µF | 16 | CKG57KX7R1C476M | 188-6965 | | | | |
| **CKG57N** | | | | | | | |
| 0.47 µF | 630 | CKG57NX7R2J474M | 188-6989 | | | | |
| 1 µF | 250 | CKG57NX7R2E105M | 188-6986 | | | | |
| 2.2 µF | 100 | CKG57NX7R2A225M | 188-6983 | | | | |
| 2.2 µF | 250 | CKG57NX7R2E225M | 188-6987 | | | | |
| 4.7 µF | 100 | CKG57NX7R2A475M | 188-6984 | | | | |
| 10 µF | 50 | CKG57NX7R1H106M | 188-6981 | | | | |
| 10 µF | 100 | CKG57NX7R2A106M | 188-6985 | | | | |
| 22 µF | 25 | CKG57NX5R1E226M | 188-6979 | | | | |
| 22 µF | 50 | CKG57NX5R1H226M | 188-6982 | | | | |
| 33 µF | 16 | CKG57NX7R1C336M | 188-6977 | | | | |
| 47 µF | 25 | CKG57NX5R1E476M | 188-6980 | | | | |
| 100 µF | 16 | CKG57NX5R1C107M | 188-6978 | | | | |

# Ceramic - Multilayer Chip - Vishay

## Surface Mount MLCC VJ HVArc Guard

NEW

VISHAY



- Specialty: High-voltage applications
- MLCC that protects against surface arc-over
- Excellent high-voltage performance
- Higher capacitances and smaller case sizes that save board space, as compared to standard high-voltage MLCCs
- Wet build process
- Applications: Power supplies, DC/DC convertors, voltage multipliers etc

659675

| 0805 | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| 1000 V dc | Characteristic | Tolerance | Code | 10+ | 50+ | 100+ |
| 10pF | C0G / NP0 | ± 5% | 196-1227 | | | |
| 100pF | C0G / NP0 | ± 5% | 196-1228 | | | |
| 220pF | C0G / NP0 | ± 5% | 196-1229 | | | |
| 27pF | C0G / NP0 | ± 5% | 196-1230 | | | |
| **1206** | Dielectric | Capacitance | Order | Price Each | | |
| 500 V dc | Characteristic | Tolerance | Code | 10+ | 50+ | 100+ |
| 1000pF | X7R | ± 10% | 196-1232 | | | |
| 2200pF | X7R | ± 10% | 196-1233 | | | |
| 0.01µF | X7R | ± 10% | 196-1234 | | | |
| 0.022µF | X7R | ± 10% | 196-1235 | | | |
| 0.033µF | X7R | ± 10% | 196-1236 | | | |
| 0.047µF | X7R | ± 10% | 196-1237 | | | |
| **1000 V dc** | | | | | | |
| 22pF | C0G / NP0 | ± 5% | 196-1239 | | | |
| 100pF | C0G / NP0 | ± 5% | 196-1241 | | | |
| 470pF | C0G / NP0 | ± 5% | 196-1242 | | | |
| 1000pF | X7R | ± 10% | 196-1243 | | | |
| 2200pF | X7R | ± 10% | 196-1244 | | | |
| 4700pF | X7R | ± 10% | 196-1245 | | | |
| 0.01µF | X7R | ± 10% | 196-1246 | | | |
| 0.022µF | X7R | ± 10% | 196-1247 | | | |
| **1210** | Dielectric | Capacitance | Order | Price Each | | |
| 500 V dc | Characteristic | Tolerance | Code | 10+ | 50+ | 100+ |
| 1000pF | X7R | ± 10% | 196-1248 | | | |
| **1000 V dc** | | | | | | |
| 10pF | C0G / NP0 | ± 5% | 196-1249 | | | |
| 22pF | C0G / NP0 | ± 5% | 196-1250 | | | |
| 470pF | C0G / NP0 | ± 5% | 196-1252 | | | |
| 1000pF | X7R | ± 10% | 196-1253 | | | |
| 2200pF | X7R | ± 10% | 196-1254 | | | |
| 0.01µF | X7R | ± 10% | 196-1255 | | | |
| 0.022µF | X7R | ± 10% | 196-1256 | | | |
| **1500 V dc** | | | | | | |
| 100pF | C0G / NP0 | ± 5% | 196-1257 | | | |

# Ceramic - Multilayer Chip - Vishay - continued

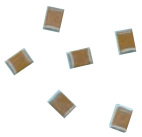
## Surface Mount MLCC VJ HVArc Guard - continued

| 1812 | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| 500 V dc | Characteristic | Tolerance | Code | 10+ | 50+ | 100+ |
| 1000pF | X7R | ± 10% | **196-1258**● | | | |
| 2200pF | X7R | ± 10% | **196-1259**● | | | |
| 4700pF | X7R | ± 10% | **196-1260**● | | | |
| 0.01µF | X7R | ± 10% | **196-1261**● | | | |
| 0.1µF | X7R | ± 10% | **196-1262**● | | | |
| **1000 V dc** | | | | | | |
| 0.01µF | X7R | ± 10% | **196-1264**● | | | |

## Surface Mount Multilayer Capacitors

NEW

**MIL Qualified, Type CDR**



- Military qualified products
- Federal stock control number, CAGE CODE SHV71 and halogen-free according to IEC 61249-2-21
- High reliability tested per MIL-PRF-55681
- Wet build process
- Reliable Noble Metal Electrode (NME) system
- Operating temperature:- 55°C to + 125°C
- Applications: Avionics, sonar and satellite systems, missile applications, geographical information and global positioning systems

659611

| 0805 | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| 50 V dc | Characteristic | Tolerance | Code | 1+ | 10+ | 50+ |
| 560pF | C0G / NP0 | ± 1% | **196-1958**● | | | |
| 680pF | C0G / NP0 | ± 5% | **196-1959**▲ | | | |
| 8200pF | X7R | ± 5% | **196-1960**● | | | |
| 0.01µF | X7R | ± 10% | **196-1961**▲ | | | |
| 0.015µF | X7R | ± 10% | **196-1963**▲ | | | |
| 0.018µF | X7R | ± 10% | **196-1964**▲ | | | |
| **100 V dc** | | | | | | |
| 5.1pF | C0G / NP0 | ± 0.5pF | **196-1965**● | | | |
| 12pF | C0G / NP0 | ± 5% | **196-1966**▲ | | | |
| 12pF | C0G / NP0 | ± 10% | **196-1967**▲ | | | |
| 22pF | C0G / NP0 | ± 10% | **196-1968**▲ | | | |
| 27pF | C0G / NP0 | ± 5% | **196-1969**▲ | | | |
| 30pF | C0G / NP0 | ± 1% | **196-1970**▲ | | | |
| 47pF | C0G / NP0 | ± 5% | **196-1971**● | | | |
| 47pF | C0G / NP0 | ± 10% | **196-1972**▲ | | | |
| 100pF | C0G / NP0 | ± 10% | **196-1973**▲ | | | |
| 150pF | C0G / NP0 | ± 1% | **196-1975**▲ | | | |
| 220pF | C0G / NP0 | ± 1% | **196-1976**▲ | | | |
| 220pF | C0G / NP0 | ± 1% | **196-1977**▲ | | | |
| 330pF | C0G / NP0 | ± 1% | **196-1978**● | | | |
| 330pF | C0G / NP0 | ± 5% | **196-1979**▲ | | | |
| 390pF | C0G / NP0 | ± 5% | **196-1980**● | | | |
| 1000pF | X7R | ± 10% | **196-1981**▲ | | | |
| 1500pF | X7R | ± 10% | **196-1982**● | | | |
| 2200pF | X7R | ± 10% | **196-1983**● | | | |
| 2200pF | X7R | ± 10% | **196-1984**▲ | | | |
| 2200pF | X7R | ± 10% | **196-1985**▲ | | | |
| 2700pF | X7R | ± 10% | **196-1987**● | | | |
| 3300pF | X7R | ± 10% | **196-1988**▲ | | | |
| 4700pF | X7R | ± 10% | **196-1989**▲ | | | |

| 1206 | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| 100 V dc | Characteristic | Tolerance | Code | 1+ | 10+ | 50+ |
| 220pF | C0G / NP0 | ± 5% | **196-1990**● | | | |
| 620pF | C0G / NP0 | ± 1% | **196-1991**▲ | | | |
| 0.01µF | X7R | ± 10% | **196-1992**▲ | | | |
| 0.01µF | X7R | ± 10% | **196-1993**▲ | | | |
| 0.015µF | X7R | ± 10% | **196-1994**▲ | | | |

| 1210 | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| 50 V dc | Characteristic | Tolerance | Code | 1+ | 10+ | 50+ |
| 0.1µF | X7R | ± 10% | **196-1995**▲ | | | |

| 1808 | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| 50 V dc | Characteristic | Tolerance | Code | 1+ | 10+ | 50+ |
| 0.068µF | X7R | ± 10% | **196-1996**● | | | |

| 1812 | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| 50 V dc | Characteristic | Tolerance | Code | 1+ | 10+ | 50+ |
| 0.1µF | X7R | ± 10% | **196-1997**● | | | |
| 0.15µF | X7R | ± 10% | **196-1999**▲ | | | |

| 1825 | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| 50 V dc | Characteristic | Tolerance | Code | 1+ | 10+ | 50+ |
| 0.022µF | C0G / NP0 | ± 1% | **196-2001**▲ | | | |
| 0.022µF | C0G / NP0 | ± 10% | **196-2002**▲ | | | |
| 0.22µF | X7R | ± 10% | **196-2003**● | | | |
| 0.47µF | X7R | ± 10% | **196-2004**▲ | | | |

## VJ HIFREQ Series

NEW



**Features:**

- High frequency
- Ultra-stable dielectric material
- Lead (Pb)-free terminations (code X)
- Tin/lead termination (code L)
- Operating Temperature Range -55°C to +125°C

663174

| | | | | | Price Each | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Capacitance | Voltage | Tolerance | Mftrs. List No. | Order Code | 1+ | 10+ | 100+ | 500+ | 1K+ |
| **0402 Case** | | | | | | | | | |
| 1pF | 200V | ± 0.1pF | VJ0402D1R0BXCAJ | 213-3992● | | | | | |
| 1.2pF | 200V | ± 0.1pF | VJ0402D1R2BXCAJ | 213-3993● | | | | | |
| 1.5pF | 200V | ± 0.1pF | VJ0402D1R5BXCAJ | 213-3995● | | | | | |
| 1.8pF | 200V | ± 0.1pF | VJ0402D1R8BXCAJ | 213-3996● | | | | | |
| 2pF | 200V | ± 0.1pF | VJ0402D2R0BXCAJ | 213-3999● | | | | | |
| 3pF | 200V | ± 0.1pF | VJ0402D3R0BXCAJ | 213-4001● | | | | | |
| 3.3pF | 200V | ± 0.1pF | VJ0402D3R3BXCAJ | 213-4002● | | | | | |
| 4.7pF | 200V | ± 0.25pF | VJ0402D4R7CXCAJ | 213-4004● | | | | | |
| 5.6pF | 200V | ± 0.25pF | VJ0402D5R6CXCAJ | 213-4006● | | | | | |
| 6.8pF | 200V | ± 0.25pF | VJ0402D6R8CXCAJ | 213-4009● | | | | | |
| 8.2pF | 200V | ± 0.25pF | VJ0402D8R2CXCAJ | 213-4011● | | | | | |
| 12pF | 200V | ± 5% | VJ0402D120JXCAJ | 213-3989● | | | | | |
| 15pF | 200V | ± 5% | VJ0402D150JXCAJ | 213-3990● | | | | | |
| 18pF | 200V | ± 5% | VJ0402D180JXBAJ | 213-3991● | | | | | |
| 20pF | 200V | ± 5% | VJ0402D200JXBAJ | 213-3997● | | | | | |
| 22pF | 200V | ± 5% | VJ0402D220JXBAJ | 213-3998● | | | | | |
| 39pF | 200V | ± 5% | VJ0402D390JXAAJ | 213-4000● | | | | | |
| 47pF | 200V | ± 5% | VJ0402D470JXAAJ | 213-4003● | | | | | |
| 56pF | 200V | ± 5% | VJ0402D560JXAAJ | 213-4005● | | | | | |
| 68pF | 200V | ± 5% | VJ0402D680JXXAJ | 213-4008● | | | | | |
| 82pF | 200V | ± 5% | VJ0402D820JXXAJ | 213-4010● | | | | | |
| 0402 Capacitor Kit | | | VJ0402HIFRQ1KIT | 213-4077● | | | | | |
| **0603 Case** | | | | | | | | | |
| 1pF | 250V | ± 0.1pF | VJ0603D1R0BXPAJ | 213-4016● | | | | | |
| 1.2pF | 250V | ± 0.1pF | VJ0603D1R2BXPAJ | 213-4017● | | | | | |
| 1.5pF | 250V | ± 0.1pF | VJ0603D1R5BXPAJ | 213-4018● | | | | | |
| 1.8pF | 250V | ± 0.1pF | VJ0603D1R8BXPAJ | 213-4021● | | | | | |
| 2pF | 250V | ± 0.1pF | VJ0603D2R0BXPAJ | 213-4025● | | | | | |
| 2.2pF | 250V | ± 0.1pF | VJ0603D2R2BXPAJ | 213-4026● | | | | | |
| 2.4pF | 250V | ± 0.1pF | VJ0603D2R4BXPAJ | 213-4027● | | | | | |
| 2.7pF | 250V | ± 0.1pF | VJ0603D2R7BXPAJ | 213-4028● | | | | | |
| 3pF | 250V | ± 0.1pF | VJ0603D3R0BXPAJ | 213-4033● | | | | | |
| 3.3pF | 250V | ± 0.1pF | VJ0603D3R3BXPAJ | 213-4034● | | | | | |
| 3.9pF | 250V | ± 0.25pF | VJ0603D3R9CXPAJ | 213-4035● | | | | | |
| 4.7pF | 250V | ± 0.25pF | VJ0603D4R7CXPAJ | 213-4037● | | | | | |
| 5.6pF | 250V | ± 0.25pF | VJ0603D5R6CXPAJ | 213-4038● | | | | | |
| 6.8pF | 250V | ± 0.25pF | VJ0603D6R8CXPAJ | 213-4039● | | | | | |
| 8.2pF | 250V | ± 0.25pF | VJ0603D8R2CXPAJ | 213-4040● | | | | | |
| 10pF | 250V | ± 5% | VJ0603D100JXPAJ | 213-4012● | | | | | |
| 12pF | 250V | ± 5% | VJ0603D120JXPAJ | 213-4013● | | | | | |
| 15pF | 250V | ± 5% | VJ0603D150JXPAJ | 213-4014● | | | | | |
| 18pF | 250V | ± 5% | VJ0603D180JXPAJ | 213-4015● | | | | | |
| 20pF | 250V | ± 5% | VJ0603D200JXPAJ | 213-4022● | | | | | |
| 22pF | 250V | ± 5% | VJ0603D220JXPAJ | 213-4023● | | | | | |
| 27pF | 250V | ± 5% | VJ0603D270JXPAJ | 213-4024● | | | | | |
| 30pF | 250V | ± 5% | VJ0603D300JXPAJ | 213-4029● | | | | | |
| 33pF | 250V | ± 5% | VJ0603D330JXPAJ | 213-4030● | | | | | |
| 39pF | 250V | ± 5% | VJ0603D390JXPAJ | 213-4031● | | | | | |
| 47pF | 250V | ± 5% | VJ0603D470JXPAJ | 213-4036● | | | | | |
| 56pF | 250V | ± 5% | VJ0603D560JXCAJ | 213-4053● | | | | | |
| 68pF | 250V | ± 5% | VJ0603D680JXCAJ | 213-4054● | | | | | |
| 82pF | 250V | ± 5% | VJ0603D820JXCAJ | 213-4055● | | | | | |
| 100pF | 250V | ± 5% | VJ0603D101JXCAJ | 213-4041● | | | | | |
| 120pF | 250V | ± 10% | VJ0603D121KXBAJ | 213-4042● | | | | | |
| 150pF | 250V | ± 10% | VJ0603D151KXBAJ | 213-4043● | | | | | |
| 180pF | 250V | ± 10% | VJ0603D181KXAAJ | 213-4045● | | | | | |
| 200pF | 250V | ± 10% | VJ0603D201KXAAJ | 213-4046● | | | | | |
| 220pF | 250V | ± 10% | VJ0603D221KXAAJ | 213-4047● | | | | | |
| 270pF | 250V | ± 10% | VJ0603D271KXAAJ | 213-4048● | | | | | |
| 300pF | 250V | ± 10% | VJ0603D301KXAAJ | 213-4049● | | | | | |
| 330pF | 250V | ± 10% | VJ0603D331KXAAJ | 213-4050● | | | | | |
| 390pF | 250V | ± 10% | VJ0603D391KXXAJ | 213-4051● | | | | | |

| Capacitance | Voltage | Tolerance | Mftrs. List No. | Order Code | Price Each 1+ | 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|---|---|
| **0603 Case** | | | | | | | | | |
| 470pF | 250V | ± 10% | VJ0603D471KXXAJ | 213-4052● | | | | | |
| 0603 Capacitor Kit 1 | | | VJ0603HIFRQ1KIT | 213-4078● | | | | | |
| 0603 Capacitor Kit 2 | | | VJ0603HIFRQ2KIT | 213-4079● | | | | | |
| **0805 Case** | | | | | | | | | |
| 100pF | 250V | ± 5% | VJ0805D101JXPAJ | 213-4057● | | | | | |
| 120pF | 250V | ± 10% | VJ0805D121KXPAJ | 213-4059● | | | | | |
| 150pF | 250V | ± 10% | VJ0805D151KXPAJ | 213-4061● | | | | | |
| 180pF | 250V | ± 10% | VJ0805D181KXPAJ | 213-4063● | | | | | |
| 200pF | 250V | ± 10% | VJ0805D201KXPAJ | 213-4064● | | | | | |
| 220pF | 250V | ± 10% | VJ0805D221KXPAJ | 213-4065● | | | | | |
| 240pF | 250V | ± 10% | VJ0805D241KXPAJ | 213-4066● | | | | | |
| 270pF | 250V | ± 10% | VJ0805D271KXPAJ | 213-4067● | | | | | |
| 300pF | 250V | ± 10% | VJ0805D301KXPAJ | 213-4069● | | | | | |
| 330pF | 250V | ± 10% | VJ0805D331KXPAJ | 213-4071● | | | | | |
| 390pF | 250V | ± 10% | VJ0805D391KXCAJ | 213-4072● | | | | | |
| 470pF | 250V | ± 10% | VJ0805D471KXBAJ | 213-4073● | | | | | |
| 560pF | 250V | ± 10% | VJ0805D561KXBAJ | 213-4074● | | | | | |
| 680pF | 250V | ± 10% | VJ0805D681KXBAJ | 213-4075● | | | | | |
| 820pF | 250V | ± 10% | VJ0805D821KXAAJ | 213-4076● | | | | | |
| 1000pF | 250V | ± 10% | VJ0805D102KXAAJ | 213-4058● | | | | | |
| 1200pF | 250V | ± 10% | VJ0805D122KXXAJ | 213-4060● | | | | | |
| 1500pF | 250V | ± 10% | VJ0805D152KXXAJ | 213-4062● | | | | | |
| 0805 Capacitor Kit | | | VJ0805HIFRQ2KIT | 213-4080● | | | | | |

# Ceramic - Multilayer Chip - Yageo

## Surface Mount – Nickel Barrier

**CG, 2R Series**



- Multilayer ceramic chip capacitors
- High performance and reliability
- 0201, 0402, 0603, 0805, 1206 and 1210 case sizes
- Nickel barrier terminations
- Conform to **IEC 384-10**

| | |
|---|---|
| 0201 case size | L=0.6±0.03, W=0.30±0.03, H=0.23±0.03 |
| 0402 case size | L=1.0±0.05, W=0.5±0.05, H=0.45 to 0.55, P=0.15 to 0.3 |
| 0603 case size | L=1.6±0.1, W=0.8±0.1, H=0.7 to 0.9, P=0.25 to 0.65 |
| 0805 case size | L=2.0±0.15, W=1.25±0.15, H=0.51 to 1.27, P=0.25 to 0.75 |
| 1206 case size | L=3.2±0.15, W=1.60±0.15, H=0.51 to 1.60, P=0.25 to 0.75 |
| 1210 case size | L=3.2±0.2, W=2.5±0.2, H=0.50 to 1.80 |

Performance Characteristics

| | NPO | X7R | X5R | Y5V |
|---|---|---|---|---|
| Operating Temperature | -55°C to +125°C | -55°C to +125°C | -55°C to +85°C | -25°C to +85°C |
| Tolerance | ± 5% | ± 10% | ± 10% | -20%, +80% |
| Insulation resistance 100,000MΩ | | Dielectric strength 2.5VR for 1 minute | | |

## 0201 Case Size

| 50 Volt d.c. NPO, 0201 Case Size | | Price Each 50+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| | Order Code | | | | |
| 3.3 pF | 145-8841● | | | | |
| 10 pF | 145-8844● | | | | |

| 25 Volt d.c. NPO, 0201 Case Size | | Price Each 50+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| | Order Code | | | | |
| 47 pF | 145-8848● | | | | |
| 100 pF | 145-8850● | | | | |

| 50 Volt d.c. X7R, 0201 Case Size | | Price Each 50+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| | Order Code | | | | |
| 150 pF | 145-8852● | | | | |
| 330 pF | 145-8854● | | | | |

| 25 Volt d.c. X7R, 0201 Case Size | | Price Each 50+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| | Order Code | | | | |
| 1000 pF | 145-8857● | | | | |

| 16 Volt d.c. X7R, 0201 Case Size | | Price Each 50+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| | Order Code | | | | |
| 1500 pF | 145-8858● | | | | |
| 3300 pF | 145-8860● | | | | |

## 0402 Case Size

Tolerance <4.7pF ±0.25pF, 5.8pF to 8.2pF ±0.5pF, >10pF ±5%

| 50 Volt d.c. NPO, 0402 Case Size | | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| | Order Code | | | | |
| 0.47 pF | 301-9081● RL | | | | |
| 0.56 pF | 301-9093● RL | | | | |
| 1 pF | 301-9100● RL | | | | |
| 1.5 pF | 301-9111● RL | | | | |
| 2.2 pF | 301-9123● RL | | | | |
| 3.3 pF | 301-9135● RL | | | | |
| 4.7 pF | 301-9147● RL | | | | |
| 6.8 pF | 301-9159● RL | | | | |
| 10 pF | 301-9160● RL | | | | |

| 50 Volt d.c. NPO, 0402 Case Size | | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| | Order Code | | | | |
| 15 pF | 301-9172● RL | | | | |
| 22 pF | 301-9184● RL | | | | |
| 33 pF | 301-9196● RL | | | | |
| 47 pF | 301-9202● RL | | | | |
| 68 pF | 301-9214● RL | | | | |
| 100 pF | 301-9226● RL | | | | |
| 150 pF | 301-9238● RL | | | | |
| 220 pF | 301-9240● RL | | | | |

| 10 Volt d.c. X5R, 0402 Case Size | | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| | Order Code | | | | |
| 1 μF | 145-8896● | | | | |

| 16 Volt d.c. X7R, 0402 Case Size | | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| | Order Code | | | | |
| 4700 pF | 301-9251● RL | | | | |
| 6800 pF | 301-9263● RL | | | | |
| 0.01 μF | 301-9275● RL | | | | |
| 0.015 μF | 301-9287● RL | | | | |
| 0.022 μF | 301-9299● RL | | | | |

| 25 Volt d.c. X7R, 0402 Case Size | | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| | Order Code | | | | |
| 3300 pF | 301-9305● RL | | | | |
| 4700 pF | 301-9317● RL | | | | |

| 50 Volt d.c. X7R, 0402 Case Size | | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| | Order Code | | | | |
| 100 pF | 301-9329● RL | | | | |
| 220 pF | 301-9342● RL | | | | |
| 330 pF | 301-9354● RL | | | | |
| 470 pF | 301-9366● RL | | | | |
| 680 pF | 301-9378● RL | | | | |
| 1000 pF | 301-9380● RL | | | | |
| 1500 pF | 301-9391● RL | | | | |
| 2200 pF | 301-9408● RL | | | | |

| 16 Volt d.c. Y5V, 0402 Case Size | | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| | Order Code | | | | |
| 0.01 μF | 301-9421● RL | | | | |
| 0.022 μF | 301-9445● RL | | | | |
| 0.047 μF | 301-9469● RL | | | | |
| 0.068 μF | 301-9470● RL | | | | |
| 0.1 μF | 301-9482● RL | | | | |

## 0603 Case Size

Tolerance <4.7pF ±0.25pF, 5.8pF to 8.2pF ±0.5pF, >10pF ±5%

| 50 Volt d.c. NPO, 0603 Case Size | | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| | Order Code | | | | |
| 0.47 pF | 721-803● RL | | | | |
| 0.56 pF | 721-815● RL | | | | |
| 0.68 pF | 721-827● RL | | | | |
| 0.82 pF | 721-839● RL | | | | |
| 1 pF | 721-840● RL | | | | |
| 1.2 pF | 721-852● RL | | | | |
| 1.5 pF | 721-864● RL | | | | |
| 1.8 pF | 721-876● RL | | | | |
| 2.2 pF | 721-888● RL | | | | |
| 2.7 pF | 721-890● RL | | | | |
| 3.3 pF | 721-906● RL | | | | |
| 3.9 pF | 721-918● RL | | | | |
| 4.7 pF | 721-920● RL | | | | |
| 5.6 pF | 721-931● RL | | | | |
| 6.8 pF | 721-943● RL | | | | |
| 8.2 pF | 721-955● RL | | | | |
| 10 pF | 721-967● RL | | | | |
| 12 pF | 721-979● RL | | | | |
| 15 pF | 721-980● RL | | | | |
| 18 pF | 721-992● RL | | | | |
| 22 pF | 722-005● RL | | | | |
| 27 pF | 722-017● RL | | | | |
| 33 pF | 722-029● RL | | | | |
| 39 pF | 722-030● RL | | | | |
| 47 pF | 722-042● RL | | | | |
| 56 pF | 722-054● RL | | | | |
| 68 pF | 722-066● RL | | | | |
| 82 pF | 722-078● RL | | | | |
| 100 pF | 722-080● RL | | | | |
| 120 pF | 722-091● RL | | | | |
| 150 pF | 722-108● RL | | | | |
| 180 pF | 301-9494● RL | | | | |
| 220 pF | 430-948● RL | | | | |
| 270 pF | 301-9500● RL | | | | |

# Ceramic - Multilayer Chip - Yageo - continued

## Surface Mount – Nickel Barrier - continued

### CG, 2R Series - continued

**50 Volt d.c. NPO, 0603 Case Size**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 330 pF | 430-973 | | | | |
| 390 pF | 301-9512 | | | | |
| 470 pF | 430-985 | | | | |
| 560 pF | 301-9524 | | | | |
| 680 pF | 430-997 | | | | |

**16 Volt d.c. X5R, 0603 Case Size**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 2.2 µF | 145-8897 | | | | |

**10 Volt d.c. X5R, 0603 Case Size**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 4.7 µF | 145-8898 | | | | |

**6.3 Volt d.c. X5R, 0603 Case Size**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 10 µF | 145-8902 | | | | |

**10 Volt d.c. X7R, 0603 Case Size**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 0.15 µF | 335-2006 | | | | |
| 0.18 µF | 335-2018 | | | | |
| 0.22 µF | 335-2020 | | | | |

**16 Volt d.c. X7R, 0603 Case Size**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 0.033 µF | 432-015 | | | | |
| 0.039 µF | 301-9536 | | | | |
| 0.047 µF | 432-027 | | | | |
| 0.056 µF | 301-9548 | | | | |
| 0.068 µF | 432-192 | | | | |
| 0.082 µF | 301-9550 | | | | |
| 0.1 µF | 432-210 | | | | |
| 1 µF | 145-8900 | | | | |

**25 Volt d.c. X7R, 0603 Case Size**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 0.01 µF | 301-9561 | | | | |
| 0.012 µF | 301-9573 | | | | |
| 0.015 µF | 722-248 | | | | |
| 0.018 µF | 301-9585 | | | | |
| 0.022 µF | 722-250 | | | | |
| 0.027 µF | 301-9597 | | | | |

**50 Volt d.c. X7R, 0603 Case Size**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 100 pF | 722-110 | | | | |
| 120 pF | 301-9603 | | | | |
| 150 pF | 722-121 | | | | |
| 180 pF | 301-9615 | | | | |
| 220 pF | 722-133 | | | | |
| 270 pF | 301-9627 | | | | |
| 330 pF | 722-145 | | | | |
| 390 pF | 301-9639 | | | | |
| 470 pF | 722-157 | | | | |
| 560 pF | 301-9640 | | | | |
| 680 pF | 722-169 | | | | |
| 820 pF | 301-9652 | | | | |
| 1000 pF | 722-170 | | | | |
| 1200 pF | 301-9664 | | | | |
| 1500 pF | 722-182 | | | | |
| 1800 pF | 301-9676 | | | | |
| 2200 pF | 722-194 | | | | |
| 2700 pF | 301-9688 | | | | |
| 3300 pF | 722-200 | | | | |
| 3900 pF | 301-9690 | | | | |
| 4700 pF | 722-212 | | | | |
| 5600 pF | 301-9706 | | | | |
| 6800 pF | 722-224 | | | | |
| 8200 pF | 301-9718 | | | | |
| 0.01 µF | 722-236 | | | | |
| 0.012 µF | 301-9720 | | | | |
| 0.015 µF | 301-9731 | | | | |
| 0.018 µF | 301-9743 | | | | |
| 0.022 µF | 301-9755 | | | | |
| 0.1 µF | 136-2556 | | | | |

**10 Volt d.c. Y5V, 0603 Case Size**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 1 µF | 318-8840 | | | | |

**16 Volt d.c. Y5V, 0603 Case Size**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 0.15 µF | 431-151 | | | | |
| 0.22 µF | 431-199 | | | | |
| 0.47 µF | 318-8851 | | | | |
| 2.2 µF | 145-8901 | | | | |

**50 Volt d.c. Y5V, 0603 Case Size**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 0.01 µF | 431-590 | | | | |
| 0.022 µF | 431-941 | | | | |
| 0.047 µF | 431-965 | | | | |
| 0.1 µF | 431-989 | | | | |

## 0805 Case Size

**50 Volt d.c. NPO, 0805 Case Size**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 22 pF | 136-2555 | | | | |
| 33 pF | 136-2559 | | | | |
| 47 pF | 136-2560 | | | | |
| 100 pF | 360-6028 | | | | |
| 180 pF | 718-476 | | | | |
| 220 pF | 718-488 | | | | |
| 270 pF | 718-490 | | | | |
| 330 pF | 718-506 | | | | |
| 390 pF | 718-518 | | | | |
| 470 pF | 718-520 | | | | |
| 560 pF | 718-531 | | | | |
| 680 pF | 718-543 | | | | |
| 820 pF | 718-555 | | | | |
| 1000 pF | 718-567 | | | | |

**10 Volt d.c. X7R, 0805 Case Size**

| | Order Code | Price Each 10+ | + | + | + |
|---|---|---|---|---|---|
| 0.33 µF | 335-2031 | | | | |
| 0.47 µF | 335-2043 | | | | |
| 0.68 µF | 335-2055 | | | | |
| 1 µF | 335-2067 | | | | |

**16 Volt d.c. X7R, 0805 Case Size**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 0.047 µF | 644-146 | | | | |
| 0.068 µF | 644-158 | | | | |
| 0.1 µF | 644-160 | | | | |
| 0.15 µF | 644-171 | | | | |
| 0.22 µF | 644-183 | | | | |
| 0.33 µF | 318-8875 | | | | |
| 0.47 µF | 318-8887 | | | | |

**25 Volt d.c. X7R, 0805 Case Size**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 0.01 µF | 301-9767 | | | | |
| 0.015 µF | 301-9780 | | | | |
| 0.018 µF | 301-9792 | | | | |
| 0.022 µF | 301-9809 | | | | |
| 0.033 µF | 301-9822 | | | | |
| 0.039 µF | 644-195 | | | | |
| 0.047 µF | 644-201 | | | | |
| 0.056 µF | 644-213 | | | | |
| 0.068 µF | 644-225 | | | | |
| 0.082 µF | 644-237 | | | | |
| 0.1 µF | 644-249 | | | | |
| 1 µF | 145-8903 | | | | |
| 2.2 µF | 145-8904 | | | | |

**50 Volt d.c. X7R, 0805 Case Size**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 220 pF | 301-9834 | | | | |
| 330 pF | 301-9846 | | | | |
| 470 pF | 301-9858 | | | | |
| 680 pF | 301-9860 | | | | |
| 1000 pF | 301-9871 | | | | |
| 1500 pF | 301-9883 | | | | |
| 2200 pF | 301-9895 | | | | |
| 3300 pF | 301-9901 | | | | |
| 4700 pF | 301-9913 | | | | |
| 6800 pF | 301-9925 | | | | |
| 0.01 µF | 301-9937 | | | | |
| 0.015 µF | 718-658 | | | | |
| 0.022 µF | 718-660 | | | | |
| 0.033 µF | 718-671 | | | | |
| 0.047 µF | 718-683 | | | | |
| 0.1 µF | 301-9949 | | | | |


RoHS ● Compliant ▲ Non-compliant

**100 Volt d.c. X7R, 0805 Case Size**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 1000 pF | 136-2553 | | | | |
| 0.01 µF | 136-2561 | | | | |

**10 Volt d.c. Y5V, 0805 Case Size**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 3.3 µF | 318-8863 RL | | | | |

**16 Volt d.c. Y5V, 0805 Case Size**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 1.5 µF | 318-8905 RL | | | | |
| 2.2 µF | 318-8917 RL | | | | |
| 10 µF | 145-8906 | | | | |

**50 Volt d.c. Y5V, 0805 Case Size**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 0.1 µF | 136-2552 | | | | |
| 1 µF | 145-8907 | | | | |

## 1206 Case Size

**50 Volt d.c. NPO, 1206 Case Size**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 10 pF | 360-6030 RL | | | | |
| 22 pF | 360-6041 RL | | | | |
| 33 pF | 360-6053 RL | | | | |
| 47 pF | 360-6065 RL | | | | |
| 100 pF | 360-6077 RL | | | | |
| 220 pF | 360-6089 RL | | | | |
| 330 pF | 360-6090 RL | | | | |
| 470 pF | 360-6107 RL | | | | |
| 1000 pF | 360-6119 RL | | | | |
| 1200 pF | 718-579 RL | | | | |
| 1500 pF | 718-580 RL | | | | |
| 2200 pF | 718-609 RL | | | | |
| 2700 pF | 718-610 RL | | | | |
| 3300 pF | 718-622 RL | | | | |

**200 Volt d.c. NPO, 1206 Case Size**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 10 pF | 491-160 RL | | | | |
| 100 pF | 491-172 RL | | | | |
| 470 pF | 491-184 RL | | | | |

**500 Volt d.c. NPO, 1206 Case Size**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 10 pF | 491-226 RL | | | | |
| 100 pF | 491-238 RL | | | | |

**6.3 Volt d.c. X5R, 1206 Case Size**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 22 µF | 145-8914 | | | | |

**10 Volt d.c. X7R, 1206 Case Size**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 1.5 µF | 335-2080 RL | | | | |
| 2.2 µF | 335-2092 RL | | | | |

**16 Volt d.c. X7R, 1206 Case Size**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 0.22 µF | 644-250 RL | | | | |
| 0.33 µF | 644-262 RL | | | | |
| 0.47 µF | 644-274 RL | | | | |
| 0.68 µF | 644-286 RL | | | | |
| 1 µF | 318-8966 RL | | | | |
| 10 µF | 145-8910 | | | | |

**25 Volt d.c. X7R, 1206 Case Size**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 0.1 µF | 644-316 RL | | | | |
| 0.12 µF | 644-328 RL | | | | |
| 0.15 µF | 644-330 RL | | | | |
| 0.18 µF | 644-341 RL | | | | |
| 0.22 µF | 644-353 RL | | | | |
| 2.2 µF | 145-8911 | | | | |
| 4.7 µF | 145-8912 | | | | |

**50 Volt d.c. X7R, 1206 Case Size**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 1000 pF | 136-2558 | | | | |
| 2200 pF | 360-6120 RL | | | | |
| 3300 pF | 360-6132 RL | | | | |
| 4700 pF | 360-6144 RL | | | | |
| 0.01 µF | 360-6156 RL | | | | |
| 0.022 µF | 360-6168 RL | | | | |
| 0.033 µF | 360-6170 RL | | | | |

**50 Volt d.c. X7R, 1206 Case Size**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 0.047 µF | 360-6181 RL | | | | |
| 0.068 µF | 718-634 RL | | | | |
| 0.1 µF | 718-646 RL | | | | |
| 0.22 µF | 136-2557 | | | | |
| 1 µF | 145-8913 | | | | |

**100 Volt d.c. X7R, 1206 Case Size**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 0.1 µF | 136-2554 | | | | |

**200 Volt d.c. X7R, 1206 Case Size**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 1000 pF | 491-196 RL | | | | |
| 0.01 µF | 491-202 RL | | | | |
| 0.022 µF | 491-214 RL | | | | |

**10 Volt d.c. Y5V, 1206 Case Size**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 10 µF | 318-8954 RL | | | | |

**16 Volt d.c. Y5V, 1206 Case Size**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 1 µF | 318-8978 RL | | | | |
| 3.3 µF | 318-9030 RL | | | | |
| 4.7 µF | 318-9053 RL | | | | |
| 22 µF | 145-8916 | | | | |

**25 Volt d.c. Y5V, 1206 Case Size**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 10 µF | 145-8919 | | | | |

**50 Volt d.c. Y5V, 1206 Case Size**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 1 µF | 145-8915 | | | | |

## 1210 Case Size

208448

**16 Volt d.c. X5R, 1210 Case Size**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 22 µF | 145-8921 | | | | |

**16 Volt d.c. Y5V, 1210 Case Size**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 22 µF | 145-8923 | | | | |

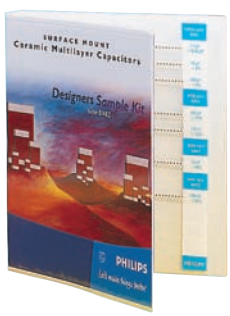
**25 Volt d.c. Y5V, 1210 Case Size**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 10 µF | 145-8922 | | | | |

### Capacitance Conversion Table

| | | | | |
|---|---|---|---|---|
| 0.000001µF | = | 0.001nF | = | 1pF |
| 0.00001µF | = | 0.01nF | = | 10pF |
| 0.0001µF | = | 0.1nF | = | 100pF |
| 0.001µF | = | 1nF | = | 1000pF |
| 0.01µF | = | 10nF | = | 10000pF |
| 0.1µF | = | 100nF | = | 100000pF |
| 1µF | = | 1000nF | = | 1000000pF |
| 10µF | = | 10000nF | = | 10000000pF |
| 100µF | = | 100000nF | = | 100000000pF |

## 0402 – Nickel Barrier Kit




- 0402 case size multilayer ceramic capacitor kit
- 3 dielectrics
- Sturdy A4 binder

Kit contains 95 each of the following:

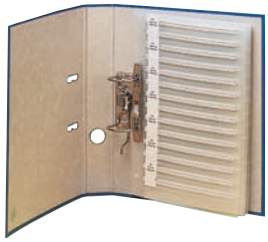
| | |
|---|---|
| NPO 50V | 0.47pF, 0.68pF, 1.0pF, 1.5pF, 2.2pF, 3.3pF, 4.7pF, 6.8pF, 10pF, 15pF, 22pF, 33pF, 47pF, 68pF, 100pF, 150pF, 220pF |
| X7R 16V | 6.8nF, 10nF, 15nF, 22nF |
| X7R 25V | 4.7nF |
| X7R 50V | 100pF, 150pF, 220pF, 330pF, 470pF, 680pF, 1.0nF, 1.5nF, 2.2nF, 3.3nF |
| Y5V 16V | 10nF, 15nF, 22nF, 33nF, 47nF, 68nF, 100nF |

208565

| | Order Code | Price Each 1+ | 5+ | 10+ |
|---|---|---|---|---|
| 0402 Kit | SMD 302-0150 | | | |

# Ceramic - Multilayer Chip - Yageo - continued

## 0603 – Nickel Barrier Kit





- 0603 case size multilayer ceramic capacitor kit
- 3 dielectrics
- Sturdy A4 binder

Kit contains 48 each of the following:

| | |
|---|---|
| NPO 50V | 0.47pF, 0.68pF, 1.0pF, 1.5pF, 2.2pF, 3.3pF, 4.7pF, 6.8pF, 10pF, 15pF, 22pF, 33pF, 47pF, 68pF, 100pF, 150pF, 220pF, 330pF, 470pF, 680pF |
| X7R 50V | 100pF, 150pF, 220pF, 330pF, 470pF, 680pF, 1nF, 1.5nF, 2.2nF, 3.3nF, 4.7nF, 6.8nF, 10nF, 33nF, 47nF, 68nF, 100nF |
| X7R 25V | 15nF, 22nF |
| Y5V 16V | 150nF, 220nF |
| Y5V 50V | 10nF, 15nF, 22nF, 33nF, 47nF, 68nF, 100nF |

208510

| | Order Code | Price Each 1+ | 5+ | 10+ |
|---|---|---|---|---|
| 0603 Kit | SMD 157-922 | | | |

# Ceramic - Multilayer High CV - Multicomp

## Low Profile Hi-Cap MLCC



| 0805 | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| 6.3 V dc | Characteristic | Tolerance | Code | 100+ | 500+ | 1K+ |
| 2.2µF | X5R | ± 10% | 175-9473 | | | |
| 4.7µF | X5R | ± 10% | 175-9475 | | | |
| 10µF | X5R | ± 20% | 175-9476 | | | |
| **10 V dc** | | | | | | |
| 2.2µF | X5R | ± 10% | 175-9477 | | | |
| 4.7µF | Y5V | -20%, +80% | 175-9478 | | | |
| **16 V dc** | | | | | | |
| 1µF | X5R | ± 10% | 175-9479 | | | |
| 2.2µF | Y5V | -20%, +80% | 175-9480 | | | |
| 2.2µF | X5R | ± 10% | 175-9481 | | | |
| 4.7µF | Y5V | -20%, +80% | 175-9482 | | | |

547007

| 1206 | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| 6.3 V dc | Characteristic | Tolerance | Code | 100+ | 500+ | 1K+ |
| 10µF | X5R | ± 20% | 175-9483 | | | |
| **10 V dc** | | | | | | |
| 2.2µF | X5R | ± 10% | 175-9484 | | | |
| 10µF | Y5V | -20%, +80% | 175-9485 | | | |
| 22µF | Y5V | -20%, +80% | 175-9487 | | | |

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## Hi-Cap MLCC



| 0402 | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| 6.3 V dc | Characteristic | Tolerance | Code | 100+ | 500+ | 1K+ |
| 0.22µF | X5R | ± 10% | 175-9373 | | | |
| 0.47µF | X5R | ± 10% | 175-9374 | | | |
| 1µF | X5R | ± 10% | 175-9375 | | | |
| 2.2µF | X5R | ± 20% | 175-9376 | | | |
| **10 V dc** | | | | | | |
| 0.056µF | X5R | ± 10% | 175-9377 | | | |
| 0.068µF | X5R | ± 10% | 175-9378 | | | |
| 0.082µF | X5R | ± 10% | 175-9379 | | | |
| 0.1µF | X5R | ± 10% | 175-9380 | | | |
| 1µF | X5R | ± 20% | 175-9381 | | | |
| **16 V dc** | | | | | | |
| 0.027µF | X5R | ± 10% | 175-9382 | | | |
| 0.033µF | X5R | ± 10% | 175-9384 | | | |
| 0.039µF | X5R | ± 10% | 175-9385 | | | |
| 0.047µF | X5R | ± 10% | 175-9386 | | | |
| 0.068µF | X5R | ± 10% | 175-9387 | | | |
| 0.1µF | X5R | ± 10% | 175-9388 | | | |
| 0.22µF | X5R | ± 10% | 175-9389 | | | |

| 0603 | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| 6.3 V dc | Characteristic | Tolerance | Code | 100+ | 500+ | 1K+ |
| 0.82µF | X5R | ± 10% | 175-9390 | | | |
| 1µF | X5R | ± 10% | 175-9391 | | | |
| 2.2µF | X5R | ± 10% | 175-9392 | | | |
| 10µF | X5R | ± 20% | 175-9393 | | | |
| **10 V dc** | | | | | | |
| 0.33µF | X5R | ± 10% | 175-9394 | | | |
| 0.47µF | X5R | ± 10% | 175-9396 | | | |
| 0.68µF | X5R | ± 10% | 175-9397 | | | |
| 1µF | Y5V | -20%, +80% | 175-9398 | | | |
| 1µF | X5R | ± 10% | 175-9399 | | | |
| 2.2µF | Y5V | -20%, +80% | 175-9400 | | | |
| 2.2µF | X5R | ± 20% | 175-9402 | | | |
| **16 V dc** | | | | | | |
| 0.22µF | X5R | ± 10% | 175-9403 | | | |
| 0.33µF | X5R | ± 10% | 175-9404 | | | |
| 0.47µF | X5R | ± 10% | 175-9405 | | | |
| 0.68µF | X5R | ± 10% | 175-9406 | | | |
| 1µF | X5R | ± 10% | 175-9407 | | | |
| 1µF | Y5V | -20%, +80% | 175-9408 | | | |
| **25 V dc** | | | | | | |
| 1µF | X5R | ± 10% | 175-9409 | | | |

| 0805 | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| 6.3 V dc | Characteristic | Tolerance | Code | 100+ | 500+ | 1K+ |
| 1.5µF | X5R | ± 10% | 175-9410 | | | |
| 2.2µF | X5R | ± 10% | 175-9411 | | | |
| 3.3µF | X5R | ± 10% | 175-9412 | | | |
| 4.7µF | X5R | ± 10% | 175-9414 | | | |
| 22µF | X5R | ± 20% | 175-9415 | | | |
| **10 V dc** | | | | | | |
| 2.2µF | X5R | ± 10% | 175-9416 | | | |
| 3.3µF | Y5V | -20%, +80% | 175-9417 | | | |
| 3.3µF | X5R | ± 10% | 175-9418 | | | |
| 4.7µF | Y5V | -20%, +80% | 175-9419 | | | |
| 4.7µF | X5R | ± 10% | 175-9420 | | | |
| 10µF | Y5V | -20%, +80% | 175-9421 | | | |
| **16 V dc** | | | | | | |
| 1µF | Y5V | -20%, +80% | 175-9422 | | | |
| 1.5µF | Y5V | -20%, +80% | 175-9423 | | | |
| 2.2µF | Y5V | -20%, +80% | 175-9424 | | | |
| 2.2µF | X5R | ± 10% | 175-9426 | | | |
| 4.7µF | Y5V | -20%, +80% | 175-9427 | | | |
| 4.7µF | X5R | ± 10% | 175-9428 | | | |
| **25 V dc** | | | | | | |
| 1µF | Y5V | -20%, +80% | 175-9429 | | | |
| 2.2µF | X5R | ± 10% | 175-9430 | | | |
| 4.7µF | X5R | ± 10% | 175-9431 | | | |
| **50 V dc** | | | | | | |
| 1µF | Y5V | -20%, +80% | 175-9432 | | | |

| 1206 | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| 10 V dc | Characteristic | Tolerance | Code | 10+ | 250+ | 1K+ |
| 1.5µF | X7R | ± 10% | 175-9433 | | | |
| 10µF | Y5V | -20%, +80% | 175-9434 | | | |
| 22µF | Y5V | -20%, +80% | 175-9435 | | | |
| **16 V dc** | | | | | | |
| 1µF | X7R | ± 10% | 175-9436 | | | |
| 1µF | Y5V | -20%, +80% | 175-9438 | | | |
| 1.5µF | X7R | ± 10% | 175-9439 | | | |
| 1.5µF | Y5V | -20%, +80% | 175-9440 | | | |
| 2.2µF | X7R | ± 10% | 175-9441 | | | |
| 2.2µF | Y5V | -20%, +80% | 175-9442 | | | |
| 3.3µF | Y5V | -20%, +80% | 175-9443 | | | |
| 4.7µF | Y5V | -20%, +80% | 175-9444 | | | |
| 10µF | Y5V | -20%, +80% | 175-9445 | | | |
| 1µF | X7R | ± 10% | 175-9446 | | | |
| **25 V dc** | | | | | | |
| 1µF | Y5V | -20%, +80% | 175-9447 | | | |
| 1.5µF | Y5V | -20%, +80% | 175-9448 | | | |
| 2.2µF | Y5V | -20%, +80% | 175-9451 | | | |
| 4.7µF | Y5V | -20%, +80% | 175-9452 | | | |
| 10µF | Y5V | -20%, +80% | 175-9453 | | | |
| **50 V dc** | | | | | | |
| 1µF | X7R | ± 10% | 175-9454 | | | |
| 1µF | Y5V | -20%, +80% | 175-9455 | | | |

| 1210 | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| 6.3 V dc | Characteristic | Tolerance | Code | 10+ | 250+ | 500+ |
| 22µF | X5R | ± 20% | 175-9456 | | | |
| 100µF | X5R | ± 20% | 175-9457 | | | |
| **10 V dc** | | | | | | |
| 10µF | X5R | ± 10% | 175-9458 | | | |
| 22µF | Y5V | -20%, +80% | 175-9459 | | | |
| 22µF | X5R | ± 20% | 175-9460 | | | |
| 47µF | X5R | ± 20% | 175-9461 | | | |
| **16 V dc** | | | | | | |
| 4.7µF | X5R | ± 10% | 175-9463 | | | |
| 10µF | Y5V | -20%, +80% | 175-9464 | | | |
| 10µF | X5R | ± 10% | 175-9465 | | | |
| 22µF | Y5V | -20%, +80% | 175-9466 | | | |
| 22µF | X5R | ± 20% | 175-9467 | | | |
| **25 V dc** | | | | | | |
| 4.7µF | X5R | ± 10% | 175-9468 | | | |
| 10µF | Y5V | -20%, +80% | 175-9469 | | | |
| 10µF | X5R | ± 20% | 175-9470 | | | |
| **50 V dc** | | | | | | |
| 4.7µF | Y5V | -20%, +80% | 175-9471 | | | |

546972

| 1812 | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| 100 V dc | Characteristic | Tolerance | Code | 10+ | 250+ | 500+ |
| 1µF | X7R | ± 20% | 175-9472 | | | |

## Hi-Cap MLCC



NEW

| 0402 | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| | Characteristic | Tolerance | Code | 10+ | 50+ | 100+ |
| **4V** | | | | | | |
| 4.7 µF | X5R | ± 20% | 183-3801 | | | |
| **6.3V** | | | | | | |
| 2.2 µF | X5R | ± 10% | 183-3802 | | | |

| 0603 | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| | Characteristic | Tolerance | Code | 10+ | 50+ | 100+ |
| **6.3V** | | | | | | |
| 4.7 µF | X5R | ± 10% | 183-3803 | | | |
| 10 µF | X5R | ± 20% | 183-3804 | | | |
| **10V** | | | | | | |
| 2.2 µF | X5R | ± 10% | 183-3802 | | | |
| 0.47 µF | X5R | ± 10% | 183-3805 | | | |
| 4.7 µF | X5R | ± 10% | 183-3806 | | | |
| 2.2 µF | X5R | ± 10% | 183-3808 | | | |
| 1 µF | Y5V | -20%, +80% | 183-3809 | | | |

| 0805 | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| | Characteristic | Tolerance | Code | 10+ | 50+ | 100+ |
| **6.3V** | | | | | | |
| 4.7 µF | X5R | ± 10% | 183-3810 | | | |
| **10V** | | | | | | |
| 2.2 µF | X5R | ± 10% | 183-3811 | | | |
| 10 µF | X5R | ± 10% | 183-3812 | | | |
| 4.7 µF | X7R | ± 10% | 183-3814 | | | |
| **16V** | | | | | | |
| 4.7 µF | X5R | ± 10% | 183-3813 | | | |
| **50V** | | | | | | |
| 1 µF | X5R | ± 10% | 183-3815 | | | |
| **100V** | | | | | | |
| 0.47 µF | X7R | ± 10% | 183-3816 | | | |

| 1206 | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| | Characteristic | Tolerance | Code | 10+ | 50+ | 100+ |
| **10V** | | | | | | |
| 4.7 µF | X5R | ± 10% | 183-3817 | | | |
| 22 µF | X5R | ± 20% | 183-3818 | | | |
| 2.2 µF | X7R | ± 10% | 183-3821 | | | |
| **16V** | | | | | | |
| 22 µF | X5R | ± 10% | 183-3822 | | | |
| 22 µF | X5R | ± 20% | 183-3823 | | | |
| 2.2 µF | X7R | ± 10% | 183-3824 | | | |
| **25V** | | | | | | |
| 10 µF | X5R | ± 10% | 183-3825 | | | |

| 1210 | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| | Characteristic | Tolerance | Code | 10+ | 50+ | 100+ |
| **6.3V** | | | | | | |
| 22 µF | X5R | ± 10% | 183-3826 | | | |
| **16V** | | | | | | |
| 10 µF | Y5V | -20%, +80% | 183-3827 | | | |
| **25V** | | | | | | |
| 4.7 µF | X5R | ± 10% | 183-3828 | | | |
| 22 µF | X5R | ± 10% | 183-3829 | | | |
| 22 µF | X5R | ± 20% | 183-3830 | | | |
| 1 µF | X7R | ± 10% | 183-3831 | | | |

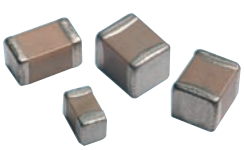
| 1812 | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| | Characteristic | Tolerance | Code | 10+ | 50+ | 100+ |
| **50V** | | | | | | |
| 1 µF | X7R | ± 10% | 183-3833 | | | |
| 4.7 µF | X7R | ± 10% | 183-3834 | | | |
| **100V** | | | | | | |
| 1 µF | X7R | ± 10% | 183-3835 | | | |
| 2.2 µF | X7R | ± 10% | 183-3836 | | | |

612976

| 2220 | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| | Characteristic | Tolerance | Code | 10+ | 50+ | 100+ |
| **25V** | | | | | | |
| 22 µF | X7R | ± 20% | 183-3837 | | | |
| **50V** | | | | | | |
| 1 µF | X7R | ± 10% | 183-3838 | | | |
| **100V** | | | | | | |
| 4.7 µF | X7R | ± 10% | 183-3839 | | | |

## Ceramic - Multilayer High CV - JDI

### High CV MLCC



NEW

| 0402 Case Size | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| 6.3 V dc | Characteristic | Tolerance | Code | 100+ | 500+ | 1K+ |
| 2.2 µF | X5R | ± 20% | 188-6090 | | | |
| **10 V dc** | | | | | | |
| 1 µF | X5R | ± 10% | 188-6091 | | | |

| 0603 Case Size | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| 6.3 V dc | Characteristic | Tolerance | Code | 100+ | 500+ | 1K+ |
| 4.7 µF | X5R | ± 10% | 188-6092 | | | |
| 10 µF | X5R | ± 20% | 188-6093 | | | |
| **25 V dc** | | | | | | |
| 1 µF | X5R | ± 10% | 188-6094 | | | |

# Ceramic - Multilayer High CV - JDI - continued

## High CV MLCC - continued

| 0805 Case Size | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| 6.3 V dc | Characteristic | Tolerance | Code | 10+ | 50+ | 250+ |
| 4.7 µF | X5R | ± 10% | 188-6096● | | | |
| 10 µF | X5R | ± 10% | 188-6097● | | | |
| 22 µF | X5R | ± 10% | 188-6098● | | | |
| 22 µF | X5R | ± 20% | 188-6099● | | | |
| 47 µF | X5R | ± 20% | 188-6100● | | | |
| **10 V dc** | | | | | | |
| 10 µF | X5R | ± 10% | 188-6102● | | | |
| 2.2 µF | X5R | ± 10% | 188-6103● | | | |
| **16 V dc** | | | | | | |
| 10 µF | X5R | ± 10% | 188-6104● | | | |

| 1206 Case Size | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| 6.3 V dc | Characteristic | Tolerance | Code | 10+ | 250+ | 1K+ |
| 47 µF | X5R | ± 20% | 188-6105● | | | |
| **25 V dc** | | | | | | |
| 10 µF | X5R | ± 10% | 188-6106● | | | |

| 1210 Case Size | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| 6.3 V dc | Characteristic | Tolerance | Code | 10+ | 250+ | 1K+ |
| 100 µF | X5R | ± 20% | 188-6107● | | | |
| **16 V dc** | | | | | | |
| 22 µF | X5R | ± 10% | 188-6108● | | | |
| **25 V dc** | | | | | | |
| 10 µF | X5R | ± 10% | 188-6109● | | | |

| 1812 Case Size | Dielectric | Capacitance | Order | Price Each | | |
|---|---|---|---|---|---|---|
| 6.3 V dc | Characteristic | Tolerance | Code | 5+ | 50+ | 250+ |
| 100 µF | X5R | ± 20% | 188-6110● | | | |

628959

| Design Kit | Order | Price Each | | |
|---|---|---|---|---|
| | Code | 5+ | 50+ | 250+ |
| 500 Pieces of 1µF to 100µF 0402, 0603, 0805, 1206, 1210 Size Ceramic Chip Capacitors | 188-6111● | | | |

# Ceramic - Multilayer High CV - AVX

## High CV MLCC



- Multilayer ceramic chip capacitors
- Nickel barrier terminations
- High performance and reliability
- 0402, 0603, 0805, 1206, 1210 and 2220 case size

| | X8L | X5R | X7R | Y5V |
|---|---|---|---|---|
| Operating Temperature | -55°C to +150°C | -55°C to +85°C | -55°C to +125°C | -30°C to +85°C |

## 0402 Case Size

| | Voltage | Tolerance | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **X5R** | | | | | | | |
| 1µF | 10V | ± 10% | 174-0588● | | | | |

## 0603 Case Size

| | Voltage | Tolerance | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **X5R** | | | | | | | |
| 10µF | 4V | ± 20% | 165-7928● RL | | | | |
| 4.7µF | 6.3V | ± 20% | 174-0638● | | | | |
| 2.2µF | 16V | ± 10% | 165-8871● RL | | | | |
| 1µF | 25V | ± 20% | 174-0640● | | | | |
| 1µF | 25V | ± 10% | 165-8868● RL | | | | |
| **X7R** | | | | | | | |
| 2.2µF | 6.3V | ± 10% | 165-7930● RL | | | | |
| 1µF | 16V | ± 10% | 165-8870● RL | | | | |
| **Y5V** | | | | | | | |
| 1µF | 16V | -20%, +80% | 165-8872● RL | | | | |

## 0805 Case Size

| | Voltage | Tolerance | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **X5R** | | | | | | | |
| 10µF | 6.3V | ± 10% | 130-1818● | | | | |
| 3.3µF | 10V | ± 10% | 130-1817● | | | | |
| 10µF | 16V | ± 10% | 165-8880● RL | | | | |
| 4.7µF | 25V | ± 10% | 165-7932● RL | | | | |

| | Voltage | Tolerance | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **X7R** | | | | | | | |
| 10µF | 6.3V | ± 10% | 165-7936● RL | | | | |
| 4.7µF | 16V | ± 10% | 165-7937● RL | | | | |
| 1µF | 25V | ± 10% | 165-8877● RL | | | | |
| 2.2µF | 25V | ± 10% | 165-7931● RL | | | | |
| **Y5V** | | | | | | | |
| 4.7µF | 10V | -20%, +80% | 165-8881● RL | | | | |
| 1µF | 25V | -20%, +80% | 121-6536● | | | | |

## 1206 Case Size

| | Voltage | Tolerance | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **X5R** | | | | | | | |
| 47µF | 6.3V | ± 20% | 165-8886● RL | | | | |
| 22µF | 6.3V | ± 20% | 130-1816● | | | | |
| 10µF | 6.3V | ± 10% | 130-1815● | | | | |
| **X7R** | | | | | | | |
| 22µF | 6.3V | ± 10% | 165-7942● RL | | | | |
| 2.2µF | 10V | ± 10% | 121-6537● | | | | |
| 2.2µF | 100V | ± 10% | NEW 204-3047● | | | | |
| 1µF | 16V | ± 10% | 499-717● RL | | | | |
| 10µF | 16V | ± 10% | 165-7943● RL | | | | |
| 2.2µF | 25V | ± 10% | 165-8884● RL | | | | |
| 4.7µF | 25V | ± 10% | 165-7941● RL | | | | |
| 1µF | 50V | ± 5% | 174-0706● | | | | |
| 1µF | 50V | ± 10% | 130-1811● | | | | |
| 4.7µF | 50V | ± 10% | NEW 190-8177● | | | | |
| **Y5V** | | | | | | | |
| 2.2µF | 16V | -20%, +80% | 578-265● RL | | | | |
| 4.7µF | 16V | -20%, +80% | 578-277● RL | | | | |

## 1210 Case Size

| | Voltage | Tolerance | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **X7R** | | | | | | | |
| 22µF | 16V | ± 10% | 165-7948● RL | | | | |
| 10µF | 25V | ± 10% | 165-7945● RL | | | | |
| 2.2µF | 50V | ± 10% | 165-8889● RL | | | | |
| 3.3µF | 50V | ± 10% | 165-7947● RL | | | | |
| 4.7µF | 50V | ± 10% | 165-8891● RL | | | | |
| 1µF | 100V | ± 10% | 130-1814● | | | | |
| 2.2µF | 100V | ± 10% | 165-7944● RL | | | | |
| **Y5V** | | | | | | | |
| 47µF | 6.3V | ± 10% | 165-8892● RL | | | | |
| 10µF | 16V | -20%, +80% | 121-6555● RL | | | | |

## 2220 Case Size

406029

| | Voltage | Tolerance | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **X5R** | | | | | | | |
| 10µF | 50V | ± 10% | 165-7949● RL | | | | |

## MLCC Series - HiCap X5R

NEW



- General Purpose Dielectric for Ceramic Capacitor
- Well suited for decoupling and filtering application
- Available in High Capacitance values (up to 100µF)

| | |
|---|---|
| Operating Temperature Range | -55°C to +85°C |
| Dielectric Characteristic | X5R |

| Capacitance | Tolerance | Mftrs List No. | Order Code | Price Each 10+ | 50+ | 100+ |
|---|---|---|---|---|---|---|
| **6.3 V dc** | | | | | | |
| 1µF | ± 20% | 02016D105MAT2A | 186-7951● | | | |
| **10 V dc** | | | | | | |
| **16 V dc** | | | | | | |
| 1µF | ± 10% | 0402YD105KAT2A | 186-7953● | | | |
| **10 V dc** | | | | | | |
| 10µF | ± 20% | 0603ZD106MAT2A | 186-7954● | | | |

| Capacitance | Tolerance | Mftrs List No. | Order Code | Price Each 10+ | 50+ | 100+ |
|---|---|---|---|---|---|---|
| **6.3 V dc** | | | | | | |
| 22µF | ± 20% | 08056D226MAT2A | **186-7955** | | | |
| **10 V dc** | | | | | | |
| 22µF | ± 20% | 0805ZD226MAT2A | **186-7956** | | | |
| **25 V dc** | | | | | | |
| 10µF | ± 10% | 08053D106KAT2A | **186-7958** | | | |

624223

| Capacitance | Tolerance | Mftrs List No. | Order Code | Price Each 10+ | 50+ | 100+ |
|---|---|---|---|---|---|---|
| **6.3 V dc** | | | | | | |
| 100µF | ± 20% | 18126D107MAT2A | **186-7959** | | | |

## Reduced Noise MLCC

**QM Series**

NEW



- Designed to significantly reduce noise characterstics while providing high capacitance values and a low voltage coefficient
- Ideal for mobile phone, hard disk drive and LCD panel driver circuit application

Operating Temperature Range -55°C to +85°C Dielectric Characteristic X5R

| Capacitance | Tolerance | Mftrs List No. | Order Code | Price Each 10+ | 50+ | 100+ |
|---|---|---|---|---|---|---|
| **6.3 V dc** | | | | | | |
| 10µF | ± 20% | QM036D106MAT | **186-7960** | | | |

624226

| Capacitance | Tolerance | Mftrs List No. | Order Code | Price Each 10+ | 50+ | 100+ |
|---|---|---|---|---|---|---|
| **4 V dc** | | | | | | |
| 22µF | ± 20% | QM054D226MAT | **186-7961** | | | |
| **16 V dc** | | | | | | |
| 10µF | ± 10% | QM05YD106KAT | **186-7962** | | | |

# Ceramic - Multilayer High CV - Kemet

**FREE Re-reeling service.** Only buy what you need and improve assembly efficiency. For more information visit **local website**

## Multilayer ceramic–Hi-Cap 0402 - 2220 Sizes



KEMET multilayer ceramic chip capacitors are produced in plants designed specifically for chip capacitor manufacture. The process features a high degree of mechanization, as well as precise conditions. Extensive technology, engineering and quality assurance programs supplement the manufacturing. Standard end terminations use a nickel barrier layer and a tin over-plate to provide excellent soldering ability for the customer.

| | X8L | X5R | X7R | Y5V |
|---|---|---|---|---|
| Operating Temperature | -55°C to +150°C | -55°C to +85°C | -55°C to +125°C | -30°C to +85°C |

## 0402 Case Size

| | Voltage (V) | Tolerance | Order Code | Price Each 10+ | 100+ | 1K+ | 4K+ |
|---|---|---|---|---|---|---|---|
| **X5R** | | | | | | | |
| 3.3µF | 4 | ± 20% | **157-2621** | | | | |
| 4.7µF | 4 | ± 20% | **157-2622** | | | | |
| 2.2µF | 6.3 | ± 20% | **128-8200** RL | | | | |
| 1µF | 6.3 | ± 10% | **128-8253** RL | | | | |
| 1µF | 10 | ± 10% | **179-3827** | | | | |

## 0603 Case Size

| | Voltage (V) | Tolerance | Order Code | Price Each 10+ | 100+ | 1K+ | 4K+ |
|---|---|---|---|---|---|---|---|
| **X5R** | | | | | | | |
| 2.2µF | 6.3 | ± 10% | **128-8257** RL | | | | |
| 3.3µF | 6.3 | ± 20% | **110-8324** | | | | |
| 4.7µF | 6.3 | ± 10% | **922-7784** RL | | | | |
| 10µF | 6.3 | ± 20% | **128-8201** RL | | | | |
| 1µF | 10 | ± 10% | **922-7776** RL | | | | |
| 2.2µF | 10 | ± 10% | **110-8322** RL | | | | |
| 4.7µF | 10 | ± 10% | **157-2625** | | | | |
| 1µF | 16 | ± 10% | **128-8256** RL | | | | |
| 1µF | 16 | ± 10% | **146-3388** | | | | |
| 2.2µF | 16 | ± 10% | **128-8203** RL | | | | |
| 1µF | 25 | ± 10% | **128-8202** RL | | | | |
| **X7R** | | | | | | | |
| 1µF | 6.3 | ± 10% | **186-5556** | | | | |
| 1µF | 16 | ± 10% | **165-0837** | | | | |

## 0805 Case Size

| | Voltage (V) | Tolerance | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **X8L** | | | | | | | |
| 1µF | 10 | ± 10% | **178-9724** | | | | |
| **X5R** | | | | | | | |
| 47µF | 4 | ± 20% | **128-8205** RL | | | | |
| 4.7µF | 6.3 | ± 10% | **922-7857** RL | | | | |
| 10µF | 6.3 | ± 10% | **922-7814** RL | | | | |
| 22µF | 6.3 | ± 20% | **110-8326** RL | | | | |
| 47µF | 6.3 | ± 20% | **157-2633** | | | | |
| 2.2µF | 10 | ± 10% | **922-7822** RL | | | | |
| 6.8µF | 10 | ± 10% | **157-2632** | | | | |
| 10µF | 10 | ± 10% | **146-3362** | | | | |
| 3.3µF | 16 | ± 10% | **157-2630** | | | | |
| 4.7µF | 16 | ± 10% | **922-7849** RL | | | | |
| 10µF | 16 | ± 10% | **128-8204** RL | | | | |
| 1µF | 25 | ± 10% | **146-3389** | | | | |
| 4.7µF | 25 | ± 10% | **157-2631** | | | | |
| **Y5V** | | | | | | | |
| 1µF | 16 | -20%, +80% | **922-7806** RL | | | | |
| 2.2µF | 16 | -20%, +80% | **922-7830** RL | | | | |
| **X7R** | | | | | | | |
| 1µF | 16 | ± 10% | **922-7792** RL | | | | |
| 2.2µF | 16 | ± 10% | **128-8262** RL | | | | |
| 1µF | 25 | ± 10% | **163-7035** | | | | |
| 1.2µF | 16 | ± 10% | NEW **190-7064** | | | | |
| 1.5µF | 16 | ± 10% | NEW **190-7065** | | | | |
| 1.8µF | 16 | ± 10% | NEW **190-7066** | | | | |

## 1206 Case Size

| | Voltage (V) | Tolerance | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **X8L** | | | | | | | |
| 3.3µF | 10 | ± 10% | **178-9738** | | | | |
| 4.7µF | 10 | ± 10% | **178-9741** | | | | |
| 1µF | 25 | ± 10% | **178-9742** | | | | |
| 1.5µF | 25 | ± 10% | **178-9743** | | | | |
| 2.2µF | 25 | ± 10% | **178-9744** | | | | |
| **X5R** | | | | | | | |
| 10µF | 6.3 | ± 10% | **128-8286** RL | | | | |
| 22µF | 6.3 | ± 10% | **128-8265** RL | | | | |
| 100µF | 6.3 | ± 20% | **135-8552** | | | | |
| 10µF | 10 | ± 10% | **922-7890** RL | | | | |
| 22µF | 10 | ± 20% | **157-2634** | | | | |
| 47µF | 10 | ± 20% | **157-2639** | | | | |
| 3.3µF | 16 | ± 10% | **157-2636** | | | | |
| 4.7µF | 16 | ± 10% | **922-7946** RL | | | | |
| 6.8µF | 16 | ± 10% | **157-2638** | | | | |
| 10µF | 16 | ± 10% | **922-7881** RL | | | | |
| 10µF | 16 | ± 10% | **146-3365** | | | | |
| 4.7µF | 25 | ± 10% | **922-7938** RL | | | | |
| 10µF | 25 | ± 10% | **128-8206** RL | | | | |
| 4.7µF | 50 | ± 10% | **157-2637** | | | | |
| **Y5V** | | | | | | | |
| 10µF | 10 | -20%, +80% | **922-7903** RL | | | | |
| 2.2µF | 16 | -20%, +80% | **922-7920** RL | | | | |
| 4.7µF | 16 | -20%, +80% | **922-7954** RL | | | | |
| 1µF | 25 | -20%, +80% | **922-7873** RL | | | | |
| **X7R** | | | | | | | |
| 10µF | 10 | ± 10% | **128-8264** RL | | | | |
| 1µF | 16 | ± 10% | **165-0888** | | | | |
| 2.2µF | 16 | ± 10% | **922-7911** RL | | | | |
| 10µF | 16 | ± 10% | **146-3368** | | | | |
| 1µF | 25 | ± 10% | **922-7865** RL | | | | |
| 4.7µF | 25 | ± 10% | **128-8211** RL | | | | |
| 1µF | 50 | ± 10% | **128-8207** RL | | | | |
| 2.2µF | 50 | ± 10% | **128-8208** RL | | | | |

## 1210 Case Size

| | Voltage (V) | Tolerance | Order Code | Price Each 5+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **X8L** | | | | | | | |
| 6.8µF | 10 | ± 10% | **178-9755** | | | | |
| 10µF | 10 | ± 10% | **178-9756** | | | | |
| 1.5µF | 25 | ± 10% | **178-9757** | | | | |
| 2.2µF | 25 | ± 10% | **178-9758** | | | | |
| 3.3µF | 25 | ± 10% | **178-9759** | | | | |
| 4.7µF | 25 | ± 10% | **178-9760** | | | | |
| 1µF | 50 | ± 10% | **178-9763** | | | | |

# Ceramic - Multilayer High CV - Kemet - continued

## 0603 Case Size - continued

| | Voltage (V) | Tolerance | Order Code | Price Each 5+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **X5R** | | | | | | | |
| 22µF | 6.3 | ± 10% | **922-7997** RL | | | | |
| 47µF | 6.3 | ± 20% | **110-8327** RL | | | | |
| 100µF | 6.3 | ± 20% | **110-8328** RL | | | | |
| 10µF | 10 | ± 10% | **922-7970** RL | | | | |
| 22µF | 16 | ± 10% | **128-8266** RL | | | | |
| 22µF | 16 | ± 10% | **146-3394** | | | | |
| **Y5V** | | | | | | | |
| 10µF | 16 | -20%, +80% | **922-7989** RL | | | | |
| **X7R** | | | | | | | |
| 10µF | 6.3 | ± 10% | **128-8212** RL | | | | |
| 4.7µF | 10 | ± 10% | **128-8216** RL | | | | |
| 22µF | 10 | ± 10% | **179-3830** | | | | |
| 10µF | 16 | ± 10% | **128-8213** RL | | | | |
| 4.7µF | 25 | ± 10% | **128-8217** RL | | | | |
| 10µF | 25 | ± 10% | **135-8512** | | | | |
| 1µF | 50 | ± 10% | **922-7962** RL | | | | |
| 2.2µF | 50 | ± 10% | **128-8214** RL | | | | |
| 3.3µF | 50 | ± 10% | **128-8215** RL | | | | |
| 4.7µF | 50 | ± 10% | **135-8511** | | | | |
| 1µF | 100 | ± 10% | **179-3831** | | | | |
| 2.2µF | 100 | ± 10% | **179-3832** | | | | |

## 1812 Case Size

| | Voltage (V) | Tolerance | Order Code | Price Each 10+ | 100+ | 1K+ | 4K+ |
|---|---|---|---|---|---|---|---|
| **X7R** | | | | | | | |
| 10µF | 25 | ± 10% | **135-8500** | | | | |
| 1µF | 50 | ± 10% | **922-9094** RL | | | | |
| 4.7µF | 50 | ± 10% | **135-8499** | | | | |
| 2.2µF | 100 | ± 20% | **179-3833** | | | | |

## 2220 Case Size

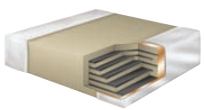
406029

| | Voltage (V) | Tolerance | Order Code | Price Each 10+ | 100+ | 1K+ | 2K+ |
|---|---|---|---|---|---|---|---|
| **X7R** | | | | | | | |
| 22µF | 25 | ± 10% | **179-3835** | | | | |
| 1µF | 50 | ± 10% | **128-8284** RL | | | | |
| 10µF | 50 | ± 10% | **179-3836** | | | | |

## Multilayer Ceramic Chip Capacitors High Capacitance

NEW KEMET CHARGED

SMD



Features
- Multilayer ceramic chip capacitors
- 0402, 0603, 0805, 1206, 1210 case sizes
- Standard end metalization: Tin-plate over nickel barrier

| Capacitance µF | Tolerance | Case Size | Dielectric Characteristic | Temperature Range | Mftrs.List No. | Order Code |
|---|---|---|---|---|---|---|
| 2.2 | ± 20% | 0402 | X5R | -55°C to +85°C | C0402C225M8PAC TU | 211-8127 |
| 1 | ± 10% | 0603 | X7R | -55°C to +125°C | C0603C105K3RAC TU | 211-8128 |
| 1 | ± 10% | 0805 | X7R | -55°C to +125°C | C0805C105K5RAC TU | 211-8131 |
| 10 | ± 10% | 0805 | X7R | -55°C to +125°C | C0805C106K8RAC TU | 211-8132 |
| 4.7 | ± 10% | 0805 | X7R | -55°C to +125°C | C0805C475K4RAC TU | 211-8133 |
| 10 | ± 10% | 1206 | X7R | -55°C to +125°C | C1206C106K3RAC TU | 211-8134 |
| 22 | ± 20% | 1206 | X7R | -55°C to +125°C | C1206C226M8RAC TU | 211-8135 |
| 22 | ± 20% | 1210 | X7R | -55°C to +125°C | C1210C226M3RAC TU | 211-8136 |

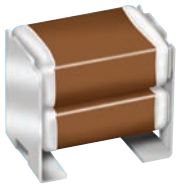
660309

| Mftrs. List No. | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 10K+ |
|---|---|---|---|---|---|---|
| C0402C225M8PAC TU | **211-8127** | | | | | |
| C0603C105K3RAC TU | **211-8128** | | | | | |
| C0805C105K5RAC TU | **211-8131** | | | | | |
| C0805C106K8RAC TU | **211-8132** | | | | | |
| C0805C475K4RAC TU | **211-8133** | | | | | |
| C1206C106K3RAC TU | **211-8134** | | | | | |
| C1206C226M8RAC TU | **211-8135** | | | | | |
| C1210C226M3RAC TU | **211-8136** | | | | | |

## KPS Series

**Single/Double Chip Stack**

NEW KEMET CHARGED



- Higher capacitance in the same footprint
- Potential board space savings
- X7R Dielectric
- Reduces audible, microphonic noise
- Extremely low ESR and ESL

A two chip stack offers up to double the capacitance in the same or smaller design footprint when compared to traditional surface mount MLCC devices.

Operating temperature -55°C to +125°C
Tolerance ± 20%
Dielectric X7R

610833

| Voltage (V) | Chip Stack | Mftrs. List No. | Order Code | Price Each 1+ | 50+ | 250+ |
|---|---|---|---|---|---|---|
| **1210 Case** | | | | | | |
| 47 µF 10 | Double | C1210C476M8R2CTU | **182-6338** | | | |
| 4.7 µF 50 | Single | C1210C475K5R1CTU | **182-6339** | | | |
| 1 µF 100 | Single | C1210C105K1R1CTU | **182-6340** | | | |
| 2.2 µF 100 | Single | C1210C225K1R1CTU | **182-6341** | | | |
| 4.7 µF 100 | Double | C1210C475M1R2CTU | **182-6342** | | | |
| **1812 Case** | | | | | | |
| 22 µF 16 | Double | C1812C226M4R2CTU | **182-6343** | | | |
| 10 µF 25 | Double | C1812C106M3R2CTU | **182-6344** | | | |
| 3.3 µF 50 | Double | C1812C335M5R2CTU | **182-6345** | | | |
| 0.47 µF 250 | Double | C1812C474MAR2CTU | **182-6346** | | | |
| **2220 Case** | | | | | | |
| 33 µF 16 | Double | C2220C336M4R2CTU | **182-6348** | | | |
| 10 µF 25 | Single | C2220C106K3R1CTU | **182-6349** | | | |
| 47 µF 25 | Double | C2220C476M3R2CTU | **182-6350** | | | |
| 3.3 µF 50 | Single | C2220C335K5R1CTU | **182-6351** | | | |
| 10 µF 50 | Single | C2220C106K5R1CTU | **182-6352** | | | |
| 10 µF 50 | Double | C2220C106M5R2CTU | **182-6353** | | | |
| 22 µF 50 | Double | C2220C226M5R2CTU | **182-6354** | | | |
| 2.2 µF 100 | Double | C2220C225M1R2CTU | **182-6355** | | | |
| 3.3 µF 100 | Single | C2220C335K1R1CTU | **182-6356** | | | |
| 1 µF 250 | Double | C2220C105MAR2CTU | **182-6357** | | | |
| 2.2 µF 250 | Double | C2220C225MAR2CTU | **182-6358** | | | |

# Ceramic - Multilayer High CV - Murata

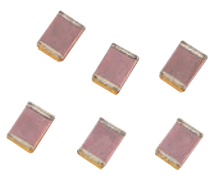
## Hi-Cap Multilayer Ceramic Capacitors

muRata innovator in Electronics

The Hi-Cap range has been designed to replace products such as electrolytic and tantalum capacitors, where high capacitance values are required in a small space.
Ceramic offers many advantages including longer life, greater reliability, and superior high frequency performance. In noise bypassing and decoupling applications, tantalum devices can be replaced with a lower value Hi-Cap (due to better Z and ESR), enabling designers to use a smaller and lower cost part.
Combine this with being non-polarised and, by definition fail-safe, Hi-Cap is the preferred choice for capacitors in the range of 1uF to 100uF.

## Hi-Cap MLCC – Surface Mount

muRata innovator in Electronics



- High performance multilayer ceramic chip capacitors
- Capacitance range 1 to 100µF
- Voltage range 6.3 to 50V d.c.
- Designed for use as alternative to electrolytic and tantalum capacitors

| Operating temperature | X5R, Y5V -55°C to +85°C | X6S, X6T -55°C to +105°C | X7R, X7S, X7U -55°C to +125°C |
|---|---|---|---|

## 0402 Case Size

| | Dielectric Characteristic | Tolerance | Order Code | Price Each 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|---|
| **4.0 V dc** | | | | | | | |
| 1µF | X6S | ± 10% | NEW **188-9260** | | | | |
| 2.2µF | X5R | ± 20% | NEW **184-5728** | | | | |
| 2.2µF | X6T | ± 20% | NEW **188-9261** | | | | |
| 4.7µF | X5R | ± 20% | **173-5525** | | | | |
| **6.3 V dc** | | | | | | | |
| 1µF | X5R | ± 10% | NEW **184-5729** | | | | |
| 2.2µF | X5R | ± 10% | NEW **184-5730** | | | | |
| **10 V dc** | | | | | | | |
| 1µF | X5R | ± 10% | **173-5523** | | | | |


RoHS Compliant Non-compliant

## 0603 Case Size

| Dielectric Characteristic | Tolerance | Order Code | Price Each 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| **2.5 V dc** | | | | | | |
| 10µF | X6S | ± 20% | NEW 188-9262 | | | |
| **4.0 V dc** | | | | | | |
| 4.7µF | X6S | ± 10% | NEW 188-9263 | | | |
| 10µF | X5R | ± 20% | 780-6558 RL | | | |
| 22µF | X5R | ± 20% | NEW 184-5732 | | | |
| 22µF | X5R | ± 20% | NEW 190-7502 | | | |
| **6.3 V dc** | | | | | | |
| 1µF | X5R | ± 10% | 952-7699 RL | | | |
| 1µF | X7R | ± 10% | NEW 184-5765 | | | |
| 1µF | X6S | ± 10% | NEW 188-9264 | | | |
| 2.2µF | X6S | ± 10% | NEW 188-9265 | | | |
| 2.2µF | X7S | ± 10% | NEW 188-9267 | | | |
| 4.7µF | X6S | ± 10% | NEW 190-7504 | | | |
| 4.7µF | X5R | ± 10% | 173-5527 | | | |
| 10µF | X5R | ± 20% | 173-5528 | | | |
| **10 V dc** | | | | | | |
| 1µF | X5R | ± 10% | 182-8798 | | | |
| 1µF | X7R | ± 10% | NEW 184-5766 | | | |
| 1µF | Y5V | -20%, +80% | 182-8847 | | | |
| 1µF | X6S | ± 10% | NEW 188-9268 | | | |
| 2.2µF | X6S | ± 10% | NEW 188-9269 | | | |
| 2.2µF | X5R | ± 10% | 182-8799 | | | |
| 2.2µF | X7R | ± 10% | 179-7012 | | | |
| **16 V dc** | | | | | | |
| 1µF | X5R | ± 10% | 182-8801 | | | |
| 1µF | X5R | ± 10% | NEW 184-5733 | | | |
| 1µF | X7R | ± 10% | 182-8826 | | | |
| 1µF | Y5V | -20%, +80% | 182-8849 | | | |
| 2.2µF | X5R | ± 10% | 173-5526 | | | |
| 2.2µF | X6S | ± 10% | NEW 188-9270 | | | |
| **25 V dc** | | | | | | |
| 1µF | X5R | ± 10% | 182-8802 | | | |
| 1µF | X7R | ± 10% | 173-5540 | | | |
| 2.2µF | X5R | ± 10% | NEW 184-5734 | | | |
| 10µF | X5R | ± 20% | 182-8803 | | | |
| 10µF | X5R | ± 20% | NEW 184-5735 | | | |
| 10µF | X5R | ± 20% | NEW 190-7503 | | | |
| 1µF | X6S | ± 10% | NEW 190-7506 | | | |
| **35 V dc** | | | | | | |
| 1µF | X6S | ± 10% | NEW 190-7507 | | | |
| 1µF | X7R | ± 10% | NEW 190-7508 | | | |
| **50 V dc** | | | | | | |
| 1µF | X5R | ± 10% | NEW 184-5736 | | | |

## 0805 Case Size

| Dielectric Characteristic | Tolerance | Order Code | Price Each 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| **2.5 V dc** | | | | | | |
| | | NEW | | | | |
| **4.0 V dc** | | | | | | |
| 10µF | X6S | ± 10% | NEW 188-9272 | | | |
| 22µF | X6S | ± 20% | NEW 188-9273 | | | |
| 22µF | X7U | ± 20% | NEW 188-9274 | | | |
| 47µF | X5R | ± 20% | NEW 184-5737 | | | |
| **6.3 V dc** | | | | | | |
| 4.7µF | X5R | ± 10% | 952-2999 RL | | | |
| 4.7µF | X6S | ± 10% | NEW 188-9275 | | | |
| 10µF | X6S | ± 10% | NEW 188-9276 | | | |
| 10µF | X6S | ± 10% | NEW 190-7511 | | | |
| 10µF | X5R | ± 10% | 182-8804 | | | |
| 10µF | X5R | ± 10% | NEW 184-5738 | | | |
| 10µF | X7R | ± 10% | NEW 184-5768 | | | |
| 22µF | X5R | ± 20% | NEW 184-5739 | | | |
| 22µF | X5R | ± 20% | 173-5531 | | | |
| **10 V dc** | | | | | | |
| 1µF | X7R | ± 10% | 182-8827 | | | |
| 2.2µF | X5R | ± 10% | NEW 184-5740 | | | |
| 4.7µF | X7R | ± 10% | NEW 184-5769 | | | |
| 4.7µF | X5R | ± 10% | NEW 184-5742 | | | |
| 4.7µF | X6S | ± 10% | NEW 188-9277 | | | |
| 10µF | X5R | ± 10% | 182-8805 | | | |
| 10µF | X6S | ± 10% | NEW 190-7512 | | | |
| 10µF | X5R | ± 10% | NEW 184-5741 | | | |
| 10µF | X7R | ± 10% | 182-8828 | | | |

| Dielectric Characteristic | Tolerance | Order Code | Price Each 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| **16 V dc** | | | | | | |
| 1µF | X5R | ± 10% | NEW 184-5744 | | | |
| 1µF | X7R | ± 10% | 952-7710 RL | | | |
| 1µF | Y5V | -20%, +80% | 182-8851 | | | |
| 2.2µF | Y5V | -20%, +80% | 182-8852 | | | |
| 2.2µF | X5R | ± 10% | NEW 184-5745 | | | |
| 2.2µF | X7R | ± 10% | 182-8829 | | | |
| 4.7µF | X7R | ± 10% | 179-7015 | | | |
| 4.7µF | X5R | ± 10% | NEW 184-5746 | | | |
| 4.7µF | X6S | ± 10% | NEW 188-9279 | | | |
| 4.7µF | X6S | ± 10% | NEW 188-9281 | | | |
| 4.7µF | X5R | ± 10% | NEW 190-7509 | | | |
| 10µF | X5R | ± 10% | 176-2635 | | | |
| 10µF | X5R | ± 10% | NEW 184-5747 | | | |
| 10µF | X6S | ± 10% | NEW 188-9282 | | | |
| 10µF | X6S | ± 10% | NEW 190-7513 | | | |
| **25 V dc** | | | | | | |
| 1µF | X5R | ± 10% | NEW 184-5748 | | | |
| 1µF | X7R | ± 10% | NEW 184-5770 | | | |
| 1µF | X7R | ± 10% | 182-8830 | | | |
| 1µF | Y5V | -20%, +80% | 182-8853 | | | |
| 2.2µF | Y5V | -20%, +80% | 952-7702 RL | | | |
| 2.2µF | X7R | ± 10% | 173-5542 | | | |
| 2.2µF | X5R | ± 10% | 182-8806 | | | |
| 2.2µF | X5R | ± 10% | NEW 184-5749 | | | |
| 4.7µF | X5R | ± 10% | 173-5529 | | | |
| 4.7µF | X6S | ± 10% | NEW 188-9283 | | | |
| 10µF | X5R | ± 10% | 173-5530 | | | |
| 22µF | X5R | ± 20% | NEW 190-7510 | | | |
| **35 V dc** | | | | | | |
| 1µF | X6S | ± 10% | NEW 188-9284 | | | |
| 2.2µF | X6S | ± 10% | NEW 188-9285 | | | |
| **50 V dc** | | | | | | |
| 1µF | X5R | ± 10% | NEW 184-5750 | | | |
| 1µF | X7R | ± 10% | 173-5541 | | | |
| 1µF | Y5V | -20%, +80% | 182-8854 | | | |
| 2.2µF | X5R | ± 10% | NEW 184-5751 | | | |

## 1206 Case Size

| Dielectric Characteristic | Tolerance | Order Code | Price Each 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| **4.0 V dc** | | | | | | |
| 22µF | X6S | ± 10% | NEW 188-9286 | | | |
| 22µF | X7S | ± 10% | NEW 188-9287 | | | |
| 47µF | X6S | ± 20% | NEW 188-9288 | | | |
| 47µF | X7S | ± 20% | NEW 188-9289 | | | |
| 100µF | X6S | ± 20% | NEW 188-9290 | | | |
| 100µF | X7U | ± 20% | NEW 190-7521 | | | |
| **6.3 V dc** | | | | | | |
| 10µF | X5R | ± 10% | 182-8807 | | | |
| 10µF | X7R | ± 10% | 952-7729 RL | | | |
| 22µF | X7R | ± 10% | NEW 184-5771 | | | |
| 22µF | X5R | ± 10% | 182-8808 | | | |
| 22µF | X6S | ± 10% | NEW 188-9292 | | | |
| 47µF | X6S | ± 20% | NEW 188-9293 | | | |
| 47µF | X5R | ± 10% | 182-8809 | | | |
| 47µF | X5R | ± 20% | 173-5534 | | | |
| 47µF | X7U | ± 20% | NEW 190-7522 | | | |
| 100µF | X5R | ± 20% | 173-5535 | | | |
| 100µF | X6T | ± 20% | 190-7519 | | | |
| **10 V dc** | | | | | | |
| 4.7µF | X5R | ± 10% | 182-8810 | | | |
| 4.7µF | X5R | ± 10% | NEW 184-5752 | | | |
| 4.7µF | X7R | ± 10% | 952-7737 RL | | | |
| 10µF | X5R | ± 10% | 182-8811 | | | |
| 10µF | X7R | ± 10% | 182-8831 | | | |
| 10µF | Y5V | -20%, +80% | 952-7745 RL | | | |
| 10µF | X5R | ± 10% | NEW 190-7514 | | | |
| 22µF | Y5V | -20%, +80% | 182-8855 | | | |
| 22µF | X7R | ± 10% | 179-7016 | | | |
| 22µF | X5R | ± 20% | NEW 184-5753 | | | |
| 22µF | X6S | ± 10% | NEW 188-9294 | | | |
| 22µF | X5R | ± 10% | NEW 190-7515 | | | |
| 47µF | X5R | ± 20% | 179-7008 | | | |
| **16 V dc** | | | | | | |
| 1µF | X7R | ± 10% | 182-8832 | | | |
| 2.2µF | X5R | ± 10% | NEW 184-5754 | | | |
| 2.2µF | X7R | ± 10% | 952-7753 RL | | | |
| 4.7µF | X7R | ± 10% | 182-8833 | | | |
| 4.7µF | X5R | ± 10% | 182-8813 | | | |

# Ceramic - Multilayer High CV - Murata - continued

## 0402 Case Size - continued

| Dielectric Characteristic | Tolerance | Order Code | Price Each 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| **16 V dc** | | | | | | |
| 4.7µF | X5R | ± 10% | NEW 184-5756● | | | |
| 4.7µF | Y5V | -20%, +80% | 182-8856● | | | |
| 4.7µF | X7T | ± 10% | NEW 190-7520● | | | |
| 10µF | X5R | ± 10% | 182-8814● | | | |
| 10µF | X7R | ± 10% | 182-8834● | | | |
| 10µF | X7R | ± 10% | NEW 184-5772● | | | |
| 10µF | X6S | ± 10% | NEW 188-9295● | | | |
| 22µF | X6S | ± 20% | NEW 188-9296● | | | |
| 22µF | X5R | ± 10% | 182-8815● | | | |
| 22µF | X5R | ± 20% | 173-5533● | | | |
| **25 V dc** | | | | | | |
| 1µF | X7R | ± 10% | 952-7761● RL | | | |
| 2.2µF | X5R | ± 10% | NEW 184-5757● | | | |
| 2.2µF | X7R | ± 10% | 173-5544● | | | |
| 2.2µF | Y5V | -20%, +80% | 182-8857● | | | |
| 4.7µF | X5R | ± 10% | NEW 184-5758● | | | |
| 4.7µF | X5R | ± 10% | 190-7516● | | | |
| 4.7µF | X7R | ± 10% | 182-8835● | | | |
| 10µF | X5R | ± 10% | NEW 184-5759● | | | |
| 10µF | X5R | ± 10% | 182-8816● | | | |
| 10µF | X7R | ± 10% | 173-5546● | | | |
| 10µF | X7R | ± 10% | 182-8837● | | | |
| 10µF | X6S | ± 10% | NEW 188-9297● | | | |
| 22µF | X5R | ± 10% | 179-7010● | | | |
| **35 V dc** | | | | | | |
| 10µF | X5R | ± 10% | 179-7011● | | | |
| 10µF | X6S | ± 10% | NEW 188-9298● | | | |
| 2.2µF | X6S | ± 10% | NEW 188-9299● | | | |
| **50 V dc** | | | | | | |
| 1µF | X7R | ± 10% | 182-8838● | | | |
| 2.2µF | X5R | ± 10% | NEW 184-5760● | | | |
| 2.2µF | X7R | ± 10% | 179-7017● | | | |
| 2.2µF | X5R | ± 10% | NEW 190-7518● | | | |
| 4.7µF | X5R | ± 10% | NEW 184-5761● | | | |
| 4.7µF | X7R | ± 10% | 173-5545● | | | |
| 4.7µF | Y5V | -20%, +80% | 182-8858● | | | |
| 10µF | X5R | ± 10% | NEW 184-5762● | | | |
| **100 V dc** | | | | | | |
| 1µF | X7R | ± 10% | 173-5543● | | | |

## 1210 Case Size

| Dielectric Characteristic | Tolerance | Order Code | Price Each 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| **4.0 V dc** | | | | | | |
| 100µF | X7U | ± 20% | NEW 188-9300● | | | |
| **6.3 V dc** | | | | | | |
| 47µF | X7R | ± 10% | NEW 184-5773● | | | |
| 47µF | X5R | ± 20% | 952-7788● RL | | | |
| 47µF | X6S | ± 10% | NEW 188-9301● | | | |
| 100µF | X6S | ± 20% | NEW 188-9302● | | | |
| 100µF | X5R | ± 20% | 182-8817● | | | |
| 100µF | X6S | ± 20% | NEW 190-7525● | | | |
| 100µF | X7U | ± 20% | NEW 190-7531● | | | |
| **10 V dc** | | | | | | |
| 10µF | X5R | ± 10% | 952-7796● RL | | | |
| 22µF | Y5V | -20%, +80% | 952-7770● RL | | | |
| 22µF | X7R | ± 20% | NEW 184-5774● | | | |
| 22µF | X7R | ± 10% | 182-8839● | | | |
| 22µF | X5R | ± 10% | NEW 190-7523● | | | |
| 22µF | X5R | ± 10% | NEW 190-7524● | | | |
| 47µF | X7R | ± 10% | 179-7018● | | | |
| 47µF | X5R | ± 10% | 182-8818● | | | |
| 47µF | X6S | ± 10% | NEW 188-9303● | | | |
| **16 V dc** | | | | | | |
| 4.7µF | X7R | ± 10% | NEW 184-5775● | | | |
| 22µF | X7R | ± 10% | NEW 184-5776● | | | |
| 22µF | X5R | ± 10% | 952-7800● RL | | | |
| 22µF | X6S | ± 10% | NEW 190-7526● | | | |
| 22µF | X7R | ± 10% | NEW 190-7528● | | | |
| 47µF | X5R | ± 10% | 182-8819● | | | |
| 47µF | X5R | ± 20% | 173-5538● | | | |
| 47µF | X6S | ± 10% | NEW 190-7527● | | | |

| Dielectric Characteristic | Tolerance | Order Code | Price Each 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| **25 V dc** | | | | | | |
| 4.7µF | X7R | ± 10% | NEW 184-5777● | | | |
| 10µF | Y5V | -20%, +80% | 952-7818● RL | | | |
| 10µF | X7R | ± 10% | 182-8840● | | | |
| 10µF | X5R | ± 10% | 182-8820● | | | |
| 22µF | X7R | ± 10% | 179-7019● | | | |
| 22µF | X5R | ± 10% | 182-8821● | | | |
| 22µF | X5R | ± 20% | 173-5539● | | | |
| 22µF | X6S | ± 10% | NEW 188-9304● | | | |
| **35 V dc** | | | | | | |
| 10µF | X7R | ± 10% | 173-5537● | | | |
| 10µF | X5R | ± 10% | NEW 184-5763● | | | |
| **50 V dc** | | | | | | |
| 1µF | X7R | ± 10% | 952-7826● RL | | | |
| 4.7µF | X7R | ± 10% | 182-8841● | | | |
| 10µF | Y5V | -20%, +80% | 182-8859● | | | |
| 10µF | X5R | ± 10% | NEW 184-5764● | | | |
| **100 V dc** | | | | | | |
| 1µF | X7R | ± 10% | 182-8842● | | | |
| 1µF | X7R | ± 10% | NEW 184-5778● | | | |
| 2.2µF | X7R | ± 10% | 173-5547● | | | |
| 2.2µF | X7R | ± 10% | 182-8843● | | | |

## 1812 Case Size

| Dielectric Charateristic | Tolerance | Order Code | Price Each 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| **6.3 V dc** | | | | | | |
| 100µF | X5R | ± 20% | 952-7834● RL | | | |
| **10 V dc** | | | | | | |
| 47µF | X5R | ± 10% | 182-8822● | | | |
| **25 V dc** | | | | | | |
| 10µF | X5R | ± 10% | 182-8823● | | | |
| **100 V dc** | | | | | | |
| 2.2µF | X7R | ± 10% | 182-8844● | | | |

## 2220 Case Size

333794

| Dielectric Characteristic | Tolerance | Order Code | Price Each 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| **6.3 V dc** | | | | | | |
| 100µF | X5R | ± 10% | 952-7842● RL | | | |
| **50 V dc** | | | | | | |
| 10µF | X5R | ± 10% | 182-8825● | | | |
| **100 V dc** | | | | | | |
| 4.7µF | X7R | ± 10% | 182-8846● | | | |
| **250 V dc** | | | | | | |
| 1µF | X7R | ± 10% | 182-8845● | | | |

## 0402~1210 Class 2 Hi Cap series Kit




- Capacitor kit
- 0402-1210
- 6.3 to 50 VDC
- Blue Binder with Sleeves
- For Kit Contents, Please See Datasheet

546808

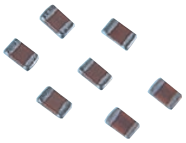
| Order Code | Price Each 1+ | 5+ | 10+ |
|---|---|---|---|
| 176-0699● | | | |

**Capacitance Conversion Table**

| | | | | |
|---|---|---|---|---|
| 0.000001µF | = | 0.001nF | = | 1pF |
| 0.00001µF | = | 0.01nF | = | 10pF |
| 0.0001µF | = | 0.1nF | = | 100pF |
| 0.001µF | = | 1nF | = | 1000pF |
| 0.01µF | = | 10nF | = | 10000pF |
| 0.1µF | = | 100nF | = | 100000pF |
| 1µF | = | 1000nF | = | 1000000pF |
| 10µF | = | 10000nF | = | 10000000pF |
| 100µF | = | 100000nF | = | 100000000pF |

# Ceramic - Multilayer High CV - Yageo

## Hi-Cap



- Multilayer ceramic chip capacitors
- High performance and reliability
- 0402, 0603, 0805, 1206, 1210 and 1812 case sizes
- Nickel barrier terminations
- Conform to **IEC 60-68**

Performance Characteristics

| | X5R | X7R | Y5V |
|---|---|---|---|
| Operating Temperature | -55°C to +85°C | -55°C to +125°C | -25°C to +85°C |
| Tolerance | ±10% | ±10% | 20% to 80% |

### 0402 Case Size

| | Dielectric | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|---|
| **6.3 Volt d.c.** | | | | | | |
| 1 µF | X5R | SMD 940-2063 RL | | | | |
| 1 µF | Y5V | SMD 940-2071 RL | | | | |
| **10 Volt d.c.** | | | | | | |
| 0.22 µF | X5R | SMD 940-2055 RL | | | | |
| **16 Volt d.c.** | | | | | | |
| 0.1 µF | X7R | SMD 940-2047 RL | | | | |

### 0603 Case Size

| | Dielectric | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|---|
| **6.3 Volt d.c.** | | | | | | |
| 2.2 µF | X5R | SMD 940-2101 RL | | | | |
| 4.7 µF | X5R | SMD 940-2110 RL | | | | |
| 4.7 µF | Y5V | SMD 940-2128 RL | | | | |
| **10 Volt d.c.** | | | **10+** | **100+** | **1K+** | **10+** |
| 1 µF | X5R | SMD 940-2080 RL | | | | |
| 2.2 µF | Y5V | SMD 940-2098 RL | | | | |

### 0805 Case Size

| | Dielectric | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|---|
| **10 Volt d.c.** | | | | | | |
| 2.2 µF | X7R | SMD 940-2152 RL | | | | |
| 4.7 µF | X5R | SMD 940-2160 RL | | | | |
| 10 µF | X5R | SMD 940-2136 RL | | | | |
| 10 µF | Y5V | SMD 940-2144 RL | | | | |

### 1206 Case Size

| | Dielectric | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|---|
| **10 Volt d.c.** | | | | | | |
| 4.7 µF | X7R | SMD 940-2195 RL | | | | |
| 10 µF | X5R | SMD 940-2179 RL | | | | |
| 22 µF | Y5V | SMD 940-2187 RL | | | | |

### 1210 Case Size

| | Dielectric | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|---|
| **10 Volt d.c.** | | | | | | |
| 22 µF | X5R | SMD 940-2233 RL | | | | |
| 22 µF | Y5V | SMD 940-2241 RL | | | | |
| **25 Volt d.c.** | | | | | | |
| 10 µF | X5R | SMD 940-2217 RL | | | | |
| 4.7 µF | X5R | SMD 940-2250 RL | | | | |
| 1 µF | X7R | SMD 940-2225 RL | | | | |

### 1812 Case Size

N.B. Order codes 9402268 and 9402209 are of ±20% tolerance.

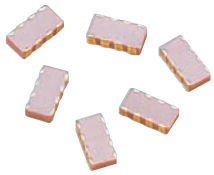
411910

| | Dielectric | Order Code | Price Each 10+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|---|
| **50 Volt d.c.** | | | | | | |
| 1 µF | X7R | SMD 940-2284 RL | | | | |

**The first online technical portal for design engineers**
Log on, research, refine and design

# Ceramic - Multilayer Arrays - Yageo

## 0612 Series – Arrays



- Four 0603 capacitors of the same value on one array
- Saves placement time and cost, reduced amount of board space needed
- Each individual capacitor element has Nickel barrier terminations for improved solderability
- 4000 per reel

H = 0.8 min 1.2 max, W = 1.6±0.15, D = 3.2±0.15

| | NPO | X7R | Y5V |
|---|---|---|---|
| Operating Temperature | -55°C to +125°C | -55°C to +125°C | -25°C to +85°C |
| Temperature coefficient | (0±30) x $10^{6}$/K | ±15% @ 20°C | — |
| Tolerance | ±5% | ±10% | -20% +80% |
| Climatic category (IEC) | 55/125/56 | 55/125/56 | 25/085/21 |

Mftrs. List No. 06122CGXXYJ9B200 where XX=capacitance value and Y=multiplier in pF

| | Order Code | Price Each 10+ | 50+ | 100+ | 1K+ | 4K+ |
|---|---|---|---|---|---|---|
| **50 Volt d.c. NPO** | | | | | | |
| 22 pF | SMD 156-693 RL | | | | | |
| 47 pF | SMD 156-711 RL | | | | | |
| 100 pF | SMD 156-723 RL | | | | | |
| 220 pF | SMD 156-735 RL | | | | | |
| 330 pF | SMD 156-747 RL | | | | | |
| 470 pF | SMD 156-759 RL | | | | | |

Mftrs. List No. 06122RXXYKSB200 where XX=capacitance value and Y=multiplier in pF

| | Order Code | Price Each 10+ | 50+ | 100+ | 1K+ | 4K+ |
|---|---|---|---|---|---|---|
| **16 Volt d.c. X7R** | | | | | | |
| 0.01 µF | SMD 335-1865 RL | | | | | |
| 0.047 µF | SMD 335-1907 RL | | | | | |
| 0.1 µF | SMD 335-1920 RL | | | | | |

Mftrs. List No. 06122RXXYKSB200 where XX=capacitance value and Y=multiplier in pF

| | Order Code | Price Each 10+ | 50+ | 100+ | 1K+ | 4K+ |
|---|---|---|---|---|---|---|
| **50 Volt d.c. X7R** | | | | | | |
| 1000 pF | SMD 156-772 RL | | | | | |
| 4700 pF | SMD 156-802 RL | | | | | |
| **25 Volt d.c. X7R** | | | | | | |
| 0.01 µF | SMD 156-814 RL | | | | | |
| 0.047 µF | SMD 156-840 RL | | | | | |

Mftrs. List No. 06122FXXY8B20D where XX=capacitance value and Y=multiplier in pF

208541

| | Order Code | Price Each 10+ | 50+ | 100+ | 1K+ | 4K+ |
|---|---|---|---|---|---|---|
| **25 Volt d.c. Y5V** | | | | | | |
| 0.1 µF | 335-1993 RL | | | | | |

# Ceramic - High Voltage - Multicomp

## High Voltage MLCC



Operating and storage temperature -55°C to +125°C
Temperature coefficient 0ppm/°C ± 30ppm/°C

547008

| Capacitance | Tol. | Mftrs. List No. | Order Code | Price Each 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **0603** | | | | | | |
| **NPO, 200V dc** | | | | | | |
| 1pF | ± 0.25pF | MCCA000634 | 185-5740 | | | |
| 1.5pF | ± 0.25% | MCCA000635 | 185-5741 | | | |
| 2.2pF | ± 0.25% | MCCA000636 | 185-5742 | | | |
| 3.3pF | ± 0.25pF | MCCA000637 | NEW 185-5743 | | | |
| 4.7pF | ± 0.25pF | MCCA000638 | NEW 185-5744 | | | |
| 6.8pF | ± 0.25% | MCCA000639 | NEW 185-5745 | | | |
| 10pF | ± 5% | MCCA000640 | NEW 185-5746 | | | |
| 15pF | ± 5% | MCCA000641 | NEW 185-5747 | | | |
| 22pF | ± 5% | MCCA000642 | NEW 185-5749 | | | |
| 33pF | ± 5% | MCCA000643 | NEW 185-5751 | | | |
| 47pF | ± 5% | MCCA000644 | NEW 185-5752 | | | |
| 68pF | ± 5% | MCCA000645 | NEW 185-5753 | | | |

# Ceramic - High Voltage - Multicomp - continued

## High Voltage MLCC - continued

| Capacitance | Tol. | Mftrs. List No. | Order Code | Price Each 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **0603** | | | | | | |
| **NPO, 200V dc** | | | | | | |
| 100pF | ± 5% | MCCA000646 | NEW 185-5754 | | | |
| 150pF | ± 5% | MCCA000647 | NEW 185-5755 | | | |
| 220pF | ± 5% | MCCA000648 | NEW 185-5756 | | | |
| **0805** | | | | | | |
| **COG/NPO, 200V dc** | | | | | | |
| 15pF | ± 5% | MCCA000606 | 175-9488 | | | |
| 22pF | ± 5% | MCCA000607 | 175-9489 | | | |
| 33pF | ± 5% | MCCA000608 | 175-9490 | | | |
| 47pF | ± 5% | MCCA000609 | 175-9491 | | | |
| 68pF | ± 5% | MCCA000610 | 175-9492 | | | |
| 100pF | ± 5% | MCCA000611 | 175-9493 | | | |
| 150pF | ± 5% | MCCA000612 | 175-9494 | | | |
| 220pF | ± 5% | MCCA000614 | 175-9496 | | | |
| 330pF | ± 5% | MCCA000616 | 175-9499 | | | |
| **NPO, 200V dc** | | | | | | |
| 1pF | ± 0.25pF | MCCA000649 | NEW 185-5757 | | | |
| 1.5pF | ± 0.25pF | MCCA000650 | NEW 185-5758 | | | |
| 2.2pF | ± 0.25pF | MCCA000651 | NEW 185-5759 | | | |
| 3.3pF | ± 0.25pF | MCCA000652 | NEW 185-5760 | | | |
| 4.7pF | ± 0.25pF | MCCA000653 | NEW 185-5762 | | | |
| 6.8pF | ± 0.25pF | MCCA000654 | NEW 185-5763 | | | |
| 10pF | ± 5% | MCCA000655 | NEW 185-5764 | | | |
| **NPO, 500V dc** | | | | | | |
| 1pF | ± 0.25pF | MCCA000656 | NEW 185-5765 | | | |
| 1.5pF | ± 0.25pF | MCCA000657 | NEW 185-5766 | | | |
| 2.2pF | ± 0.25pF | MCCA000658 | NEW 185-5767 | | | |
| 3.3pF | ± 0.25pF | MCCA000659 | NEW 185-5768 | | | |
| 4.7pF | ± 0.25pF | MCCA000660 | NEW 185-5769 | | | |
| 6.8pF | ± 0.25pF | MCCA000661 | NEW 185-5770 | | | |
| 10pF | ± 5% | MCCA000662 | NEW 185-5771 | | | |
| 15pF | ± 5% | MCCA000663 | NEW 185-5772 | | | |
| 22pF | ± 5% | MCCA000664 | NEW 185-5774 | | | |
| 33pF | ± 5% | MCCA000665 | NEW 185-5775 | | | |
| 47pF | ± 5% | MCCA000666 | NEW 185-5776 | | | |
| 68pF | ± 5% | MCCA000667 | NEW 185-5777 | | | |
| 100pF | ± 5% | MCCA000668 | NEW 185-5778 | | | |
| 150pF | ± 5% | MCCA000669 | NEW 185-5779 | | | |
| 220pF | ± 5% | MCCA000670 | NEW 185-5780 | | | |
| 330pF | ± 5% | MCCA000671 | NEW 185-5781 | | | |
| **X7R 200V dc** | | | | | | |
| 220pF | ± 10% | MCCA000613 | 175-9495 | | | |
| 330pF | ± 10% | MCCA000615 | 175-9497 | | | |
| 470pF | ± 10% | MCCA000617 | 175-9500 | | | |
| 680pF | ± 10% | MCCA000618 | 175-9501 | | | |
| 1000pF | ± 10% | MCCA000619 | 175-9502 | | | |
| 1500pF | ± 10% | MCCA000620 | 175-9503 | | | |
| 2200pF | ± 10% | MCCA000621 | 175-9505 | | | |
| 3300pF | ± 10% | MCCA000622 | 175-9506 | | | |
| 4700pF | ± 10% | MCCA000623 | 175-9507 | | | |
| 6800pF | ± 10% | MCCA000624 | 175-9508 | | | |
| 0.01µF | ± 10% | MCCA000625 | 175-9509 | | | |
| 100pF | ± 10% | MCCA000672 | NEW 185-5782 | | | |
| 150pF | ± 10% | MCCA000673 | NEW 185-5783 | | | |
| 0.015µF | ± 10% | MCCA000674 | NEW 185-5784 | | | |
| 0.022µF | ± 10% | MCCA000675 | NEW 185-5786 | | | |
| **1206** | | | | | | |
| **COG/NPO, 200V dc** | | | | | | |
| 1000pF | ± 5% | MCCA000626 | 175-9510 | | | |
| 1.5pF | ± 0.25pF | MCCA000676 | NEW 185-5787 | | | |
| 2.2pF | ± 0.25% | MCCA000677 | NEW 185-5788 | | | |
| 3.3pF | ± 0.25% | MCCA000678 | NEW 185-5789 | | | |
| 4.7pF | ± 0.25pF | MCCA000679 | NEW 185-5790 | | | |
| 6.8pF | ± 0.25pF | MCCA000680 | NEW 185-5791 | | | |
| 10pF | ± 5% | MCCA000681 | NEW 185-5792 | | | |
| 15pF | ± 5% | MCCA000682 | NEW 185-5793 | | | |
| 22pF | ± 5% | MCCA000683 | NEW 185-5794 | | | |
| 33pF | ± 5% | MCCA000684 | NEW 185-5795 | | | |
| 47pF | ± 5% | MCCA000685 | NEW 185-5796 | | | |
| 68pF | ± 5% | MCCA000686 | NEW 185-5798 | | | |
| 100pF | ± 5% | MCCA000687 | NEW 185-5799 | | | |
| 150pF | ± 5% | MCCA000688 | NEW 185-5800 | | | |
| 220pF | ± 5% | MCCA000689 | NEW 185-5801 | | | |
| 330pF | ± 5% | MCCA000690 | NEW 185-5802 | | | |

| Capacitance | Tol. | Mftrs. List No. | Order Code | Price Each 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **1206** | | | | | | |
| **COG/NPO, 200V dc** | | | | | | |
| 470pF | ± 5% | MCCA000691 | NEW 185-5804 | | | |
| 680pF | ± 5% | MCCA000692 | NEW 185-5805 | | | |
| 1500pF | ± 5% | MCCA000693 | NEW 185-5806 | | | |
| 2200pF | ± 5% | MCCA000694 | NEW 185-5807 | | | |
| **COG/NPO, 630V dc** | | | | | | |
| 100pF | ± 5% | MCCA000629 | 175-9513 | | | |
| 1.5pF | ± 0.25pF | MCCA000695 | NEW 185-5808 | | | |
| 2.2pF | ± 0.25pF | MCCA000696 | NEW 185-5809 | | | |
| 3.3pF | ± 0.25pF | MCCA000697 | NEW 185-5810 | | | |
| 4.7pF | ± 0.25pF | MCCA000698 | NEW 185-5811 | | | |
| 6.8pF | ± 0.25pF | MCCA000699 | NEW 185-5812 | | | |
| 10pF | ± 5% | MCCA000700 | NEW 185-5813 | | | |
| 15pF | ± 5% | MCCA000701 | NEW 185-5814 | | | |
| 22pF | ± 5% | MCCA000702 | NEW 185-5816 | | | |
| 33pF | ± 5% | MCCA000703 | NEW 185-5817 | | | |
| 47pF | ± 5% | MCCA000704 | NEW 185-5818 | | | |
| 68pF | ± 5% | MCCA000705 | NEW 185-5819 | | | |
| 150pF | ± 5% | MCCA000706 | NEW 185-5820 | | | |
| 220pF | ± 5% | MCCA000707 | NEW 185-5821 | | | |
| 330pF | ± 5% | MCCA000708 | NEW 185-5822 | | | |
| 470pF | ± 5% | MCCA000709 | NEW 185-5823 | | | |
| 680pF | ± 5% | MCCA000710 | NEW 185-5824 | | | |
| 1000pF | ± 5% | MCCA000711 | NEW 185-5825 | | | |
| **COG/NPO, 1000V dc** | | | | | | |
| 1.5pF | ± 0.25pF | MCCA000712 | NEW 185-5826 | | | |
| 2.2pF | ± 0.25pF | MCCA000713 | NEW 185-5828 | | | |
| 3.3pF | ± 0.25pF | MCCA000714 | NEW 185-5829 | | | |
| 4.7pF | ± 0.02pF | MCCA000715 | NEW 185-5830 | | | |
| 6.8pF | ± 0.25pF | MCCA000716 | NEW 185-5831 | | | |
| 10pF | ± 5% | MCCA000717 | NEW 185-5832 | | | |
| 15pF | ± 5% | MCCA000718 | NEW 185-5833 | | | |
| 22pF | ± 5% | MCCA000719 | NEW 185-5834 | | | |
| 33pF | ± 5% | MCCA000720 | NEW 185-5835 | | | |
| 47pF | ± 5% | MCCA000721 | NEW 185-5836 | | | |
| 68pF | ± 5% | MCCA000722 | NEW 185-5837 | | | |
| 100pF | ± 5% | MCCA000723 | NEW 185-5838 | | | |
| 150pF | ± 5% | MCCA000724 | NEW 185-5841 | | | |
| 220pF | ± 5% | MCCA000725 | NEW 185-5842 | | | |
| 330pF | ± 5% | MCCA000726 | NEW 185-5843 | | | |
| 470pF | ± 5% | MCCA000727 | NEW 185-5844 | | | |
| **COG/NPO, 2000V dc** | | | | | | |
| 1.5pF | ± 0.25pF | MCCA000728 | NEW 185-5845 | | | |
| 2.2pF | ± 0.25pF | MCCA000729 | NEW 185-5846 | | | |
| 3.3pF | ± 0.25pF | MCCA000730 | NEW 185-5847 | | | |
| 4.7pF | ± 0.25pF | MCCA000731 | NEW 185-5848 | | | |
| 6.8pF | ± 5% | MCCA000732 | NEW 185-5849 | | | |
| 10pF | ± 5% | MCCA000733 | NEW 185-5850 | | | |
| 15pF | ± 5% | MCCA000734 | NEW 185-5851 | | | |
| 22pF | ± 5% | MCCA000735 | NEW 185-5853 | | | |
| 33pF | ± 5% | MCCA000736 | NEW 185-5854 | | | |
| 47pF | ± 5% | MCCA000737 | NEW 185-5855 | | | |
| 68pF | ± 5% | MCCA000738 | NEW 185-5856 | | | |
| 100pF | ± 5% | MCCA000739 | NEW 185-5857 | | | |
| 150pF | ± 5% | MCCA000740 | NEW 185-5858 | | | |
| 220pF | ± 5% | MCCA000741 | NEW 185-5859 | | | |
| **X7R, 200V dc** | | | | | | |
| 0.015µF | ± 10% | MCCA000627 | 175-9511 | | | |
| 0.022µF | ± 10% | MCCA000628 | 175-9512 | | | |
| 150pF | ± 10% | MCCA000742 | NEW 185-5860 | | | |
| 220pF | ± 10% | MCCA000743 | NEW 185-5861 | | | |
| 330pF | ± 10% | MCCA000744 | NEW 185-5862 | | | |
| 470pF | ± 10% | MCCA000745 | NEW 185-5863 | | | |
| 680pF | ± 10% | MCCA000746 | NEW 185-5865 | | | |
| 1000pF | ± 10% | MCCA000747 | NEW 185-5866 | | | |
| 1500pF | ± 10% | MCCA000748 | NEW 185-5867 | | | |
| 2200pF | ± 10% | MCCA000749 | NEW 185-5868 | | | |
| 3300pF | ± 10% | MCCA000750 | NEW 185-5869 | | | |
| 4700pF | ± 10% | MCCA000751 | NEW 185-5870 | | | |
| 6800pF | ± 10% | MCCA000752 | NEW 185-5871 | | | |
| 0.01µF | ± 10% | MCCA000753 | NEW 185-5872 | | | |
| 0.033µF | ± 10% | MCCA000754 | NEW 185-5873 | | | |
| 0.047µF | ± 10% | MCCA000755 | NEW 185-5874 | | | |
| 0.068µF | ± 10% | MCCA000756 | NEW 185-5875 | | | |
| 0.1µF | ± 10% | MCCA000757 | NEW 185-5877 | | | |
| **X7R, 630V dc** | | | | | | |
| 1000pF | ± 10% | MCCA000630 | 175-9514 | | | |

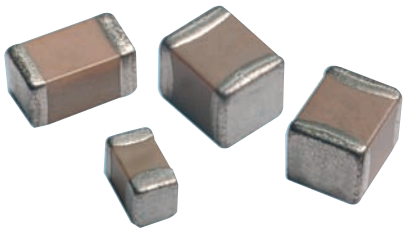

RoHS ● Compliant ▲ Non-compliant

| Capacitance | Tol. | Mftrs. List No. | Order Code | Price Each 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **X7R, 630V dc** | | | | | | |
| 2200pF | ± 10% | MCCA000631 | 175-9515 | | | |
| 4700pF | ± 10% | MCCA000632 | 175-9517 | | | |
| 0.01µF | ± 10% | MCCA000633 | 175-9518 | | | |
| 150pF | ± 10% | MCCA000758 | NEW 185-5878 | | | |
| 220pF | ± 10% | MCCA000759 | NEW 185-5879 | | | |
| 330pF | ± 10% | MCCA000760 | NEW 185-5880 | | | |
| 470pF | ± 10% | MCCA000761 | NEW 185-5881 | | | |
| 680pF | ± 10% | MCCA000762 | NEW 185-5882 | | | |
| 1500pF | ± 10% | MCCA000763 | NEW 185-5883 | | | |
| 3300pF | ± 10% | MCCA000764 | NEW 185-5884 | | | |
| 6800pF | ± 10% | MCCA000765 | NEW 185-5885 | | | |
| 0.015µF | ± 10% | MCCA000766 | NEW 185-5886 | | | |
| 0.022µF | ± 10% | MCCA000767 | NEW 185-5887 | | | |
| 0.033µF | ± 10% | MCCA000768 | NEW 185-5889 | | | |
| **X7R, 1000V dc** | | | | | | |
| 150pF | ± 10% | MCCA000769 | NEW 185-5891 | | | |
| 220pF | ± 10% | MCCA000770 | NEW 185-5892 | | | |
| 330pF | ± 10% | MCCA000771 | NEW 185-5893 | | | |
| 470pF | ± 10% | MCCA000772 | NEW 185-5894 | | | |
| 680pF | ± 10% | MCCA000773 | NEW 185-5895 | | | |
| 1000pF | ± 10% | MCCA000774 | NEW 185-5896 | | | |
| 1500pF | ± 10% | MCCA000775 | NEW 185-5897 | | | |
| 2200pF | ± 10% | MCCA000776 | NEW 185-5898 | | | |
| 3300pF | ± 10% | MCCA000777 | NEW 185-5899 | | | |
| 4700pF | ± 10% | MCCA000778 | NEW 185-5900 | | | |
| 6800pF | ± 10% | MCCA000779 | NEW 185-5901 | | | |
| 0.01µF | ± 10% | MCCA000780 | NEW 185-5902 | | | |
| **X7R, 2000V dc** | | | | | | |
| 150pF | ± 10% | MCCA000781 | NEW 185-5903 | | | |
| 220pF | ± 10% | MCCA000782 | NEW 185-5904 | | | |
| 330pF | ± 10% | MCCA000783 | NEW 185-5905 | | | |
| 470pF | ± 10% | MCCA000784 | NEW 185-5907 | | | |
| 680pF | ± 10% | MCCA000785 | NEW 185-5908 | | | |
| 1000pF | ± 10% | MCCA000786 | NEW 185-5909 | | | |
| **1210** | | | | | | |
| **COG/NPO, 1000V dc** | | | | | | |
| 10pF | ± 5% | MCCA000787 | NEW 185-5910 | | | |
| 15pF | ± 5% | MCCA000788 | NEW 185-5911 | | | |
| 22pF | ± 5% | MCCA000789 | NEW 185-5912 | | | |
| 33pF | ± 5% | MCCA000790 | NEW 185-5913 | | | |
| 47pF | ± 5% | MCCA000791 | NEW 185-5914 | | | |
| 68pF | ± 5% | MCCA000792 | NEW 185-5915 | | | |
| 100pF | ± 5% | MCCA000793 | NEW 185-5916 | | | |
| 150pF | ± 5% | MCCA000794 | NEW 185-5917 | | | |
| 220pF | ± 5% | MCCA000795 | NEW 185-5919 | | | |
| 330pF | ± 5% | MCCA000796 | NEW 185-5921 | | | |
| 470pF | ± 5% | MCCA000797 | NEW 185-5922 | | | |
| **COG/NPO, 2000V dc** | | | | | | |
| 10pF | ± 5% | MCCA000798 | NEW 185-5923 | | | |
| 15pF | ± 5% | MCCA000799 | NEW 185-5924 | | | |
| 22pF | ± 5% | MCCA000800 | NEW 185-5925 | | | |
| 33pF | ± 5% | MCCA000801 | NEW 185-5926 | | | |
| 47pF | ± 5% | MCCA000802 | NEW 185-5927 | | | |
| 68pF | ± 5% | MCCA000803 | NEW 185-5928 | | | |
| 100pF | ± 5% | MCCA000804 | NEW 185-5929 | | | |
| 150pF | ± 5% | MCCA000805 | NEW 185-5930 | | | |
| 220pF | ± 5% | MCCA000806 | NEW 185-5932 | | | |
| **X7R, 200V dc** | | | | | | |
| 1000pF | ± 10% | MCCA000807 | NEW 185-5933 | | | |
| 1500pF | ± 10% | MCCA000808 | NEW 185-5934 | | | |
| 2200pF | ± 10% | MCCA000809 | NEW 185-5935 | | | |
| 3300pF | ± 10% | MCCA000810 | NEW 185-5936 | | | |
| 4700pF | ± 10% | MCCA000811 | NEW 185-5937 | | | |
| 6800pF | ± 10% | MCCA000812 | NEW 185-5938 | | | |
| 0.01µF | ± 10% | MCCA000813 | NEW 185-5939 | | | |
| 0.015µF | ± 10% | MCCA000814 | NEW 185-5940 | | | |
| 0.022µF | ± 10% | MCCA000815 | NEW 185-5941 | | | |
| 0.033µF | ± 10% | MCCA000816 | NEW 185-5942 | | | |
| 0.047µF | ± 10% | MCCA000817 | NEW 185-5944 | | | |
| 0.068µF | ± 10% | MCCA000818 | NEW 185-5945 | | | |
| 0.1µF | ± 10% | MCCA000819 | NEW 185-5946 | | | |
| 0.15µF | ± 10% | MCCA000820 | NEW 185-5947 | | | |
| 0.22µF | ± 10% | MCCA000821 | NEW 185-5948 | | | |
| 0.33µF | ± 10% | MCCA000822 | NEW 185-5949 | | | |
| 0.47µF | ± 10% | MCCA000823 | NEW 185-5950 | | | |
| **X7R, 630V dc** | | | | | | |
| 1000pF | ± 10% | MCCA000824 | NEW 185-5951 | | | |
| 1500pF | ± 10% | MCCA000825 | NEW 185-5952 | | | |
| 2200pF | ± 10% | MCCA000826 | NEW 185-5953 | | | |
| 3300pF | ± 10% | MCCA000827 | NEW 185-5954 | | | |
| 4700pF | ± 10% | MCCA000828 | NEW 185-5956 | | | |
| 6800pF | ± 10% | MCCA000829 | NEW 185-5957 | | | |
| 0.01µF | ± 10% | MCCA000830 | NEW 185-5958 | | | |
| 0.015µF | ± 10% | MCCA000831 | NEW 185-5959 | | | |
| 0.022µF | ± 10% | MCCA000832 | NEW 185-5960 | | | |
| 0.033µF | ± 10% | MCCA000833 | NEW 185-5961 | | | |
| 0.047µF | ± 10% | MCCA000834 | NEW 185-5962 | | | |
| **X7R, 1000V dc** | | | | | | |
| 1000pF | ± 10% | MCCA000835 | NEW 185-5963 | | | |
| 1500pF | ± 10% | MCCA000836 | NEW 185-5964 | | | |
| 2200pF | ± 10% | MCCA000837 | NEW 185-5965 | | | |
| 3300pF | ± 10% | MCCA000838 | NEW 185-5966 | | | |
| 4700pF | ± 10% | MCCA000839 | NEW 185-5968 | | | |
| 6800pF | ± 10% | MCCA000840 | NEW 185-5969 | | | |
| 0.01µF | ± 10% | MCCA000841 | NEW 185-5970 | | | |
| **1812** | | | | | | |
| **COG/NPO, 1000V dc** | | | | | | |
| 15pF | ± 5% | MCCA000842 | NEW 185-5971 | | | |
| 22pF | ± 5% | MCCA000843 | NEW 185-5972 | | | |
| 33pF | ± 5% | MCCA000844 | NEW 185-5973 | | | |
| 47pF | ± 5% | MCCA000845 | NEW 185-5974 | | | |
| 68pF | ± 5% | MCCA000846 | NEW 185-5975 | | | |
| 100pF | ± 5% | MCCA000847 | NEW 185-5976 | | | |
| 150pF | ± 5% | MCCA000848 | NEW 185-5977 | | | |
| 220pF | ± 5% | MCCA000849 | NEW 185-5978 | | | |
| 330pF | ± 5% | MCCA000850 | NEW 185-5981 | | | |
| 470pF | ± 5% | MCCA000851 | NEW 185-5982 | | | |
| 680pF | ± 5% | MCCA000852 | NEW 185-5983 | | | |
| 1000pF | ± 5% | MCCA000853 | NEW 185-5984 | | | |
| 1500pF | ± 5% | MCCA000854 | NEW 185-5985 | | | |
| **COG/NPO, 3000V dc** | | | | | | |
| 10pF | ± 5% | MCCA000855 | NEW 185-5986 | | | |
| 15pF | ± 5% | MCCA000856 | NEW 185-5987 | | | |
| 22pF | ± 5% | MCCA000857 | NEW 185-5988 | | | |
| 33pF | ± 5% | MCCA000858 | NEW 185-5989 | | | |
| 47pF | ± 5% | MCCA000859 | NEW 185-5990 | | | |
| 68pF | ± 5% | MCCA000860 | NEW 185-5991 | | | |
| 100pF | ± 5% | MCCA000861 | NEW 185-5993 | | | |
| 150pF | ± 5% | MCCA000862 | NEW 185-5994 | | | |
| 220pF | ± 5% | MCCA000863 | NEW 185-5995 | | | |
| 330pF | ± 5% | MCCA000864 | NEW 185-5996 | | | |
| 470pF | ± 5% | MCCA000865 | NEW 185-5997 | | | |
| **X7R, 630V dc** | | | | | | |
| 1000pF | ± 10% | MCCA000866 | NEW 185-5998 | | | |
| 1500pF | ± 10% | MCCA000867 | NEW 185-5999 | | | |
| 2200pF | ± 10% | MCCA000868 | NEW 185-6000 | | | |
| 3300pF | ± 10% | MCCA000869 | NEW 185-6001 | | | |
| 4700pF | ± 10% | MCCA000870 | NEW 185-6002 | | | |
| 6800pF | ± 10% | MCCA000871 | NEW 185-6003 | | | |
| 0.01µF | ± 10% | MCCA000872 | NEW 185-6004 | | | |
| 0.015µF | ± 10% | MCCA000873 | NEW 185-6006 | | | |
| 0.022µF | ± 10% | MCCA000874 | NEW 185-6007 | | | |
| 0.033µF | ± 10% | MCCA000875 | NEW 185-6008 | | | |
| 0.047µF | ± 10% | MCCA000876 | NEW 185-6009 | | | |
| 0.068µF | ± 10% | MCCA000877 | NEW 185-6010 | | | |
| 0.1µF | ± 10% | MCCA000878 | NEW 185-6011 | | | |
| **X7R, 1000V dc** | | | | | | |
| 330pF | ± 10% | MCCA000879 | NEW 185-6012 | | | |
| 470pF | ± 10% | MCCA000880 | NEW 185-6013 | | | |
| 680pF | ± 10% | MCCA000881 | NEW 185-6014 | | | |
| 1000pF | ± 10% | MCCA000882 | NEW 185-6015 | | | |
| 1500pF | ± 10% | MCCA000883 | NEW 185-6016 | | | |
| 2200pF | ± 10% | MCCA000884 | NEW 185-6018 | | | |
| 3300pF | ± 10% | MCCA000885 | NEW 185-6019 | | | |
| 4700pF | ± 10% | MCCA000886 | NEW 185-6020 | | | |
| 6800pF | ± 10% | MCCA000887 | NEW 185-6021 | | | |
| 0.01µF | ± 10% | MCCA000888 | NEW 185-6022 | | | |
| 0.015µF | ± 10% | MCCA000889 | NEW 185-6023 | | | |
| **X7R, 3000V dc** | | | | | | |
| 680pF | ± 10% | MCCA000890 | NEW 185-6024 | | | |
| 1000pF | ± 10% | MCCA000891 | NEW 185-6025 | | | |

# Ceramic - High Voltage - AVX

## High Voltage MLCC

**For 500V to 3000V applications**



AVX special high voltage MLCC capacitors have high value, low leakage and small size and are designed for applications such as snubbers in high frequency power converters, resonators in SMPS, and high voltage coupling/DC blocking. These high voltage chip designs exhibit low ESRs at high frequencies.

These larger size capacitors require that special precautions be taken in applying them in surface mount assemblies. Apply heat at less than 4°C per second during the preheat (temperature must be within 50°C of the peak temperature reached by the ceramic bodies through the soldering process). Capacitors of case size 1808 and larger should always be used in a reflow solder process.

| | |
|---|---|
| Operating and storage temperature | -55°C to +125°C |
| Temperature coefficient | 0 ±30ppm/°C dielectric code J |
| Capacitance measurement | 1MHz, 1Vrms |
| Insulation resistance | $\geq 10^{10}$ |
| Proof voltage | 2.5 $U_R$ for 5 secs |
| Aging characterisitic | Zero |
| Dielectric absorbtion | 0.01% |
| Dimensions (LxWxH) | 0805: 2.01 x 1.25 x 1.52mm<br>1206: 3.2 x 1.6 x 1.52mm, 1210: 3.2 x 2.5 x 1.70mm<br>1808: 4.57 x 2.03 x 2.03mm, 1812: 4.50 x 3.20 x 2.54mm<br>1825: 4.5 x 6.4 x 2.54mm, 2220: 5.7 x 5.0 x 3.3mm<br>2225: 5.72 x 6.35 x 2.54mm |

Flexiterm = Z / Plated Ni & Sn = T - example part no. 1812HC272KAZ1A

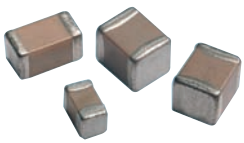
339441

| Capacitance | Tol. | Mftrs. List No. | Order Code | Price Each 5+ | 50+ | 250+ |
|---|---|---|---|---|---|---|
| **0805** | | | | | | |
| **1206** | | | | | | |
| **COG, 500V** | | | | | | |
| 47 pF | ± 5% | 12067A470JAT2A | **121-6452** RL | | | |
| 100 pF | ± 5% | 12067A101JAT2A | **121-6449** RL | | | |
| 220 pF | ± 5% | 12067A221JAT2A | **121-6450** RL | | | |
| 330 pF | ± 5% | 12067A331JAT2A | **121-6451** RL | | | |
| 470 pF | ± 5% | 12067A471JAT2A | **121-6453** RL | | | |
| **COG, 1000V** | | | | | | |
| 47 pF | ± 10% | 1206AA470KAT2A | **183-3910** | | | |
| 100 pF | ± 5% | 1206AA101JAT2A | **121-6460** RL | | | |
| 100 pF | ± 5% | 1206AA101JAT1A | **183-3912** | | | |
| 100 pF | ± 10% | 1206AA101KAT2A | **183-3913** | | | |
| 220 pF | ± 5% | 1206AA221JAT2A | **121-6461** RL | | | |
| 220 pF | ± 5% | 1206AA221JAT1A | **169-7170** | | | |
| 470 pF | ± 5% | 1206AA471JAT1A | **121-6462** RL | | | |
| **COG, 2000V** | | | | | | |
| 10 pF | ± 5% | 1206GA100JAT2A | **130-1841** | | | |
| 15 pF | ± 5% | 1206GA150JAT2A | **130-1842** | | | |
| 22 pF | ± 5% | 1206GA220JAT2A | **130-1843** | | | |
| 33 pF | ± 5% | 1206GA330JAT1A | **130-1844** | | | |
| 56 pF | ± 5% | 1206GA560JAT1A | **130-1845** | | | |
| 68 pF | ± 10% | 1206GA680KAT1A | **130-1847** | | | |
| **X7R, 500V** | | | | | | |
| 1000 pF | ± 10% | 12067C102KAT2A | **121-6455** RL | | | |
| 1500 pF | ± 10% | 12067C152KAT2A | **121-6457** RL | | | |
| 2200 pF | ± 10% | 12067C222KAT2A | **121-6458** RL | | | |
| 4700 pF | ± 10% | 12067C472KAT2A | **121-6459** RL | | | |
| 0.01 µF | ± 10% | 12067C103KAT1A | **121-6456** RL | | | |
| 0.01 µF | ± 10% | 12067C103KAT2A | **183-3909** | | | |
| **X7R, 600V** | | | | | | |
| 0.01 µF | ± 10% | 1206CC103KAT1A | **121-6465** RL | | | |
| 0.015 µF | ± 10% | 1206CC153KAT1A | **130-1826** | | | |
| **X7R, 1000V** | | | | | | |
| 1000 pF | ± 10% | 1206AC102KAT2A | **121-6463** RL | | | |
| 4700 pF | ± 10% | 1206AC472KAT1A | **121-6464** RL | | | |
| **X7R, 2000V** | | | | | | |
| 100 pF | ± 10% | 1206GC101KAT2A | **130-1848** | | | |
| 150 pF | ± 10% | 1206GC151KAT2A | **130-1849** | | | |
| 270 pF | ± 10% | 1206GC271KAT1A | **130-1850** | | | |
| 330 pF | ± 10% | 1206GC331KAT1A | **130-1851** | | | |
| 1000 pF | ± 10% | 1206GC102KAT2A | **121-6467** RL | | | |
| **1210** | | | | | | |
| **X7R, 500V** | | | | | | |
| 1000 pF | ± 10% | 12107C102KAT2A | **121-6469** RL | | | |
| 0.01 µF | ± 10% | 12107C103KAT2A | **121-6470** RL | | | |
| 0.01 µF | ± 10% | 12107C103KAT2A.. | **183-3914** | | | |
| **X7R, 600V** | | | | | | |
| 0.027 µF | ± 10% | 1210CC273KAT1A | **130-1827** | | | |
| **X7R, 1000V** | | | | | | |
| 4700 pF | ± 10% | 1210AC472KAT1A | **121-6472** RL | | | |
| 3300 pF | ± 20% | 1210AC332MAT1A | **130-1832** | | | |
| 0.01 µF | ± 10% | 1210AC103KAT1A | **121-6471** RL | | | |
| **X7R, 2000V** | | | | | | |
| 220 pF | ± 10% | 1210GC221KAT1A | **130-1855** | | | |
| 560 pF | ± 10% | 1210GC561KAT1A | **130-1856** | | | |
| 820 pF | ± 10% | 1210GC821KAT1A | **178-0912** | | | |
| 1000 pF | ± 10% | 1210GC102KAT1A.. | **121-6473** RL | | | |
| 1000 pF | ± 10% | 1210GC102KAT1A | **183-3915** | | | |
| 3300 pF | ± 10% | 1210GC332KAT1A | **178-9451** | | | |
| **1808** | | | | | | |
| **COG, 2000V** | | | | | | |
| 100 pF | ± 5% | 1808GA101JAT1A | **130-1857** | | | |
| 220 pF | ± 5% | 1808GA221JAT1A | **130-1859** | | | |
| **COG, 3000V** | | | | | | |
| 10 pF | ± 5% | 1808HA100JAT1A | **130-1867** | | | |
| 15 pF | ± 5% | 1808HA150JAT1A | **130-1869** | | | |
| 18 pF | ± 10% | 1808HA180JAT1A | **130-1870** | | | |
| 22 pF | ± 5% | 1808HA220JAT1A | **130-1872** | | | |
| 33 pF | ± 5% | 1808HA330JAT1A | **130-1873** | | | |
| 47 pF | ± 5% | 1808HA470JAT1A | **130-1875** | | | |
| 82 pF | ± 10% | 1808HA820KAT1A | **130-1877** | | | |
| **X7R, 6000V** | | | | | | |
| 0.068 µF | ± 10% | 1808CC683KAT1A | **178-9452** | | | |
| **X7R, 1000V** | | | | | | |
| 0.01 µF | ± 20% | 1808AC103MAT1A | **130-1833** | | | |
| **X7R, 2000V** | | | | | | |
| 1000 pF | ± 10% | 1808GC102KAT1A | **121-6474** RL | | | |
| 1000 pF | ± 20% | 1808GC102MAT1A | **169-7174** | | | |
| 1500 pF | ± 10% | 1808GC152KAT1A | **130-1862** | | | |
| **X7R, 3000V** | | | | | | |
| 330 pF | ± 10% | 1808HC331KAT1A | **130-1879** | | | |
| 470 pF | ± 10% | 1808HC471KAT1A | **130-1880** | | | |
| 1000 pF | ± 10% | 1808HC102KAT1A | **130-1878** | | | |
| **1812** | | | | | | |
| **COG, 1000V** | | | | | | |
| 100 pF | ± 5% | 1812AA101JAT1A | **178-0914** | | | |
| 220 pF | ± 10% | 1812AA221KAT1A | **178-0915** | | | |
| 1000 pF | ± 5% | 1812AA102JAT1A | **178-0916** | | | |
| 1000 pF | ± 10% | 1812AA102KAT1A | **121-6475** | | | |
| 2200 pF | ± 5% | 1812AA222JAT1A | **169-7175** | | | |
| **COG, 2000V** | | | | | | |
| 150 pF | ± 5% | 1812GA151JAT1A | **178-0919** | | | |
| **COG, 3000V** | | | | | | |
| 10 pF | ± 5% | 1812HA100JAT1A | **130-1882** | | | |
| 220 pF | ± 5% | 1812HA221JAT1A | **178-0923** | | | |
| 220 pF | ± 10% | 1812HA221KAT1A | **178-0924** | | | |
| 330 pF | ± 10% | 1812HA331KAT1A | **178-0925** | | | |
| **X7R, 500V** | | | | | | |
| 0.01 µF | ± 10% | 18127C103KAT2A | **183-3916** | | | |
| **X7R, 600V** | | | | | | |
| 0.033 µF | ± 10% | 1812CC333KAT1A | **169-7177** | | | |
| 0.068 µF | ± 10% | 1812CC683KAT1A | **178-0913** | | | |
| 0.1 µF | ± 10% | 1812CC104KAT1A | **130-1828** | | | |
| **X7R, 1000V** | | | | | | |
| 1000 pF | ± 10% | 1812AC102KAT1A | **169-7176** | | | |
| 4700 pF | ± 10% | 1812AC472KAT1A | **121-6477** | | | |
| 0.01 µF | ± 10% | 1812AC103KAT1A | **130-1836** | | | |
| 0.015 µF | ± 10% | 1812AC153KAT1A | **130-1837** | | | |
| 0.022 µF | ± 10% | 1812AC223KAT1A | **121-6476** RL | | | |
| 0.027 µF | ± 10% | 1812AC273KAT1A | **178-0917** | | | |
| **X7R, 2000V** | | | | | | |
| 1000 pF | ± 20% | 1812GC102MAT1A | **169-7178** | | | |
| 1500 pF | ± 10% | 1812GC152KAT1A | **121-6479** RL | | | |
| 2200 pF | ± 10% | 1812GC222KAT1A | **121-6481** | | | |
| 4700 pF | ± 10% | 1812GC472KAT1A | **121-6482** RL | | | |
| 8200 pF | ± 10% | 1812GC822KAT1A | **178-9455** | | | |
| **X7R, 2500V** | | | | | | |
| 1200 pF | ± 20% | 1812WC122MAT1A | **178-0921** | | | |
| 3300 pF | ± 10% | 1812WC332KAT1A | **178-0922** | | | |
| **X7R, 3000V** | | | | | | |
| 1000 pF | ± 10% | 1812HC102KAT1A | **121-6483** RL | | | |
| 1000 pF | ± 20% | 1812HC102MAZ1A | **178-0926** | | | |
| 2700 pF | ± 10% | 1812HC272KAZ1A | **178-9456** | | | |
| 3300 pF | ± 10% | 1812HC332KAT1A | **178-9457** | | | |

| Capacitance | Tol. | Mftrs. List No. | Order Code | Price Each 5+ | 50+ | 250+ |
|---|---|---|---|---|---|---|
| **1825** | | | | | | |
| **X7R, 600V** | | | | | | |
| 0.27 µF | ± 10% | 1825CC274KAT1A | **178-9458** | | | |
| 0.27 µF | ± 10% | 1825CC274KAZ1A | **178-9459** | | | |
| **X7R, 2000V** | | | | | | |
| 0.015 µF | ± 10% | 1825GC153KAT1A | **178-9460** | | | |
| 0.022 µF | ± 10% | 1825GC223KAT1A | **178-9461** | | | |
| 0.022 µF | ± 10% | 1825GC223KAZ1A | **178-9462** | | | |
| **X7R, 2500V** | | | | | | |
| 5600 pF | ± 10% | 1825WC562KAT1A | **169-7180** | | | |
| 0.015 µF | ± 10% | 1825WC153KAT1A | **178-9463** | | | |
| **X7R, 3000V** | | | | | | |
| 0.01 µF | ± 10% | 1825HC103KAT1A | **178-9464** | | | |
| **X7R, 4000V** | | | | | | |
| 1000 pF | ± 10% | 1825JC102KAT1A | **169-7179** | | | |
| **2220** | | | | | | |
| X7R, 100V | | | | | | |
| 1 µF | ± 10% | 22201C105KAT1A | **756-9459** RL | | | |
| **X7R, 600V** | | | | | | |
| 0.1 µF | ± 20% | 2220CC104MAT1A | **130-1829** | | | |
| 0.27 µF | ± 10% | 2220CC274KAT1A | **178-9465** | | | |
| 0.27 µF | ± 10% | 2220CC274KAZ1A | **178-9467** | | | |
| **X7R, 1000V** | | | | | | |
| 0.1 µF | ± 10% | 2220AC104KAT1A | **178-9468** | | | |
| 0.1 µF | ± 10% | 2220AC104KAZ1A | **178-9469** | | | |
| 0.12 µF | ± 10% | 2220AC124KAT1A | **178-9470** | | | |
| 0.12 µF | ± 10% | 2220AC124KAZ1A | **178-9471** | | | |
| **X7R, 1500V** | | | | | | |
| 0.01 µF | ± 20% | 2220SC103MAT1A | **130-1840** | | | |
| 0.047 µF | ± 10% | 2220SC473KAT1A | **178-9472** | | | |
| 0.047 µF | ± 10% | 2220SC473KAZ1A | **178-9473** | | | |
| **X7R, 2000V** | | | | | | |
| 0.01 µF | ± 20% | 2220GC103MAT1A | **178-0927** | | | |
| 0.027 µF | ± 10% | 2220GC273KAT1A | **178-9474** | | | |
| 0.027 µF | ± 10% | 2220GC273KAZ1A | **178-9475** | | | |
| **X7R, 3000V** | | | | | | |
| 0.01 µF | ± 10% | 2220HC103KAT1A | **178-9476** | | | |
| 0.01 µF | ± 10% | 2220HC103KAZ1A | **178-9477** | | | |
| 5600 pF | ± 10% | 2220HC562KAT1A | **178-9479** | | | |
| 6800 pF | ± 10% | 2220HC682KAT1A | **178-9481** | | | |
| 6800 pF | ± 10% | 2220HC682KAZ1A | **178-9482** | | | |
| **2225** | | | | | | |
| **COG, 1000V** | | | | | | |
| 2200 pF | ± 10% | 2225AA822KAT1A | **169-7181** | | | |
| **COG, 3000V** | | | | | | |
| 680 pF | ± 10% | 2225HA681KAT1A | **169-7182** | | | |
| **X7R, 1500V** | | | | | | |
| 0.068 µF | ± 10% | 2225SC683KAT1A | **178-9483** | | | |
| 0.068 µF | ± 10% | 2225SC683KAZ1A | **178-9484** | | | |
| **X7R, 2000V** | | | | | | |
| 0.033 µF | ± 10% | 2225GC333KAT1A | **178-9485** | | | |
| 0.033 µF | ± 10% | 2225GC333KAZ1A | **178-9486** | | | |
| **X7R, 2500V** | | | | | | |
| 0.022 µF | ± 10% | 2225WC223KAT1A | **178-9487** | | | |
| **X7R, 3000V** | | | | | | |
| 0.01 µF | ± 10% | 2225HC103KAT1A | **178-9488** | | | |
| 0.015 µF | ± 10% | 2225HC153KAT1A | **178-9489** | | | |
| 0.015 µF | ± 10% | 2225HC153KAZ1A | **178-9490** | | | |

## Ceramic - High Voltage - JDI

### High Voltage MLCC



NEW

| 0805 Case Size 500 V | Dielectric Characteristic | Capacitance Tolerance | Order Code | Price Each 50+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| 100 pF | C0G / NP0 | ± 5% | **188-6008** | | | |
| 100 pF | C0G / NP0 | ± 10% | **188-6011** | | | |
| 1000 pF | X7R | ± 10% | **188-6012** | | | |
| 0.01 µF | X7R | ± 10% | **188-6013** | | | |
| **1000 V** | | | | | | |
| 1000 pF | X7R | ± 10% | **188-6014** | | | |

| 1206 Case Size 500 V | Dielectric Characteristic | Capacitance Tolerance | Order Code | Price Each 10+ | 250+ | 1K+ |
|---|---|---|---|---|---|---|
| 33 pF | C0G / NP0 | ± 5% | **188-6015** | | | |
| 47 pF | C0G / NP0 | ± 10% | **188-6016** | | | |
| 100 pF | C0G / NP0 | ± 5% | **188-6017** | | | |
| 150 pF | C0G / NP0 | ± 5% | **188-6018** | | | |
| 220 pF | C0G / NP0 | ± 5% | **188-6019** | | | |
| 220 pF | X7R | ± 10% | **188-6020** | | | |
| 330 pF | C0G / NP0 | ± 5% | **188-6021** | | | |
| 330 pF | X7R | ± 10% | **188-6023** | | | |
| 470 pF | C0G / NP0 | ± 5% | **188-6024** | | | |
| 470 pF | X7R | ± 10% | **188-6025** | | | |
| 560 pF | C0G / NP0 | ± 5% | **188-6026** | | | |
| 680 pF | X7R | ± 10% | **188-6027** | | | |
| 1000 pF | C0G / NP0 | ± 5% | **188-6028** | | | |
| 1000 pF | X7R | ± 10% | **188-6029** | | | |
| 2200 pF | X7R | ± 10% | **188-6030** | | | |
| 4700 pF | X7R | ± 10% | **188-6031** | | | |
| 0.01 µF | X7R | ± 10% | **188-6032** | | | |
| 0.022 µF | X7R | ± 10% | **188-6033** | | | |
| **1000 V** | | | | | | |
| 22 pF | C0G / NP0 | ± 5% | **188-6035** | | | |
| 47 pF | C0G / NP0 | ± 5% | **188-6036** | | | |
| 100 pF | C0G / NP0 | ± 5% | **188-6037** | | | |
| 150 pF | C0G / NP0 | ± 5% | **188-6038** | | | |
| 330 pF | C0G / NP0 | ± 5% | **188-6039** | | | |
| 100 pF | X7R | ± 10% | **188-6040** | | | |
| 1000 pF | X7R | ± 10% | **188-6041** | | | |
| 2200 pF | X7R | ± 10% | **188-6042** | | | |
| 4700 pF | X7R | ± 10% | **188-6043** | | | |
| **2000 V** | | | | | | |
| 22 pF | C0G / NP0 | ± 10% | **188-6044** | | | |
| 33 pF | C0G / NP0 | ± 5% | **188-6045** | | | |
| 47 pF | C0G / NP0 | ± 5% | **188-6047** | | | |
| 68 pF | C0G / NP0 | ± 10% | **188-6048** | | | |
| 100 pF | C0G / NP0 | ± 5% | **188-6049** | | | |
| 220 pF | C0G / NP0 | ± 5% | **188-6050** | | | |
| 470 pF | X7R | ± 10% | **188-6051** | | | |
| 1000 pF | X7R | ± 10% | **188-6052** | | | |

| 1210 Case Size 500 V | Dielectric Characteristic | Capacitance Tolerance | Order Code | Price Each 10+ | 50+ | 250+ |
|---|---|---|---|---|---|---|
| 0.047 µF | X7R | ± 10% | **188-6053** | | | |
| **1000 V** | | | | | | |
| 0.01 µF | X7R | ± 10% | **188-6054** | | | |
| **2000 V** | | | | | | |
| 1000 pF | X7R | ± 10% | **188-6055** | | | |
| 1000 pF | X7R | ± 20% | **188-6056** | | | |
| 2200 pF | X7R | ± 10% | **188-6057** | | | |
| 2700 pF | X7R | ± 10% | **188-6059** | | | |

| 1808 Case Size 500 V | Dielectric Characteristic | Capacitance Tolerance | Order Code | Price Each 10+ | 50+ | 250+ |
|---|---|---|---|---|---|---|
| 0.047 µF | X7R | ± 10% | **188-6061** | | | |
| **1000 V** | | | | | | |
| 1000 pF | X7R | ± 10% | **188-6062** | | | |
| 0.01 µF | X7R | ± 10% | **188-6063** | | | |
| **2000 V** | | | | | | |
| 150 pF | X7R | ± 10% | **188-6064** | | | |
| 470 pF | X7R | ± 10% | **188-6065** | | | |
| 1000 pF | X7R | ± 10% | **188-6066** | | | |
| 2200 pF | X7R | ± 10% | **188-6067** | | | |
| **3000 V** | | | | | | |
| 150 pF | X7R | ± 10% | **188-6068** | | | |
| 330 pF | C0G / NP0 | ± 10% | **188-6069** | | | |
| 1000 pF | X7R | ± 10% | **188-6070** | | | |

| 1812 Case Size 500 V | Dielectric Characteristic | Capacitance Tolerance | Order Code | Price Each 10+ | 50+ | 250+ |
|---|---|---|---|---|---|---|
| 0.022 µF | X7R | ± 10% | **188-6072** | | | |
| 0.047 µF | X7R | ± 10% | **188-6073** | | | |
| 0.1 µF | X7R | ± 10% | **188-6074** | | | |
| **1000 V** | | | | | | |
| 0.01 µF | X7R | ± 10% | **188-6075** | | | |
| 0.01 µF | X7R | ± 20% | **188-6076** | | | |
| **2000 V** | | | | | | |
| 1000 pF | X7R | ± 10% | **188-6078** | | | |
| 3300 pF | X7R | ± 10% | **188-6079** | | | |
| 4700 pF | X7R | ± 10% | **188-6080** | | | |
| 0.01 µF | X7R | ± 20% | **188-6081** | | | |
| **3000 V** | | | | | | |
| 1000 pF | X7R | ± 10% | **188-6082** | | | |
| 3300 pF | X7R | ± 10% | **188-6084** | | | |

# Ceramic - High Voltage - JDI - continued

## High Voltage MLCC - continued

| 2225 Case Size 1000 V dc | Dielectric Characteristic | Capacitance Tolerance | Order Code | Price Each 5+ | 50+ | 250+ |
|---|---|---|---|---|---|---|
| 0.1 µF | X7R | ± 10% | 188-6085 | | | |
| **2000 V** | | | | | | |
| 0.01 µF | X7R | ± 10% | 188-6086 | | | |

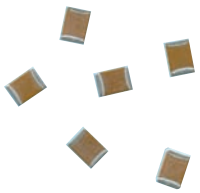
628877

| MLCC Design Kits 500 V | Order Code | Price Each 1+ | 5+ |
|---|---|---|---|
| 400 Pieces of 33pF to 0.1µF 0805 - 1812 Size Ceramic Chip Capacitors | 188-6087 | | |
| **1000 V** | | | |
| 400 Pieces of 22pF to 0.1µF 0805 - 2225 Size Ceramic Chip Capacitors | 188-6088 | | |
| **2000 V** | | | |
| 300 Pieces of 22pF to 0.022µF 1206 - 2225 Size Ceramic Chip Capacitors | 188-6089 | | |

# Ceramic - High Voltage - Kemet

## High Voltage SMD Capacitors

KEMET CHARGED



- High voltage multilayer ceramic chip capacitors
- Standard end metalization: Tin plate over nickel barrier
- 0805, 1206, 1210, 1808, 1812, 2220 and 2225 case sizes

| | |
|---|---|
| Operating Temperature | -55°C to +125°C |
| Temperature Coefficient | NP0 - ±30ppm/°C<br>X7R - ±15% |

451530

| Capacitance | Mftrs. List No. | Order Code | Price Each 5+ | 50+ | 250+ |
|---|---|---|---|---|---|
| **0805** | | | | | |
| **COG, 500V** | | | | | |
| 100pF | C0805C101JCGACTU | 128-8239 RL | | | |
| 150pF | C0805C151JCGACTU | 170-2124 | | | |
| **X7R, 500V** | | | | | |
| 2200pF | C0805C222KCRACTU | 170-2126 | | | |
| 3300pF | C0805C332KCRACTU | 170-2127 | | | |
| **1206** | | | | | |
| **COG, 500V** | | | | | |
| 330pF | C1206C331KCGACTU | 128-8243 RL | | | |
| **X7R, 500V** | | | | | |
| 1000pF | C1206C102KCRACTU | 157-2650 | | | |
| 2200pF | C1206C222KCRACTU | 182-6301 | | | |
| 5600pF | C1206C562JCRACTU | 182-6302 | | | |
| 4700pF | C1206C472KCRACTU | 128-8240 RL | | | |
| 0.01µF | C1206C103KCRACTU | 128-8241 RL | | | |
| 6800pF | C1206C682KCRACTU | 170-2128 | | | |
| 0.015µF | C1206C153KCRACTU | 170-2131 | | | |
| **COG, 1000V** | | | | | |
| 10pF | C1206C100JDGACTU | 170-2125 | | | |
| 33pF | C1206C330KDGACTU | 182-6303 | | | |
| 100pF | C1206C101JDGACTU | 170-2132 | | | |
| 150pF | C1206C151JDGACTU | 170-2133 | | | |
| 220pF | C1206C221KDGACTU | 157-2652 | | | |
| **X7R, 1000V** | | | | | |
| 1000pF | C1206C102KDRACTU | 182-6304 | | | |
| 2200pF | C1206C222KDRACTU | 170-2134 | | | |
| 3300pF | C1206C332KDRACTU | 170-2135 | | | |
| **X7R, 1500V** | | | | | |
| 470pF | C1206C471JFRACTU | 128-8242 RL | | | |
| 1500pF | C1206C152KFRACTU | 170-2136 | | | |
| **X7R, 2000V** | | | | | |
| 470pF | C1206C471KGRACTU | 170-2137 | | | |
| 1000pF | C1206C102KGRACTU | 157-2651 | | | |
| **1210** | | | | | |
| **COG, 500V** | | | | | |
| 1500pF | C1210C152JCGACTU | 170-2138 | | | |
| 2200pF | C1210C222JCGACTU | 170-2139 | | | |
| 3300pF | C1210C332JCGACTU | 170-2140 | | | |
| **X7R, 500V** | | | | | |
| 0.01µF | C1210C103KCRACTU | 157-2653 | | | |
| 0.022µF | C1210C223KCRACTU | 170-2141 | | | |
| 0.033µF | C1210C333KCRACTU | 170-2143 | | | |
| 0.047µF | C1210C473KCRACTU | 170-2144 | | | |

| Capacitance | Mftrs. List No. | Order Code | Price Each 5+ | 50+ | 250+ |
|---|---|---|---|---|---|
| **COG, 1000V** | | | | | |
| 470pF | C1210C471JDGACTU | 170-2145 | | | |
| 680pF | C1210C681JDGACTU | 170-2146 | | | |
| 1000pF | C1210C102JDGACTU | 170-2147 | | | |
| **X7R, 1000V** | | | | | |
| 0.01µF | C1210C103JDRACTU | 128-8244 RL | | | |
| 2200pF | C1210C222KDRACTU | 170-2148 | | | |
| 4700pF | C1210C472KDRACTU | 170-2149 | | | |
| **COG, 2000V** | | | | | |
| 150pF | C1210C151JGGACTU | 170-2150 | | | |
| 220pF | C1210C221JGGACTU | 170-2151 | | | |
| 330pF | C1210C331JGGACTU | 170-2152 | | | |
| **X7R, 2000V** | | | | | |
| 1000pF | C1210C102KGRACTU | 182-6305 | | | |
| 2200pF | C1210C222KGRACTU | 182-6306 | | | |
| **1808** | | | | | |
| **X7R, 1000V** | | | | | |
| 0.01µF | C1808C103KDRACTU | 157-2654 | | | |
| **X7R, 2000V** | | | | | |
| 1000pF | C1808C102KGRACTU | 128-8245 RL | | | |
| **1812** | | | | | |
| **X7R, 250V** | | | | | |
| 0.47µF | C1812C474MARACTU | 182-6307 | | | |
| **X7R, 500V** | | | | | |
| 0.01µF | C1812C103KCRACTU | 128-8247 RL | | | |
| 0.047µF | C1812C473KCRACTU | 128-8248 RL | | | |
| 0.068µF | C1812C683KCRACTU | 170-2153 | | | |
| **COG, 500V** | | | | | |
| 1000pF | C1812C102JCGACTU | 182-6308 | | | |
| **X7R, 500V** | | | | | |
| 100pF | C1812C101KCRACTU | 182-6309 | | | |
| **COG, 1000V** | | | | | |
| 220pF | C1812C221JDGACTU | 170-2155 | | | |
| 330pF | C1812C331JDGACTU | 170-2156 | | | |
| 1500pF | C1812C152JDGACTU | 170-2157 | | | |
| 2200pF | C1812C222JDGACTU | 170-2170 | | | |
| **X7R, 1000V** | | | | | |
| 2200pF | C1812C222KDRACTU | 170-2158 | | | |
| 4700pF | C1812C472KDRACTU | 170-2159 | | | |
| 6800pF | C1812C682KDRACTU | 170-2160 | | | |
| 0.015µF | C1812C153KDRACTU | 170-2161 | | | |
| 0.022µF | C1812C223KDRACTU | 170-2162 | | | |
| **COG, 1500V** | | | | | |
| 100pF | C1812C101FFGACTU | 157-2655 | | | |
| 680pF | C1812C681JFGACTU | 170-2163 | | | |
| **COG, 2000V** | | | | | |
| 470pF | C1812C471JGGACTU | 170-2164 | | | |
| **X7R, 2000V** | | | | | |
| 470pF | C1812C471KGRACTU | 182-6310 | | | |
| 1000pF | C1812C102KGRACTU | 128-8249 RL | | | |
| 1500pF | C1812C152KGRACTU | 170-2165 | | | |
| 3300pF | C1812C332KGRACTU | 170-2167 | | | |
| **COG, 3000V** | | | | | |
| 100pF | C1812C101JHGACTU | 170-2168 | | | |
| 150pF | C1812C151JHGACTU | 170-2169 | | | |
| **X7R, 3000V** | | | | | |
| 1000pF | C1812C102KHRACTU | 170-2171 | | | |
| **2220** | | | | | |
| **COG, 500V** | | | | | |
| 6800pF | C2220C682JCGACTU | 170-2172 | | | |
| **X7R, 500V** | | | | | |
| 0.1µF | C2220C104KCRACTU | 170-2181 | | | |
| **COG, 1000V** | | | | | |
| 3300pF | C2220C332JDGACTU | 170-2173 | | | |
| 4700pF | C2220C472JDGACTU | 170-2174 | | | |
| **X7R, 1000V** | | | | | |
| 0.01µF | C2220C103KDRACTU | 170-2182 | | | |
| 0.033µF | C2220C333KDRACTU | 170-2183 | | | |
| 0.047µF | C2220C473KDRACTU | 170-2184 | | | |
| **COG, 1500V** | | | | | |
| 330pF | C2220C331JFGACTU | 170-2175 | | | |
| **X7R, 1500V** | | | | | |
| 0.015µF | C2220C153KFRACTU | 170-2185 | | | |
| **COG, 2000V** | | | | | |
| 1000pF | C2220C102JGGACTU | 170-2176 | | | |

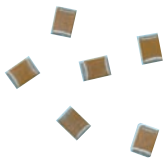

RoHS ● Compliant ▲ Non-compliant

| Capacitance | Mftrs. List No. | Order Code | Price Each 5+ | 50+ | 250+ |
|---|---|---|---|---|---|
| **X7R, 2000V** | | | | | |
| 2200pF | C2220C222KGRACTU | **170-2187** | | | |
| 4700pF | C2220C472KGRACTU | **170-2188** | | | |
| 6800pF | C2220C682KGRACTU | **170-2189** | | | |
| **COG, 3000V** | | | | | |
| 150pF | C2220C151KHGACTU | **182-6312** | | | |
| 220pF | C2220C221JHGACTU | **170-2177** | | | |
| **2225** | | | | | |
| **X7R, 250V** | | | | | |
| 1µF | C2225C105KARACTU | **182-6313** | | | |
| **X7R, 500V** | | | | | |
| 0.1µF | C2225C104KCRACTU | **128-8250** RL | | | |
| **COG, 500V** | | | | | |
| 0.01µF | C2225C103JCGACTU | **170-2179** | | | |
| **COG, 2000V** | | | | | |
| 1500pF | C2225C152JGGACTU | **170-2186** | | | |
| **X7R, 2000V** | | | | | |
| 0.01µF | C2225C103KGRACTU | **182-6314** | | | |
| **COG, 3000V** | | | | | |
| 470pF | C2225C471JHGACTU | **170-2192** | | | |

## High Voltage FT - Capacitors With Flexible Terminations

NEW

KEMET CHARGED



Operating Temperature -55°C to +125°C
Dielectric X7R

- Superior flex performance (up to 5mm)
- Low ESR and ESL

### 0805 Case Size

| | Voltage Rating | Mftrs. List No. | Order Code | Price Each 5+ | 50+ | 250+ | 500+ |
|---|---|---|---|---|---|---|---|
| 0.01µF | 250V | C0805X103KARACTU | **185-5316** | | | | |
| 100pF | 1kV | C0805X101KDRACTU | **185-5317** | | | | |
| 1000pF | 1kV | C0805X102KDRACTU | **185-5318** | | | | |

### 1206 Case Size

| | Voltage Rating | Mftrs. List No. | Order Code | Price Each 5+ | 50+ | 250+ | 500+ |
|---|---|---|---|---|---|---|---|
| 0.01µF | 250V | C1206X103KARACTU | **185-5319** | | | | |
| 0.027µF | 250V | C1206X273KARACTU | **185-5320** | | | | |
| 0.1µF | 250V | C1206X104KARACTU | **185-5321** | | | | |
| 1000pF | 500V | C1206X102KCRACTU | **185-5322** | | | | |
| 2200pF | 500V | C1206X222KCRACTU | **185-5324** | | | | |
| 4700pF | 500V | C1206X472KCRACTU | **185-5325** | | | | |
| 0.01µF | 500V | C1206X103KCRACTU | **185-5326** | | | | |
| 1000pF | 1kV | C1206X102KDRACTU | **185-5327** | | | | |
| 2200pF | 1kV | C1206X222KDRACTU | **185-5328** | | | | |
| 4700pF | 1kV | C1206X472KDRACTU | **185-5329** | | | | |
| 1000pF | 2kV | C1206X102KGRACTU | **185-5330** | | | | |

### 1210 Case Size

| | Voltage Rating | Mftrs. List No. | Order Code | Price Each 1+ | 50+ | 250+ | 500+ |
|---|---|---|---|---|---|---|---|
| 0.01µF | 500V | C1210X103KCRACTU | **185-5331** | | | | |
| 0.047µF | 500V | C1210X473KCRACTU | **185-5332** | | | | |
| 0.01µF | 1kV | C1210X103KDRACTU | **185-5333** | | | | |
| 1000pF | 2kV | C1210X102KGRACTU | **185-5334** | | | | |
| 2200pF | 2kV | C1210X222KGRACTU | **185-5336** | | | | |
| 3300pF | 2kV | C1210X332KGRACTU | **185-5337** | | | | |

### 1808 Case Size

| | Voltage Rating | Mftrs. List No. | Order Code | Price Each 1+ | 50+ | 250+ | 500+ |
|---|---|---|---|---|---|---|---|
| 1000pF | 2kV | C1808X102KGRACTU | **185-5338** | | | | |
| 2200pF | 2kV | C1808X222KGRACTU | **185-5339** | | | | |
| 1000pF | 3kV | C1808X102KHRACTU | **185-5340** | | | | |

### 1812 Case Size

| | Voltage Rating | Mftrs. List No. | Order Code | Price Each 1+ | 50+ | 250+ | 500+ |
|---|---|---|---|---|---|---|---|
| 0.47µF | 250V | C1812X474KARACTU | **185-5341** | | | | |
| 100pF | 500V | C1812X101KCRACTU | **185-5342** | | | | |
| 0.01µF | 1kV | C1812X103KDRACTU | **185-5343** | | | | |
| 470pF | 2kV | C1812X471KGRACTU | **185-5344** | | | | |
| 3300pF | 2kV | C1812X332KGRACTU | **185-5345** | | | | |
| 1000pF | 3kV | C1812X102KHRACTU | **185-5346** | | | | |

### 1825 Case Size

| | Voltage Rating | Mftrs. List No. | Order Code | Price Each 1+ | 50+ | 250+ | 500+ |
|---|---|---|---|---|---|---|---|
| 1µF | 250V | C1825X105KARACTU | **185-5348** | | | | |
| 0.1µF | 500V | C1825X104KCRACTU | **185-5349** | | | | |
| 0.047µF | 1kV | C1825X473KDRACTU | **185-5350** | | | | |

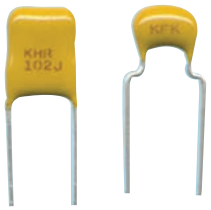
### 2220 Case Size

618883

| | Voltage Rating | Mftrs. List No. | Order Code | Price Each 1+ | 50+ | 250+ | 500+ |
|---|---|---|---|---|---|---|---|
| 0.22µF | 500V | C2225X224KCRACTU | **185-5353** | | | | |
| 0.047µF | 1kV | C2220X473KDRACTU | **185-5351** | | | | |
| 4700pF | 2kV | C2220X472KGRACTU | **185-5352** | | | | |
| 0.01µF | 2kV | C2225X103KGRACTU | **185-5354** | | | | |

## High Voltage Leaded MLCC Capacitors

KEMET CHARGED




C330 C332

- Leaded MLCC radial capacitors
- High voltage
- Conformally coated

### Performance Characteristics

| | NPO | X7R |
|---|---|---|
| Operating Temperature | -55°C to +125°C | -55°C to +125°C |
| Temperature coefficient | 0±30ppm/°C | ±15% |

| NPO | Tolerance (%) | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|
| **3000 Volt d.c.** | | | | |
| 100 pF | 5 | 5.08 | C330C101JHG5CA | 128-8232 |
| **1000 Volt d.c.** | | | | |
| 1000 pF | 5 | 5.08 | C330C102JDG5CA | 128-8231 |
| **500 Volt d.c.** | | | | |
| 100 pF | 5 | 5.08 | C322C101JCG5CA | 128-8237 |

| NPO | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **3000 Volt d.c.** | | | | | | |
| 100 pF | **128-8232** | | | | | |
| **4000 Volt d.c.** | | | | | | |
| 1000 pF | **128-8231** | | | | | |
| **500 Volt d.c.** | | | | | | |
| 100 pF | **128-8237** | | | | | |

NPO

| | | | | |
|---|---|---|---|---|
| **3000 Volt d.c** | | | | |
| 1000 pF | 5 | 5.08 | C330C102JHR5CA | 128-8230 |
| **2000 Volt d.c** | | | | |
| 1000 pF | 10 | 5.08 | C330C102KGR5CA | 128-8229 |
| **1500 Volt d.c.** | | | | |
| 1000 pF | 10 | 5.08 | C322C102KFR5CA | 128-8236 |
| **1000 Volt d.c.** | | | | |
| 0.01 µF | 5 | 5.08 | C322C103JDR5CA | 128-8235 |
| **500 Volt d.c.** | | | | |
| 0.047 µF | 10 | 5.08 | C322C473KCR5CA | 128-8233 |

451496

| X7R | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **3000 Volt d.c.** | | | | | | |
| 1000 pF | **128-8230** | | | | | |
| **2000 Volt d.c.** | | | | | | |
| 1000 pF | **128-8229** | | | | | |
| **1500 Volt d.c.** | | | | | | |
| 1000 pF | **128-8236** | | | | | |
| **1000 Volt d.c.** | | | | | | |
| 0.01 µF | **128-8235** | | | | | |
| **500 Volt d.c.** | | | | | | |
| 0.047 µF | **128-8233** | | | | | |

## Ceramic - High Voltage - Murata

### High Voltage

muRata manufacturer of Electronics



- High Voltage disc ceramic capacitors
- Resin coated with tinned copper leads

Min lead length=25 mm, Lead dia=0.65 (219-472=0.5) mm

Operating temperature -25°C to +85°C Insulation resistance @ 1kV

# Ceramic - High Voltage - Murata - continued

## High Voltage - continued

**1000 Volts d.c.**

| Capacitance | Tolerance | Temperature Coefficient | Body Dia. (mm) | Body Pitch (mm) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 47 pF | ± 5% | -1000 to 350 ppm/°C | 4.5 | 5 | DEA1X3A470JC1B | 952-7079 |
| 100 pF | ± 10% | -1000 to 350 ppm/°C | 4.5 | 5 | DEBB33A101KC1B | 952-7109 |
| 220 pF | ± 10% | -1000 to 350 ppm/°C | 4.5 | 5 | DEBB33A221KC1B | 952-7117 |
| 470 pF | ± 10% | -1000 to 350 ppm/°C | 5 | 5 | DEBB33A471KC1B | 952-7125 |
| 1000 pF | -20%, +80% | -1000 to 350 ppm/°C | 5 | 5 | DEBE33A102ZC1B | 952-7184 |
| 1000 pF | ± 10% | -1000 to 350 ppm/°C | 6 | 5 | DEBB33A102KA2B | 182-3296 |
| 2200 pF | -20%, +80% | -1000 to 350 ppm/°C | 6 | 5 | DEBF33A222ZA2B | 952-7230 |
| 2200 pF | ± 10% | -1000 to 350 ppm/°C | 9 | 5 | DEBB33A222KA2B | 182-3297 |
| 4700 pF | -20%, +80% | -1000 to 350 ppm/°C | 7 | 5 | DEBF33A472ZC1B | 952-7249 |
| 4700 pF | ± 10% | -1000 to 350 ppm/°C | 12 | 7.5 | DEBB33A472KA3B | 182-3298 |
| 0.01 µF | -20%, +80% | -1000 to 350 ppm/°C | 10 | 5 | DEBF33A103ZA2B | 952-7222 |

**1000 Volts d.c.**

| Capacitance | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 47 pF | 952-7079 | | | | | |
| 100 pF | 952-7109 | | | | | |
| 220 pF | 952-7117 | | | | | |
| | NEW | | | | | |
| 470 pF | 952-7125 | | | | | |
| 1000 pF | 952-7184 | | | | | |
| 1000 pF | NEW 182-3296 | | | | | |
| 2200 pF | 952-7230 | | | | | |
| 2200 pF | NEW 182-3297 | | | | | |
| 4700 pF | 952-7249 | | | | | |
| 4700 pF | NEW 182-3298 | | | | | |
| 0.01 µF | 952-7222 | | | | | |

**2000 Volts d.c.**

| Capacitance | Tolerance | Temperature Coefficient | Body Dia. (mm) | Body Pitch (mm) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 100 pF | ± 10% | -1000 to 350 ppm/°C | 4.5 | 5 | DEBB33D101KC1B | 952-7133 |
| 220 pF | ± 10% | -1000 to 350 ppm/°C | 4.5 | 5 | DEBB33D221KC1B | 952-7150 |
| 470 pF | ± 10% | -1000 to 350 ppm/°C | 6 | 5 | DEBB33D471KA2B | 952-7168 |
| 1000 pF | ± 10% | -1000 to 350 ppm/°C | 8 | 5 | DEBB33D102KA2B | 952-7141 |
| 2200 pF | -20%, +80% | -1000 to 350 ppm/°C | 9 | 5 | DEBF33D222ZA2B | 952-7265 |
| 2200 pF | ± 10% | -1000 to 350 ppm/°C | 10 | 5 | DEBB33D222KA2B | 182-3299 |
| 4700 pF | -20%, +80% | -1000 to 350 ppm/°C | 9 | 5 | DEBF33D472ZC1B | 952-7273 |
| 4700 pF | ± 10% | -1000 to 350 ppm/°C | 15 | 7.5 | DEBB33D472KA3B | 182-3300 |
| 0.01 µF | -20%, +80% | -1000 to 350 ppm/°C | 12 | 7.5 | DEBF33D103ZA3B | 952-7257 |

**2000 Volts d.c.**

| Capacitance | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 100 pF | 952-7133 | | | | | |
| 220 pF | 952-7150 | | | | | |
| 470 pF | 952-7168 | | | | | |
| 1000 pF | 952-7141 | | | | | |
| 2200 pF | 952-7265 | | | | | |
| 2200 pF | NEW 182-3299 | | | | | |
| 4700 pF | 952-7273 | | | | | |
| 4700 pF | NEW 182-3300 | | | | | |
| 0.01 µF | 952-7257 | | | | | |

**3150 Volts d.c.**

| Capacitance | Tolerance | Temperature Coefficient | Body Dia. (mm) | Body Pitch (mm) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 100 pF | ± 5% | -1000 to 350 ppm/°C | 5 | 7.5 | DEA1X3F101JA3B | 952-7087 |
| 100 pF | ± 10% | -1000 to 350 ppm/°C | 5 | 7.5 | DEBB33F101KCDB | 182-3301 |
| 220 pF | ± 10% | -1000 to 350 ppm/°C | 12 | 7.5 | DEA1X3F221JA3B | 952-7095 |
| 220 pF | ± 10% | -1000 to 350 ppm/°C | 5 | 7.5 | DEBB33F221KCDB | 182-3302 |
| 470 pF | ± 10% | -1000 to 350 ppm/°C | 7 | 7.5 | DEBB33F471KC3B | 952-7176 |
| 1000 pF | -20%, +80% | -1000 to 350 ppm/°C | 7 | 7.5 | DEBE33F102ZC3B | 952-7192 |
| 1000 pF | ± 10% | -1000 to 350 ppm/°C | 9 | 7.5 | DEBB33F102KA3B | 182-3303 |
| 2200 pF | -20%, +80% | -1000 to 350 ppm/°C | 10 | 7.5 | DEBE33F222ZC3B | 952-7206 |
| 2200 pF | ± 10% | -1000 to 350 ppm/°C | 13 | 7.5 | DEBB33F222KA3B | 182-3304 |
| 4700 pF | -20%, +80% | -1000 to 350 ppm/°C | 13 | 7.5 | DEBE33F472ZC3B | 952-7214 |

**3150 Volts d.c.**

| Capacitance | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 100 pF | 952-7087 | | | | | |
| 100 pF | NEW 182-3301 | | | | | |
| 220 pF | 952-7095 | | | | | |
| 220 pF | NEW 182-3302 | | | | | |
| 470 pF | 952-7176 | | | | | |
| 1000 pF | 952-7192 | | | | | |
| 1000 pF | NEW 182-3303 | | | | | |
| 2200 pF | 952-7206 | | | | | |
| 2200 pF | NEW 182-3304 | | | | | |
| 4700 pF | 952-7214 | | | | | |

**6300 Volts d.c.**

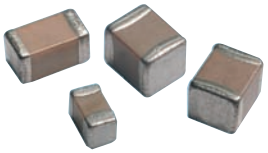
| Capacitance | Tolerance | Temperature Coefficient | Body Dia. (mm) | Body Pitch (mm) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 22 pF | ± 5% | -1000 to 350 ppm/°C | 9 | 10 | DEC1X3J220JC4B | 952-7281 |
| 47 pF | ± 5% | -1000 to 350 ppm/°C | 9 | 10 | DEC1X3J470JC4B | 952-7290 |
| 100 pF | ± 10% | -1000 to 350 ppm/°C | 9 | 10 | DECB33J101KC4B | 952-7303 |
| 220 pF | ± 10% | -1000 to 350 ppm/°C | 9 | 10 | DECB33J221KC4B | 952-7311 |
| 470 pF | ± 10% | -1000 to 350 ppm/°C | 10 | 10 | DECB33J471KC4B | 952-7320 |
| 1000 pF | -20%, +80% | -1000 to 350 ppm/°C | 11 | 10 | DECE33J102ZC4B | 952-7338 |
| 1000 pF | ± 10% | -1000 to 350 ppm/°C | 13 | 10 | DECB33J102KC4B | 182-3305 |
| 2200 pF | -20%, +80% | -1000 to 350 ppm/°C | 15 | 10 | DECE33J222ZC4B | 952-7346 |

627515

**6300 Volts d.c.**

| Capacitance | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 22 pF | 952-7281 | | | | | |
| 47 pF | 952-7290 | | | | | |
| 100 pF | 952-7303 | | | | | |
| 220 pF | 952-7311 | | | | | |
| 470 pF | 952-7320 | | | | | |
| 1000 pF | 952-7338 | | | | | |
| 1000 pF | NEW 182-3305 | | | | | |
| 2200 pF | 952-7346 | | | | | |

## GRM Series High Voltage Capacitor



- High voltage multilayer ceramic chip capacitor
- 1210 / 1812 / 2220 Case sizes
- Used in applications such as snubbers, SMPS and high voltage coupling

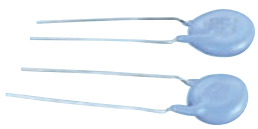
NEW

Operating and storage temperature -55°C to +125°C
Tolerance ± 10%
Dielectric Temperature Coeff X7R ± 15%

612020

| Cap. | Voltage Range | Mftrs. List No. | Order Code | Price Each 5+ | 50+ | 250+ | 500+ |
|---|---|---|---|---|---|---|---|
| 1206 | | | | | | | |
| 100 pF | 630V | GRM31A5C2J101JW01D | 205-7292 | | | | |
| 330 pF | 630V | GRM31A5C2J331JW01D | 205-7294 | | | | |
| 100 pF | 630V | GRM31A7U2J101JW31D | 205-7295 | | | | |
| 220 pF | 630V | GRM31A7U2J221JW31D | 205-7296 | | | | |
| 330 pF | 630V | GRM31A7U2J331JW31D | 205-7297 | | | | |
| 470 pF | 630V | GRM31A7U2J471JW31D | 205-7298 | | | | |
| 680 pF | 630V | GRM31A7U2J681JW31D | 205-7299 | | | | |
| 1000 pF | 630V | GRM31A7U2J102JW31D | 205-7301 | | | | |
| 1000 pF | 630V | GRM31BR72J102KW01L | 205-7302 | | | | |
| 1500 pF | 630V | GRM31BR72J152KW01L | 205-7303 | | | | |
| 2200 pF | 630V | GRM31BR72J222KW01L | 205-7304 | | | | |
| 3300 pF | 630V | GRM31BR72J332KW01L | 205-7305 | | | | |
| 4700 pF | 630V | GRM31BR72J472KW01L | 205-7306 | | | | |
| 6800 pF | 630V | GRM31BR72J682KW01L | 205-7307 | | | | |
| 0.01 µF | 630V | GRM31BR72J103KW01L | 205-7308 | | | | |
| 0.015 µF | 630V | GRM31CR72J153KW03L | 205-7309 | | | | |
| 1210 | | | | | | | |
| 0.022 µF | 630V | GRM32QR72J223KW01L | 205-7310 | | | | |
| 0.033 µF | 630V | GRM32DR72J333KW01L | 205-7312 | | | | |
| 0.047 µF | 630V | GRM32DR72J473KW01L | 182-8962 | | | | |
| 0.01 µF | 1kV | GRM32QR73A103KW01L | 182-8963 | | | | |
| 1812 | | | | | | | |
| 0.068 µF | 630V | GRM43QR72J683KW01L | 205-7313 | | | | |
| 0.1 µF | 630V | GRM43DR72J104KW01L | 182-8965 | | | | |
| 0.047 µF | 1kV | GRM43DR73A473KW01L | 182-8966 | | | | |
| 2220 | | | | | | | |
| 0.15 µF | 630V | GRM55DR72J154KW01L | 205-7314 | | | | |
| 0.22 µF | 630V | GRM55DR72J224KW01L | 182-8967 | | | | |

## DHR Series



NEW

- Small size
- Coated with flame-retardant epoxy resin

Operating temperature -20°C to +85°C

**10kV Volt d.c.**

| Capacitance | Tolerance | Temperature Coefficient | Body Dia. (mm) | Body Pitch (mm) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 100 pF | ± 10% | -4700ppm/°C ± 500ppm/°C | 8 | 9.5 | DHR4E4A101K2BB | 182-3306 |
| 220 pF | ± 10% | -4700ppm/°C ± 500ppm/°C | 9 | 9.5 | DHR4E4A221K2BB | 182-3307 |
| 470 pF | ± 10% | -4700ppm/°C ± 500ppm/°C | 12 | 9.5 | DHR4E4A471K2BB | 182-3308 |
| 1000 pF | ± 10% | -4700ppm/°C ± 500ppm/°C | 15 | 9.5 | DHR4E4A102K2BB | 182-3311 |

**10kV Volt d.c.**

| Capacitance | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 100 pF | 182-3306 | | | | | |
| 220 pF | 182-3307 | | | | | |
| 470 pF | 182-3308 | | | | | |
| 1000 pF | 182-3311 | | | | | |

**15kV Volt d.c.**

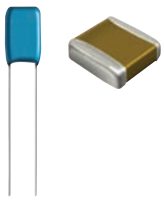
| Capacitance | Tolerance | Temperature Coefficient | Body Dia. (mm) | Body Pitch (mm) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 100 pF | ± 10% | -4700ppm/°C ± 500ppm/°C | 8 | 9.5 | DHR4E4C101K2BB | 182-3312 |
| 220 pF | ± 10% | -4700ppm/°C ± 500ppm/°C | 10 | 9.5 | DHR4E4C221K2BB | 182-3313 |
| 1000 pF | ± 10% | -4700ppm/°C ± 500ppm/°C | 18 | 12.7 | DHR4E4C102K2FB | 182-3314 |

610771

| | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **15kV Volt d.c.** | | | | | | |
| 100 pF | **182-3312** | | | | | |
| 220 pF | **182-3313** | | | | | |
| 1000 pF | **182-3314** | | | | | |

## Monolithic Ceramic Capacitors

NEW



- Chip and radial lead monolithic ceramic capacitors
- Large capacitance and high allowable ripple current

| | |
|---|---|
| Operating temperature | -55°C to +125°C |
| Tolerance | ± 10% |
| Working voltage | 450 V |

| Capacitance | Dimensions (mm) L | W | D | Lead Pitch (mm) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| **SMD** | | | | | | |
| 0.047 µF | 3.2 | 1.6 | 1.6 | 1.2 | GR331CD72W473KW03L | 189-0491 |
| 0.1 µF | 3.2 | 2.5 | 2 | 1.2 | GR332DD72W104KW01L | 189-0492 |
| 0.22 µF | 5.7 | 5 | 2 | 3.2 | GR355DD72W224KW01L | 189-0493 |
| 0.47 µF | 5.7 | 5 | 2 | 3.2 | GR355DD72W474KW01L | 189-0494 |
| 0.56 µF | 5.7 | 5 | 2.7 | 3.2 | GR355XD72W564KW05L | 189-0496 |

| Capacitance | Mftrs. List No. | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 2K+ |
|---|---|---|---|---|---|---|---|
| 0.047 µF | GR331CD72W473KW03L | **189-0491** | | | | | |
| 0.1 µF | GR332DD72W104KW01L | **189-0492** | | | | | |
| 0.22 µF | GR355DD72W224KW01L | **189-0493** | | | | | |
| 0.47 µF | GR355DD72W474KW01L | **189-0494** | | | | | |
| 0.56 µF | GR355XD72W564KW05L | **189-0496** | | | | | |

| Capacitance | Dimensions (mm) L | W | D | Lead Pitch (mm) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| **Radial** | | | | | | |
| 0.047 µF | 5.5 | 4 | 3.15 | 5 | RDED72W473K2K1C11B | 189-0497 |
| 0.1 µF | 5.5 | 5 | 4 | 5 | RDED72W104K3K1C11B | 189-0498 |
| 0.47 µF | 7.5 | 7.5 | 4.5 | 5 | RDED72W474K5B1C13B | 189-0500 |
| 1.2 µF | 7.7 | 12.5 | 4.5 | 5 | RDED72W125MUB1C13B | 189-0501 |

630882

| Capacitance | Mftrs. List No. | Order Code | Price Each 5+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| 0.047 µF | RDED72W473K2K1C11B | **189-0497** | | | | |
| 0.1 µF | RDED72W104K3K1C11B | **189-0498** | | | | |
| 0.47 µF | RDED72W474K5B1C13B | **189-0500** | | | | |
| 1.2 µF | RDED72W125MUB1C13B | **189-0501** | | | | |

# Ceramic - High Voltage - Yageo

## Surface Mount – Nickel Barrier

**High Voltage - CG Series**



- High voltage multilayer ceramic chip capacitors
- High capacitance per unit volume
- 0603, 0805, 1206, 1210, 1808 and 1812 case sizes
- Nickel barrier terminations
- Conform to **IEC 384-10**

0603 Case Size L=1.6 ± 0.2, W=0.8 ± 0.2, H=0.45
0805 Case Size L=2 ± 0.2, W=1.25 ± 0.1, H=0.5
1206 Case Size L=3.2 ± 0.2, W=1.6 ± 0.2, H=1.3 max
1210 Case Size L=3.2 ± 0.2, W=2.5 ± 0.2, H=1.6 max
1808 Case Size L=4.5 ± 0.3, W=2.0 ± 0.3, H=1.3 max
1812 Case Size L=4.5 ± 0.3, W=3.2 ± 0.3, H=1.3 max

| | |
|---|---|
| Performance characteristics | **NPO** |
| Operating temperature | -55°C to +125°C |
| Tolerance | ±5% |
| Insulance resistance | MΩ |
| Dielectric strength for 1 minute | 2VR (1000V), 1.2VR (3000V) |

### 0603 Case Size

| **200 Volt d.c. NP0, 0603 Case Size** | Order Code | Price Each 1+ | 100+ | 1K+ | 4K+ |
|---|---|---|---|---|---|
| 10 pF | **128-4110** RL | | | | |
| 47 pF | **128-4116** RL | | | | |
| 100 pF | **128-4111** RL | | | | |
| 470 pF | **128-4117** RL | | | | |
| **100 Volt d.c. X7R, 0603 Case Size** | | | | | |
| 1000 pF | **128-4118** RL | | | | |
| 4700 pF | **128-4121** RL | | | | |
| 0.01 µF | **128-4119** RL | | | | |

### 0805 Case Size

| **500 Volt d.c. NP0, 0805 Case Size** | Order Code | Price Each 1+ | 100+ | 1K+ | 4K+ |
|---|---|---|---|---|---|
| 10 pF | **128-4123** RL | | | | |
| 22 pF | **128-4126** RL | | | | |
| 47 pF | **128-4128** RL | | | | |
| 100 pF | **128-4124** RL | | | | |
| 220 pF | **128-4127** RL | | | | |
| 1000 pF | **128-4122** RL | | | | |
| **500 Volt d.c. X7R, 0805 Case Size** | | | | | |
| 0.01 µF | **128-4130** RL | | | | |

### 1206 Case Size

| **200 Volt d.c. NP0, 1206 Case Size** | Order Code | Price Each 1+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 22 pF | **128-4138** RL | | | | |
| 47 pF | **128-4140** RL | | | | |
| 220 pF | **128-4139** RL | | | | |
| **1000 Volt d.c. NP0, 1206 Case Size** | | | | | |
| 120 pF | **335-1828** RL | | | | |
| 180 pF | **335-1830** RL | | | | |
| 220 pF | **335-1841** RL | | | | |
| 330 pF | **335-1853** RL | | | | |
| **500 Volt d.c. NP0, 1206 Case Size** | | | | | |
| 22 pF | **128-4141** RL | | | | |
| 220 pF | **128-4142** RL | | | | |
| **2000 Volt d.c. NP0, 1206 Case Size** | | | | | |
| 47 pF | **128-4136** RL | | | | |
| 100 pF | **128-4133** RL | | | | |
| 220 pF | **128-4135** RL | | | | |
| **200 Volt d.c. X7R, 1206 Case Size** | | | | | |
| 2200 pF | **128-4151** RL | | | | |
| 0.047 µF | **128-4144** RL | | | | |
| **1000 Volt d.c. X7R, 1206 Case Size** | | | | | |
| 1000 pF | **128-4145** RL | | | | |
| 2200 pF | **128-4147** RL | | | | |
| 4700 pF | **128-4148** RL | | | | |
| 0.01 µF | **128-4146** RL | | | | |

### 1210 Case Size

| | Order Code | Price Each 1+ | 100+ | 1K+ | 3K+ |
|---|---|---|---|---|---|
| **200 Volt d.c. X7R, 1210 Case Size** | | | | | |
| 0.1 µF | **128-4158** RL | | | | |
| **1000 Volt d.c. X7R, 1210 Case Size** | | | | | |
| 0.022 µF | **128-4160** RL | | | | |

### 1808 Case Size

| **3000 Volt d.c. NP0, 1808 Case Size** | Order Code | Price Each 1+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 10 pF | **301-9950** | | | | |
| 15 pF | **301-9962** | | | | |
| 47 pF | **301-9998** | | | | |
| **3000 Volt d.c. X7R, 1808 Case Size** | | | | | |
| 1000 pF | **128-4166** RL | | | | |

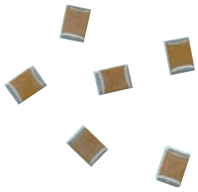
### 1812 Case Size

208563

| **1000 Volt d.c. NP0, 1812 Case Size** | Order Code | Price Each 1+ | 100+ | 1K+ | 10K+ |
|---|---|---|---|---|---|
| 100 pF | **302-0009** | | | | |
| 220 pF | **302-0022** | | | | |
| 330 pF | **302-0034** | | | | |
| 470 pF | **302-0046** | | | | |
| 680 pF | **302-0058** | | | | |
| 1000 pF | **302-0060** | | | | |
| 1500 pF | **302-0071** | | | | |
| **3000 Volt d.c. NP0, 1812 Case Size** | | | | | |
| 10 pF | **302-0083** | | | | |
| 22 pF | **302-0101** | | | | |
| 33 pF | **302-0113** | | | | |
| **500 Volt d.c. X7R, 1812 Case Size** | | | | | |
| 0.1 µF | **128-4175** RL | | | | |
| **2000 Volt d.c. X7R, 1812 Case Size** | | | | | |
| 1000 pF | **128-4176** RL | | | | |
| 2200 pF | **128-4178** RL | | | | |
| 4700 pF | **128-4179** RL | | | | |
| 0.01 µF | **128-4177** RL | | | | |

# Ceramic - High Voltage - Yageo - continued

## High Voltage MLCC



- Nickel-barrier end termination
- 0805, 1206, 1210, 1808 and 1812 case sizes

Operating Temperature -55°C to +125°C

555361

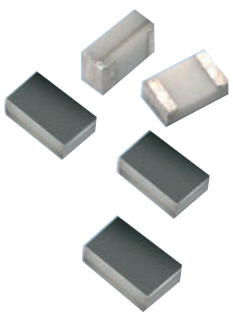
| Capacitance | Dielectric | Tolerance | List No. | Order Code | Price Each 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|---|
| **250V** | | | | | | | |
| 47pF | C0G / NP0 | ± 5% | CC0805JRNPOYBN470 | **177-9486** | | | |
| 220pF | X7R | ± 10% | CC0805KRX7RYBB221 | **177-9487** | | | |
| 470pF | X7R | ± 10% | CC0805KRX7RYBB471 | **177-9488** | | | |
| 1000pF | X7R | ± 10% | CC0805KRX7RYBB102 | **177-9489** | | | |
| 2200pF | X7R | ± 10% | CC0805KRX7RYBB222 | **177-9490** | | | |
| 4700pF | X7R | ± 10% | CC0805KRX7RYBB472 | **177-9491** | | | |
| 0.01μF | X7R | ± 10% | CC0805KKX7RYBB103 | **177-9492** | | | |
| 1000pF | X7R | ± 10% | CC1206KRX7RYBB102 | **177-9493** | | | |
| 2200pF | X7R | ± 10% | CC1206KRX7RYBB222 | **177-9494** | | | |
| 4700pF | X7R | ± 10% | CC1206KRX7RYBB472 | **177-9495** | | | |
| 0.01μF | X7R | ± 10% | CC1206KRX7RYBB103 | **177-9496** | | | |
| 0.022μF | X7R | ± 10% | CC1206KKX7RYBB223 | **177-9498** | | | |
| 0.1μF | X7R | ± 10% | CC1210KKX7RYBB104 | **177-9500** | | | |
| 0.1μF | X7R | ± 10% | CC1812KKX7RYBB104 | **177-9504** | | | |
| **1000V** | | | | | | | |
| 47pF | C0G / NP0 | ± 5% | CC1206JRNPOCBN470 | **177-9505** | | | |
| 100pF | C0G / NP0 | ± 5% | CC1206JKNPOCBN101 | **177-9506** | | | |
| 4700pF | X7R | ± 10% | CC1210KKX7RCBB472 | **177-9507** | | | |
| 0.01μF | X7R | ± 10% | CC1210KKX7RCBB103 | **177-9508** | | | |
| 4700pF | X7R | ± 10% | CC1808KKX7RCBB472 | **177-9509** | | | |
| 1000pF | X7R | ± 10% | CC1812KKX7RCBB102 | **177-9510** | | | |
| 0.01μF | X7R | ± 10% | CC1812KKX7RCBB103 | **177-9511** | | | |
| **2000V** | | | | | | | |
| 470pF | X7R | ± 10% | CC1206KKX7RDBB471 | **177-9512** | | | |
| 1000pF | X7R | ± 10% | CC1206KKX7RDBB102 | **177-9513** | | | |
| 1000pF | X7R | ± 10% | CC1210KKX7RDBB102 | **177-9516** | | | |
| 470pF | C0G / NP0 | ± 5% | CC1808JKNPODBN471 | **177-9518** | | | |
| 470pF | X7R | ± 10% | CC1808KKX7RDBB471 | **177-9519** | | | |
| 1000pF | X7R | ± 10% | CC1808KKX7RDBB102 | **177-9520** | | | |
| 2200pF | X7R | ± 10% | CC1808KKX7RDBB222 | **177-9521** | | | |
| **3000V** | | | | | | | |
| 1000pF | X7R | ± 10% | CC1812KKX7REBB102 | **177-9522** | | | |

RL **FREE Re-reeling service.** Only buy what you need and improve assembly efficiency. For more information visit **local website**

# Ceramic - RF & Microwave - AVX

## RF/Microwave Capacitors

**ACCU-P®**



- Low ESR, high Q, availability of very low capacitance values and very tight capacitance tolerances
- The RF power handling capability allows for its usage in both small signal and RF power applications
- Inspection, test and quality control procedures in accordance with ISO 9001, CECC, IECQ and USA MIL Standards guarantee product of the highest quality
- Minimal batch to batch variability of parameters at high frequency
- Hand soldering: Due to their construction utilizing relatively high thermal conductivity materials, Accu-Ps have become the preferred device in R & D labs and production environments where hand soldering is used

**0201** H=0.225 W=0.6 D=0.325mm
**0402** H=0.4 W=1 D=0.55mm
**0603** H=0.63 W=1.6 D=0.81mm

The use of very low-loss dielectric materials (silicon dioxide and silicon oxynitride) in conjunction with highly conductive electrode metals results in low ESR and high Q. At high frequency these characteristics change at a slower rate with increasing frequency than conventional ceramic microwave capacitors. Using thin-film technology, the above-mentioned frequency characteristics are obtained without significant compromise of properties required for surface mounting. The use of high thermal conductivity materials results in excellent RF power handling capabilities.

| | | | |
|---|---|---|---|
| Operating and storage temperature | -55°C to +125°C | Proof voltage | 2.5 $U_R$ for 5 secs |
| Temperature coefficient | 0 ±30ppm/°C dielectric code J | Aging characterisitic | Zero |
| Capacitance measurement | 1MHz, 1Vrms | Dielectric absorbtion | 0.01% |
| Insulation resistance | $\geq 10^{10}$ | | |

388600

| Capacitance | Mftrs. List No. | Order Code | Price Each 1+ | 25+ | 100+ | 1K+ |
|---|---|---|---|---|---|---|
| **0201 - 10 Volt d.c.** | | | | | | |
| 4.7 pF | 0201ZJ4R7ABSTR | SMD **174-0487** | | | | |
| **0201 - 16 Volt d.c.** | | | | | | |
| 3.3 pF | 0201YJ3R3ABSTR | SMD **174-0485** | | | | |
| **0201 - 25 Volt d.c.** | | | | | | |
| 0.1 pF | 02013J0R1ABSTR | SMD **174-0475** | | | | |
| 0.3 pF | 02013J0R3ABSTR | SMD **174-0476** | | | | |
| 1 pF | 02013J1R0ABSTR | SMD **169-7169** | | | | |
| 1.1 pF | 02013J1R1ABSTR | SMD **174-0480** | | | | |
| 1.3 pF | 02013J1R3ABSTR | SMD **174-0481** | | | | |
| 1.8 pF | 02013J1R8ABSTR | SMD **174-0482** | | | | |
| 2.2 pF | 02013J2R2ABSTR | SMD **174-0483** | | | | |
| 2.7 pF | 02013J2R7ABSTR | SMD **174-0484** | | | | |
| **0402 - 10 Volt d.c** | | | | | | |
| 15 pF | 0402ZK150GBSTR | SMD **174-0488** | | | | |
| 18 pF | 0402ZK180GBSTR | SMD **110-0633** | | | | |
| 22 pF | 0402ZK220GBSTR | SMD **174-0491** | | | | |
| **0402 - 25 Volt d.c.** | | | | | | |
| 0.2 pF | 04023J0R2ABSTR | SMD **110-0608** RL | | | | |
| 0.5 pF | 04023J0R5ABSTR | SMD **110-0613** RL | | | | |
| 0.7 pF | 04023J0R7ABSTR | SMD **110-0615** RL | | | | |
| 0.8 pF | 04023J0R8ABSTR | SMD **110-0616** RL | | | | |
| 0.9 pF | 04023J0R9ABSTR | SMD **110-0617** RL | | | | |
| 2.7 pF | 04023J2R7BBSTR | SMD **110-0623** RL | | | | |
| 3 pF | 04023J3R0BBWTR | SMD **174-0492** | | | | |
| 3.9 pF | 04023J3R9BBSTR | SMD **110-0625** RL | | | | |
| 4.7 pF | 04023J4R7BBSTR | SMD **110-0626** RL | | | | |
| **0603 - 50 Volt d.c.** | | | | | | |
| 0.5 pF | 06035J0R5PBSTR | SMD **174-0493** | | | | |
| 2.4 pF | 06035J2R4BBTTR | SMD **174-0494** | | | | |
| 6.8 pF | 06035J6R8BBSTR | SMD **174-0495** | | | | |
| 8.2 pF | 06035J8R2BBSTR | SMD **174-0496** | | | | |
| 10 pF | 06035J100GBSTR | SMD **174-0497** | | | | |

## RF/Microwave Ceramic Capacitors

**U Series**



| | |
|---|---|
| Tolerance | Indicated by the 10th digit of Mftrs. List No.<br>B = ±0.1pF<br>C = ±0.25pF<br>G = ±2%<br>J = ±5% |
| Temperature coefficient | 0±30ppm/°C |
| Insulation resistance | $10^{12}$Ωmin. @ 25°C and WVDC |
| Dielectric working voltage | 250% of rated WVDC |
| Dimensions (LxWxH) | 0402: 1 x 0.50 x 0.6mm<br>0603: 1.52 x 0.76 x 0.91mm<br>0805: 2.01 x 1.25 x 1.02mm |

U Series capacitors are C0G (NP0) chip capacitors specially designed for Ultra low ESR for applications in the communications market. Max ESR and effective capacitance are met on each value producing lot to lot uniformity.

### 0402 Case Size

**50 Volt d.c. C0G 0402 Case Size**

| Mftrs. List No. | Order Code | Price Each 5+ | 50+ | 250+ | 1K+ | 5K+ |
|---|---|---|---|---|---|---|
| 0.5 pF 04025U0R5BAT2A | SMD **756-7995** RL | | | | | |
| 1 pF 04025U1R0BAT2A | SMD **756-8002** RL | | | | | |
| 1.5 pF 04025U1R5BAT2A | SMD **756-8010** RL | | | | | |
| 1.8 pF 04025U1R8BAT2A | SMD **756-8029** RL | | | | | |
| 2.2 pF 04025U2R2BAT2A | SMD **756-8037** RL | | | | | |
| 3 pF 04025U3R0BAT2A | SMD **756-8053** RL | | | | | |
| 4.7 pF 04025U4R7CAT2A | SMD **756-8070** RL | | | | | |
| 5.6 pF 04025U5R6CAT2A | SMD **756-8088** RL | | | | | |
| 6.8 pF 04025U6R8CAT2A | SMD **756-8100** RL | | | | | |
| 8.2 pF 04025U8R2CAT2A | SMD **756-8118** RL | | | | | |
| 10 pF 04025U100GAT2A | SMD **756-8126** RL | | | | | |
| 12 pF 04025U120GAT2A | SMD **756-8134** RL | | | | | |
| 15 pF 04025U150GAT2A | SMD **756-8142** RL | | | | | |

### 0603 Case Size

**200 Volt d.c. C0G 0603 Case Size**

| Mftrs. List No. | Order Code | Price Each 5+ | 50+ | 250+ | 1K+ | 5K+ |
|---|---|---|---|---|---|---|
| 1 pF 06032U1R0BAT2A | SMD **756-8150** RL | | | | | |
| 1.2 pF 06032U1R2BAT2A | SMD **756-8169** RL | | | | | |
| 1.5 pF 06032U1R5BAT2A | SMD **756-8177** RL | | | | | |
| 1.8 pF 06032U1R8BAT2A | SMD **756-8185** RL | | | | | |
| 2 pF 06032U2R0BAT2A | SMD **756-8193** RL | | | | | |
| 2.7 pF 06032U2R7BAT2A | SMD **756-8215** RL | | | | | |
| 3 pF 06032U3R0BAT2A | SMD **756-8223** RL | | | | | |
| 3.3 pF 06032U3R3BAT2A | SMD **756-8231** RL | | | | | |
| 3.9 pF 06032U3R9BAT2A | SMD **756-8240** RL | | | | | |
| 4.7 pF 06032U4R7CAT2A | SMD **756-8258** RL | | | | | |
| 5.6 pF 06032U5R6CAT2A | SMD **756-8266** RL | | | | | |


RoHS Compliant Non-compliant

**200 Volt d.c. COG 0603 Case Size**

| Mftrs. List No. | Order Code | Price Each 5+ | 50+ | 250+ | 1K+ | 5K+ |
|---|---|---|---|---|---|---|
| 6.8 pF 06032U6R8CAT2A | SMD 756-8274 RL | | | | | |
| 7.5 pF 06032U7R5CAT2A | SMD 756-8282 RL | | | | | |
| 8.2 pF 06032U8R2CAT2A | SMD 756-8290 RL | | | | | |
| 10 pF 06032U100GAT2A | SMD 756-8304 RL | | | | | |
| 12 pF 06032U120GAT2A | SMD 756-8312 RL | | | | | |
| 15 pF 06032U150GAT2A | SMD 756-8320 RL | | | | | |
| 18 pF 06032U180GAT2A | SMD 756-8339 RL | | | | | |

**100 Volt d.c. COG 0603 Case Size**

| Mftrs. List No. | Order Code | Price Each 5+ | 50+ | 250+ | 1K+ | 5K+ |
|---|---|---|---|---|---|---|
| 22 pF 06031U220GAT2A | SMD 756-8347 RL | | | | | |
| 27 pF 06031U270GAT2A | SMD 756-8355 RL | | | | | |
| 33 pF 06031U330GAT2A | SMD 756-8363 RL | | | | | |
| 39 pF 06031U390GAT2A | SMD 756-8371 RL | | | | | |
| 47 pF 06031U470JAT2A | SMD 756-8380 RL | | | | | |

## 0805 Case Size

388599

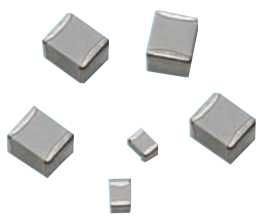
**200 Volt d.c. COG 0805 Case Size**

| Mftrs. List No. | Order Code | Price Each 5+ | 50+ | 250+ | 1K+ | 5K+ |
|---|---|---|---|---|---|---|
| 1 pF 08052U1R0BAT2A | SMD 756-8398 RL | | | | | |
| 1.5 pF 08052U1R5BAT2A | SMD 756-8401 RL | | | | | |
| 2.2 pF 08052U2R2BAT2A | SMD 756-8410 RL | | | | | |
| 2.4 pF 08052U2R4BAT2A | SMD 756-8428 RL | | | | | |
| 2.7 pF 08052U2R7BAT2A | SMD 756-8436 RL | | | | | |
| 3 pF 08052U3R0BAT2A | SMD 756-8444 RL | | | | | |
| 3.3 pF 08052U3R3BAT2A | SMD 756-8452 RL | | | | | |
| 3.9 pF 08052U3R9BAT2A | SMD 756-8460 RL | | | | | |
| 4.7 pF 08052U4R7CAT2A | SMD 756-8479 RL | | | | | |
| 5.6 pF 08052U5R6CAT2A | SMD 756-8487 RL | | | | | |
| 7.5 pF 08052U7R5CAT2A | SMD 756-8495 RL | | | | | |
| 8.2 pF 08052U8R2CAT2A | SMD 756-8509 RL | | | | | |
| 9.1 pF 08052U9R1CAT2A | SMD 756-8517 RL | | | | | |
| 10 pF 08052U100GAT2A | SMD 756-8525 RL | | | | | |
| 12 pF 08052U120GAT2A | SMD 756-8533 RL | | | | | |
| 15 pF 08052U150GAT2A | SMD 756-8541 RL | | | | | |
| 18 pF 08052U180GAT2A | SMD 756-8550 RL | | | | | |
| 22 pF 08052U220GAT2A | SMD 756-8568 RL | | | | | |
| 24 pF 08052U240GAT2A | SMD 756-8576 RL | | | | | |
| 27 pF 08052U270GAT2A | SMD 756-8584 RL | | | | | |
| 33 pF 08052U330GAT2A | SMD 756-8592 RL | | | | | |
| 36 pF 08052U360GAT2A | SMD 756-8606 RL | | | | | |
| 39 pF 08052U390GAT2A | SMD 756-8614 RL | | | | | |
| 47 pF 08052U470JAT2A | SMD 756-8622 RL | | | | | |
| 68 pF 08052U680JAT2A | SMD 756-8649 RL | | | | | |
| 82 pF 08052U820JAT2A | SMD 756-8657 RL | | | | | |
| 100 pF 08052U101JAT2A | SMD 756-8665 RL | | | | | |
| 130 pF 08052U131JAT2A | SMD 756-8673 RL | | | | | |

**Capacitance Conversion Table**

| | | | | |
|---|---|---|---|---|
| 0.000001µF | = | 0.001nF | = | 1pF |
| 0.00001µF | = | 0.01nF | = | 10pF |
| 0.0001µF | = | 0.1nF | = | 100pF |
| 0.001µF | = | 1nF | = | 1000pF |
| 0.01µF | = | 10nF | = | 10000pF |
| 0.1µF | = | 100nF | = | 100000pF |
| 1µF | = | 1000nF | = | 1000000pF |
| 10µF | = | 10000nF | = | 10000000pF |
| 100µF | = | 100000nF | = | 100000000pF |

# SQCA/CB/CF/CS RF Capacitors
# Ceramic Low ESR, High Q Capacitors



SQCA/CB/CF/CS are ultra low ESR microwave capacitors suitable for RF Power Amplifiers. They come in non- mag termination for MRI applications. They offer very high Q and resonant frequency and power handling capability.

| | |
|---|---|
| Operating temperature | -55 to 175°C |
| Resonant frequency | >10000 @ 1 MHz |
| Case size | SQCS = 0603<br>SQCA = 0605<br>SQCF = 0805<br>SQCB = 1210 |

## 0603 Case Size

| Mftrs. List No. | Order Code | Price Each 1+ | 50+ | 250+ | 500+ |
|---|---|---|---|---|---|
| **250 Volt** | | | | | |
| 0.1 pF SQCSVA0R1BAT1A\500 | SMD 174-0736 | | | | |
| 0.3 pF SQCSVA0R3BAT1A\500 | SMD 174-0737 | | | | |
| 0.4 pF SQCSVA0R4BAT1A | SMD 169-7202 | | | | |
| 0.5 pF SQCSVA0R5BAT1A\500 | SMD 174-0739 | | | | |
| 1.5 pF SQCSVA1R5BAT1A | SMD 169-7204 | | | | |
| 1.8 pF SQCSVA1R8BAT1A | SMD 169-7205 | | | | |
| 2.2 pF SQCSVA2R2BAT1A | SMD 169-7206 | | | | |
| 3.3 pF SQCSVA3R3BAT1A | SMD 169-7208 | | | | |
| 4.7 pF SQCSVA4R7CAT1A | SMD 169-7209 | | | | |
| 10 pF SQCSVA100FAT1A\500 | SMD 174-0741 | | | | |
| 15 pF SQCSVA150JAT1A | SMD 169-7212 | | | | |
| 18 pF SQCSVA180JAT1A | SMD 169-7214 | | | | |
| 22 pF SQCSVA220JAT1A | SMD 169-7215 | | | | |
| 24 pF SQCSVA240JAT1A | SMD 169-7216 | | | | |
| 27 pF SQCSVA270JAT1A | SMD 169-7217 | | | | |
| 30 pF SQCSVA300JAT1A | SMD 169-7218 | | | | |
| 56 pF SQCSVA560JAT1A | SMD 169-7219 | | | | |
| 82 pF SQCSVA820JAT1A | SMD 169-7221 | | | | |

## 0605 Case Size

| Mftrs. List No. | Order Code | Price Each 1+ | + | + | + |
|---|---|---|---|---|---|
| **150 Volt** | | | | | |
| 1.1 pF SQCAEM1R1BATME\500 | SMD 130-1995 | | | | |
| 1.2 pF SQCAEM1R2BATME\500 | SMD 130-1996 | | | | |
| 1.6 pF SQCAEM1R6BATME\500 | SMD 130-1999 | | | | |
| 1.8 pF SQCAEM1R8BATME\500 | SMD 130-2001 | | | | |
| 2.4 pF SQCAEM2R4BATME\500 | SMD 130-2005 | | | | |
| 3.9 pF SQCAEM3R9BATME\500 | SMD 130-2009 | | | | |
| 8.2 pF SQCAEM8R2BATME\500 | SMD 130-2014 | | | | |
| 22 pF SQCAEM220FATME\500 | SMD 130-2019 | | | | |
| 27 pF SQCAEM270FATME\500 | SMD 130-2020 | | | | |
| 39 pF SQCAEM390FATME\500 | SMD 130-2022 | | | | |
| 47 pF SQCAEM470FATME\500 | SMD 130-2023 | | | | |
| 100 pF SQCAEM101JATME\500 | SMD 169-7184 | | | | |

## 0805 Case Size

| Mftrs. List No. | Order Code | Price Each 1+ | 50+ | 250+ | 500+ |
|---|---|---|---|---|---|
| **250 Volt** | | | | | |
| 0.1 pF SQCFVA0R1BAT1A\500 | SMD 174-0742 | | | | |
| 0.3 pF SQCFVA0R3BAT1A\500 | SMD 174-0743 | | | | |
| 0.5 pF SQCFVA0R5BAT1A\500 | SMD 174-0744 | | | | |
| 0.7 pF SQCFVA0R7BAT1A\500 | SMD 174-0745 | | | | |
| 0.9 pF SQCFVA0R9BAT1A\500 | SMD 174-0746 | | | | |
| 1 pF SQCFVA1R0BATME | SMD 169-7222 | | | | |
| 1.4 pF SQCFVA1R4BAT1A\500 | SMD 174-0748 | | | | |
| 1.8 pF SQCFVA1R8BAT1A\500 | SMD 174-0750 | | | | |
| 2 pF SQCFVA2R0BAT1A\500 | SMD 174-0752 | | | | |
| 2.2 pF SQCFVA2R2BAT1A\500 | SMD 174-0753 | | | | |
| 3 pF SQCFVA3R0BAT1A\500 | SMD 174-0755 | | | | |
| 3.3 pF SQCFVA3R3BAT1A\500 | SMD 174-0756 | | | | |
| 3.9 pF SQCFVA3R9BAT1A\500 | SMD 174-0758 | | | | |
| 4.3 pF SQCFVA4R3BAT1A\500 | SMD 174-0759 | | | | |
| 4.7 pF SQCFVA4R7BAT1A\500 | SMD 174-0760 | | | | |
| 5.1 pF SQCFVA5R1BAT1A\500 | SMD 174-0761 | | | | |
| 5.6 pF SQCFVA5R6BAT1A\500 | SMD 174-0762 | | | | |
| 6.2 pF SQCFVA6R2BAT1A\500 | SMD 174-0764 | | | | |
| 6.8 pF SQCFVA6R8BAT1A\500 | SMD 174-0765 | | | | |
| 7.5 pF SQCFVA7R5BAT1A\500 | SMD 174-0766 | | | | |
| 8.2 pF SQCFVA8R2BAT1A\500 | SMD 174-0767 | | | | |

## 1210 Case Size

452073

| Mftrs. List No. | Order Code | Price Each 1+ | 50+ | 250+ | 500+ |
|---|---|---|---|---|---|
| **200 Volt** | | | | | |
| 220 pF SQCB2M221JATME\500 | SMD 130-1989 | | | | |
| 270 pF SQCB2M271JATME\500 | SMD 130-1990 | | | | |
| **300 Volt** | | | | | |
| 150 pF SQCB9M151JATME\500 | SMD 130-1987 | | | | |
| 180 pF SQCB9M181JATME\500 | SMD 130-1988 | | | | |
| **500 Volt** | | | | | |
| 1 pF SQCB7M1R0BATME\500 | SMD 130-1958 | | | | |
| 1.5 pF SQCB7M1R5BATME\500 | SMD 130-1960 | | | | |
| 3.9 pF SQCB7M3R9BATME\500 | SMD 130-1966 | | | | |
| 4.7 pF SQCB7M4R7CATME\500 | SMD 169-7188 | | | | |
| 5.6 pF SQCB7M5R6BATME\500 | SMD 130-1968 | | | | |
| 6.8 pF SQCB7M6R8CATME\500 | SMD 169-7190 | | | | |
| 8.2 pF SQCB7M8R2BATME\500 | SMD 130-1970 | | | | |
| 8.2 pF SQCB7M8R2CATME\500 | SMD 169-7191 | | | | |
| 10 pF SQCB7M100FATME\500 | SMD 130-1971 | | | | |
| 10 pF SQCB7M100JATME\500 | SMD 169-7192 | | | | |
| 12 pF SQCB7M120JATME\500 | SMD 169-7193 | | | | |
| 15 pF SQCB7M150FATME\500 | SMD 130-1973 | | | | |
| 18 pF SQCB7M180FATME\500 | SMD 130-1975 | | | | |
| 22 pF SQCB7M220FATME\500 | SMD 130-1976 | | | | |

# Ceramic - RF & Microwave - AVX - continued

## Ceramic Low ESR, High Q Capacitors - continued

**0603 Case Size - continued**

| Mftrs. List No. | Order Code | Price Each 1+ | 50+ | 250+ | 500+ |
|---|---|---|---|---|---|
| **500 Volt** | | | | | |
| 27 pF SQCB7M270FATME\500 | SMD 130-1977 | | | | |
| 39 pF SQCB7M390JATME\500 | SMD 169-7199 | | | | |
| 68 pF SQCB7M680JATME\500 | SMD 130-1982 | | | | |
| 82 pF SQCB7M820JATME\500 | SMD 130-1983 | | | | |
| 100 pF SQCB7M101JATME\500 | SMD 130-1984 | | | | |

## AVX Hi-Q Designer Kits



A range of Hi-Q designer kits giving the user maximum range choice with enough samples to be useful during test and development. Once used, each product in the kits can be replenished through Farnell In-One. Also included with the kit is a full range card and a data CD Rom. 5 of each capacitance value (within the stated range) is supplied in each kit.

| No. of Values | Capacitance Values | Mftrs List No. | Order Code |
|---|---|---|---|
| 30 Values | 1 pF to 270 pF | RFSQ001 | 130-1957 |
| 30 Values | 0.6 pF to 56 pF | RFSQ002 | 130-1991 |

452081

| Order Code | Price Each 1+ | 3+ |
|---|---|---|
| 130-1957 | | |
| 130-1991 | | |

## Thin-Film 3dB Directional Couplers

**DB0805 Series**



Reel Quantity = 3000

- Miniature size
- Low Insertion Loss
- High Isolation
- Power Handling: 10W RF CW
- Operating Temperature: -40°C to +85°C
- Applications: Balanced amplifiers and signal distribution in mobile communcications

The ITF SMD 3dB 90° Coupler is based on thin-film multilayer technology. The technology provides a miniature part with excellent high frequency performance and rugged construction for reliable automatic assembly.
The ITF 3dB 90° Coupler is offered in a variety of frequency bands compatible with various types of high frequency wireless systems such as GSM, PCS, W-CDMA etc.

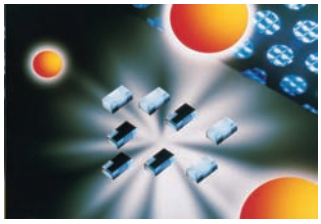
| Fo (MHz) | I. Loss @ Fo (dB) | Phase Balance Max (deg) | Device Marking | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 880 | 0.35 | 3 | Y | DB0805A0880ASTR | 110-0636 |
| 915 | 0.35 | 3 | V | DB0805A0915ASTR | 110-0637 |
| 967 | 0.35 | 3 | V | DB0805A0967ASTR | 110-0638 |
| 1650 | 0.35 | 3 | F | DB0805A1650ASTR | 110-0640 |
| 1950 | 0.25 | 3 | K | DB0805A1950ASTR | 110-0644 |
| 2140 | 0.25 | 3 | L | DB0805A2140ASTR | 110-0645 |

388602

| Order Code | Price Each 1+ | 25+ | 100+ | 1K+ | 3K+ |
|---|---|---|---|---|---|
| All Values | | | | | |

## Thin -Film Directional Couplers

**CP0603 High Directivity LGA Termination**



The ITF LGA Coupler is based on thin-film multilayer technology. The technology provides a miniature part with excellent high frequency performance and rugged construction for reliable automatic assembly.

The ITF Coupler is offered in a variety of frequency bands compatible with various types of high frequency wireless systems.

**Features:**

- Inherent Low Profile
- Self Alignment during Reflow
- Excellent Solderability
- Low Parasitics
- Better Heat Dissipation
- Operating/Storage Temp -40°C to +85°C
- Power Rating 3W RF Cont

**For full technical specifications, please see the datasheet on our website**

464338

| Mftrs. List No. | Order Code | Price Each 1+ | 100+ | 500+ | 1K+ | 3K+ |
|---|---|---|---|---|---|---|
| CP0603AXXXXHNTR | SMD 134-3814 | | | | | |
| CP0603AXXXXANTR | SMD 134-3815 | | | | | |
| CP0603AXXXXDNTR | SMD 134-3817 | | | | | |
| CP0603AXXXXBNTR | SMD 134-3818 | | | | | |
| CP0603AXXXXFNTR | SMD 134-3821 | | | | | |
| CP0603AXXXXGNTR | SMD 134-3823 | | | | | |
| CP0603AXXXXLNTR | SMD 134-3824 | | | | | |

# Ceramic - RF & Microwave - Johanson

## Multi Layer High Q Capacitors

**S, L and E Series**



The L-Series (R05L) capacitors give mid-high Q performance, and exhibit NP0 temperature characteristics.
The S-Series ( R07S, R14S, R15S) capacitors give an ultra-high Q performance, and exhibit NP0 temperature characteristics.
The E-Series (S42E) capacitors give excellent high-Q performance from HF to Microwave frequencies.

NEW

SMD

Tolerance — Indicated by the 11th digit of Mftrs. List No.
A = ±0.05pF
B = ±0.1pF
C = ±0.25pF
G = ±2%
J = ±5%
K = ±10%

Temperature coefficient — 0±30ppm/°C

Insulation resistance $10^9\Omega$min. @ 25°C and WVDC
Dielectric working voltage 250% of rated WVDC
Dimensions (LxWxH) 0201: 0.6 x 0.3 x 0.3mm
0402: 1 x 0.50 x 0.6mm
0603: 1.52 x 0.76 x 0.91mm
0805: 2.01 x 1.25 x 1.02mm
1111: 2.79 x 2.79 x 2.59mm

### 0201 Case Size

**Order Multiple=25**

**25 Volt d.c.**

| pF | Mftrs. List No. | Order Code | Price Each 25+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.3 | 250R05L0R3BV4T | 188-5242 | | | | |
| 0.5 | 250R05L0R5AV4T | 188-5243 | | | | |
| 0.5 | 250R05L0R5BV4T | 188-5244 | | | | |
| 0.7 | 250R05L0R7BV4T | 188-5245 | | | | |
| 0.9 | 250R05L0R9BV4T | 188-5246 | | | | |
| 1 | 250R05L1R0BV4T | 188-5247 | | | | |
| 1.2 | 250R05L1R2BV4T | 188-5249 | | | | |
| 1.5 | 250R05L1R5BV4T | 188-5251 | | | | |
| 1.8 | 250R05L1R8BV4T | 188-5252 | | | | |
| 2.2 | 250R05L2R2BV4T | 188-5253 | | | | |
| 2.7 | 250R05L2R7BV4T | 188-5254 | | | | |
| 3 | 250R05L3R0BV4T | 188-5255 | | | | |
| 3.3 | 250R05L3R3BV4T | 188-5256 | | | | |
| 3.6 | 250R05L3R6BV4T | 188-5257 | | | | |
| 3.9 | 250R05L3R9BV4T | 188-5258 | | | | |
| 4.3 | 250R05L4R3BV4T | 188-5259 | | | | |
| 4.7 | 250R05L4R7BV4T | 188-5260 | | | | |
| 5.1 | 250R05L5R1CV4T | 188-5262 | | | | |
| 5.6 | 250R05L5R6CV4T | 188-5263 | | | | |
| 6.8 | 250R05L6R8CV4T | 188-5264 | | | | |
| 8.2 | 250R05L8R2CV4T | 188-5265 | | | | |
| 9.1 | 250R05L9R1CV4T | 188-5266 | | | | |
| 10 | 250R05L100JV4T | 188-5267 | | | | |
| 12 | 250R05L120GV4T | 188-5268 | | | | |
| 12 | 250R05L120JV4T | 188-5269 | | | | |
| 15 | 250R05L150JV4T | 188-5270 | | | | |
| 18 | 250R05L180JV4T | 188-5271 | | | | |
| 20 | 250R05L200GV4T | 188-5272 | | | | |
| 22 | 250R05L220JV4T | 188-5274 | | | | |
| 27 | 250R05L270JV4T | 188-5275 | | | | |
| 33 | 250R05L330JV4T | 188-5276 | | | | |
| 47 | 250R05L470JV4T | 188-5277 | | | | |

### 0402 Case Size

**Order Multiple=25**

**50 Volt d.c.**

| pF | Mftrs. List No. | Order Code | Price Each 25+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 30 | 250R07S300GV4T | 188-5279 | | | | |
| 30 | 250R07S300JV4T | 188-5280 | | | | |
| 33 | 250R07S330GV4T | 188-5281 | | | | |
| 33 | 250R07S330JV4T | 188-5282 | | | | |
| 0.2 | 500R07S0R2AV4T | 188-5283 | | | | |
| 0.2 | 500R07S0R2BV4T | 188-5284 | | | | |
| 0.3 | 500R07S0R3AV4T | 188-5286 | | | | |
| 0.3 | 500R07S0R3BV4T | 188-5287 | | | | |
| 0.4 | 500R07S0R4AV4T | 188-5288 | | | | |
| 0.5 | 500R07S0R5AV4T | 188-5289 | | | | |
| 0.5 | 500R07S0R5BV4T | 188-5290 | | | | |


RoHS Compliant Non-compliant

**Order Multiple=25**

**50 Volt d.c.**

| pF | Mftrs. List No. | Order Code | Price Each 25+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.6 | 500R07S0R6AV4T | 188-5291 | | | | |
| 0.6 | 500R07S0R6BV4T | 188-5292 | | | | |
| 0.7 | 500R07S0R7AV4T | 188-5293 | | | | |
| 0.7 | 500R07S0R7BV4T | 188-5294 | | | | |
| 0.8 | 500R07S0R8AV4T | 188-5295 | | | | |
| 0.8 | 500R07S0R8BV4T | 188-5296 | | | | |
| 0.9 | 500R07S0R9BV4T | 188-5298 | | | | |
| 1 | 500R07S1R0BV4T | 188-5299 | | | | |
| 1.1 | 500R07S1R1BV4T | 188-5300 | | | | |
| 1.2 | 500R07S1R2AV4T | 188-5301 | | | | |
| 1.2 | 500R07S1R2BV4T | 188-5302 | | | | |
| 1.3 | 500R07S1R3BV4T | 188-5304 | | | | |
| 1.5 | 500R07S1R5BV4T | 188-5305 | | | | |
| 1.8 | 500R07S1R8BV4T | 188-5306 | | | | |
| 2 | 500R07S2R0BV4T | 188-5307 | | | | |
| 2.2 | 500R07S2R2BV4T | 188-5308 | | | | |
| 2.4 | 500R07S2R4BV4T | 188-5309 | | | | |
| 2.7 | 500R07S2R7BV4T | 188-5310 | | | | |
| 3 | 500R07S3R0BV4T | 188-5311 | | | | |
| 3.3 | 500R07S3R3BV4T | 188-5312 | | | | |
| 3.6 | 500R07S3R6BV4T | 188-5313 | | | | |
| 3.9 | 500R07S3R9BV4T | 188-5314 | | | | |
| 3.9 | 500R07S3R9CV4T | 188-5316 | | | | |
| 4.3 | 500R07S4R3BV4T | 188-5317 | | | | |
| 4.7 | 500R07S4R7BV4T | 188-5318 | | | | |
| 4.7 | 500R07S4R7CV4T | 188-5319 | | | | |
| 5.1 | 500R07S5R1BV4T | 188-5320 | | | | |
| 5.1 | 500R07S5R1CV4T | 188-5321 | | | | |
| 5.6 | 500R07S5R6BV4T | 188-5322 | | | | |
| 5.6 | 500R07S5R6CV4T | 188-5323 | | | | |
| 6.2 | 500R07S6R2BV4T | SMD 165-0797 | | | | |
| 6.2 | 500R07S6R2CV4T | 188-5324 | | | | |
| 6.8 | 500R07S6R8BV4T | 188-5325 | | | | |
| 6.8 | 500R07S6R8CV4T | 188-5326 | | | | |
| 7.5 | 500R07S7R5BV4T | 188-5328 | | | | |
| 8.2 | 500R07S8R2BV4T | 188-5329 | | | | |
| 8.2 | 500R07S8R2CV4T | 188-5330 | | | | |
| 9.1 | 500R07S9R1CV4T | 188-5331 | | | | |
| 10 | 500R07S100GV4T | 188-5332 | | | | |
| 10 | 500R07S100JV4T | 188-5333 | | | | |
| 11 | 500R07S110GV4T | 188-5334 | | | | |
| 12 | 500R07S120GV4T | 188-5335 | | | | |
| 12 | 500R07S120JV4T | 188-5336 | | | | |
| 13 | 500R07S130JV4T | 188-5337 | | | | |
| 15 | 500R07S150GV4T | 188-5338 | | | | |
| 15 | 500R07S150JV4T | 188-5341 | | | | |
| 16 | 500R07S160GV4T | SMD 165-0782 | | | | |
| 18 | 500R07S180GV4T | 188-5342 | | | | |
| 20 | 500R07S200GV4T | 188-5343 | | | | |
| 22 | 500R07S220GV4T | 188-5344 | | | | |
| 22 | 500R07S220JV4T | 188-5345 | | | | |
| 27 | 500R07S270GV4T | 188-5346 | | | | |
| 27 | 500R07S270JV4T | 188-5347 | | | | |

## 0603 Case Size

**Order Multiple=25**

**200 Volt d.c. COG 0603 Case Size**

| pF | Mftrs. List No. | Order Code | Price Each 25+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.2 | 251R14S0R2AV4T | SMD 165-0741 | | | | |
| 0.2 | 251R14S0R2BV4T | 188-5350 | | | | |
| 0.3 | 251R14S0R3AV4T | 188-5351 | | | | |
| 0.3 | 251R14S0R3BV4T | 188-5353 | | | | |
| 0.4 | 251R14S0R4AV4T | 188-5354 | | | | |
| 0.4 | 251R14S0R4BV4T | 188-5355 | | | | |
| 0.5 | 251R14S0R5AV4T | 188-5356 | | | | |
| 0.5 | 251R14S0R5BV4T | 188-5357 | | | | |
| 0.6 | 251R14S0R6AV4T | 188-5358 | | | | |
| 0.6 | 251R14S0R6BV4T | 188-5359 | | | | |
| 0.7 | 251R14S0R7AV4T | 188-5360 | | | | |
| 0.7 | 251R14S0R7BV4T | 188-5361 | | | | |
| 0.8 | 251R14S0R8AV4T | 188-5362 | | | | |
| 0.8 | 251R14S0R8BV4T | 188-5363 | | | | |
| 0.9 | 251R14S0R9BV4T | 188-5365 | | | | |
| 1 | 251R14S1R0BV4T | 188-5366 | | | | |
| 1.1 | 251R14S1R1BV4T | 188-5367 | | | | |
| 1.2 | 251R14S1R2BV4T | 188-5368 | | | | |
| 1.3 | 251R14S1R3BV4T | 188-5369 | | | | |
| 1.5 | 251R14S1R5BV4T | 188-5370 | | | | |
| 1.8 | 251R14S1R8BV4T | 188-5371 | | | | |
| 2 | 251R14S2R0BV4T | 188-5372 | | | | |
| 2.2 | 251R14S2R2BV4T | 188-5373 | | | | |

**Order Multiple=25**

**200 Volt d.c. COG 0603 Case Size**

| pF | Mftrs. List No. | Order Code | Price Each 25+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 2.4 | 251R14S2R4BV4T | 188-5374 | | | | |
| 2.7 | 251R14S2R7BV4T | 188-5375 | | | | |
| 3 | 251R14S3R0BV4T | 188-5377 | | | | |
| 3.3 | 251R14S3R3BV4T | 188-5378 | | | | |
| 3.6 | 251R14S3R6BV4T | 188-5379 | | | | |
| 3.9 | 251R14S3R9BV4T | 188-5380 | | | | |
| 3.9 | 251R14S3R9CV4T | 188-5381 | | | | |
| 4.3 | 251R14S4R3BV4T | 188-5382 | | | | |
| 4.7 | 251R14S4R7BV4T | 188-5383 | | | | |
| 4.7 | 251R14S4R7CV4T | 188-5384 | | | | |
| 5.1 | 251R14S5R1BV4T | SMD 165-0771 | | | | |
| 5.1 | 251R14S5R1CV4T | 188-5385 | | | | |
| 5.6 | 251R14S5R6BV4T | SMD 165-0772 | | | | |
| 5.6 | 251R14S5R6CV4T | 188-5386 | | | | |
| 6.2 | 251R14S6R2CV4T | 188-5387 | | | | |
| 6.8 | 251R14S6R8BV4T | SMD 165-0773 | | | | |
| 6.8 | 251R14S6R8CV4T | 188-5389 | | | | |
| 7.5 | 251R14S7R5CV4T | 188-5391 | | | | |
| 8.2 | 251R14S8R2BV4T | SMD 165-0775 | | | | |
| 8.2 | 251R14S8R2CV4T | 188-5392 | | | | |
| 9.1 | 251R14S9R1CV4T | 188-5393 | | | | |
| 10 | 251R14S100GV4T | 188-5394 | | | | |
| 10 | 251R14S100JV4T | 188-5395 | | | | |
| 12 | 251R14S120GV4T | 188-5396 | | | | |
| 12 | 251R14S120JV4T | 188-5397 | | | | |
| 15 | 251R14S150GV4T | 188-5398 | | | | |
| 15 | 251R14S150JV4T | 188-5399 | | | | |
| 16 | 251R14S160GV4T | 188-5400 | | | | |
| 18 | 251R14S180GV4T | 188-5401 | | | | |
| 18 | 251R14S180JV4T | 188-5402 | | | | |
| 20 | 251R14S200GV4T | SMD 165-0755 | | | | |
| 20 | 251R14S200JV4T | 188-5403 | | | | |
| 22 | 251R14S220GV4T | 188-5404 | | | | |
| 22 | 251R14S220JV4T | 188-5405 | | | | |
| 24 | 251R14S240JV4T | 188-5407 | | | | |
| 27 | 251R14S270JV4T | 188-5408 | | | | |
| 30 | 251R14S300GV4T | SMD 165-0761 | | | | |
| 33 | 251R14S330GV4T | 188-5409 | | | | |
| 33 | 251R14S330JV4T | 188-5410 | | | | |
| 36 | 251R14S360GV4T | SMD 169-2274 | | | | |
| 39 | 251R14S390GV4T | SMD 165-0764 | | | | |
| 39 | 251R14S390JV4T | 188-5411 | | | | |
| 43 | 251R14S430GV4T | 188-5412 | | | | |
| 47 | 251R14S470GV4T | 188-5413 | | | | |
| 47 | 251R14S470JV4T | 188-5414 | | | | |
| 56 | 251R14S560GV4T | 188-5415 | | | | |
| 68 | 251R14S680GV4T | 188-5416 | | | | |
| 68 | 251R14S680JV4T | 188-5417 | | | | |
| 82 | 251R14S820JV4T | 188-5419 | | | | |
| 100 | 251R14S101GV4T | 188-5421 | | | | |
| 100 | 251R14S101JV4T | 188-5422 | | | | |

## 0805 Case Size

**Order Multiple=25**

**200 Volt d.c. COG 0805 Case Size**

| pF | Mftrs. List No. | Order Code | Price Each 25+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 4.7 | 251R15S4R7BV4E | 188-5425 | | | | |
| 5.6 | 251R15S5R6CV4E | 188-5426 | | | | |
| 6.8 | 251R15S6R8CV4E | 188-5427 | | | | |
| 7.5 | 251R15S7R5CV4E | 188-5428 | | | | |
| 8.2 | 251R15S8R2CV4E | 188-5429 | | | | |
| 9.1 | 251R15S9R1CV4E | 188-5430 | | | | |
| 10 | 251R15S100JV4E | 188-5432 | | | | |
| 12 | 251R15S120JV4E | 188-5433 | | | | |
| 15 | 251R15S150JV4E | 188-5434 | | | | |
| 18 | 251R15S180JV4E | 188-5435 | | | | |
| 20 | 251R15S200JV4E | 188-5436 | | | | |
| 22 | 251R15S220JV4E | 188-5437 | | | | |
| 24 | 251R15S240JV4E | 188-5438 | | | | |
| 27 | 251R15S270JV4E | 188-5439 | | | | |
| 30 | 251R15S300JV4E | 188-5440 | | | | |
| 33 | 251R15S330JV4E | 188-5441 | | | | |
| 36 | 251R15S360JV4E | 188-5442 | | | | |
| 39 | 251R15S390JV4E | 188-5444 | | | | |
| 43 | 251R15S430JV4E | 188-5445 | | | | |
| 47 | 251R15S470JV4E | 188-5446 | | | | |
| 56 | 251R15S560JV4E | 188-5447 | | | | |
| 68 | 251R15S680JV4E | 188-5448 | | | | |
| 82 | 251R15S820JV4E | 188-5449 | | | | |

# Ceramic - RF & Microwave - Johanson - continued

## Multi Layer High Q Capacitors - continued

### Designer and Tuning Kits - continued

**Order Multiple=25**

**200 Volt d.c. COG 0805 Case Size**

| pF | Mftrs. List No. | Order Code | Price Each 25+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 100 | 251R15S101JV4E | **188-5450** | | | | |
| 120 | 251R15S121JV4E | **188-5451** | | | | |
| 150 | 251R15S151JV4E | **188-5452** | | | | |
| 180 | 251R15S181JV4E | **188-5453** | | | | |
| 220 | 251R15S221JV4E | **188-5454** | | | | |

**1111 Case Size**

**Order Multiple=5**

**50 Volt d.c.**

| pF | Mftrs. List No. | Order Code | Price Each 25+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1000 | 500S42E102KV4E | **188-5457** | | | | |

**Order Multiple=25**

**100 Volt d.c.**

| pF | Mftrs. List No. | Order Code | Price Each 25+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 390 | 101S42E391KV4S | **188-5458** | | | | |
| 470 | 101S42E471KV4S | **188-5459** | | | | |
| 560 | 101S42E561KV4S | **188-5460** | | | | |

**Order Multiple=5**

**200 Volt d.c.**

| pF | Mftrs. List No. | Order Code | Price Each 25+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 180 | 201S42E181KV4S | **188-5461** | | | | |
| 220 | 201S42E221KV4S | **188-5462** | | | | |
| 270 | 201S42E271KV4S | **188-5463** | | | | |
| 470 | 201S42E471KV4E | **188-5464** | | | | |
| 560 | 201S42E561KV4E | **188-5465** | | | | |

**Order Multiple=25**

**300 Volt d.c.**

| pF | Mftrs. List No. | Order Code | Price Each 25+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 120 | 301S42E121KV4S | **188-5466** | | | | |
| 150 | 301S42E151KV4S | **188-5468** | | | | |
| 180 | 301S42E181KV4E | **188-5469** | | | | |

**Order Multiple=25**

**500 Volt d.c.**

| pF | Mftrs. List No. | Order Code | Price Each 25+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1 | 501S42E1R0BV4E | **188-5470** | | | | |
| 3.9 | 501S42E3R9BV4E | **188-5471** | | | | |
| 4.7 | 501S42E4R7BV4E | **188-5472** | | | | |
| 6.8 | 501S42E6R8CV4E | **188-5473** | | | | |
| 7.5 | 501S42E7R5CV4E | **188-5474** | | | | |
| 8.2 | 501S42E8R2CV4E | **188-5475** | | | | |
| 9.1 | 501S42E9R1CV4E | **188-5476** | | | | |
| 10 | 501S42E100JV4E | **188-5477** | | | | |
| 12 | 501S42E120JV4E | **188-5478** | | | | |
| 15 | 501S42E150JV4S | **188-5481** | | | | |
| 18 | 501S42E180JV4E | **188-5482** | | | | |
| 20 | 501S42E200JV4E | **188-5483** | | | | |
| 27 | 501S42E270JV4E | **188-5484** | | | | |
| 33 | 501S42E330JV4E | **188-5485** | | | | |
| 47 | 501S42E470JV4E | **188-5486** | | | | |
| 56 | 501S42E560JV4S | **188-5487** | | | | |
| 68 | 501S42E680JV4E | **188-5488** | | | | |
| 82 | 501S42E820JV4S | **188-5489** | | | | |
| 100 | 501S42E101KV4S | **188-5490** | | | | |

### Designer and Tuning Kits

388599

| | Mftrs. List No. | Order Code | Price Each 1+ | 5+ |
|---|---|---|---|---|
| **L Series** | | | | |
| 50 pcs, L Series Designer Kit, 0201 | S201DL | **188-5278** | | |
| **S Series** | | | | |
| 50 pcs, S Series Designer Kit, 0402 | S402DS | **188-5348** | | |
| 50 pcs, S Series Tuning Kit, 0402 | S402TS | **188-5349** | | |
| 50 pcs, S Series Designer Kit, 0603 | S603DS | **188-5423** | | |
| 50 pcs, S Series Tuning Kit, 0603 | S603TS | **188-5424** | | |
| 50 pcs, S Series Designer Kit, 0805 | S805DS | **188-5456** | | |
| **E Series** | | | | |
| 50 pcs, E Series Designer Kit, 1111 | S111DVE | **188-5491** | | |

## Ceramic Antenna



**Applications**
- Cellular
- DECT
- WLAN
- Bluetooth
- 802.11 (a,b and g)
- GPS

NEW

SMD

| Frequency | Gain (dB) | Bandwidth (MHz) | Mftrs. List No. | Order Codes |
|---|---|---|---|---|
| Single Band | | | | |
| 868MHz | -4 | 20 | 0868AT43A0020E | 188-5493 |
| 915MHz | -4 | 26 | 0915AT43A0026E | 188-5494 |
| 920MHz | -2.6 | 80 | 0920AT50A080E | 188-5495 |
| 2.45GHz | -0.5 | 100 | 2450AT18A100E | 188-5496 |
| 2.45GHz | -0.5 | 100 | 2450AT18B100E | 188-5497 |
| 2.45GHz | 0.5 | 100 | 2450AT43A100E | 188-5498 |
| 2.45GHz | 1 | 100 | 2450AT45A100E | 188-5499 |
| 5.25GHz | -2.3 | 200 | 5250AT43A200E | 161-9996 |
| 5.4GHz | -2.5 | 1 | 5400AT18A1000E | 161-9997 |
| Dual Band | | | | |
| 2.45GHz/5.4GHz | -2.5 | LB: 100 / HB: 1000 | 2450AD46A5400E | 161-9981 |

627432

| Bandwidth | Order Code | Price Each 1+ | 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 20MHz | **188-5493** | | | | | |
| 26MHz | **188-5494** | | | | | |
| 80MHz | **188-5495** | | | | | |
| 100MHz | **188-5496** | | | | | |
| 100MHz | **188-5497** | | | | | |
| 100MHz | **188-5498** | | | | | |
| 100MHz | **188-5499** | | | | | |
| 200MHz | **161-9996** | | | | | |
| 1GHz | **161-9997** | | | | | |
| 100/1000MHz | **161-9981** | | | | | |

## Ceramic Chip Filters

### Bandpass Filters for Communication Equipment



- Low Temperature Co-Fired Ceramic (LTCC) based design
- Low insertion loss
- Temperature stable
- Multi band application

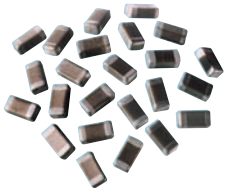
| Frequency | Bandwidth | Attenuation (min) Reject Band (dB) | Insertion Loss (dB) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| **0603 Case Size** | | | | | |
| 2.45GHz | 100MHz | 25 | 0.5 | 2450LP14B100T | 188-5521 |
| **0805 Case Size** | | | | | |
| 915MHz | 26MHz | 30 | 0.5 | 0915LP15B026E | 188-5520 |
| 2.45GHz | 100MHz | 10 | 2.2 | 2450BP15B100E | 188-5523 |
| 5.487GHz | 675MHz | 20 | 1.8 | 5487BP15C675E | 161-9999 |
| 5.515GHz | 725MHz | 30 | 1.5 | 5515BP15B725E | 162-0000 |
| 5.515GHz | 730MHz | 20 | 2.8 | 5515BP15B730E | 162-0001 |
| 5.515GHz | 975MHz | 30 | 1.5 | 5515BP15B975E | 162-0002 |
| 5.515GHz | 975MHz | 15 | 1.8 | 5515BP15C975E | 162-0026 |
| 5.515GHz | 1.02GHz | 30 | 1.5 | 5515BP15C1020E | 162-0003 |
| **1206 Case Size** | | | | | |
| 898MHz | 35MHz | 18 | 0.6 | 0898LP18A035E | 188-5519 |
| **Diplexer** | | | | | |
| 2.45GHz/ 5.40GHz | 100MHz/1GHz | 17 | 1.6 | 2450DP15E5400E | 188-5524 |

628838

| Frequency | Order Code | Price Each 1+ | 10+ | 100+ | 500+ | 4K+ |
|---|---|---|---|---|---|---|
| **0603 Case Size** | | | | | | |
| 2.45GHz | SMD **188-5521** | | | | | |
| **0805 Case Size** | | | | | | |
| 915MHz | SMD **188-5520** | | | | | |
| 2.45GHz | SMD **188-5523** | | | | | |
| 5.487GHz | SMD **161-9999** | | | | | |
| 5.515GHz | SMD **162-0000** | | | | | |
| 5.515GHz | SMD **162-0001** | | | | | |
| 5.515GHz | SMD **162-0002** | | | | | |
| 5.515GHz | SMD **162-0026** | | | | | |
| 5.515GHz | SMD **162-0003** | | | | | |
| **1206 Case Size** | | | | | | |
| 898MHz | SMD **188-5519** | | | | | |
| **Diplexer** | | | | | | |
| 2.45GHz/ 5.40GHz | SMD **188-5524** | | | | | |

## GJM Series

NEW



High Q, ultra-small capacitor series used for high frequency applications in the 500 MHz to 10 GHz range. Made up of copper electrodes as a cost effective solution for low ESR and power consumption due to the high Q (low loss) performance.
**Applications**: Handheld, cellular, bluetooth, VCO, WLAN, PA modules, wireless modems, RKE, wireless PDAs, antenna tuning and GPS.

| | | | Dimensions in mm | | |
|---|---|---|---|---|---|
| Operating Temperature | -55°C to +125°C | Case Size | L | W | T |
| Dielectric Characteristic | NP0 | 0402 | 1 | 0.5 | 0.5 |
| Temperature Coefficient | ±30ppm/°C | | | | |

630753

| | | | Price Each | | | |
|---|---|---|---|---|---|---|
| Capacitance | Tolerance | Order Code | 10+ | 50+ | 250+ | 1K+ |
| **Case Size 0402, 50 Volt d.c** | | | | | | |
| 0.2 pF | ± 0.1pF | 188-9194 | | | | |
| 0.5 pF | ± 0.1pF | 188-9195 | | | | |
| 1 pF | ± 0.1pF | 188-9196 | | | | |
| 1 pF | ± 0.25pF | 188-9197 | | | | |
| 1.2 pF | ± 0.1pF | 188-9198 | | | | |
| 1.3 pF | ± 0.1pF | 188-9200 | | | | |
| 1.5 pF | ± 0.1pF | 188-9201 | | | | |
| 1.8 pF | ± 0.1pF | 188-9202 | | | | |
| 2 pF | ± 0.1pF | 188-9203 | | | | |
| 2.2 pF | ± 0.1pF | 188-9204 | | | | |
| 2.7 pF | ± 0.1pF | 188-9206 | | | | |
| 3.3 pF | ± 0.1pF | 188-9207 | | | | |
| 3.9 pF | ± 0.1pF | 188-9208 | | | | |
| 4.7 pF | ± 0.25pF | 188-9209 | | | | |
| 5.6 pF | ± 0.1pF | 188-9210 | | | | |
| 5.6 pF | ± 0.5pF | 188-9211 | | | | |
| 8.2 pF | ± 0.25pF | 188-9212 | | | | |
| 12 pF | ± 5% | 188-9213 | | | | |
| 15 pF | ± 5% | 188-9214 | | | | |

## GQM Series

NEW



Improved low power consumption for mobile telecommunications. The copper electrodes allow for ultra low ESR, high Q in the GHz frequencies and high RF current handling capability. Typically used in frequencies from 500MHz to 10GHz. Used for high performance, high power RF designs requiring voltages upto 500VDC.

**Applications:** Base stations for cellular, broadcast satellites, cable TV and telecommunication networks, GPS, bluetooth and TV set-top boxes.

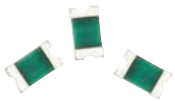
| | | | | Dimensions in mm | | |
|---|---|---|---|---|---|---|
| Operating Temperature | -55°C to +125°C | Series | Case Size | L | W | T |
| Dielectric Characteristic | NP0 | GQM188 | 0603 | 1.6 | 0.8 | 0.8 |
| Temperature Coefficient | ±30ppm/°C | GQM219 | 0805 | 2 | 1.25 | 0.85 |

630755

| | | | Price Each | | | |
|---|---|---|---|---|---|---|
| Capacitance | Tolerance | Order Code | 10+ | 50+ | 250+ | 1K+ |
| **GQM188, Case Size 0603** | | | | | | |
| **50 Volt d.c** | | | | | | |
| 100 pF | ± 2% | 188-9231 | | | | |
| 12 pF | ± 5% | 188-9232 | | | | |
| 33 pF | ± 5% | 188-9233 | | | | |
| 56 pF | ± 5% | 188-9234 | | | | |
| 100 pF | ± 5% | 188-9235 | | | | |
| **100 Volt d.c** | | | | | | |
| 0.5 pF | ± 0.25pF | 188-9215 | | | | |
| 1 pF | ± 0.1pF | 188-9216 | | | | |
| 1 pF | ± 0.25pF | 188-9218 | | | | |
| 1.2 pF | ± 0.25pF | 188-9219 | | | | |
| 1.5 pF | ± 0.1pF | 188-9220 | | | | |
| 2.2 pF | ± 0.1pF | 188-9221 | | | | |
| 2.7 pF | ± 0.1pF | 188-9222 | | | | |
| 3 pF | ± 0.1pF | 188-9223 | | | | |
| 3.3 pF | ± 0.1pF | 188-9224 | | | | |
| 3.9 pF | ± 0.1pF | 188-9225 | | | | |
| 4.7 pF | ± 0.1pF | 188-9226 | | | | |
| 5.1 pF | ± 0.5pF | 188-9227 | | | | |
| **GQM219, Case Size 0805** | | | | | | |
| **100 Volt d.c** | | | | | | |
| 5.6 pF | ± 0.25pF | 188-9228 | | | | |

## Low ESR Microwave Capacitors

**ML Series**



NEW

- Low ESR
- Hi-Q®
- High Self Resonance
- Tight Tolerance
- Applications: RF power amplifiers, low noise amplifiers, filter networks

| Performance Characteristics | |
|---|---|
| Resistance to Solder Heat | 260°C ± 5°C for 10 secs. |
| Temperature Coefficient | 0±30ppm |
| Operating Temperature | -55°C to +125°C |

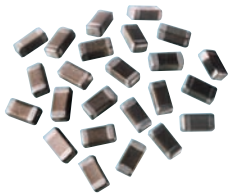
### 0603 Case Size

659678

| | | Price Each | | | | |
|---|---|---|---|---|---|---|
| | Order Code | 10+ | 50+ | 250+ | 500+ | 3K+ |
| **50 Volt d.c, 0603 Case Size** | | | | | | |
| 0.1 pF | 205-8896 | | | | | |
| 0.2 pF | 205-8897 | | | | | |
| 0.3 pF | 205-8898 | | | | | |
| 0.4 pF | 205-8899 | | | | | |
| 0.5 pF | 205-8901 | | | | | |
| 0.6 pF | 205-8902 | | | | | |
| 0.7 pF | 205-8903 | | | | | |
| 0.8 pF | 205-8904 | | | | | |
| 0.9 pF | 205-8905 | | | | | |
| 1 pF | 205-8906 | | | | | |
| 1.1 pF | 205-8907 | | | | | |
| 1.2 pF | 205-8908 | | | | | |
| 1.3 pF | 205-8909 | | | | | |
| 1.4 pF | 205-8910 | | | | | |
| 1.5 pF | 205-8912 | | | | | |
| 1.6 pF | 205-8913 | | | | | |
| 1.7 pF | 205-8914 | | | | | |
| 1.8 pF | 205-8915 | | | | | |
| 1.9 pF | 205-8916 | | | | | |
| 2 pF | 205-8917 | | | | | |
| 2.1 pF | 205-8918 | | | | | |
| 2.2 pF | 205-8919 | | | | | |
| 2.3 pF | 205-8920 | | | | | |
| 2.4 pF | 205-8921 | | | | | |
| 2.5 pF | 205-8922 | | | | | |

## Chip Monolithic Ceramic Capacitors

**High Frequency Type ERB Series**



- Negligible inductance is achieved by its monolithic structure so the series can be used at frequencies above 1GHz
- Nickel barriered terminations of ERB series improve solderability and decrease solder leaching
- ERB18/21 series are designed for both flow and reflow soldering and ERB32 series are designed for reflow soldering

| Performance Characteristics | | Performance Characteristics | |
|---|---|---|---|
| Dielectric | C0G / NP0 | Dielectric | C0G / NP0 |
| Temperature Coefficient | ±30ppm/°C | Temperature Coefficient | ±30ppm/°C |
| Operating Temperature | -55°C to125°C | Insulation Resistance | 100,000MΩ |

### 0603 Case Size

| | | Price Each | | | | |
|---|---|---|---|---|---|---|
| | Order Code | 5+ | 50+ | 250+ | 1K+ | 4K+ |
| **200 Volt d.c. C0G, 0603 Case Size** | | | | | | |
| 1 pF | SMD 129-4484 | | | | | |
| 1.1 pF | SMD 129-4485 | | | | | |
| 1.3 pF | SMD 129-4487 | | | | | |
| 1.5 pF | SMD 129-4488 | | | | | |
| 2 pF | SMD 129-4495 | | | | | |
| 2.4 pF | SMD 129-4496 | | | | | |
| 2.7 pF | SMD 129-4497 | | | | | |
| 3 pF | SMD 129-4500 | | | | | |
| 3.6 pF | SMD 129-4502 | | | | | |
| 3.9 pF | SMD 129-4503 | | | | | |
| 4.3 pF | SMD 129-4505 | | | | | |
| 4.7 pF | SMD 129-4506 | | | | | |
| 5.1 pF | SMD 129-4508 | | | | | |
| 5.6 pF | SMD 129-4509 | | | | | |
| 6.2 pF | SMD 129-4511 | | | | | |
| 6.8 pF | SMD 129-4512 | | | | | |
| 7.5 pF | SMD 129-4513 | | | | | |
| 9.1 pF | SMD 129-4515 | | | | | |
| 10 pF | SMD 129-4479 | | | | | |
| 12 pF | SMD 129-4481 | | | | | |
| 15 pF | SMD 129-4482 | | | | | |
| 18 pF | SMD 129-4483 | | | | | |

# Ceramic - RF & Microwave - Murata - continued

## Chip Monolithic Ceramic Capacitors - continued

**High Frequency Type ERB Series - continued**

| Order Code | 5+ | 50+ | 250+ | 1K+ | 4K+ |
|---|---|---|---|---|---|
| **200 Volt d.c. C0G, 0603 Case Size** | | | | | |
| 22 pF SMD 129-4493 | | | | | |
| 27 pF SMD 129-4494 | | | | | |
| 33 pF SMD 129-4498 | | | | | |
| 47 pF SMD 129-4504 | | | | | |
| 68 pF SMD 129-4510 | | | | | |
| 100 pF SMD 129-4480 | | | | | |

## 0805 Case Size

| Order Code | 5+ | 50+ | 250+ | 1K+ |
|---|---|---|---|---|
| **200 Volt d.c. C0G, 0805 Case Size** | | | | |
| 1.5 pF SMD 129-4524 | | | | |
| 1.8 pF SMD 129-4525 | | | | |
| 2.2 pF SMD 129-4527 | | | | |
| 3.3 pF SMD 129-4530 | | | | |
| 3.9 pF SMD 129-4531 | | | | |
| 6.8 pF SMD 129-4537 | | | | |
| 8.2 pF SMD 129-4538 | | | | |
| 10 pF SMD 129-4516 | | | | |
| 15 pF SMD 129-4521 | | | | |
| 18 pF SMD 129-4522 | | | | |
| 22 pF SMD 129-4526 | | | | |
| 39 pF SMD 129-4529 | | | | |
| 47 pF SMD 129-4533 | | | | |
| 100 pF SMD 129-4517 | | | | |

## 1210 Case Size

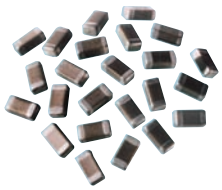
452086

| Order Code | 5+ | 50+ | 250+ | 1K+ |
|---|---|---|---|---|
| **500 Volt d.c. C0G, 1210 Case Size** | | | | |
| 3.3 pF SMD 129-4549 | | | | |
| 6.8 pF SMD 129-4557 | | | | |
| 10 pF SMD 129-4539 | | | | |
| 15 pF SMD 129-4542 | | | | |
| 18 pF SMD 129-4543 | | | | |
| 47 pF SMD 129-4551 | | | | |
| 56 pF SMD 129-4553 | | | | |
| 82 pF SMD 129-4558 | | | | |
| 100 pF SMD 129-4540 | | | | |

## Design Kit for ASCap Hi-Frequency Ceramic Chip Capacitors

NEW

muRata innovator in Electronics



- High Q and Low ESR at VHF, UHF and microwave frequencies
- 0603 size with copper inner electrode
- Low power consumption for mobile telecommunication
- Applications: Base stations, broadcast satellite and special radios

**Kit contains 20 each of the following:**

**0603, C0G, 100V** 0.5pF, 0.6pF, 0.7pF, 0.8pF, 0.9pF, 1pF, 1.1pF, 1.2pF, 1.3pF, 1.5pF, 1.6pF 1.8pF, 2pF, 2.2pF, 2.4pF, 2.7pF, 3pF, 3.3pF, 3.6pF, 3.9pF, 4.3pF, 4.7pF 5.1pF, 5.6pF, 6.2pF and 6.8pF

**0603, C0G, 50V** 7.5pF, 8.2pF, 9.1pF, 10pF, 12pF, 15pF, 18pF, 22pF, 27pF, 33pF, 39pF 47pF, 68pF and 100pF

630784

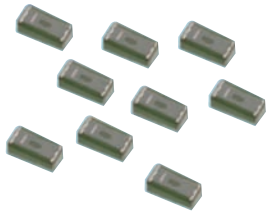
| Mftrs. List No. | Order Code | 1+ | 3+ | 5+ |
|---|---|---|---|---|
| GQM18-HIQ0603KIT-E | 188-9236 | | | |

## ANC Series

**Chip Dielectric Antennas**

SMD

muRata innovator in Electronics



- Operating temperature -40 to 85°C

| Frequency (MHz) | Bandwidth (MHz) | VSWR max. | Mftrs. List No. | Order Codes |
|---|---|---|---|---|
| 2442 | 68 | 3 | ANCG12G44SAA129 | 129-4723 |
| 2442 | 100 | 3.5 | ANCV12G44SAA127 | 129-4724 |

452094

| Bandwidth | Order Code | 1+ | 25+ | 100+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| 68MHz | 129-4723 | | | | | |
| 100MHz | 129-4724 | | | | | |

# Ceramic - RF & Microwave - Vishay

## Surface Mounted RF Capacitors

**RFCS Series**

SMD

VISHAY





- Low DCR, high Q
- Up to 50 V working voltage
- Industries highest SRF
- Smal sized (1.02 x 0.508 x 0.381mm)

Temperature Coefficient ± 30ppm/°C
Operating Temperature -55°C to +125°C

## 0402 Case Size

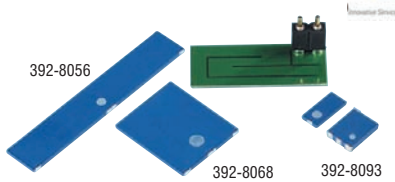
659356

| Order Code | 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|
| **0.01 Induct Multiplier, 5% Tolerance** | | | | |
| 10 pF 204-2950 | | | | |
| 12 pF 204-2951 | | | | |
| 15 pF 204-2954 | | | | |
| 18 pF 204-2955 | | | | |
| 22 pF 204-2956 | | | | |
| 27 pF 204-2957 | | | | |
| **0.001 Induct Multiplier, 5% Tolerance** | | | | |
| 2.2 pF 204-2942 | | | | |
| 2.7 pF 204-2943 | | | | |
| 3.3 pF 204-2944 | | | | |
| 3.9 pF 204-2945 | | | | |
| 4.7 pF 204-2946 | | | | |
| 5.6 pF 204-2947 | | | | |
| 6.8 pF 204-2948 | | | | |
| 8.2 pF 204-2949 | | | | |
| **0.001 Induct Multiplier, ± 0.1pF Tolerance** | | | | |
| 1 pF 204-2936 | | | | |
| 1.2 pF 204-2937 | | | | |
| 1.5 pF 204-2938 | | | | |
| 1.8 pF 204-2941 | | | | |
| **0.0001 Induct Multiplier, ± 0.1 pF Tolerance** | | | | |
| 0.2 pF 204-2928 | | | | |
| 0.3 pF 204-2929 | | | | |
| 0.4 pF 204-2930 | | | | |
| 0.5 pF 204-2931 | | | | |
| 0.6 pF 204-2932 | | | | |
| 0.7 pF 204-2933 | | | | |
| 0.8 pF 204-2934 | | | | |
| 0.9 pF 204-2935 | | | | |

# Ceramic - RF & Microwave - Yageo

## Surface Mount Ceramic Antennas

Phycomp YAGEO




A range of some of the smallest surface mount Bluetooth/WLAN antennas.

- High Gain of 4 dBi
- Ceramic antennas optimized for 433MHz, and 870MHz.
- New 900/1800MHz dual-band antenna ideal for mobile phones.
- Bluetooth compatible 2.45MHz antenna, in both long and short versions
- Environmentally sound - manufactured using low-temperature co-fired ceramic (LTCC) with lead free terminations
- Operating temperature: -55°C to 125°C

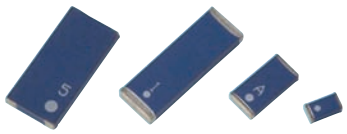
| Description | Order Code | Working Frequency | Bandwidth | Gain (dB) | Impedance |
|---|---|---|---|---|---|
| 433MHz Antenna | 392-8056 | 433MHz | 20MHz | 0.5 | 50Ω |
| 870MHz Antenna | 392-8068 | 900MHz | 100MHz | 1.5 | 50Ω |
| 2.4GHz Buetooth Antenna | 392-8093 | 2.45GHz | 100MHz≥ | 1.2 | 50Ω |
| 0.9/1.8/1.9GHz Triple Band Antenna + IPEX | 772-6082 | 1.9GHz | – | 0.5 | 50Ω |
| 0.9/1.8/1.9GHz Triple Band Antenna + MMCX | 772-6090 | 1.9GHz | – | 0.5 | 50Ω |
| ANTENNA, 5.3 X 2, 2.45GHZ | 128-2672 | 2.45GHz | >100MHz | 4 | 50Ω |
| ANTENNA, 3.2 X 1.6, 2.45GHZ | 128-2673 | 2.45GHz | >100MHz | 3.1 | 50Ω |
| ANTENNA, 12 X 4, 433MHZ | 128-2674 | 433MHz | ≥100MHz | 0.5 | 50Ω |

236430

| | | Price Each | | |
|---|---|---|---|---|
| Mftrs. List No. | Order Code | 1+ | 10+ | 100+ |
| CAN43131212004318 | SMD 392-8056 | | | |
| CAN4313119000871B | SMD 392-8068 | | | |
| CAN4311111002451K | SMD 392-8093 | | | |
| CAN43133300091918 | 772-6082 | | | |
| CAN43133300191918 | 772-6090 | | | |
| CAN4311153002451K | SMD 128-2672 | | | |
| CAN4311712002451K | SMD 128-2673 | | | |
| CAN4311129200431K | SMD 128-2674 | | | |

## WLAN Ceramic Antenna

**2.45 GHz**



- Linear Polarisation
- Impedance: 50Ω

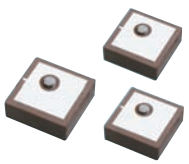
| Bandwidth (MHz) | VSWR max. | Gain (dB) | Mftrs. List No. | Order Codes |
|---|---|---|---|---|
| 70 | 2.5 | 4 | CAN4311714002454K | 177-9478 |
| 2.59 | 2 | 2.45 | CAN4311851042453K | 177-9479 |
| 2.49 | 2.5 | 3 | CAN4311881042453K | 177-9481 |

600010

| | | Price Each | | | |
|---|---|---|---|---|---|
| Bandwidth | Order Code | 1+ | 50+ | 100+ | 1K+ |
| 70MHz | 177-9478 | | | | |
| 2.59GHz | 177-9479 | | | | |
| 2.49GHz | 177-9481 | | | | |

## GPS Ceramic Antenna

**1.575 GHz**



- Right Hand Circular Polarisation
- Impedance: 50Ω

| Bandwidth (MHz) | VSWR max. | Gain (dB) | Mftrs. List No. | Order Codes |
|---|---|---|---|---|
| 9 | 2.5 | 1 | CAN4313422031581B | 177-9482 |
| 8 | 2 | 2.5 | CAN4313423031581B | 177-9483 |
| 10 | 2 | 4 | CAN4313424031581B | 177-9484 |

555912

| | | Price Each | | | |
|---|---|---|---|---|---|
| Bandwidth | Order Code | 1+ | 25+ | 50+ | 100+ |
| 9MHz | 177-9482 | | | | |
| 8MHz | 177-9483 | | | | |
| 10MHz | 177-9484 | | | | |

# Ceramic - Multilayer Leaded - Multicomp

## MCRR Series



Lead length=25.4min,
Lead dia=0.508

- Cost effective dipped radial multilayer ceramic capacitors
- High reliability and performance
- Applications for COG dielectric tuned circuits and filters where low loss and stability are required
- X7R dielectric offers high capacitance values in compact sizes with good stability
- Z5U dielectric can be used in coupling and decoupling applications where change of capacitance with temperature is not important

| | COG | X7R | Z5U |
|---|---|---|---|
| Operating Temperature | -55°C to +125°C | -55°C to +125°C | -55°C to +125°C |
| Temperature coefficient | 0±30ppm/°C for C>20pf | ±20% | +30% - 80% |
| Tolerance | ±5% | ±10% | ±20% |

**63/50 Volt d. c. X7R**

| | Tolerance (%) | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Code |
|---|---|---|---|---|---|---|---|
| 0.01 µF | 10 | 3.81 | 3.81 | 2.54 | 2.54 | MCRR25103X7RK0050 | 121-6435 |
| 0.033 µF | 10 | 5.08 | 5.08 | 3.18 | 2.54 | MCRR25333X7RK0050 | 121-6436 |
| 0.047 µF | 10 | 5.08 | 5.08 | 3.18 | 2.54 | MCRR25473X7RK0050 | 121-6437 |
| 0.047 µF | 10 | 7.62 | 5.08 | 3.18 | 5.08 | MCRR50473X7RK0050 | 121-6439 |
| 0.1 µF | 10 | 5.08 | 5.08 | 3.18 | 2.54 | MCRR25104X7RK0050 | 121-6438 |
| 0.1 µF | 10 | 7.62 | 5.08 | 3.18 | 5.08 | MCRR50104X7RK0050 | 121-6440 |
| 0.22 µF | 10 | 7.62 | 5.08 | 3.18 | 5.08 | MCRR50224X7RK0050 | 121-6441 |
| 0.47 µF | 10 | 7.62 | 7.62 | 3.81 | 5.08 | MCRR50474X7RK0050 | 121-6448 |
| 1 µF | 10 | 7.62 | 7.62 | 3.81 | 5.08 | MCRR50105X7RK0050 | 121-6443 |

**63/50 Volt d.c. X7R**

| | | Price Each | | | | | |
|---|---|---|---|---|---|---|---|
| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ | 3K+ |
| 0.01 µF | 121-6435 | | | | | | |
| 0.033 µF | 121-6436 | | | | | | |
| 0.047 µF | 121-6437 | | | | | | |
| 0.047 µF | 121-6439 | | | | | | |
| 0.1 µF | 121-6438 | | | | | | |
| 0.1 µF | 121-6440 | | | | | | |
| 0.22 µF | 121-6441 | | | | | | |
| 0.47 µF | 121-6448 | | | | | | |
| 1 µF | 121-6443 | | | | | | |

**63/50 Volt d. c. Z5U**

| | Tolerance (%) | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Code |
|---|---|---|---|---|---|---|---|
| 0.1 µF | 20 | 5.08 | 5.08 | 3.18 | 2.54 | MCRR25104Z5UM0050 | 121-6444 |
| 0.1 µF | 20 | 7.62 | 5.08 | 3.18 | 5.08 | MCRR50104Z5UM0050 | 121-6445 |
| 0.47 µF | 20 | 7.62 | 5.08 | 3.18 | 5.08 | MCRR50474Z5UM0050 | 121-6446 |
| 1 µF | 20 | 7.62 | 7.62 | 3.81 | 5.08 | MCRR50105Z5UM0050 | 121-6447 |

**63/50 Volt d.c. Z5U**

| | | Price Each | | | | | |
|---|---|---|---|---|---|---|---|
| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ | 3K+ |
| 0.1 µF | 121-6444 | | | | | | |
| 0.1 µF | 121-6445 | | | | | | |
| 0.47 µF | 121-6446 | | | | | | |
| 1 µF | 121-6447 | | | | | | |

**100 Volt d. c. COG**

| | Tolerance (%) | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Code |
|---|---|---|---|---|---|---|---|
| 100 pF | 5 | 3.81 | 3.81 | 2.54 | 2.54 | MCRR25101COGJ0100 | 121-6416 |
| 220 pF | 5 | 3.81 | 3.81 | 2.54 | 2.54 | MCRR25221COGJ0100 | 121-6418 |
| 330 pF | 5 | 3.81 | 3.81 | 2.54 | 2.54 | MCRR25331COGJ0100 | 121-6419 |
| 470 pF | 5 | 3.81 | 3.81 | 2.54 | 2.54 | MCRR25471COGJ0100 | 121-6420 |
| 1000 pF | 5 | 3.81 | 3.81 | 2.54 | 2.54 | MCRR25102COGJ0100 | 121-6421 |
| 1000 pF | 5 | 7.62 | 5.08 | 3.18 | 5.08 | MCRR50102COGJ0100 | 121-6422 |

**100 Volt d.c. COG**

| | | Price Each | | | | | |
|---|---|---|---|---|---|---|---|
| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ | 3K+ |
| 100 pF | 121-6416 | | | | | | |
| 220 pF | 121-6418 | | | | | | |
| 330 pF | 121-6419 | | | | | | |
| 470 pF | 121-6420 | | | | | | |
| 1000 pF | 121-6421 | | | | | | |
| 1000 pF | 121-6422 | | | | | | |

**100 Volt d. c. X7R**

| | Tolerance (%) | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Code |
|---|---|---|---|---|---|---|---|
| 1000 pF | 10 | 3.81 | 3.81 | 2.54 | 2.54 | MCRR25102X7RK0100 | 121-6423 |
| 1000 pF | 10 | 7.62 | 5.08 | 3.18 | 5.08 | MCRR50102X7RK0100 | 121-6427 |
| 2200 pF | 10 | 7.62 | 5.08 | 3.18 | 5.08 | MCRR50222X7RK0100 | 121-6428 |
| 3300 pF | 10 | 3.81 | 3.81 | 2.54 | 2.54 | MCRR25332X7RK0100 | 121-6424 |
| 3300 pF | 10 | 7.62 | 5.08 | 3.18 | 5.08 | MCRR50332X7RK0100 | 121-6431 |
| 0.01 µF | 10 | 3.81 | 3.81 | 2.54 | 2.54 | MCRR25103X7RK0100 | 121-6425 |
| 0.01 µF | 10 | 7.62 | 5.08 | 3.18 | 5.08 | MCRR50103X7RK0100 | 121-6432 |
| 0.022 µF | 10 | 3.81 | 3.81 | 2.54 | 2.54 | MCRR25223X7RK0100 | 121-6426 |
| 0.022 µF | 10 | 7.62 | 5.08 | 3.18 | 5.08 | MCRR50223X7RK0100 | 121-6433 |
| 0.1 µF | 10 | 7.62 | 5.08 | 3.18 | 5.08 | MCRR50104X7RK0100 | 121-6434 |

**100 Volt d.c. X7R**

| | | Price Each | | | | | |
|---|---|---|---|---|---|---|---|
| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ | 3K+ |
| 1000 pF | 121-6423 | | | | | | |
| 1000 pF | 121-6427 | | | | | | |
| 2200 pF | 121-6428 | | | | | | |
| 3300 pF | 121-6424 | | | | | | |
| 3300 pF | 121-6431 | | | | | | |
| 0.01 µF | 121-6425 | | | | | | |
| 0.01 µF | 121-6432 | | | | | | |
| 0.022 µF | 121-6426 | | | | | | |
| 0.022 µF | 121-6433 | | | | | | |
| 0.1 µF | 121-6434 | | | | | | |

**200 Volt d. c. COG**

| | Tolerance (%) | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 10 pF | 5 | 3.81 | 3.81 | 2.54 | 2.54 | MCRR25100COGJ0200 | 121-6406 |
| 10 pF | 5 | 7.62 | 5.08 | 3.18 | 5.08 | MCRR50100COGJ0200 | 121-6410 |
| 22 pF | 5 | 3.81 | 3.81 | 2.54 | 2.54 | MCRR25220COGJ0200 | 121-6407 |
| 22 pF | 5 | 7.62 | 5.08 | 3.18 | 5.08 | MCRR50220COGJ0200 | 121-6411 |
| 33 pF | 5 | 3.81 | 3.81 | 2.54 | 2.54 | MCRR25330COGJ0200 | 121-6408 |
| 33 pF | 5 | 7.62 | 5.08 | 3.18 | 5.08 | MCRR50330COGJ0200 | 121-6412 |
| 47 pF | 5 | 3.81 | 3.81 | 2.54 | 2.54 | MCRR25470COGJ0200 | 121-6409 |
| 47 pF | 5 | 7.62 | 5.08 | 3.18 | 5.08 | MCRR50470COGJ0200 | 121-6413 |
| 100 pF | 5 | 7.62 | 5.08 | 3.18 | 5.08 | MCRR50101COGJ0200 | 121-6414 |
| 220 pF | 5 | 7.62 | 5.08 | 3.18 | 5.08 | MCRR50221COGJ0200 | 121-6415 |

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**200 Volt d.c. COG**

| | | Price Each | | | | | |
|---|---|---|---|---|---|---|---|
| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ | 3K+ |
| 10 pF | 121-6406 | | | | | | |
| 10 pF | 121-6410 | | | | | | |
| 22 pF | 121-6407 | | | | | | |
| 22 pF | 121-6411 | | | | | | |
| 33 pF | 121-6408 | | | | | | |

# Ceramic - Multilayer Leaded - Multicomp - continued

## MCRR Series - continued

**200 Volt d.c. COG**

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ | 3K+ |
|---|---|---|---|---|---|---|---|
| 33 pF | 121-6412 | | | | | | |
| 47 pF | 121-6409 | | | | | | |
| 47 pF | 121-6413 | | | | | | |
| 100 pF | 121-6414 | | | | | | |
| 220 pF | 121-6415 | | | | | | |

# Ceramic - Multilayer Leaded - AVX

## SR15, SR20, SR21, SR30 – 'Skycap' Series



- 'Skycap' dipped radial multilayer ceramic capacitors
- Choice of dielectric, tolerance, voltage and case size

Lead length=25.4 min. Lead dia.=0.51

Performance Characteristics

| | NPO | X7R | Z5U |
|---|---|---|---|
| Operating Temperature | -55°C to +125°C | -55°C to +125°C | -25°C to +85°C |
| Temperature coefficient | 0±30ppm/°C for C>20pF<br>0+120-40ppm/°C for C≤20pF | ±20 | ±30 |
| Insulation resistance | 100000MΩ or 1000 sec. (MΩ uF) whichever is less | 100000MΩ or 1000 sec. (MΩ uF) whichever is less | 10000MΩ or 100 sec. (MΩ uF) whichever is less |
| Proof voltage | 2.5VR | 2.5VR | 2VR |
| Climatic category (IEC) | 55/125/56 | 55/125/56 | 25/085/56 |

**50 Volt d. c. X7R**

| | Tolerance (%) | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 1000 pF | 10 | 7.62 | 5.08 | 3.18 | 5.08 | SR215C102KAR | 110-0384 |
| 2200 pF | 10 | 7.62 | 5.08 | 3.18 | 5.08 | SR215C222KAR | 110-0386 |
| 3300 pF | 10 | 7.62 | 5.08 | 3.18 | 5.08 | SR215C332KAR | 110-0387 |
| 4700 pF | 10 | 7.62 | 5.08 | 3.18 | 5.08 | SR215C472KAR | 110-0388 |
| 0.01 µF | 10 | 3.81 | 3.81 | 2.54 | 2.54 | SR155C103KAR | 110-0433 |
| 0.01 µF | 10 | 7.62 | 5.08 | 3.18 | 5.08 | SR215C103KAR | 110-0389 |
| 0.022 µF | 10 | 7.62 | 5.08 | 3.18 | 5.08 | SR215C223KAR | 110-0390 |
| 0.033 µF | 10 | 7.62 | 5.08 | 3.18 | 5.08 | SR215C333KAR | 110-0391 |
| 0.047 µF | 10 | 7.62 | 5.08 | 3.18 | 5.08 | SR215C473KAR | 110-0392 |
| 0.1 µF | 10 | 5.08 | 5.08 | 3.18 | 2.54 | SR205C104KAR | 110-0367 |
| 0.1 µF | 10 | 7.62 | 5.08 | 3.18 | 5.08 | SR215C104KAR | 110-0393 |
| 0.22 µF | 10 | 5.49 | 7.62 | 3.81 | 5.08 | SR305C224KAR | 110-0394 |
| 0.33 µF | 10 | 5.49 | 7.62 | 3.81 | 5.08 | SR305C334KAR | 110-0395 |
| 0.47 µF | 10 | 7.62 | 5.08 | 3.81 | 5.08 | SR305C474KAR | 110-0396 |
| 1 µF | 10 | 7.62 | 5.08 | 3.81 | 5.08 | SR305C105KAR | 110-0398 |

**50 Volt d.c. X7R**

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1000 pF | 110-0384 | | | | | |
| 2200 pF | 110-0386 | | | | | |
| 3300 pF | 110-0387 | | | | | |
| 4700 pF | 110-0388 | | | | | |
| 0.01 µF | 110-0433 | | | | | |
| 0.01 µF | 110-0389 | | | | | |
| 0.022 µF | 110-0390 | | | | | |
| 0.033 µF | 110-0391 | | | | | |
| 0.047 µF | 110-0392 | | | | | |
| 0.1 µF | 110-0367 | | | | | |
| 0.1 µF | 110-0393 | | | | | |
| 0.22 µF | 110-0394 | | | | | |
| 0.33 µF | 110-0395 | | | | | |
| 0.47 µF | 110-0396 | | | | | |
| 1 µF | 110-0398 | | | | | |

**50 Volt d. c. Z5U**

| | Tolerance (%) | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.1 µF | 20 | 5.08 | 5.08 | 3.18 | 2.54 | SR205E104MAR | 110-0533 |
| 0.1 µF | 20 | 5.08 | 5.08 | 3.18 | 5.08 | SR215E104MAR | 110-0399 |
| 0.1 µF | 80 | 7.62 | 5.08 | 3.18 | 5.08 | SR215E104ZAR | 110-0534 |
| 0.22 µF | 20 | 5.08 | 5.08 | 3.18 | 5.08 | SR215E224MAR | 110-0400 |
| 0.33 µF | 20 | 5.08 | 5.08 | 3.18 | 5.08 | SR215E334MAR | 110-0401 |
| 0.47 µF | 20 | 5.08 | 5.08 | 3.18 | 5.08 | SR215E474MAR | 110-0402 |
| 0.68 µF | 20 | 7.62 | 7.62 | 3.81 | 5.08 | SR305E684MAR | 110-0441 |
| 1 µF | 20 | 7.62 | 7.62 | 3.81 | 5.08 | SR305E105MAR | 110-0404 |
| 1 µF | | 5.08 | 5.08 | 3.18 | 5.08 | SR215E105MAR | 183-3933 |
| 2.2 µF | 20 | 7.62 | 7.62 | 3.81 | 5.08 | SR305E225MAR | 110-0405 |

**50 Volt d.c. Z5U**

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.1 µF | 110-0533 | | | | | |
| 0.1 µF | 110-0399 | | | | | |
| 0.1 µF | 110-0534 | | | | | |
| 0.22 µF | 110-0400 | | | | | |
| 0.33 µF | 110-0401 | | | | | |
| 0.47 µF | 110-0402 | | | | | |
| 0.68 µF | 110-0441 | | | | | |
| 1 µF | 110-0404 | | | | | |
| 1 µF | 183-3933 | | | | | |
| 2.2 µF | 110-0405 | | | | | |

**100 Volt d. c. NPO**

| | Tolerance (%) | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 10 pF | 5 | 3.81 | 3.81 | 2.54 | 2.54 | SR151A100JAR | 110-0368 |
| 15 pF | 5 | 3.81 | 3.81 | 2.54 | 2.54 | SR151A150JAR | 110-0498 |
| 15 pF | 5 | 7.62 | 5.08 | 3.18 | 5.08 | SR211A150JAR | 110-0501 |
| 22 pF | 5 | 3.81 | 3.81 | 2.54 | 2.54 | SR151A220JAR | 110-0369 |
| 33 pF | 5 | 3.81 | 3.81 | 2.54 | 2.54 | SR151A330JAR | 110-0370 |
| 33 pF | 5 | 7.62 | 5.08 | 3.18 | 5.08 | SR211A330JAR | 110-0502 |
| 47 pF | 5 | 3.81 | 3.81 | 2.54 | 2.54 | SR151A470JAR | 110-0371 |
| 47 pF | 5 | 7.62 | 5.08 | 3.18 | 5.08 | SR211A470JAR | 110-0503 |
| 100 pF | 5 | 7.62 | 5.08 | 3.18 | 5.08 | SR211A101JAR | 110-0504 |
| 100 pF | 10 | 7.62 | 5.08 | 3.18 | 5.08 | SR211A101KAR | 110-0505 |
| 100 pF | 5 | 3.81 | 3.81 | 2.54 | 2.54 | SR151A101JAR | 110-0372 |
| 150 pF | 5 | 7.62 | 5.08 | 3.18 | 5.08 | SR211A151JAR | 110-0507 |
| 220 pF | 5 | 3.81 | 3.81 | 2.54 | 2.54 | SR151A221JAR | 110-0374 |
| 220 pF | 5 | 7.62 | 5.08 | 3.18 | 5.08 | SR211A221JAR | 110-0508 |
| 330 pF | 5 | 3.81 | 3.81 | 2.54 | 2.54 | SR151A331JAR | 110-0375 |
| 330 pF | 5 | 7.62 | 5.08 | 3.18 | 5.08 | SR211A331JAR | 110-0509 |
| 470 pF | 5 | 3.81 | 3.81 | 2.54 | 2.54 | SR151A471JAR | 110-0376 |
| 470 pF | 5 | 7.62 | 5.08 | 3.18 | 5.08 | SR211A471JAR | 110-0510 |
| 680 pF | 5 | 7.62 | 5.08 | 3.18 | 5.08 | SR211A681JAR | 110-0511 |
| 1000 pF | 5 | 5.08 | 5.08 | 3.18 | 2.54 | SR201A102JAR | 110-0499 |
| 1000 pF | 5 | 7.62 | 5.08 | 3.18 | 5.08 | SR211A102JAR | 110-0512 |
| 1000 pF | 10 | 5.49 | 7.62 | 5.08 | 5.08 | SR211A102KAR | 110-0513 |
| 1500 pF | 5 | 7.62 | 5.08 | 3.18 | 5.08 | SR211A152JAR | 110-0514 |
| 2200 pF | 5 | 7.62 | 5.08 | 3.18 | 5.08 | SR211A222JAR | 110-0515 |
| 2200 pF | 5 | 5.08 | 5.08 | 3.18 | 2.54 | SR201A222JAR | 110-0500 |
| 3300 pF | 5 | 7.62 | 5.08 | 3.18 | 5.08 | SR211A332JAR | 110-0516 |
| 0.01 µF | 5 | 5.49 | 7.62 | 3.18 | 5.08 | SR301A103JAR | 110-0517 |

**100 Volt d.c. NPO**

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10 pF | 110-0368 | | | | | |
| 15 pF | 110-0498 | | | | | |
| 15 pF | 110-0501 | | | | | |
| 22 pF | 110-0369 | | | | | |
| 33 pF | 110-0370 | | | | | |
| 33 pF | 110-0502 | | | | | |
| 47 pF | 110-0371 | | | | | |
| 47 pF | 110-0503 | | | | | |
| 100 pF | 110-0504 | | | | | |
| 100 pF | 110-0505 | | | | | |
| 100 pF | 110-0372 | | | | | |
| 150 pF | 110-0507 | | | | | |
| 220 pF | 110-0374 | | | | | |
| 220 pF | 110-0508 | | | | | |
| 330 pF | 110-0375 | | | | | |
| 330 pF | 110-0509 | | | | | |
| 470 pF | 110-0376 | | | | | |
| 470 pF | 110-0510 | | | | | |
| 680 pF | 110-0511 | | | | | |
| 1000 pF | 110-0499 | | | | | |
| 1000 pF | 110-0512 | | | | | |
| 1000 pF | 110-0513 | | | | | |
| 1500 pF | 110-0514 | | | | | |
| 2200 pF | 110-0515 | | | | | |
| 2200 pF | 110-0500 | | | | | |
| 3300 pF | 110-0516 | | | | | |
| 0.01 µF | 110-0517 | | | | | |

**100 Volt d. c. X7R**

| | Tolerance (%) | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 1000 pF | 10 | 3.81 | 3.81 | 2.54 | 2.54 | SR151C102KAR | 110-0377 |
| 1000 pF | 10 | 7.62 | 5.08 | 3.18 | 5.08 | SR211C102KAR | 110-0406 |
| 2200 pF | 10 | 3.81 | 3.81 | 2.54 | 2.54 | SR151C222KAR | 110-0378 |
| 2200 pF | 10 | 7.62 | 5.08 | 3.18 | 5.08 | SR211C222KAR | 110-0522 |
| 4700 pF | 10 | 3.81 | 3.81 | 2.54 | 2.54 | SR151C472KAR | 110-0379 |
| 4700 pF | 10 | 7.62 | 5.08 | 3.18 | 5.08 | SR211C472KAR | 110-0523 |
| 6800 pF | 10 | 7.62 | 5.08 | 3.18 | 5.08 | SR211C682KAR | 110-0524 |
| 0.01 µF | 10 | 3.81 | 3.81 | 2.54 | 2.54 | SR151C103KAR | 110-0380 |
| 0.01 µF | 10 | 5.08 | 5.08 | 3.18 | 2.54 | SR201C103KAR | 110-0519 |
| 0.01 µF | 20 | 5.08 | 5.08 | 3.18 | 2.54 | SR201C103MAR | 110-0521 |
| 0.01 µF | 10 | 7.62 | 5.08 | 3.18 | 5.08 | SR211C103KAR | 110-0407 |
| 0.01 µF | 20 | 7.62 | 5.08 | 3.18 | 5.08 | SR211C103MAR | 110-0525 |
| 0.015 µF | 10 | 7.62 | 5.08 | 3.18 | 5.08 | SR211C153KAR | 110-0526 |
| 0.022 µF | 10 | 7.62 | 5.08 | 3.18 | 5.08 | SR211C223KAR | 110-0527 |
| 0.022 µF | 10 | 5.08 | 5.08 | 3.18 | 2.54 | SR201C223KAR | 110-0381 |
| 0.033 µF | 10 | 5.08 | 5.08 | 3.18 | 2.54 | SR201C333KAR | 110-0438 |
| 0.033 µF | 10 | 7.62 | 5.08 | 3.18 | 5.08 | SR211C333KAR | 110-0528 |
| 0.047 µF | 10 | 5.08 | 5.08 | 3.18 | 2.54 | SR201C473KAR | 110-0382 |
| 0.047 µF | 10 | 7.62 | 5.08 | 3.18 | 5.08 | SR211C473KAR | 110-0529 |
| 0.047 µF | 20 | 7.62 | 5.08 | 3.18 | 5.08 | SR211C473MAR | 110-0530 |
| 0.1 µF | 10 | 5.08 | 5.08 | 3.18 | 2.54 | SR201C104KAR | 110-0383 |
| 0.1 µF | 10 | 7.62 | 5.08 | 3.18 | 5.08 | SR211C104KAR | 110-0408 |
| 0.15 µF | 10 | 7.62 | 7.62 | 3.18 | 5.08 | SR301C154KAR | 110-0532 |

**100 Volt d.c. X7R**

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1000 pF | 110-0377 | | | | | |
| 1000 pF | 110-0406 | | | | | |
| 2200 pF | 110-0378 | | | | | |
| 2200 pF | 110-0522 | | | | | |
| 4700 pF | 110-0379 | | | | | |
| 4700 pF | 110-0523 | | | | | |
| 6800 pF | 110-0524 | | | | | |
| 0.01 µF | 110-0380 | | | | | |
| 0.01 µF | 110-0519 | | | | | |

**100 Volt d.c. X7R**

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.01 µF | 110-0521 | | | | | |
| 0.01 µF | 110-0407 | | | | | |
| 0.01 µF | 110-0525 | | | | | |
| 0.015 µF | 110-0526 | | | | | |
| 0.022 µF | 110-0527 | | | | | |
| 0.022 µF | 110-0381 | | | | | |
| 0.033 µF | 110-0438 | | | | | |
| 0.033 µF | 110-0528 | | | | | |
| 0.047 µF | 110-0382 | | | | | |
| 0.047 µF | 110-0529 | | | | | |
| 0.047 µF | 110-0530 | | | | | |
| 0.1 µF | 110-0383 | | | | | |
| 0.1 µF | 110-0408 | | | | | |
| 0.15 µF | 110-0532 | | | | | |

**100 Volt d. c. Z5U**

| | Tolerance (%) | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.01 µF | 20 | 3.81 | 3.81 | 2.54 | 2.54 | SR151E103MAR | 110-0535 |
| 0.01 µF | 20 | 7.62 | 5.08 | 3.18 | 5.08 | SR211E103MAR | 110-0537 |
| 0.1 µF | 20 | 5.08 | 5.08 | 3.18 | 2.54 | SR201E104MAR | 110-0536 |
| 0.1 µF | 20 | 7.62 | 5.08 | 3.18 | 5.08 | SR211E104MAR | 110-0538 |
| 0.22 µF | 20 | 7.62 | 7.62 | 3.81 | 5.08 | SR301E224MAR | 110-0539 |
| 0.47 µF | 20 | 7.62 | 7.62 | 3.81 | 5.08 | SR301E474MAR | 110-0540 |

208406

**100 Volt d.c. Z5U**

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.01 µF | 110-0535 | | | | | |
| 0.01 µF | 110-0537 | | | | | |
| 0.1 µF | 110-0536 | | | | | |
| 0.1 µF | 110-0538 | | | | | |
| 0.22 µF | 110-0539 | | | | | |
| 0.47 µF | 110-0540 | | | | | |

**Capacitance Conversion Table**

| | | | | |
|---|---|---|---|---|
| 0.000001µF | = | 0.001nF | = | 1pF |
| 0.00001µF | = | 0.01nF | = | 10pF |
| 0.0001µF | = | 0.1nF | = | 100pF |
| 0.001µF | = | 1nF | = | 1000pF |
| 0.01µF | = | 10nF | = | 10000pF |
| 0.1µF | = | 100nF | = | 100000pF |
| 1µF | = | 1000nF | = | 1000000pF |
| 10µF | = | 10000nF | = | 10000000pF |
| 100µF | = | 100000nF | = | 100000000pF |

## SK Series



- SK series advanced dipped multilayer ceramic capacitors
- High current handling capabilities
- Input and output filtering in commercial switch mode power supplies

Operating temperature -25°C to +85°C
Power factor ≤0.03
Temperature coefficient -56%+22%
Insulance resistance MΩ
Proof voltage

| Mftrs. List No. | Capacitance | Voltage dc | Dimensions H | W | D | Lead Dia | Lead Pitch | Order Code |
|---|---|---|---|---|---|---|---|---|
| SK041E475ZAA | 4.7 µF | 100 | 10.1 | 10.1 | 4.1 | 0.5 | 5.08 | 578-393 |
| SK043E106ZAA | 10 µF | 25 | 10.1 | 10.1 | 4.1 | 0.5 | 5.08 | 578-400 |
| SK055E106ZAA | 10 µF | 50 | 12.1 | 12.7 | 4.1 | 0.6 | 10.2 | 578-411 |

208642

| | V dc | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| 4.7 µF | 100 | 578-393 | | | | | |
| 10 µF | 25 | 578-400 | | | | | |
| 10 µF | 50 | 578-411 | | | | | |

## MR05/MR06 Series



- Radial moulded multilayer ceramic
- Moulded epoxy case
- Approved to **CECC 30-601-009 (NPO)**
  **CECC 30-701-007 (X7R)**
  **CECC 30-701-008 (Z5U)**

Lead length=31.7
Lead dia.=0.635
Lead pitch=5.08

**50 Volt d. c. X7R**

| Capacitance | Tolerance | Dimensions H | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 0.033µF | ± 10% | 4.83 | 4.83 | 2.28 | MR055C333KTA | 570-825 |
| 0.047µF | ± 10% | 4.83 | 4.83 | 2.28 | MR055C473KTA | 174-0518 |
| 0.1µF | ± 10% | 4.83 | 4.83 | 2.28 | MR055C104KTA. | 570-977 |
| 0.1µF | ± 10% | 4.83 | 4.83 | 2.28 | MR055C104KTA | 174-0521 |
| 0.15µF | ± 10% | 7.36 | 7.36 | 2.28 | MR065C154KTA | 174-0534 |
| 0.33µF | ± 10% | 7.36 | 7.36 | 2.28 | MR065C334KTA | 570-930 |
| 0.47µF | ± 10% | 7.36 | 7.36 | 2.28 | MR065C474KTA | 570-941 |
| 0.68µF | ± 10% | 7.36 | 7.36 | 2.28 | MR065C684KTA | 174-0535 |

**50 Volt d.c. X7R**

| Capacitance | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.033µF | 570-825 | | | | | |
| 0.047µF | 174-0518 | | | | | |
| 0.1µF | 570-977 | | | | | |
| 0.1µF | 174-0521 | | | | | |
| 0.15µF | 174-0534 | | | | | |
| 0.33µF | 570-930 | | | | | |
| 0.47µF | 570-941 | | | | | |
| 0.68µF | 174-0535 | | | | | |

**50 Volt d. c. NPO**

| Capacitance | Tolerance | Dimensions H | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 1500pF | ± 5% | | | | MR055A152JTA | 185-4413 |

**50 Volt d.c. NPO**

| Capacitance | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1500pF | 185-4413 | | | | | |

**100 Volt d. c. NPO**

| Capacitance | Tolerance | Dimensions H | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 10pF | ± 5% | 4.83 | 4.83 | 2.28 | MR051A100JTA | 669-623 |
| 15pF | ± 5% | 4.83 | 4.83 | 2.28 | MR051A150JTA | 669-647 |
| 22pF | ± 5% | 4.83 | 4.83 | 2.28 | MR051A220JTA | 669-659 |
| 33pF | ± 5% | 4.83 | 4.83 | 2.28 | MR051A330JTA | 669-684 |
| 47pF | ± 5% | 4.83 | 4.83 | 2.28 | MR051A470JTA | 669-696 |
| 68pF | ± 5% | 4.83 | 4.83 | 2.28 | MR051A680JTA | 669-714 |
| 100pF | ± 5% | 4.83 | 4.83 | 2.28 | MR051A101JTA | 669-726 |
| 100pF | ± 10% | 4.83 | 4.83 | 2.28 | MR051A101KTA | 669-738 |
| 180pF | ± 10% | 4.83 | 4.83 | 2.28 | MR051A181KTA | 174-0509 |
| 220pF | ± 5% | 4.83 | 4.83 | 2.28 | MR051A221JTA | 669-763 |
| 470pF | ± 5% | 4.83 | 4.83 | 2.28 | MR051A471JTA | 669-799 |
| 1000pF | ± 5% | 4.83 | 4.83 | 2.28 | MR051A102JTA | 669-829 |
| 1500pF | ± 5% | 7.36 | 7.36 | 2.28 | MR061A152JTA | 174-0524 |
| 1800pF | ± 5% | 7.36 | 7.36 | 2.28 | MR061A182JTA | 185-4414 |
| 2200pF | ± 5% | 4.83 | 4.83 | 2.28 | MR051A222JTA | 669-854 |
| 3300pF | ± 5% | 4.83 | 4.83 | 2.28 | MR051A332JTA | 669-878 |
| 3300pF | ± 5% | 7.36 | 7.36 | 2.28 | MR061A332JTA | 174-0525 |
| 4700pF | ± 5% | 7.36 | 7.36 | 2.28 | MR061A472JTA | 174-0526 |
| 0.01µF | ± 5% | 7.36 | 7.36 | 2.28 | MR061A103JTA | 570-667 |
| 0.01µF | ± 10% | 7.36 | 7.36 | 2.28 | MR061A103KTA | 570-679 |
| 0.01µF | ± 1% | 7.36 | 7.36 | 2.28 | MR061A103FTA | 185-4415 |

**100 Volt d.c. NPO**

| Capacitance | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10pF | 669-623 | | | | | |
| 15pF | 669-647 | | | | | |
| 22pF | 669-659 | | | | | |
| 33pF | 669-684 | | | | | |
| 47pF | 669-696 | | | | | |
| 68pF | 669-714 | | | | | |
| 100pF | 669-726 | | | | | |
| 100pF | 669-738 | | | | | |
| 180pF | 174-0509 | | | | | |
| 220pF | 669-763 | | | | | |
| 470pF | 669-799 | | | | | |
| 1000pF | 669-829 | | | | | |
| 1500pF | 174-0524 | | | | | |
| 1800pF | 185-4414 | | | | | |
| 2200pF | 669-854 | | | | | |
| 3300pF | 669-878 | | | | | |
| 3300pF | 174-0525 | | | | | |
| 4700pF | 174-0526 | | | | | |
| 0.01µF | 570-667 | | | | | |
| 0.01µF | 570-679 | | | | | |
| 0.01µF | 185-4415 | | | | | |

**100 Volt d. c. X7R**

| Capacitance | Tolerance | Dimensions H | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 220pF | ± 10% | 4.83 | 4.83 | 2.28 | MR051C221KTA | 185-4416 |
| 470pF | ± 10% | 4.83 | 4.83 | 2.28 | MR051C471KTA | 174-0512 |
| 1000pF | ± 10% | 4.83 | 4.83 | 2.28 | MR051C102KTA | 174-0510 |
| 0.01µF | ± 10% | 7.36 | 7.36 | 2.28 | MR061C103KTA | 174-0527 |
| 2200pF | ± 10% | 4.83 | 4.83 | 2.28 | MR052C222KTA | 185-4417 |
| 4700pF | ± 10% | 4.83 | 4.83 | 2.28 | MR051C472KTA | 570-758 |
| 6800pF | ± 10% | 4.83 | 4.83 | 2.28 | MR051C682KTA | 174-0513 |
| 0.01µF | ± 20% | 4.83 | 4.83 | 2.28 | MR051C103MTA | 570-783 |
| 0.01µF | ± 10% | 4.83 | 4.83 | 2.28 | MR051C103KTA | 570-795 |
| 0.022µF | ± 10% | 4.83 | 4.83 | 2.28 | MR051C223KTA | 570-801 |
| 0.047µF | ± 10% | 7.36 | 7.36 | 2.28 | MR061C473KTA | 570-898 |
| 0.1µF | ± 10% | 7.36 | 7.36 | 2.28 | MR061C104KTA. | 570-904 |
| 0.1µF | ± 20% | 7.36 | 7.36 | 2.28 | MR061C104MTA | 570-916 |
| 0.1µF | ± 10% | 7.36 | 7.36 | 2.28 | MR061C104KTA | 174-0530 |
| 0.15µF | ± 10% | 7.36 | 7.36 | 2.28 | MR061C154KTA | 185-4418 |
| 0.22µF | ± 10% | 7.36 | 7.36 | 2.28 | MR061C224KTA | 185-4419 |
| 0.47µF | ± 10% | 7.36 | 7.36 | 2.28 | MR061C474KTA | 174-0531 |

**100 Volt d.c. X7R**

| Capacitance | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 220pF | 185-4416 | | | | | |
| 470pF | 174-0512 | | | | | |
| 1000pF | 174-0510 | | | | | |
| 0.01µF | 174-0527 | | | | | |
| 2200pF | 185-4417 | | | | | |
| 4700pF | 570-758 | | | | | |
| 6800pF | 174-0513 | | | | | |
| 0.01µF | 570-783 | | | | | |
| 0.01µF | 570-795 | | | | | |

# Ceramic - Multilayer Leaded - AVX - continued

## MR05/MR06 Series - continued

**100 Volt d.c. X7R**

| Capacitance | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.022µF | 570-801▲ | | | | | |
| 0.047µF | 570-898▲ | | | | | |
| 0.1µF | 570-904▲ | | | | | |
| 0.1µF | 570-916▲ | | | | | |
| 0.1µF | 174-0530▲ | | | | | |
| 0.15µF | 185-4418▲ | | | | | |
| 0.22µF | 185-4419▲ | | | | | |
| 0.47µF | 174-0531▲ | | | | | |

**200 Volt d. c. NPO**

| Capacitance | Tolerance | Dimensions H | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 220pF | ± 10% | 4.83 | 4.83 | 2.28 | MR052A221KTA | 174-0514 |
| 330pF | ± 10% | 4.83 | 4.83 | 2.28 | MR052A331KTA | 174-0515 |

**200 Volt d.c. NPO**

| Capacitance | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 220pF | 174-0514▲ | | | | | |
| 330pF | 174-0515▲ | | | | | |

**200 Volt d. c. X7R**

| Capacitance | Tolerance | Dimensions H | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 470pF | ± 10% | 4.83 | 4.83 | 2.28 | MR052C471KTA | 174-0517 |
| 1000pF | ± 10% | 4.83 | 4.83 | 2.28 | MR052C102KTA | 174-0516 |
| 0.01µF | ± 10% | 7.36 | 7.36 | 2.28 | MR062C103KTA | 174-0533 |

478218

**200 Volt d.c. X7R**

| Capacitance | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 470pF | 174-0517▲ | | | | | |
| 1000pF | 174-0516▲ | | | | | |
| 0.01µF | 174-0533▲ | | | | | |

## CK05/CK06 Series



- Moulded radial multilayer ceramic capacitors
- Manufactured in accordance with **MIL-C-11015**

**CK06** - Lead pitch=5.08, Lead dia.=0.64

55/125/56 Insulation resistance 100,000MΩ or 1000 sec. (MΩ x µF) whichever is less

Operating Temperature -55°C to +125°C
Power factor @ 1MHz ≥0.025 Proof voltage 2.5VR
Temperature coefficient ±15% Climatic category 55/125/56

**200 Volt d.c. BX**

| | Dimensions H | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 10 pF | 4.83 | 4.83 | 2.29 | CK05BX100K | 190-8174 |
| 18 pF | 4.83 | 4.83 | 2.29 | CK05BX180K | 174-0548 |
| 22 pF | 4.83 | 4.83 | 2.29 | CK05BX220K | 174-0549 |
| 33 pF | 4.83 | 4.83 | 2.29 | CK05BX330K | 174-0550 |
| 47 pF | 4.83 | 4.83 | 2.29 | CK05BX470K | 174-0551 |
| 100 pF | 4.83 | 4.83 | 2.29 | CK05BX101K | 286-930 |
| 220 pF | 4.83 | 4.83 | 2.29 | CK05BX221K | 286-941 |
| 270 pF | 4.83 | 4.83 | 2.29 | CK05BX271K | 174-0552 |
| 330 pF | 4.83 | 4.83 | 2.29 | CK05BX331K | 174-0553 |
| 470 pF | 4.83 | 4.83 | 2.29 | CK05BX471K | 286-953 |
| 560 pF | 4.83 | 4.83 | 2.29 | CK05BX561K | 174-0554 |
| 1000 pF | 4.83 | 4.83 | 2.29 | CK05BX102K | 286-965 |
| 0.01 µF | 7.37 | 7.37 | 2.29 | CK06BX103K | 174-0559 |

**200 Volt d.c. BX**

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10 pF | 190-8174▲ | | | | | |
| 18 pF | 174-0548● | | | | | |
| 22 pF | 174-0549● | | | | | |
| 33 pF | 174-0550● | | | | | |
| 47 pF | 174-0551▲ | | | | | |
| 100 pF | 286-930▲ | | | | | |
| 220 pF | 286-941▲ | | | | | |
| 270 pF | 174-0552● | | | | | |
| 330 pF | 174-0553▲ | | | | | |
| 470 pF | 286-953▲ | | | | | |
| 560 pF | 174-0554▲ | | | | | |
| 1000 pF | 286-965▲ | | | | | |
| 0.01 µF | 174-0559▲ | | | | | |

**100 Volt d. c. BX**

| | Dimensions H | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 2200 pF | 4.83 | 4.83 | 2.29 | CK05BX222K | 286-989 |
| 4700 pF | 4.83 | 4.83 | 2.29 | CK05BX472K | 286-990 |
| 0.01 µF | 4.83 | 4.83 | 2.29 | CK05BX103K | 287-003 |
| 0.022 µF | 7.37 | 7.37 | 2.29 | CK06BX223K | 287-015 |
| 0.047 µF | 7.37 | 7.37 | 2.29 | CK06BX473K | 287-027 |
| 0.1 µF | 7.37 | 7.37 | 2.29 | CK06BX104K | 287-039 |

**100 Volt d.c. BX**

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 2200 pF | 286-989▲ | | | | | |
| 4700 pF | 286-990▲ | | | | | |
| 0.01 µF | 287-003▲ | | | | | |
| 0.022 µF | 287-015▲ | | | | | |
| 0.047 µF | 287-027▲ | | | | | |
| 0.1 µF | 287-039▲ | | | | | |

**50 Volt d. c. BX**

| | Dimensions H | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 0.022 µF | 4.83 | 4.83 | 2.29 | CK05BX223K | 174-0543 |
| 0.033 µF | 4.83 | 4.83 | 2.29 | CK05BX333K | 174-0545 |
| 0.047 µF | 4.83 | 4.83 | 2.29 | CK05BX473K | 174-0546 |
| 0.1 µF | 4.83 | 4.83 | 2.29 | CK05BX104K | 174-0547 |
| 0.18 µF | 7.37 | 7.37 | 2.29 | CK06BX184K | 174-0555 |
| 0.22 µF | 7.37 | 7.37 | 2.29 | CK06BX224K | 287-040 |
| 0.33 µF | 7.37 | 7.37 | 2.29 | CK06BX334K | 174-0557 |
| 0.47 µF | 7.37 | 7.37 | 2.29 | CK06BX474K | 287-052 |
| 0.68 µF | 7.37 | 7.37 | 2.29 | CK06BX684K | 174-0558 |
| 1 µF | 7.37 | 7.37 | 2.29 | CK06BX105K | 287-064 |

208410

**50 Volt d.c. BX**

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.022 µF | 174-0543● | | | | | |
| 0.033 µF | 174-0545▲ | | | | | |
| 0.047 µF | 174-0546▲ | | | | | |
| 0.1 µF | 174-0547● | | | | | |
| 0.18 µF | 174-0555▲ | | | | | |
| 0.22 µF | 287-040▲ | | | | | |
| 0.33 µF | 174-0557▲ | | | | | |
| 0.47 µF | 287-052▲ | | | | | |
| 0.68 µF | 174-0558▲ | | | | | |
| 1 µF | 287-064▲ | | | | | |

## AA - 'Spinguard Series'

NEW



- 'Spinguard' axial dipped multilayer ceramic capacitors
- X7R

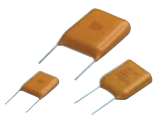
Operating Temperature -55°C to +125°C
Temperature Coefficient X7R
Insulation Resistance @ 25°C 100000 MΩ

Lead length = 25.4mm
Lead dia = 0.45mm

659686

| uF | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 7K5+ |
|---|---|---|---|---|---|---|
| **50 Volt** | | | | | | |
| 0.1 | 205-7124● | | | | | |
| **100 Volt** | | | | | | |
| 1000 | 205-7125● | | | | | |
| 0.01 | 205-7126● | | | | | |
| 0.1 | 205-7127● | | | | | |

## AR Series



- Conformally coated radial leaded multilayer ceramic capacitors
- AEC-Q200 qualified for automotive applications
- Up to 150°C

**50 Volt dc, C0G (NP0)**

| | Tolerance | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 4700pF | ± 5% | 5.08 | 5.08 | 3.175 | 5.08 | AR215A472J4R* | 167-2268 |
| 8200pF | ± 5% | 5.08 | 5.08 | 3.175 | 5.08 | AR215A822J4R* | 167-2269 |

**50 Volt d.c., C0G (NP0)**

| Capacitance | Order Code | Price Each 1+ | 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 4700pF | 167-2268● | | | | | |
| 8200pF | 167-2269● | | | | | |

**50 Volt dc, X8R**

| | Tolerance | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 1000pF | ± 10% | 5.08 | 5.08 | 3.175 | 2.54 | AR205F102K4R* | 167-2243 |
| 1000pF | ± 10% | 5.08 | 5.08 | 3.175 | 5.08 | AR215F102K4R* | 167-2246 |
| 0.01µF | ± 10% | 5.08 | 5.08 | 3.175 | 2.54 | AR205F103K4R* | 167-2244 |
| 0.01µF | ± 10% | 5.08 | 5.08 | 3.175 | 5.08 | AR215F103K4R* | 167-2247 |
| 0.1µF | ± 10% | 5.08 | 5.08 | 3.175 | 2.54 | AR205F104K4R* | 167-2245 |

**50 Volt d.c., X8R**

| Capacitance | Order Code | Price Each 1+ | 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1000pF | 167-2243● | | | | | |
| 1000pF | 167-2246● | | | | | |
| 0.01µF | 167-2244● | | | | | |
| 0.01µF | 167-2247● | | | | | |
| 0.1µF | 167-2245● | | | | | |

| 50 Volt dc, X7R | Tolerance | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.047µF | ± 10% | 5.08 | 5.08 | 3.175 | 5.08 | AR215C473K4R* | 167-2252 |
| 0.1µF | ± 10% | 5.08 | 5.08 | 3.175 | 5.08 | AR215C104K4R* | 167-2254 |
| 0.47µF | ± 10% | 7.62 | 7.62 | 3.81 | 5.08 | AR305C474K4R* | 167-2255 |

**50 Volt d.c., X7R** — Price Each

| Capacitance | Order Code | 1+ | 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.047µF | 167-2252● | | | | | |
| 0.1µF | 167-2254● | | | | | |
| 0.47µF | 167-2255● | | | | | |

| 100 Volt dc, C0G (NP0) | Tolerance | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 330pF | ± 5% | 5.08 | 5.08 | 3.175 | 5.08 | AR211A331J4R* | 167-2263 |

**100 Volt d.c., C0G (NP0)** — Price Each

| Capacitance | Order Code | 1+ | 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 330pF | 167-2263● | | | | | |

| 100 Volt dc, X7R | Tolerance | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 1µF | ± 10% | 10.16 | 10.16 | 3.81 | 5.08 | AR401C105K4R* | 167-2256 |

**100 Volt d.c., X7R** — Price Each

| Capacitance | Order Code | 1+ | 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1µF | 167-2256● | | | | | |

| 200 Volt dc, C0G (NP0) | Tolerance | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 10pF | ± 5% | 5.08 | 5.08 | 3.175 | 5.08 | AR212A100J4R* | 167-2257 |
| 22pF | ± 5% | 5.08 | 5.08 | 3.175 | 5.08 | AR212A220J4R* | 167-2258 |
| 47pF | ± 5% | 5.08 | 5.08 | 3.175 | 5.08 | AR212A470J4R* | 167-2260 |
| 100pF | ± 5% | 5.08 | 5.08 | 3.175 | 5.08 | AR212A101J4R* | 167-2261 |
| 220pF | ± 5% | 5.08 | 5.08 | 3.175 | 5.08 | AR212A221J4R* | 167-2262 |

527504

**200 Volt d.c., C0G (NP0)** — Price Each

| Capacitance | Order Code | 1+ | 10+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10pF | 167-2257● | | | | | |
| 22pF | 167-2258● | | | | | |
| 47pF | 167-2260● | | | | | |
| 100pF | 167-2261● | | | | | |
| 220pF | 167-2262● | | | | | |

## SA - 'Spinguard' Series



Lead length=20 mm
Lead dia=0.508 mm

Bandoliered box quantities=4K pcs (108-996=1K pcs)

- 'Spinguard' axial dipped multilayer ceramic capacitors
- Choice of dielectric, tolerance and Voltage

Performance Characteristics

| | NPO | X7R | Z5U |
|---|---|---|---|
| Operating temperature | -55°C to +125°C | -55°C to +125°C | -25°C to +85°C |
| Temperature coefficient | 0±30 ppm/°C for C>20pF<br>0+120-40ppm/°C for C≤20pF | ± 20ppm/°C | -80 to 30 ppm/°C |
| Insulation resistance | 100000MΩ or 1000 sec. (MΩ µF) whichever is less | 100000MΩ or 1000 sec. (MΩ µF) whichever is less | 100000MΩ or 1000 sec. (MΩ µF) whichever is less |
| Proof voltage | 2.5VR | 2.5VR | 2VR |
| Climatic category (IEC) | 55/125/56 | 55/125/56 | 25/085/56 |

| 50V NP0 Capacitance | Dimensions (mm) L | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|
| 1000 pF | 4.3 | 2.54 | SA105A102JARC | 110-0434 |

Price Each

| Capacitance | Order Code | 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1000 pF | 110-0434● | | | | | |

| 50V X7R Capacitance | Dimensions (mm) L | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|
| 0.01 µF | 4.32 | 2.54 | SA105C103KARC | 110-0414 |

Price Each

| Capacitance | Order Code | 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.01 µF | 110-0414● | | | | | |

| 50V Z5U Capacitance | Dimensions (mm) L | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|
| 0.022 µF | 4.32 | 2.54 | SA105E223MARC | 110-0416 |
| 0.1 µF | 4.32 | 2.54 | SA105E104MARC | 110-0417 |
| 0.22 µF | 6.6 | 2.54 | SA205E224MARC | 110-0418 |
| 0.47 µF | 7.37 | 3.81 | SA305E474MARC | 110-0419 |
| 1 µF | 7.37 | 3.81 | SA305E105MARC | 110-0420 |

Price Each

| Capacitance | Order Code | 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.022 µF | 110-0416● | | | | | |
| 0.1 µF | 110-0417● | | | | | |
| 0.22 µF | 110-0418● | | | | | |
| 0.47 µF | 110-0419● | | | | | |
| 1 µF | 110-0420● | | | | | |

| 100V X7R Capacitance | Dimensions (mm) L | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|
| 1000 pF | 4.32 | 2.54 | SA101C102KARC | 110-0412 |

Price Each

| Capacitance | Order Code | 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1000 pF | 110-0412● | | | | | |

| 100V NP0 Capacitance | Dimensions (mm) L | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|
| 470 pF | 4.32 | 2.54 | SA101A471JARC | 110-0411 |

Price Each

| Capacitance | Order Code | 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 470 pF | 110-0411● | | | | | |

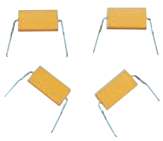
| 200V NP0 Capacitance | Dimensions (mm) L | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|
| 10 pF | 4.32 | 2.54 | SA102A100JARC | 110-0409 |
| 100 pF | 4.32 | 2.54 | SA102A101JARC | 110-0410 |

627568

Price Each

| Capacitance | Order Code | 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10 pF | 110-0409● | | | | | |
| 100 pF | 110-0410● | | | | | |

## MD Series - Dipguard



Ultra-low profile ceramic capacitors to provide effective de-coupling of dual in-line IC's, designed to fit under the IC by fitting directly into the PCB or an IC socket. They may also be retrospectively fitted on top of the IC with its pins soldered to the IC pins to improve system perfomrance of existing designs.

- Dipguard dual in-line package
- Compatible with standard IC packages

| Style | Dimensions H | W | D | Style | Dimensions H | W | D |
|---|---|---|---|---|---|---|---|
| MD01 | 6.6mm | 3.43mm | 2.49mm | MD02 | 6.6mm | 4.19mm | 2.54mm |

| | Volt dc | Dielectric | Tolerance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 1000 pF | 50 | X7R | ± 10% | MD015C102KAB | 174-0729 |
| 4700 pF | 50 | X7R | ± 20% | MD015C472MAB | 174-0730 |
| 0.01 µF | 50 | X7R | ± 10% | MD015C103KAB | 174-0731 |
| 0.01 µF | 100 | X7R | ± 10% | MD011C103KAB | 669-465 |
| 0.022 µF | 50 | X7R | ± 10% | MD015C223KAB | 174-0732 |
| 0.047 µF | 50 | X7R | ± 10% | MD015C473KAB | 174-0733 |
| 0.047 µF | 50 | Z5U | ± 20% | MD015E473MAB | 669-544 |
| 0.1 µF | 50 | X7R | ± 10% | MD015C104KAB | 669-490 |
| 0.1 µF | 50 | X7R | ± 20% | MD015C104MAB | 669-532 |
| 0.1 µF | 50 | Z5U | ± 20% | MD015E104MAB | 669-556 |
| 0.22 µF | 50 | X7R | ± 10% | MD025C224KAB | 174-0734 |
| 0.47 µF | 50 | Z5U | ± 20% | MD025E474MAB | 174-0735 |

478243

Price Each

| | Order Code | 1+ | 10+ | 50+ | 100+ |
|---|---|---|---|---|---|
| 1000 pF | 174-0729▲ | | | | |
| 4700 pF | 174-0730▲ | | | | |
| 0.01 µF | 174-0731▲ | | | | |
| 0.01 µF | 669-465▲ | | | | |
| 0.022 µF | 174-0732▲ | | | | |
| 0.047 µF | 174-0733▲ | | | | |
| 0.047 µF | 669-544▲ | | | | |
| 0.1 µF | 669-490▲ | | | | |
| 0.1 µF | 669-532▲ | | | | |
| 0.1 µF | 669-556▲ | | | | |
| 0.22 µF | 174-0734▲ | | | | |
| 0.47 µF | 174-0735▲ | | | | |

# Ceramic - Multilayer Leaded - Kemet

## C315, C317, C320, C322, C330, C333 and C340 – 'Gold Max' Series




Performance Characteristics

| | NPO | X7R | Z5U |
|---|---|---|---|
| Operating Temperature Range | -55°C to +125°C | -55°C to +125°C | +10°C to +85°C |
| Temperature coefficient | 0ppm/°C ± 30ppm/°C | | |

| 100 Volt d. c. NPO | Tolerance | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 220 pF | ± 5% | 5.33 | 0.1 | 3.81 | 2.54 | C315C221J1G5TA | 145-7636 |
| 470 pF | ± 5% | 5.33 | 0.1 | 3.81 | 2.54 | C315C471J1G5TA | 145-7638 |
| 1000 pF | ± 5% | 5.33 | 0.1 | 3.81 | 2.54 | C315C102J1G5TA | 145-7635 |

**100 Volt d.c. NPO** — Price Each

| | Order Code | 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 220 pF | 145-7636● | | | | | |
| 470 pF | 145-7638● | | | | | |
| 1000 pF | 145-7635● | | | | | |

| 100 Volt d. c. NPO | Tolerance | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 10 pF | ± 5% | 5.84 | 0.1 | 3.81 | 5.08 | C317C100J1G5TA | 145-7661 |
| 100 pF | ± 5% | 5.84 | 0.1 | 3.81 | 5.08 | C317C101J1G5TA | 145-7663 |
| 220 pF | ± 5% | 5.84 | 0.1 | 3.81 | 5.08 | C317C221J1G5TA | 145-7667 |
| 470 pF | ± 5% | 5.84 | 0.1 | 3.81 | 5.08 | C317C471J1G5TA | 145-7670 |
| 1000 pF | ± 5% | 5.84 | 0.1 | 3.81 | 5.08 | C317C102J1G5TA | 145-7666 |
| 1000 pF | ± 5% | 6.6 | 0.125 | 5.08 | 5.08 | C322C102J1G5TA | 145-7672 |
| 2200 pF | ± 5% | 6.6 | 0.125 | 5.08 | 5.08 | C322C222J1G5TA | 145-7673 |
| 4700 pF | ± 5% | 6.6 | 0.125 | 5.08 | 5.08 | C322C472J1G5TA | 145-7677 |
| 0.01 µF | ± 5% | 9.14 | 0.15 | 7.62 | 5.08 | C330C103J1G5TA | 145-7678 |

# Ceramic - Multilayer Leaded - Kemet - continued

## C315, C317, C320, C322, C330, C333 and C340 – 'Gold Max' Series - continued

**100 Volt d.c. NPO**

| | Order Code | 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10 pF | 145-7661 | | | | | |
| 100 pF | 145-7663 | | | | | |
| 220 pF | 145-7667 | | | | | |
| 470 pF | 145-7670 | | | | | |
| 1000 pF | 145-7666 | | | | | |
| 1000 pF | 145-7672 | | | | | |
| 2200 pF | 145-7673 | | | | | |
| 4700 pF | 145-7677 | | | | | |
| 0.01 µF | 145-7678 | | | | | |

**200 Volt d. c. NPO**

| | Tolerance | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 22 pF | ± 5% | 5.33 | 0.1 | 3.81 | 2.54 | C315C220J2G5TA | 145-7651 |
| 100 pF | ± 5% | 5.33 | 0.1 | 3.81 | 2.54 | C315C101J2G5TA | 145-7650 |

**200 Volt d.c. NPO**

| | Order Code | 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 22 pF | 145-7651 | | | | | |
| 100 pF | 145-7650 | | | | | |

**200 Volt d. c. NPO**

| | Tolerance | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 22 pF | ± 5% | 5.84 | 0.1 | 3.81 | 5.08 | C317C220J2G5TA | 145-7695 |
| 47 pF | ± 5% | 5.84 | 0.1 | 3.81 | 5.08 | C317C470J2G5TA | 145-7696 |

**200 Volt d.c. NPO**

| | Order Code | 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 22 pF | 145-7695 | | | | | |
| 47 pF | 145-7696 | | | | | |

**50 Volt d. c. X7R**

| | Tolerance | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.01 µF | ± 10% | 5.33 | 0.1 | 3.81 | 2.54 | C315C103K5R5TA | 145-7653 |
| 0.022 µF | ± 10% | 5.33 | 0.1 | 3.81 | 2.54 | C315C223K5R5TA | 145-7654 |
| 0.1 µF | ± 10% | 6.6 | 0.125 | 3.81 | 2.54 | C320C104K5R5TA | 145-7655 |
| 0.22 µF | ± 10% | 6.6 | 0.125 | 3.81 | 2.54 | C320C224K5R5TA | 145-7656 |

**50 Volt d.c. X7R**

| | Order Code | 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.01 µF | 145-7653 | | | | | |
| 0.022 µF | 145-7654 | | | | | |
| 0.1 µF | 145-7655 | | | | | |
| 0.22 µF | 145-7656 | | | | | |

**50 Volt d. c. X7R**

| | Tolerance | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.01 µF | ± 10% | 6.6 | 0.125 | 5.08 | 5.08 | C322C103K5R5TA | 145-7698 |
| 0.1 µF | ± 10% | 6.6 | 0.125 | 5.08 | 5.08 | C322C104K5R5TA | 145-7699 |
| 0.22 µF | ± 10% | 6.6 | 0.125 | 5.08 | 5.08 | C322C224K5R5TA | 145-7700 |
| 0.33 µF | ± 10% | 9.14 | 0.15 | 7.62 | 5.08 | C330C334K5R5TA | 145-7702 |
| 0.47 µF | ± 10% | 9.14 | 0.15 | 7.62 | 5.08 | C330C474K5R5TA | 145-7703 |
| 1 µF | ± 10% | 9.14 | 0.15 | 7.62 | 5.08 | C330C105K5R5TA | 145-7701 |
| 2.2 µF | ± 10% | 11.68 | 0.15 | 10.16 | 5.08 | C340C225K5R5TA | 145-7704 |

**50 Volt d.c. X7R**

| | Order Code | 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.01 µF | 145-7698 | | | | | |
| 0.1 µF | 145-7699 | | | | | |
| 0.22 µF | 145-7700 | | | | | |
| 0.33 µF | 145-7702 | | | | | |
| 0.47 µF | 145-7703 | | | | | |
| 1 µF | 145-7701 | | | | | |
| 2.2 µF | 145-7704 | | | | | |

**100 Volt d. c. X7R**

| | Tolerance | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 1000 pF | ± 10% | 5.33 | 0.1 | 3.81 | 2.54 | C315C102K1R5TA | 145-7641 |
| 1500 pF | ± 10% | 5.33 | 0.1 | 3.81 | 2.54 | C315C152K1R5TA | 145-7643 |
| 4700 pF | ± 10% | 5.33 | 0.1 | 3.81 | 2.54 | C315C472K1R5TA | 145-7649 |
| 0.01 µF | ± 10% | 5.33 | 0.1 | 3.81 | 2.54 | C315C103K1R5TA | 145-7642 |
| 0.022 µF | ± 10% | 6.6 | 0.125 | 3.81 | 2.54 | C320C223K1R5TA | 145-7646 |
| 0.033 µF | ± 10% | 6.6 | 0.125 | 3.81 | 2.54 | C320C333K1R5TA | 145-7647 |
| 0.047 µF | ± 10% | 6.6 | 0.125 | 3.81 | 2.54 | C320C473K1R5TA | 145-7648 |
| 0.1 µF | ± 10% | 6.6 | 0.125 | 3.81 | 2.54 | C320C104K1R5TA | 145-7645 |

**100 Volt d.c. X7R**

| | Order Code | 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1000 pF | 145-7641 | | | | | |
| 1500 pF | 145-7643 | | | | | |
| 4700 pF | 145-7649 | | | | | |
| 0.01 µF | 145-7642 | | | | | |
| 0.022 µF | 145-7646 | | | | | |
| 0.033 µF | 145-7647 | | | | | |
| 0.047 µF | 145-7648 | | | | | |
| 0.1 µF | 145-7645 | | | | | |

**100 Volt d. c. X7R**

| | Tolerance | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 1000 pF | ± 10% | 5.84 | 0.1 | 3.81 | 5.08 | C317C102K1R5TA | 145-7679 |
| 4700 pF | ± 10% | 5.84 | 0.1 | 3.81 | 5.08 | C317C472K1R5TA | 145-7682 |
| 0.01 µF | ± 10% | 5.84 | 0.1 | 3.81 | 5.08 | C317C103K1R5TA | 145-7680 |
| 0.01 µF | ± 10% | 6.6 | 0.125 | 5.08 | 5.08 | C322C103K1R5TA | 145-7684 |
| 0.022 µF | ± 10% | 6.6 | 0.125 | 5.08 | 5.08 | C322C223K1R5TA | 145-7686 |
| 0.047 µF | ± 10% | 6.6 | 0.125 | 5.08 | 5.08 | C322C473K1R5TA | 145-7689 |
| 0.1 µF | ± 10% | 6.6 | 0.125 | 5.08 | 5.08 | C322C104K1R5TA | 145-7685 |
| 0.1 µF | ± 10% | 9.91 | 0.15 | 7.62 | 5.08 | C333C104K1R5TA | 145-7692 |
| 0.22 µF | ± 10% | 9.14 | 0.15 | 7.62 | 5.08 | C330C224K1R5TA | 145-7691 |
| 1 µF | ± 10% | 11.68 | 0.15 | 10.16 | 5.08 | C340C105K1R5TA | 145-7693 |

**100 Volt d.c. X7R**

| | Order Code | 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1000 pF | 145-7679 | | | | | |
| 4700 pF | 145-7682 | | | | | |
| 0.01 µF | 145-7680 | | | | | |
| 0.01 µF | 145-7684 | | | | | |
| 0.022 µF | 145-7686 | | | | | |
| 0.047 µF | 145-7689 | | | | | |
| 0.1 µF | 145-7685 | | | | | |
| 0.1 µF | 145-7692 | | | | | |
| 0.22 µF | 145-7691 | | | | | |
| 1 µF | 145-7693 | | | | | |

**200 Volt d. c. X7R**

| | Tolerance | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.01 µF | ± 10% | 6.6 | 0.125 | 5.08 | 5.08 | C322C103K2R5TA | 145-7697 |

**200 Volt d.c. X7R**

| | Order Code | 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.01 µF | 145-7697 | | | | | |

**50 Volt d. c. Z5U**

| | Tolerance | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.1 µF | ± 20% | 5.33 | 0.1 | 3.81 | 2.54 | C315C104M5U5TA | 145-7657 |
| 0.1 µF | ± 20% | 6.6 | 0.125 | 3.81 | 2.54 | C320C104M5U5TA | 145-7658 |
| 0.33 µF | ± 20% | 6.6 | 0.125 | 3.81 | 2.54 | C320C334M5U5TA | 145-7659 |
| 0.47 µF | ± 20% | 6.6 | 0.125 | 3.81 | 2.54 | C320C474M5U5TA | 145-7660 |

**50 Volt d.c. Z5U**

| | Order Code | 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.1 µF | 145-7657 | | | | | |
| 0.1 µF | 145-7658 | | | | | |
| 0.33 µF | 145-7659 | | | | | |
| 0.47 µF | 145-7660 | | | | | |

**50 Volt d. c. Z5U**

| | Tolerance | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.1 µF | ± 20% | 5.84 | 0.1 | 3.81 | 5.08 | C317C104M5U5TA | 145-7705 |
| 0.1 µF | ± 20% | 6.6 | 0.125 | 5.08 | 5.08 | C322C104M5U5TA | 145-7707 |
| 0.22 µF | ± 20% | 6.6 | 0.125 | 5.08 | 5.08 | C322C224M5U5TA | 145-7708 |
| 0.33 µF | ± 20% | 6.6 | 0.125 | 5.08 | 5.08 | C322C334M5U5TA | 145-7709 |
| 0.47 µF | ± 20% | 6.6 | 0.125 | 5.08 | 5.08 | C322C474M5U5TA | 145-7710 |
| 2.2 µF | ± 20% | 9.14 | 3.81 | 7.62 | 5.08 | C330C225M5U5TA | 145-7711 |
| 4.7 µF | ± 20% | 11.68 | 0.15 | 10.16 | 5.08 | C340C475M5U5TA | 145-7712 |

486852

**50 Volt d.c. Z5U**

| | Order Code | 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.1 µF | 145-7705 | | | | | |
| 0.1 µF | 145-7707 | | | | | |
| 0.22 µF | 145-7708 | | | | | |
| 0.33 µF | 145-7709 | | | | | |
| 0.47 µF | 145-7710 | | | | | |
| 2.2 µF | 145-7711 | | | | | |
| 4.7 µF | 145-7712 | | | | | |

## Aximax Series

KEMET CHARGED



- High capacitance values in a small physical volume

| | |
|---|---|
| Tolerance | ± 10% |
| Operating Temperature Range | -55°C to +125°C |

**100 Volt d.c. NPO**

| | Dimensions L | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|
| 300 pF | 4.32 | 2.54 | C410C331K1G5TA | 145-7716 |

**100 Volt d.c. NPO**

| | Order Code | 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|
| 300 pF | 145-7716 | | | | |

**50 Volt d.c. X7R**

| | Dimensions L | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|
| 2200 pF | 4.32 | 2.54 | C410C222K5R5TA | 145-7715 |
| 0.047 µF | 4.32 | 2.54 | C410C473K5R5TA | 145-7719 |
| 0.068 µF | 4.32 | 3.05 | C412C683K5R5TA | 145-7722 |
| 0.1 µF | 4.32 | 3.05 | C412C104K5R5TA | 145-7721 |
| 0.22 µF | 7.37 | 3.81 | C430C224K5R5TA | 145-7723 |


RoHS ● Compliant ▲ Non-compliant

**50 Volt d.c. X7R**

| | Order Code | Price Each 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|
| 2200 pF | 145-7715 | | | | |
| 0.047 µF | 145-7719 | | | | |
| 0.068 µF | 145-7722 | | | | |
| 0.1 µF | 145-7721 | | | | |
| 0.22 µF | 145-7723 | | | | |

**100 Volt d.c. X7R**

| | Dimensions L | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|
| 1000 pF | 4.32 | 2.54 | C410C102K1R5TA | 145-7713 |
| 4700 pF | 4.32 | 2.54 | C410C472K1R5TA | 145-7717 |
| 0.01 µF | 4.32 | 2.54 | C410C103K1R5TA | 145-7714 |

486855

**100 Volt d.c. X7R**

| | Order Code | Price Each 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|
| 1000 pF | 145-7713 | | | | |
| 4700 pF | 145-7717 | | | | |
| 0.01 µF | 145-7714 | | | | |

# Ceramic - Multilayer Leaded - Murata

## Class X1 and Y2 Ceramic – KH Series

NEW

muRata



- Leaded ceramic safety capacitors
- Meet requirements of **IEC384-14 2nd Edition 1993 class X1, Y2**
- Approved to **CSA, BSI, SEMKO, SEV, VDE, FIMKO, NEMKO, DEMKO** and **NSW (SAA)**
- **UL** recognised

Voltage rating 250VAC ac Operating temperature -25°C to +85°C

| Capacitance | Dimensions Body Dia. | Thickness | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 100pF | 7mm | 5mm | 7.5 | DE2B3KY101KA3BM02 | 196-1286 |
| 150pF | 7mm | 5mm | 7.5 | DE2B3KY151KA3BM02 | 196-1288 |
| 220pF | 7mm | 5mm | 7.5 | DE2B3KY221KA3BM02 | 196-1289 |
| 330pF | 7mm | 5mm | 7.5 | DE2B3KY331KA3BM02 | 196-1290 |
| 470pF | 7mm | 5mm | 7.5 | DE2B3KY471KA3BM02 | 196-1291 |
| 680pF | 8mm | 5mm | 7.5 | DE2B3KY681KA3BM02 | 196-1292 |
| 1000pF | 7mm | 5mm | 7.5 | DE2E3KY102MA3BM02 | 196-1293 |
| 1500pF | 7mm | 5mm | 7.5 | DE2E3KY152MA3BM02 | 196-1294 |
| 2200pF | 8mm | 5mm | 7.5 | DE2E3KY222MA3BM02 | 196-1295 |
| 3300pF | 9mm | 5mm | 7.5 | DE2E3KY332MA3BM02 | 196-1296 |
| 4700pF | 10mm | 5mm | 7.5 | DE2E3KY472MA3BM02 | 196-1297 |

659651

**Order Multiple=5**

| Capacitance | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 100pF | 196-1286 | | | | | |
| 150pF | 196-1288 | | | | | |
| 220pF | 196-1289 | | | | | |
| 330pF | 196-1290 | | | | | |
| 470pF | 196-1291 | | | | | |
| 680pF | 196-1292 | | | | | |
| 1000pF | 196-1293 | | | | | |
| 1500pF | 196-1294 | | | | | |
| 2200pF | 196-1295 | | | | | |
| 3300pF | 196-1296 | | | | | |
| 4700pF | 196-1297 | | | | | |

## Class X1 and Y1 Ceramic – KX Series

**250V ac**

muRata

NEW



- Leaded ceramic safety capacitors
- Meet requirements of **IEC384-14 2nd Edition 1993 class X1, Y1**
- Approved to **UL**, **CSA, VDE, BSI, SEMKO, FIMKO, NEMKO, ESTI** and **NSW**
- **UL** recognised

Voltage rating 250VAC
Operating temperature -25°C to +85°C

| Capacitance | Dimensions Body Dia. | Thickness | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 100pF | 8mm | 5mm | 10 | DE1B3KX101KA4BL01 | 196-1283 |
| 150pF | 8mm | 5mm | 10 | DE1B3KX151KA4BL01 | 196-1284 |
| 330pF | 8mm | 5mm | 10 | DE1B3KX331KA4BL01 | 196-1285 |

659648

**Order Multiple=5**

| | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 100pF | 196-1283 | | | | | |
| 150pF | 196-1284 | | | | | |
| 330pF | 196-1285 | | | | | |

# Ceramic - Multilayer Leaded - Vishay

## Mono-Kap Series

VISHAY



- Radial multilayer ceramic capacitors
- Ultra reliability
- Compact package size
- Choice of dielectric characteristics

Performance Characteristics

| | NPO | X7R |
|---|---|---|
| Operating Temperature | -55°C to +125°C | -55°C to +125°C |
| Temperature coefficient | ±30ppm/°C | — |
| Capacitance Tolerance | ±5% | ±10% |
| Dielectric strength | 2.5VR | 2.5VR |

**50 Volt d.c. NPO**

| | Dimensions H | W | D | Lead Dia | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 10 pF | 4 | 4 | 2.5 | 0.5 | 2.5 | K100J15C0GF53L2 | 114-1756 |
| 15 pF | 4 | 4 | 2.5 | 0.5 | 2.5 | K150J15C0GF53L2 | 114-1759 |
| 22 pF | 4 | 4 | 2.5 | 0.5 | 2.5 | K220J15C0GF53L2 | 114-1760 |
| 33 pF | 4 | 4 | 2.5 | 0.5 | 2.5 | K330J15C0GF53L2 | 114-1761 |
| 47 pF | 4 | 4 | 2.5 | 0.5 | 2.5 | K470J15C0GF53L2 | 114-1762 |
| 68 pF | 4 | 4 | 2.5 | 0.5 | 2.5 | K680J15C0GF53L2 | 114-1763 |
| 100 pF | 4 | 4 | 2.5 | 0.5 | 2.5 | K101J15C0GF53L2 | 114-1765 |
| 150 pF | 4 | 4 | 2.5 | 0.5 | 2.5 | K151J15C0GF53L2 | 114-1766 |
| 220 pF | 4 | 4 | 2.5 | 0.5 | 2.5 | K221J15C0GF53L2 | 114-1767 |
| 330 pF | 4 | 4 | 2.5 | 0.5 | 2.5 | K331J15C0GF53L2 | 114-1768 |
| 470 pF | 4 | 4 | 2.5 | 0.5 | 2.5 | K471J15C0GF53L2 | 114-1769 |
| 680 pF | 4 | 4 | 2.5 | 0.5 | 2.5 | K681J15C0GF53L2 | 114-1770 |
| 1000 pF | 4 | 4 | 2.5 | 0.5 | 2.5 | K102J15C0GF53L2 | 114-1771 |

**50 Volt d.c.NPO**

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ | 3K+ |
|---|---|---|---|---|---|---|---|
| 10 pF | 114-1756 | | | | | | |
| 15 pF | 114-1759 | | | | | | |
| 22 pF | 114-1760 | | | | | | |
| 33 pF | 114-1761 | | | | | | |
| 47 pF | 114-1762 | | | | | | |
| 68 pF | 114-1763 | | | | | | |
| 100 pF | 114-1765 | | | | | | |
| 150 pF | 114-1766 | | | | | | |
| 220 pF | 114-1767 | | | | | | |
| 330 pF | 114-1768 | | | | | | |
| 470 pF | 114-1769 | | | | | | |
| 680 pF | 114-1770 | | | | | | |
| 1000 pF | 114-1771 | | | | | | |

**50 Volt d.c. X7R**

| | Dimensions H | W | D | Lead Dia | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 1000 pF | 4 | 4 | 2.5 | 0.5 | 5 | K102K15X7RF5TH5V | 190-2259 |
| 4700 pF | 4 | 4 | 2.5 | 0.5 | 5 | K472K15X7RF5TH5V | 190-2261 |
| 0.01 µF | 4 | 4 | 2.5 | 0.5 | 2.5 | K103K15X7RF53L2 | 114-1772 |
| 0.01 µF | 4 | 4 | 2.5 | 0.5 | 5 | K103K15X7RF5TH5V | 190-2262 |
| 0.022 µF | 4 | 4 | 2.5 | 0.5 | 2.5 | K223K15X7RF53L2 | 114-1773 |
| 0.047 µF | 4 | 4 | 2.5 | 0.5 | 2.5 | K473K15X7RF53L2 | 114-1774 |
| 0.047 µF | 4 | 4 | 2.5 | 0.5 | 5 | K473K15X7RF5TH5V | 190-2263 |
| 0.1 µF | 4 | 4 | 2.5 | 0.5 | 2.5 | K104K15X7RF53L2 | 114-1775 |
| 0.1 µF | 4 | 4 | 2.5 | 0.5 | 5 | K104K15X7RF53H5 | 114-1777 |
| 0.1 µF | 4 | 4 | 2.5 | 0.5 | 5 | K104K15X7RF5TH5V | 190-2264 |
| 0.22 µF | 4 | 4 | 2.5 | 0.5 | 2.5 | K224K20X7RF53L2 | 114-1778 |

**50 Volt d.c.X7R**

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ | 3K+ |
|---|---|---|---|---|---|---|---|
| 1000 pF | NEW 190-2259 | | | | | | |
| 4700 pF | NEW 190-2261 | | | | | | |
| 0.01 µF | 114-1772 | | | | | | |
| 0.01 µF | NEW 190-2262 | | | | | | |
| 0.022 µF | 114-1773 | | | | | | |
| 0.047 µF | 114-1774 | | | | | | |
| 0.047 µF | NEW 190-2263 | | | | | | |
| 0.1 µF | 114-1775 | | | | | | |
| 0.1 µF | 114-1777 | | | | | | |
| 0.1 µF | NEW 190-2264 | | | | | | |
| 0.22 µF | 114-1778 | | | | | | |

**100 Volt d.c. X7R**

| | Dimensions H | W | D | Lead Dia | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 1000 pF | 4 | 4 | 2.5 | 0.5 | 2.5 | K102K15X7RH53L2 | 114-1779 |
| 4700 pF | 4 | 4 | 2.5 | 0.5 | 2.5 | K472K15X7RH53L2 | 114-1780 |
| 0.01 µF | 4 | 4 | 2.5 | 0.5 | 2.5 | K103K15X7RH53L2 | 114-1781 |
| 0.022 µF | 5 | 5 | 3.2 | 0.5 | 2.5 | K223K15X7RH53L2 | 114-1819 |
| 0.047 µF | 4 | 4 | 2.5 | 0.5 | 2.5 | K473K20X7RH53L2 | 114-1782 |
| 0.1 µF | 5 | 5 | 3.2 | 0.5 | 2.5 | K104K20X7RH53L2 | 114-1783 |
| 0.1 µF | 5 | 5 | 3.2 | 0.5 | 5 | K104K20X7RH53H5 | 114-1784 |

228221

**100 Volt d.c. X7R**

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ | 3K+ |
|---|---|---|---|---|---|---|---|
| 1000 pF | 114-1779 | | | | | | |
| 4700 pF | 114-1780 | | | | | | |
| 0.01 µF | 114-1781 | | | | | | |
| 0.022 µF | 114-1819 | | | | | | |
| 0.047 µF | 114-1782 | | | | | | |
| 0.1 µF | 114-1783 | | | | | | |
| 0.1 µF | 114-1784 | | | | | | |

# Ceramic - Multilayer Leaded - Vishay - continued

**Capacitance Conversion Table**

| | | | | |
|---|---|---|---|---|
| 0.000001µF | = | 0.001nF | = | 1pF |
| 0.00001µF | = | 0.01nF | = | 10pF |
| 0.0001µF | = | 0.1nF | = | 100pF |
| 0.001µF | = | 1nF | = | 1000pF |
| 0.01µF | = | 10nF | = | 10000pF |
| 0.1µF | = | 100nF | = | 100000pF |
| 1µF | = | 1000nF | = | 1000000pF |
| 10µF | = | 10000nF | = | 10000000pF |
| 100µF | = | 100000nF | = | 100000000pF |

# Ceramic - Disc & Plate - Multicomp

High capacitance per unit volume make these suitable for high density PCB applications. The choice in type of ceramic dielectric is selected depending on characteristics and performance required.

**Low K**

Suitable for applications where a linear temperature coefficient, high stability, close tolerance and low losses are important such as temperature compensation in tuned circuits and filters, or coupling/decoupling in high frequency circuits.

**Medium K**

Suitable for applications where a small non-linear change of capacitance with temperature is permissible and very low losses are not essential such as coupling and decoupling.

**High K**

Offering the highest volumetric efficiency and suitable for applications where low losses and high stability are not required, such as coupling and decoupling.

208412

## Low K, 50 Volt d.c.

multicomp



Lead length=25
Lead dia.=0.6

Operating temperature -25°C to +85°C
Insulation resistance MΩ
Temperature coefficient 0 ± 60ppm/°C

| | Dielectric | Body Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 5 pF | C0G / NP0 | 5.5 | 2.5 | MCCHU5050C5 | 941-1640 |
| 10 pF | C0G / NP0 | 5.5 | 2.5 | MCCHU5100J5 | 941-1658 |
| 15 pF | C0G / NP0 | 5.5 | 2.5 | MCCHU5150J5 | 941-1666 |
| 22 pF | C0G / NP0 | 5.5 | 2.5 | MCCHU5220J5 | 941-1674 |
| 33 pF | C0G / NP0 | 5.5 | 2.5 | MCCHU5330J5 | 941-1682 |
| 47 pF | C0G / NP0 | 5.5 | 2.5 | MCCHU5470J5 | 941-1690 |
| 68 pF | C0G / NP0 | 6.5 | 2.5 | MCCHU6680J5 | 941-1704 |
| 100 pF | C0G / NP0 | 7.5 | 2.5 | MCCHU7101J5 | 941-1712 |
| 150 pF | C0G / NP0 | 7.5 | 2.5 | MCCHU8151J5 | 941-1720 |
| 220 pF | C0G / NP0 | 10.5 | 2.5 | MCCHU0221J5 | 941-1739 |

Price Each

| | Order Code | 25+ | 100+ | 500+ | 1K+ | 10K+ |
|---|---|---|---|---|---|---|
| 5 pF | 941-1640 | | | | | |
| 10 pF | 941-1658 | | | | | |
| 15 pF | 941-1666 | | | | | |
| 22 pF | 941-1674 | | | | | |
| 33 pF | 941-1682 | | | | | |
| 47 pF | 941-1690 | | | | | |
| 68 pF | 941-1704 | | | | | |
| 100 pF | 941-1712 | | | | | |
| 150 pF | 941-1720 | | | | | |
| 220 pF | 941-1739 | | | | | |

## Medium K, 50V d.c.

Operating temperature -25°C to +85°C Tolerance ±5%

| | Dielectric | Body Dia | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 100 pF | Y5P | 5.5 | 2.5 | MCBU5101K5 | 941-1747 |
| 220 pF | Y5P | 5.5 | 2.5 | MCBU5221K5 | 941-1755 |
| 330 pF | Y5P | 5.5 | 2.5 | MCBU5331K5 | 941-1763 |
| 470 pF | Y5P | 5.5 | 2.5 | MCBU5471K5 | 941-1771 |
| 1000 pF | Y5P | 5.5 | 2.5 | MCBU5102K5 | 941-1780 |
| 2200 pF | Y5P | 6.5 | 5 | MCBU6222K6 | 941-1798 |
| 3300 pF | Y5P | 7.5 | 5 | MCBU7332K6 | 941-1801 |
| 4700 pF | Y5P | 8.5 | 5 | MCBU8472K6 | 941-1810 |

Price Each

| | Order Code | 25+ | 100+ | 500+ | 1K+ | 10K+ |
|---|---|---|---|---|---|---|
| 100 pF | 941-1747 | | | | | |
| 220 pF | 941-1755 | | | | | |
| 330 pF | 941-1763 | | | | | |
| 470 pF | 941-1771 | | | | | |
| 1000 pF | 941-1780 | | | | | |
| 2200 pF | 941-1798 | | | | | |
| 3300 pF | 941-1801 | | | | | |
| 4700 pF | 941-1810 | | | | | |

## High K, 50V d.c.

Operating temperature -25°C to +85°C Tolerance +5%
Insulation resistance MΩ

| | Dielectric | Body Dia | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 1000 pF | Z5V | 5.5 | 2.5 | MCFU5102Z5 | 941-1828 |
| 2200 pF | Z5V | 5.5 | 2.5 | MCFU5222Z5 | 941-1836 |
| 4700 pF | Z5V | 5.5 | 2.5 | MCFU5472Z5 | 941-1844 |
| 0.01 µF | Y5V | 5.5 | 2.5 | MCFYU5103Z5 | 941-1852 |
| 0.1 µF | Y5V | 6.2 | 5 | MCFYU6104Z6 | 941-1887 |

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Price Each

| | Order Code | 25+ | 100+ | 500+ | 1K+ | 10K+ |
|---|---|---|---|---|---|---|
| 1000 pF | 941-1828 | | | | | |
| 2200 pF | 941-1836 | | | | | |
| 4700 pF | 941-1844 | | | | | |
| 0.01 µF | 941-1852 | | | | | |
| 0.1 µF | 941-1887 | | | | | |

# Ceramic - Disc & Plate - Panasonic

Panasonic

## ECK Series – High Voltage



- ECK High voltage series
- Resin dipped ceramic disc
- Flame retardant insulating coating

Lead length=20

| | | | | |
|---|---|---|---|---|
| Operating temp. | 1000V to 3000V | -25°C to +105°C | Insulation resistance @ 500V | MΩ |
| | 4000V to 15000V | -25°C to +85°C | Proof voltage | 1.5 VR |
| Tolerance | 1000V to 3000V | ± 10% | Proof power factor | 0.025 |
| | 4000V to 15000V | ±20% | | |
| Temp. coefficient | 1000V to 3000V | ±10% | | |
| | 4000V to 15000V | +20% - 30% | | |

**1000 Volt d.c.**

| | Body dia. | Body thickness | Lead pitch | Lead Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 220 pF | 6 | 4.5 | 5 | 0.6 | ECKA3A221KBP | 969-7136 |
| 470 pF | 6 | 4.5 | 5 | 0.6 | ECKA3A471KBP | 969-7144 |
| 2200 pF | 12 | 4.5 | 5 | 0.6 | ECKA3A222KBP | 969-7160 |
| 4700 pF | 15.5 | 4.5 | 10 | 0.65 | ECKA3A472KBP | 969-7179 |

**1000 Volt d.c.** Price Each

| | Order Code | 10+ | 50+ | 100+ | 500+ | 1K+ | 10K+ |
|---|---|---|---|---|---|---|---|
| 220 pF | 969-7136 | | | | | | |
| 470 pF | 969-7144 | | | | | | |
| 2200 pF | 969-7160 | | | | | | |
| 4700 pF | 969-7179 | | | | | | |

**2000 Volt d.c.**

| | Body dia. | Body thickness | Lead pitch | Lead Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 220 pF | 7 | 5 | 7.5 | 0.6 | ECKA3D221KBP | 969-7209 |
| 470 pF | 7 | 5 | 7.5 | 0.6 | ECKA3D471KBP | 969-7217 |
| 1000 pF | 10 | 5 | 7.5 | 0.6 | ECKA3D102KBP | 969-7225 |

**2000 Volt d.c.** Price Each

| | Order Code | 10+ | 50+ | 100+ | 500+ | 1K+ | 10K+ |
|---|---|---|---|---|---|---|---|
| 220 pF | 969-7209 | | | | | | |
| 470 pF | 969-7217 | | | | | | |
| 1000 pF | 969-7225 | | | | | | |

**3000 Volt d.c.**

| | Body dia. | Body thickness | Lead pitch | Lead Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 100 pF | 7.5 | 6 | 7.5 | 0.65 | ECKA3F101KBP | 969-7250 |
| 220 pF | 7.5 | 6 | 7.5 | 0.65 | ECKA3F221KBP | 969-7268 |
| 1000 pF | 12.5 | 6 | 7.5 | 0.65 | ECKA3F102KBP | 969-7284 |

**3000 Volt d.c.** Price Each

| | Order Code | 10+ | 50+ | 100+ | 500+ | 1K+ | 10K+ |
|---|---|---|---|---|---|---|---|
| 100 pF | 969-7250 | | | | | | |
| 220 pF | 969-7268 | | | | | | |
| 1000 pF | 969-7284 | | | | | | |

**4000 Volt d.c.**

| | Body dia. | Body thickness | Lead pitch | Lead Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 470 pF | 8.5 | 7 | 7.5 | 0.65 | ECKD3G471MDU | 969-7314 |
| 1000 pF | 11.5 | 7 | 10 | 0.65 | ECKD3G102MDU | 969-7322 |
| 2200 pF | 16 | 7 | 10 | 0.65 | ECKD3G222MDU | 969-7330 |

**4000 Volt d.c.** Price Each

| | Order Code | 10+ | 50+ | 100+ | 500+ | 1K+ | 10K+ |
|---|---|---|---|---|---|---|---|
| 470 pF | 969-7314 | | | | | | |
| 1000 pF | 969-7322 | | | | | | |
| 2200 pF | 969-7330 | | | | | | |

**6000 Volt d.c.**

| | Body dia. | Body thickness | Lead pitch | Lead Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 470 pF | 11.5 | 8 | 10 | 0.8 | ECKD3J471MDU | 969-7365 |
| 2200 pF | 21.5 | 8 | 10 | 0.8 | ECKD3J222MDU | 969-7381 |

**6000 V d.c.** Price Each

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ | 10K+ |
|---|---|---|---|---|---|---|---|
| 470 pF | 969-7365 | | | | | | |
| 2200 pF | 969-7381 | | | | | | |

**15000 Volt d.c.**

| | Body dia. | Body thickness | Lead pitch | Lead Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 1000 pF | 19 | 10 | 10 | 0.8 | ECKD4C102MDU | 969-7470 |

208651

**15000 Volt d.c.**

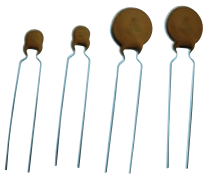
| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ | 10K+ |
|---|---|---|---|---|---|---|---|
| 1000 pF | **969-7470** | | | | | | |

# Ceramic - Disc & Plate - Vishay

## D Series

**Narrow Tolerance and General Purpose**

NEW



- High Stability
- Low Losses

| | Tolerance | Dielectric | Body Dia. (mm) | Lead Pitch (mm) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| **Class 1 - 100 VDC** | | | | | | |
| 1.8 pF | ± 0.25pF | C0G / NP0 | 5 | 2.5 | D189C20C0KH63L2R | 182-7794 |
| 1.8 pF | ± 0.25pF | C0G / NP0 | 5 | 5 | D189C20C0KH63J5R | 182-7795 |
| 2.2 pF | ± 0.25pF | C0G / NP0 | 5 | 2.5 | D229C20C0JH63L2R | 182-7796 |
| 2.2 pF | ± 0.25pF | C0G / NP0 | 5 | 5 | D229C20C0JH63J5R | 182-7797 |
| 2.7 pF | ± 0.25pF | C0G / NP0 | 5 | 2.5 | D279C20C0JH63L2R | 183-4985 |
| 3.3 pF | ± 0.25pF | C0G / NP0 | 5 | 2.5 | D339C20C0JH63L2R | 182-7798 |
| 3.3 pF | ± 0.25pF | C0G / NP0 | 5 | 5 | D339C20C0JH63J5R | 182-7799 |
| 3.9 pF | ± 0.25pF | C0G / NP0 | 5 | 2.5 | D399C20C0JH63L2R | 183-4986 |
| 4.7 pF | ± 0.25pF | C0G / NP0 | 5 | 2.5 | D479C20C0HH63L2R | 182-7800 |
| 4.7 pF | ± 0.25pF | C0G / NP0 | 5 | 5 | D479C20C0HH63J5R | 182-7801 |
| 4.7 pF | ± 0.25pF | C0G / NP0 | 5 | 2.5 | D479C20C0HF63L2R | 183-4987 |
| 5.6 pF | ± 0.25pF | C0G / NP0 | 5 | 2.5 | D569C20C0HH63L2R | 183-4989 |
| 5.6 pF | ± 0.25pF | C0G / NP0 | 5 | 5 | D569C20C0HH63J5R | 183-4991 |
| 6.8 pF | ± 0.25pF | C0G / NP0 | 5 | 2.5 | D689C20C0HH63L2R | 182-7802 |
| 6.8 pF | ± 0.25pF | C0G / NP0 | 5 | 5 | D689C20C0HH63J5R | 182-7803 |
| 8.2 pF | ± 0.25pF | C0G / NP0 | 5 | 2.5 | D829C20C0HH63L2R | 183-4992 |
| 8.2 pF | ± 0.25pF | C0G / NP0 | 5 | 5 | D829C20C0HH63J5R | 183-4993 |
| 10 pF | ± 2% | C0G / NP0 | 5 | 2.5 | D100G20C0GH63L2R | 182-7804 |
| 10 pF | ± 2% | C0G / NP0 | 5 | 5 | D100G20C0GH63J5R | 182-7805 |
| 12 pF | ± 2% | C0G / NP0 | 5 | 2.5 | D120G20C0GH63L2R | 183-4994 |
| 12 pF | ± 2% | C0G / NP0 | 5 | 5 | D120G20C0GH63J5R | 183-4995 |
| 15 pF | ± 2% | C0G / NP0 | 5 | 2.5 | D150G20C0GH63L2R | 182-7806 |
| 15 pF | ± 2% | C0G / NP0 | 5 | 5 | D150G20C0GH63J5R | 182-7808 |
| 18 pF | ± 2% | C0G / NP0 | 5 | 2.5 | D180G20C0GH63L2R | 183-4996 |
| 18 pF | ± 2% | C0G / NP0 | 5 | 5 | D180G20C0GH63J5R | 183-4997 |
| 22 pF | ± 2% | C0G / NP0 | 5 | 2.5 | D220G20C0GH63L2R | 182-7809 |
| 22 pF | ± 2% | C0G / NP0 | 5 | 5 | D220G20C0GH63J5R | 182-7810 |
| 27 pF | ± 2% | C0G / NP0 | 5 | 2.5 | D270G20C0GH63L2R | 183-4998 |
| 27 pF | ± 2% | C0G / NP0 | 5 | 5 | D270G20C0GH63J5R | 183-4999 |
| 33 pF | ± 2% | C0G / NP0 | 5 | 5 | D330G20C0GH63J5R | 182-7811 |
| 33 pF | ± 2% | C0G / NP0 | 5 | 2.5 | D330G20C0GH63L2R | 183-5000 |
| 39 pF | ± 2% | C0G / NP0 | 6.5 | 2.5 | D390G25C0GH63L2R | 183-5001 |
| 39 pF | ± 2% | C0G / NP0 | 6.5 | 5 | D390G25C0GH63J5R | 183-5003 |
| 47 pF | ± 2% | C0G / NP0 | 6.5 | 2.5 | D470G25C0GH63L2R | 182-7812 |
| 47 pF | ± 2% | C0G / NP0 | 6.5 | 5 | D470G25C0GH63J5R | 182-7813 |
| 56 pF | ± 2% | C0G / NP0 | 6.5 | 2.5 | D560G25C0GH63L2R | 183-5004 |
| 56 pF | ± 2% | C0G / NP0 | 6.5 | 5 | D560G25C0GH63J5R | 183-5005 |
| 68 pF | ± 2% | C0G / NP0 | 6.5 | 2.5 | D680G25C0GH63L2R | 182-7814 |
| 68 pF | ± 2% | C0G / NP0 | 6.5 | 5 | D680G25C0GH63J5R | 182-7815 |
| 82 pF | ± 2% | C0G / NP0 | 7.5 | 2.5 | D820G29C0GH63L2R | 183-5006 |
| 82 pF | ± 2% | C0G / NP0 | 7.5 | 5 | D820G29C0GH63J5R | 183-5007 |
| 100 pF | ± 2% | C0G / NP0 | 7.5 | 2.5 | D101G29C0GH63L2R | 182-7816 |
| 100 pF | ± 2% | C0G / NP0 | 7.5 | 5 | D101G29C0GH63J5R | 182-7817 |
| 120 pF | ± 2% | C0G / NP0 | 8.5 | 2.5 | D121G33C0GH63L2R | 183-5008 |
| 120 pF | ± 2% | C0G / NP0 | 8.5 | 5 | D121G33C0GH63J5R | 183-5009 |
| 150 pF | ± 2% | C0G / NP0 | 8.5 | 2.5 | D151G33C0GH63L2R | 182-7818 |
| 150 pF | ± 2% | C0G / NP0 | 8.5 | 5 | D151G33C0GH63J5R | 182-7821 |
| 180 pF | ± 2% | N750 | 10 | 2.5 | D181G39U2JH63L2R | 183-5010 |
| 180 pF | ± 2% | N750 | 10 | 5 | D181G39U2JH63J5R | 183-5011 |
| 220 pF | ± 2% | N750 | 10 | 2.5 | D221G39U2JH63L2R | 182-7822 |
| 220 pF | ± 2% | N750 | 10 | 5 | D221G39U2JH63J5R | 182-7823 |
| 270 pF | ± 2% | N750 | 10 | 2.5 | D271G39U2JH63L2R | 183-5012 |
| 270 pF | ± 2% | N750 | 10 | 5 | D271G39U2JH63J5R | 183-5013 |
| 330 pF | ± 2% | N750 | 10 | 2.5 | D331G47U2JH63L2R | 182-7824 |
| 330 pF | ± 2% | N750 | 10 | 5 | D331G47U2JH63J5R | 182-7825 |
| **Class 2 - 100 VDC** | | | | | | |
| 390 pF | ± 10% | Y5P | 5 | 2.5 | D391K20Y5PH63L2R | 183-5015 |
| 390 pF | ± 10% | Y5P | 5 | 5 | D391K20Y5PH63J5R | 183-5016 |
| 470 pF | ± 10% | Y5P | 5 | 2.5 | D471K20Y5PH63L2R | 182-7826 |
| 470 pF | ± 10% | Y5P | 5 | 5 | D471K20Y5PH63J5R | 182-7827 |
| 680 pF | ± 10% | Y5P | 5 | 2.5 | D681K20Y5PH63L2R | 182-7828 |
| 560 pF | ± 10% | Y5P | 5 | 2.5 | D561K20Y5PH63L2R | 183-5017 |
| 560 pF | ± 10% | Y5P | 5 | 5 | D561K20Y5PH63J5R | 183-5018 |
| 680 pF | ± 10% | Y5P | 5 | 5 | D681K20Y5PH63J5R | 182-7829 |
| 820 pF | ± 10% | Y5P | 5 | 2.5 | D821K20Y5PH63L2R | 183-5019 |
| 820 pF | ± 10% | Y5P | 5 | 5 | D821K20Y5PH63J5R | 183-5020 |
| 1000 pF | ± 10% | Y5P | 5 | 2.5 | D102K20Y5PH63L2R | 182-7830 |
| 1000 pF | ± 10% | Y5P | 5 | 5 | D102K20Y5PH63J5R | 182-7831 |
| 1200 pF | ± 10% | Y5P | 5 | 2.5 | D122K20Y5PH63L2R | 183-5021 |
| 1500 pF | ± 10% | Y5P | 6.5 | 2.5 | D152K25Y5PH63L2R | 182-7835 |
| 1500 pF | ± 10% | Y5P | 6.5 | 5 | D152K25Y5PH63J5R | 182-7836 |
| 1800 pF | ± 10% | Y5P | 6.5 | 2.5 | D182K25Y5PH63L2R | 182-7833 |
| 1800 pF | ± 10% | Y5P | 6.5 | 5 | D182K25Y5PH63J5R | 182-7834 |
| 2200 pF | ± 10% | Y5P | 6.5 | 2.5 | D222K25Y5PH63L2R | 182-7837 |
| 2200 pF | ± 10% | Y5P | 6.5 | 5 | D222K25Y5PH63J5R | 182-7838 |
| 2700 pF | ± 10% | Y5P | 6.5 | 2.5 | D272K25Y5PH63L2R | 183-5022 |
| 2700 pF | ± 10% | Y5P | 6.5 | 5 | D272K25Y5PH63J5R | 183-5023 |
| 3300 pF | ± 10% | Y5P | 7.5 | 2.5 | D332K29Y5PH63L2R | 182-7839 |
| 3300 pF | ± 10% | Y5P | 7.5 | 5 | D332K29Y5PH63J5R | 182-7840 |
| 3900 pF | ± 10% | Y5P | 7.5 | 5 | D392K29Y5PH63J5R | 183-5024 |
| 4700 pF | ± 10% | Y5P | 8.5 | 2.5 | D472K33Y5PH63L2R | 182-7841 |
| 4700 pF | ± 10% | Y5P | 8.5 | 5 | D472K33Y5PH63J5R | 182-7842 |

| | Tolerance | Dielectric | Body Dia. (mm) | Lead Pitch (mm) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| **Class 2 - 100 VDC** | | | | | | |
| 0.01 µF | ± 10% | Y5P | 11 | 2.5 | D103K43Y5PH63L2R | 182-7843 |
| 0.01 µF | ± 10% | Y5P | 11 | 5 | D103K43Y5PH6TJ5R | 182-7845 |
| 0.022 µF | -20%, +80% | Z5U | 10 | 5 | D223Z39Z5UH63J5R | 183-5025 |
| 0.022 µF | -20%, +80% | Z5U | 10 | 2.5 | D223Z39Z5UH63L2R | 183-5027 |
| 0.047 µF | -20%, +80% | Z5U | 11 | 5 | D473Z59Z5UH63J5R | 183-5028 |

611040

| | Order Code | Price Each 10+ | 50+ | 100+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| **Class 1** | | | | | | |
| 1.8 pF | **182-7794** | | | | | |
| 1.8 pF | **182-7795** | | | | | |
| 2.2 pF | **182-7796** | | | | | |
| 2.2 pF | **182-7797** | | | | | |
| 2.7 pF | **183-4985** | | | | | |
| 3.3 pF | **182-7798** | | | | | |
| 3.3 pF | **182-7799** | | | | | |
| 3.9 pF | **183-4986** | | | | | |
| 4.7 pF | **182-7800** | | | | | |
| 4.7 pF | **182-7801** | | | | | |
| 4.7 pF | **183-4987** | | | | | |
| 5.6 pF | **183-4989** | | | | | |
| 5.6 pF | **183-4991** | | | | | |
| 6.8 pF | **182-7802** | | | | | |
| 6.8 pF | **182-7803** | | | | | |
| 10 pF | **182-7804** | | | | | |
| 10 pF | **182-7805** | | | | | |
| 8.2 pF | **183-4992** | | | | | |
| 8.2 pF | **183-4993** | | | | | |
| 12 pF | **183-4994** | | | | | |
| 12 pF | **183-4995** | | | | | |
| 15 pF | **182-7806** | | | | | |
| 15 pF | **182-7808** | | | | | |
| 18 pF | **183-4996** | | | | | |
| 18 pF | **183-4997** | | | | | |
| 22 pF | **182-7809** | | | | | |
| 22 pF | **182-7810** | | | | | |
| 27 pF | **183-4998** | | | | | |
| 27 pF | **183-4999** | | | | | |
| 33 pF | **182-7811** | | | | | |
| 33 pF | **183-5000** | | | | | |
| 39 pF | **183-5001** | | | | | |
| 39 pF | **183-5003** | | | | | |
| 47 pF | **182-7812** | | | | | |
| 47 pF | **182-7813** | | | | | |
| 56 pF | **183-5004** | | | | | |
| 56 pF | **183-5005** | | | | | |
| 68 pF | **182-7814** | | | | | |
| 68 pF | **182-7815** | | | | | |
| 82 pF | **183-5006** | | | | | |
| 82 pF | **183-5007** | | | | | |
| 100 pF | **182-7816** | | | | | |
| 100 pF | **182-7817** | | | | | |
| 120 pF | **183-5008** | | | | | |
| 120 pF | **183-5009** | | | | | |
| 150 pF | **182-7818** | | | | | |
| 150 pF | **182-7821** | | | | | |
| 180 pF | **183-5010** | | | | | |
| 180 pF | **183-5011** | | | | | |
| 220 pF | **182-7822** | | | | | |
| 220 pF | **182-7823** | | | | | |
| 270 pF | **183-5012** | | | | | |
| 270 pF | **183-5013** | | | | | |
| 330 pF | **182-7824** | | | | | |
| 330 pF | **182-7825** | | | | | |
| **Class 2** | | | | | | |
| 390 pF | **183-5015** | | | | | |
| 390 pF | **183-5016** | | | | | |
| 470 pF | **182-7826** | | | | | |
| 470 pF | **182-7827** | | | | | |
| 560 pF | **183-5017** | | | | | |
| 560 pF | **183-5018** | | | | | |
| 680 pF | **182-7828** | | | | | |
| 680 pF | **182-7829** | | | | | |
| 820 pF | **183-5019** | | | | | |
| 820 pF | **183-5020** | | | | | |
| 1000 pF | **182-7830** | | | | | |
| 1000 pF | **182-7831** | | | | | |
| 1200 pF | **183-5021** | | | | | |
| 1800 pF | **182-7833** | | | | | |
| 1800 pF | **182-7834** | | | | | |
| 1500 pF | **182-7835** | | | | | |
| 1500 pF | **182-7836** | | | | | |
| 2200 pF | **182-7837** | | | | | |

# Ceramic - Disc & Plate - Vishay - continued

## D Series - continued

**Narrow Tolerance and General Purpose - continued**

| | Order Code | Price Each 10+ | 50+ | 100+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| **Class 2** | | | | | | |
| 2200 pF | 182-7838 | | | | | |
| 2700 pF | 183-5022 | | | | | |
| 2700 pF | 183-5023 | | | | | |
| 3300 pF | 182-7839 | | | | | |
| 3300 pF | 182-7840 | | | | | |
| 3900 pF | 183-5024 | | | | | |
| 4700 pF | 182-7841 | | | | | |
| 4700 pF | 182-7842 | | | | | |
| 0.01 µF | 182-7843 | | | | | |
| 0.01 µF | 182-7845 | | | | | |
| 0.022 µF | 183-5025 | | | | | |
| 0.022 µF | 183-5027 | | | | | |
| 0.047 µF | 183-5028 | | | | | |

## High Voltage, Low Loss (0.2% max.)

**HV LDF series**



| | |
|---|---|
| Operating temperature. | -30°C to +125°C |
| Capacitance tolerance | +10% |
| Temperature coefficient(Y5R) | ±15% |
| Dielectric strength | 200% of rated voltage |
| Insulation resistance | ≤ MΩ @ 500V dc |
| Dissipation factor | ≤0.2% |
| Climatic category | 30/105/21(1000V) |
| | 30/105/21(2000V) |

- High voltage ceramic disc capacitors
- Low loss, max 0.2%
- High reliability
- High capacitance per unit volume

| | Body Dia. | Body Thickness | Lead Pitch | Lead Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| **1000 Volt d.c.** | | | | | | |
| 150 pF | 6.5 | 4.5 | 5 | 0.6 | F151K25Y5RN6UK5R | 114-1785 |
| 220 pF | 6.5 | 4.5 | 5 | 0.6 | F221K25Y5RN6UK5R | 114-1786 |
| 330 pF | 7.5 | 4.5 | 5 | 0.6 | F331K29Y5RN6UK5R | 114-1787 |
| 470 pF | 7.5 | 4.5 | 5 | 0.6 | F471K29Y5RN6UK5R | 114-1789 |
| 680 pF | 8.5 | 4.5 | 5 | 0.6 | F681K33Y5RN6UK5R | 114-1791 |
| 1000 pF | 10 | 4.5 | 5 | 0.6 | F102K39Y5RN6UK5R | 114-1792 |
| 1500 pF | 11 | 4.5 | 5 | 0.6 | F152K43Y5RN6UK5R | 114-1793 |
| 2200 pF | 13.5 | 4.5 | 7.5 | 0.6 | F222K53Y5RN63K7R | 114-1794 |
| 3300 pF | 17.5 | 4.5 | 7.5 | 0.6 | F332K69Y5RN63K7R | 114-1795 |
| 4700 pF | 19 | 4.5 | 10 | 0.6 | F472K75Y5RN83K0R | 114-1796 |
| **2000 Volt d.c.** | | | | | | |
| 100 pF | 6.5 | 4.5 | 5 | 0.6 | F101K25Y5RP6UK5R | 114-1797 |
| 150 pF | 6.5 | 4.5 | 5 | 0.6 | F151K25Y5RP6UK5R | 114-1798 |
| 220 pF | 7.5 | 4.5 | 5 | 0.6 | F221K29Y5RP6UK5R | 114-1799 |
| 330 pF | 7.5 | 4.5 | 5 | 0.6 | F331K29Y5RP6UK5R | 114-1800 |
| 470 pF | 8.5 | 4.5 | 5 | 0.6 | F471K33Y5RP6UK5R | 114-1801 |
| 680 pF | 10 | 4.5 | 5 | 0.6 | F681K39Y5RP6UK5R | 114-1802 |
| 1000 pF | 11 | 4.5 | 5 | 0.6 | F102K43Y5RP6UK5R | 114-1803 |
| 1500 pF | 13.5 | 4.5 | 7.5 | 0.6 | F152K53Y5RP63K7R | 114-1804 |
| 2200 pF | 17.5 | 4.5 | 7.5 | 0.6 | F222K69Y5RP63K7R | 114-1805 |
| 3300 pF | 19 | 4.5 | 10 | 0.6 | F332K75Y5RP83K0R | 114-1807 |

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| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ | 3K+ |
|---|---|---|---|---|---|---|---|
| **1000 Volt d.c.** | | | | | | | |
| 150 pF | 114-1785 | | | | | | |
| 220 pF | 114-1786 | | | | | | |
| 330 pF | 114-1787 | | | | | | |
| 470 pF | 114-1789 | | | | | | |
| 680 pF | 114-1791 | | | | | | |
| 1000 pF | 114-1792 | | | | | | |
| 1500 pF | 114-1793 | | | | | | |
| 2200 pF | 114-1794 | | | | | | |
| 3300 pF | 114-1795 | | | | | | |
| 4700 pF | 114-1796 | | | | | | |
| **2000 Volt d.c.** | | | | | | | |
| 100 pF | 114-1797 | | | | | | |
| 150 pF | 114-1798 | | | | | | |
| 220 pF | 114-1799 | | | | | | |
| 330 pF | 114-1800 | | | | | | |
| 470 pF | 114-1801 | | | | | | |
| 680 pF | 114-1802 | | | | | | |
| 1000 pF | 114-1803 | | | | | | |
| 1500 pF | 114-1804 | | | | | | |
| 2200 pF | 114-1805 | | | | | | |
| 3300 pF | 114-1807 | | | | | | |

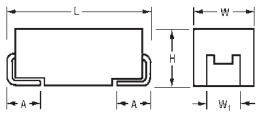
# Tantalum - Surface Mount - Multicomp

Very high capacitance per unit volume with excellent electrical performance and stability against both temperature and time. Suitable for a wide range of general purpose applications such as coupling, decoupling filters and timing circuits. Care should be taken during connection as all units are polarity sensitive.

208421

## MCCT Series






- General purpose
- Surface mount tantalum capacitors

| Case Code | L ±0.2 | W +0.2 -0.1 | H +0.2 -0.1 | A +0.3 -0.2 | $W_1$ ±0.2 | Reel Qty. | Tape Size |
|---|---|---|---|---|---|---|---|
| A | 3.2 | 1.6 | 1.6 | 0.8 | 1.2 | 2000 | 8mm |
| B | 3.5 | 2.8 | 1.9 | 0.8 | 2.2 | 2000 | 8mm |
| C | 6 | 3.2 | 2.6 | 1.3 | 2.2 | 500 | 12mm |
| D | 7.3 | 4.3 | 2.9 | 1.3 | 2.4 | 500 | 12mm |

| **6.3 Volt d.c.** | DC Leakage Current (µA) | ESR (Ω) | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 3.3 µF | 0.5 | 7 | A | MCCTA335M006 | 119-0105 |
| 10 µF | 0.5 | 6 | A | MCCTA106M006 | 119-0107 |
| 22 µF | 1.4 | 2.3 | C | MCCTC226M006 | 119-0108 |
| 47 µF | 1.9 | 1.8 | C | MCCTC476M006 | 119-0109 |

| **6.3 Volt d.c.** | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 3.3 µF | SMD 119-0105 | | | | | |
| 10 µF | SMD 119-0107 | | | | | |
| 22 µF | SMD 119-0108 | | | | | |
| 47 µF | SMD 119-0109 | | | | | |

| **10 Volt d.c.** | DC Leakage Current (µA) | ESR (Ω) | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 4.7 µF | 0.5 | 5 | A | MCCTA475M010 | 119-0110 |
| 6.8 µF | 0.7 | 3 | B | MCCTB685M010 | 119-0112 |
| 10 µF | 1 | 2.5 | B | MCCTB106M010 | 119-0113 |

| **10 Volt d.c.** | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 4.7 µF | SMD 119-0110 RL | | | | | |
| 6.8 µF | SMD 119-0112 | | | | | |
| 10 µF | SMD 119-0113 | | | | | |

| **16 Volt d.c.** | DC Leakage Current (µA) | ESR (Ω) | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 1 µF | 0.5 | 11 | A | MCCTA105M016 | 119-0114 |
| 2.2 µF | 0.5 | 6.5 | A | MCCTA225M016 | 119-0115 |
| 4.7 µF | 0.8 | 3.5 | B | MCCTB475M016 | 119-0116 |
| 10 µF | 1.6 | 2.8 | B | MCCTB106M016 | 119-0117 |
| 22 µF | 3.5 | 1.6 | C | MCCTC226M016 | 119-0119 |
| 33 µF | 5.3 | 0.9 | D | MCCTD336M016 | 119-0121 |
| 47 µF | 7.5 | 0.9 | D | MCCTD476M016 | 119-0122 |

| **16 Volt d.c.** | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1 µF | SMD 119-0114 RL | | | | | |
| 2.2 µF | SMD 119-0115 RL | | | | | |
| 4.7 µF | SMD 119-0116 | | | | | |
| 10 µF | SMD 119-0117 RL | | | | | |
| 22 µF | SMD 119-0119 | | | | | |
| 33 µF | SMD 119-0121 RL | | | | | |
| 47 µF | SMD 119-0122 | | | | | |

| **20 Volt d.c.** | DC Leakage Current (µA) | ESR (Ω) | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 2.2 µF | 0.5 | 3.5 | B | MCCTB225M020 | 119-0123 |
| 3.3 µF | 0.7 | 3 | B | MCCTB335M020 | 119-0124 |
| 4.7 µF | 1 | 3 | B | MCCTB475M020 | 119-0125 |
| 22 µF | 4.4 | 0.9 | D | MCCTD226M020 | 119-0126 |

| **20 Volt d.c.** | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 2.2 µF | SMD 119-0123 | | | | | |
| 3.3 µF | SMD 119-0124 | | | | | |
| 4.7 µF | SMD 119-0125 | | | | | |
| 22 µF | SMD 119-0126 | | | | | |

| **25 Volt d.c.** | DC Leakage Current (µA) | ESR (Ω) | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 1 µF | 0.5 | 8 | A | MCCTA105M025 | 119-0127 |
| 2.2 µF | 0.6 | 4.5 | B | MCCTB225M025 | 119-0128 |
| 10 µF | 2.5 | 2.5 | C | MCCTC106M025 | 119-0129 |

| **25 Volt d.c.** | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1 µF | SMD 119-0127 | | | | | |
| 2.2 µF | SMD 119-0128 | | | | | |
| 10 µF | SMD 119-0129 RL | | | | | |

| **35 Volt d.c.** | DC Leakage Current (µA) | ESR (Ω) | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 0.1 µF | 0.5 | 24 | A | MCCTA104M035 | 119-0132 |
| 0.22 µF | 0.5 | 18 | A | MCCTA224M035 | 119-0133 |
| 0.47 µF | 0.5 | 12 | A | MCCTA474M035 | 119-0134 |


RoHS ● Compliant ▲ Non-compliant

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 µF | 0.5 | 6.5 | B | MCCTB105M035 | | 119-0135 |
| 2.2 µF | 0.8 | 3.5 | C | MCCTC225M035 | | 119-0136 |
| 4.7 µF | 1.6 | 2.2 | C | MCCTC475M035 | | 119-0137 |
| 6.8 µF | 2.4 | 1.3 | D | MCCTD685M035 | | 119-0138 |
| 10 µF | 3.5 | 1 | D | MCCTD106M035 | | 119-0139 |

208532

**35 Volt d.c.**

| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.1 µF | SMD 119-0132 ● RL | | | | | |
| 0.22 µF | SMD 119-0133 ● | | | | | |
| 0.47 µF | SMD 119-0134 ● | | | | | |
| 1 µF | SMD 119-0135 ● | | | | | |
| 2.2 µF | SMD 119-0136 ● | | | | | |
| 4.7 µF | SMD 119-0137 ● | | | | | |
| 6.8 µF | SMD 119-0138 ● | | | | | |
| 10 µF | SMD 119-0139 ● RL | | | | | |

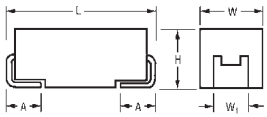
# Tantalum - Surface Mount - AVX

## Surface Mount – TAJ Series

**Standard Profile**



Supplied on 8mm or 12mm embossed tape




- Tantalum surface mount
- For use with modern soldering and washing processes
- Latest miniature case sizes
- Laser marked and conform to **CECC 30801-005**

Operating temperature -55°C to +85°C ESR measured at 100kHz 25°C
Tolerance ±10%

| Case Code | L ±0.2 | W +0.2 -0.1 | H +0.2 -0.1 |
|---|---|---|---|
| A | 3.2 | 1.6 | 1.6 |
| B | 3.5 | 2.8 | 1.9 |
| C | 6 | 3.2 | 2.6 |
| D | 7.3 | 4.3 | 2.9 |
| E | 7.3 | 4.3 | 4.1 |
| V | 7.3 | 6.1 | 3.45 |

**2.5 Volt d.c**

| | DC Leakage Current (µA) | ESR (Ω) @ 100kHz | Case Size | Tolerance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 100 µF | 2.5 | 1.4 | A | ± 10% | TAJA107K002RNJ | 165-8139 |
| 100 µF | 2.5 | 1.4 | B | ± 10% | TAJB107K002RNJ | 165-8149 |
| 220 µF | 5.5 | 0.3 | D | ± 10% | TAJD227K002RNJ | 165-8170 |
| 330 µF | 8.2 | 0.3 | D | ± 10% | TAJD337K002RNJ | 165-8173 |
| 470 µF | 9.4 | 0.2 | C | ± 10% | TAJC477K002RNJ | 143-2384 |
| 470 µF | 11.6 | 0.2 | D | ± 10% | TAJD477K002RNJ | 165-8176 |
| 680 µF | 17.0 | 0.2 | C | ± 10% | TAJC687K002RNJ | 165-8166 |
| 1000 µF | 25 | 0.2 | D | ± 20% | TAJD108M002RNJ | 165-8167 |
| 1500 µF | 37.5 | 0.2 | D | ± 10% | TAJD158K002RNJ | 165-8169 |
| 1500 µF | 37 | 0.2 | E | ± 10% | TAJE158K002RNJ | 165-8181 |

**2.5 Volt d.c.**

| | Order Code | 1+ | + | + | + | + |
|---|---|---|---|---|---|---|
| 100 µF | SMD 165-8139 ● RL | | | | | |
| 100 µF | SMD 165-8149 ● RL | | | | | |
| 220 µF | SMD 165-8170 ● RL | | | | | |
| 330 µF | SMD 165-8173 ● RL | | | | | |
| 470 µF | SMD 143-2384 ● | | | | | |
| 470 µF | SMD 165-8176 ● RL | | | | | |
| 680 µF | SMD 165-8166 ● RL | | | | | |
| 1000 µF | SMD 165-8167 ● RL | | | | | |
| 1500 µF | SMD 165-8169 ● RL | | | | | |
| 1500 µF | SMD 165-8181 ● RL | | | | | |

**4 Volt d.c**

| | DC Leakage Current (µA) | ESR (Ω) @ 100kHz | Case Size | Tolerance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 22 µF | 1.4 | | A | ± 10% | TAJA226K004RNJ | 143-2346 |
| 33 µF | 1.3 | 3 | A | ± 10% | TAJA336K004RNJ | 196-952 |
| 47 µF | 1.9 | 2.4 | B | ± 10% | TAJB476K004RNJ | 196-964 |
| 68 µF | 2.7 | 1.5 | A | ± 10% | TAJA686K004RNJ | 165-8148 |
| 68 µF | 2.7 | 1.8 | B | ± 10% | TAJB686K004RNJ | 165-8159 |
| 100 µF | 2.5 | 1.4 | A | ± 10% | TAJA107K004RNJ | 165-8140 |
| 100 µF | 4 | 1.6 | B | ± 10% | TAJB107K004RNJ | 196-988 |
| 220 µF | 8.8 | 1.1 | B | ± 20% | TAJB227M004RNJ | 165-8156 |
| 220 µF | 8.8 | 1.2 | C | ± 10% | TAJC227K004RNJ | 196-990 |
| 220 µF | | 0.9 | D | ± 10% | TAJD227K004RNJ | 165-8171 |
| 330 µF | | 0.9 | D | ± 10% | TAJD337K004RNJ | 165-8174 |
| 470 µF | 18.8 | 0.9 | D | ± 10% | TAJD477K004RNJ | 143-2401 |
| 680 µF | 27.2 | 0.5 | D | ± 10% | TAJD687K004RNJ | 143-2403 |
| 680 µF | 27.2 | 0.9 | E | ± 10% | TAJE687K004RNJ | 165-8186 |
| 1500 µF | 60 | 0.2 | V | ± 20% | TAJV158M004RNJ | 165-8309 |

**4 Volt d.c.**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 22 µF | SMD 143-2346 ● | | | | | |
| 33 µF | SMD 196-952 ● RL | | | | | |
| 47 µF | SMD 196-964 ● RL | | | | | |
| 68 µF | SMD 165-8148 ● RL | | | | | |
| 68 µF | SMD 165-8159 ● RL | | | | | |
| 100 µF | SMD 165-8140 ● RL | | | | | |
| 100 µF | SMD 196-988 ● RL | | | | | |

**4 Volt d.c.**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 220 µF | SMD 165-8156 ● RL | | | | | |
| 220 µF | SMD 196-990 ● RL | | | | | |
| 220 µF | SMD 165-8171 ● RL | | | | | |
| 330 µF | SMD 165-8174 ● RL | | | | | |
| 470 µF | SMD 143-2401 ● | | | | | |
| 680 µF | SMD 143-2403 ● | | | | | |
| 680 µF | SMD 165-8186 ● RL | | | | | |
| 1500 µF | SMD 165-8309 ● RL | | | | | |

**6.3 Volt d.c.**

| | DC Leakage Current (µA) | ESR (Ω) @ 100kHz | Case Size | Tolerance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 3.3 µF | | 6 | A | ± 20% | TAJA335M006RNJ | 178-0978 |
| 4.7 µF | | 6 | A | ± 10% | TAJA475K006RNJ | 143-2350 |
| 10 µF | 0.6 | 4 | A | ± 10% | TAJA106K006RNJ | 197-014 |
| 15 µF | 0.9 | 3.5 | A | ± 10% | TAJA156K006RNJ | 165-8143 |
| 22 µF | 1.3 | 3 | A | ± 10% | TAJA226K006RNJ | 197-038 |
| 22 µF | | 2.3 | B | ± 10% | TAJB226K006RNJ | 143-2361 |
| 33 µF | 2.1 | 2.5 | A | ± 10% | TAJA336K006RNJ | 143-2348 |
| 33 µF | 2.1 | 2.2 | B | ± 10% | TAJB336K006RNJ | 197-040 |
| 47 µF | 2.8 | 1.6 | A | ± 10% | TAJA476K006RNJ | 143-2351 |
| 47 µF | 3 | 1.6 | C | ± 10% | TAJC476K006RNJ | 197-051 |
| 68 µF | 4.2 | 1.8 | B | ± 10% | TAJB686K006RNJ | 197-063 |
| 100 µF | 6.3 | 1.7 | B | ± 10% | TAJB107K006RNJ | 113-5048 |
| 100 µF | 6.3 | 0.9 | C | ± 10% | TAJC107K006RNJ | 143-2373 |
| 100 µF | 6.3 | 1.7 | B | ± 20% | TAJB107M006RNJ | 183-3917 |
| 150 µF | 9.5 | 1.2 | B | ± 20% | TAJB157M006RNJ | 165-8154 |
| 150 µF | 9.5 | 1.3 | C | ± 10% | TAJC157K006RNJ | 197-075 |
| 150 µF | 9.5 | 0.9 | D | ± 10% | TAJD157K006RNJ | 165-8168 |
| 220 µF | 13.9 | 1.2 | C | ± 10% | TAJC227K006RNJ | 197-087 |
| 220 µF | 13.9 | 0.9 | D | ± 10% | TAJD227K006RNJ | 165-8172 |
| 470 µF | 29.6 | 0.4 | D | ± 10% | TAJD477K006RNJ | 113-5049 |
| 470 µF | 28 | 0.4 | E | ± 10% | TAJE477K006RNJ | 165-8184 |
| 1000 µF | 63 | 0.4 | V | ± 20% | TAJV108M006RNJ | 165-8305 |

**6.3 Volt d.c.**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 3.3 µF | 178-0978 ● | | | | | |
| 4.7 µF | SMD 143-2350 ● | | | | | |
| 10 µF | SMD 197-014 ● RL | | | | | |
| 15 µF | SMD 165-8143 ● RL | | | | | |
| 22 µF | SMD 197-038 ● RL | | | | | |
| 22 µF | SMD 143-2361 ● | | | | | |
| 33 µF | SMD 143-2348 ● | | | | | |
| 33 µF | SMD 197-040 ● RL | | | | | |
| 47 µF | SMD 143-2351 ● | | | | | |
| 47 µF | SMD 197-051 ● RL | | | | | |
| 68 µF | SMD 197-063 ● RL | | | | | |
| 100 µF | SMD 113-5048 ● RL | | | | | |
| 100 µF | SMD 143-2373 ● | | | | | |
| 100 µF | SMD 183-3917 ● | | | | | |
| 150 µF | SMD 165-8154 ● RL | | | | | |
| 150 µF | SMD 197-075 ● RL | | | | | |
| 150 µF | SMD 165-8168 ● RL | | | | | |
| 220 µF | SMD 197-087 ● RL | | | | | |
| 220 µF | SMD 165-8172 ● RL | | | | | |
| 470 µF | SMD 113-5049 ● RL | | | | | |
| 470 µF | SMD 165-8184 ● RL | | | | | |
| 1000 µF | SMD 165-8305 ● RL | | | | | |

**10 Volt d.c.**

| | DC Leakage Current (µA) | ESR (Ω) @ 100kHz | Case Size | Tolerance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 2.2 µF | 0.5 | 7 | A | ± 10% | TAJA225K010RNJ | 498-646 |
| 3.3 µF | 0.5 | 5.5 | A | ± 10% | TAJA335K010RNJ | 197-117 |
| 4.7 µF | 0.5 | 5 | A | ± 10% | TAJA475K010RNJ | 498-658 |
| 4.7 µF | | 3.5 | B | ± 10% | TAJB475K010RNJ | 143-2365 |
| 6.8 µF | 0.7 | 3 | B | ± 10% | TAJB685K010RNJ | 197-129 |
| 10 µF | 1 | 3 | A | ± 10% | TAJA106K010RNJ | 197-130 |
| 10 µF | 1 | 2.5 | B | ± 10% | TAJB106K010RNJ | 498-660 |
| 10 µF | | 2 | C | ± 10% | TAJC106K010RNJ | 143-2372 |
| 10 µF | | 2.5 | B | ± 20% | TAJB106M010RNJ | 183-3918 |
| 15 µF | 1.5 | 3.2 | A | ± 10% | TAJA156K010RNJ | 143-2342 |
| 15 µF | 1.6 | 2.8 | B | ± 10% | TAJB156K010RNJ | 197-142 |
| 22 µF | 2.2 | 3 | A | ± 10% | TAJA226K010RNJ | 113-5050 |
| 22 µF | 2.2 | 2.4 | B | ± 10% | TAJB226K010RNJ | 197-154 |
| 22 µF | 2.2 | 1.8 | C | ± 10% | TAJC226K010RNJ | 498-671 |
| 22 µF | 2.2 | 2.4 | B | ± 20% | TAJB226M010RNJ | 183-3919 |
| 33 µF | 3.3 | 1.7 | A | ± 10% | TAJA336K010RNJ | 165-8145 |
| 33 µF | 3.3 | 1.8 | B | ± 10% | TAJB336K010RNJ | 143-2363 |
| 47 µF | 4.7 | 1 | B | ± 10% | TAJB476K010RNJ | 143-2366 |
| 47 µF | 4.7 | 1.2 | C | ± 10% | TAJC476K010RNJ | 197-166 |
| 47 µF | 4.7 | 0.9 | D | ± 10% | TAJD476K010RNJ | 498-683 |
| 68 µF | 6.8 | 1.4 | B | ± 10% | TAJB686K010RNJ | 143-2371 |
| 68 µF | 6.8 | 1.3 | C | ± 10% | TAJC686K010RNJ | 197-178 |
| 100 µF | 10 | 1.4 | B | ± 20% | TAJB107M010RNJ | 165-8150 |
| 100 µF | 10 | 1.2 | C | ± 10% | TAJC107K010RNJ | 197-180 |
| 100 µF | 10 | 0.9 | D | ± 10% | TAJD107K010RNJ | 498-695 |
| 150 µF | 15 | 0.9 | C | ± 10% | TAJC157K010RNJ | 113-5051 |
| 220 µF | 22 | 0.9 | D | ± 10% | TAJD227K010RNJ | 197-191 |
| 330 µF | 33 | 0.9 | D | ± 10% | TAJD337K010RNJ | 113-5052 |
| 330 µF | 33 | 0.9 | E | ± 10% | TAJE337K010RNJ | 197-208 |
| 470 µF | 47 | 0.5 | E | ± 10% | TAJE477K010RNJ | 143-2411 |

# Tantalum - Surface Mount - AVX - continued

## Surface Mount – TAJ Series - continued

### Standard Profile - continued

**10 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 2.2 µF | SMD 498-646● RL | | | | | |
| 3.3 µF | SMD 197-117● RL | | | | | |
| 4.7 µF | SMD 498-658● RL | | | | | |
| 4.7 µF | SMD 143-2365● | | | | | |
| 6.8 µF | SMD 197-129● RL | | | | | |
| 10 µF | SMD 197-130● RL | | | | | |
| 10 µF | SMD 498-660● RL | | | | | |
| 10 µF | SMD 143-2372● | | | | | |
| 10 µF | SMD 183-3918● | | | | | |
| 15 µF | SMD 143-2342● | | | | | |
| 15 µF | SMD 197-142● RL | | | | | |
| 22 µF | SMD 113-5050● RL | | | | | |
| 22 µF | SMD 197-154● RL | | | | | |
| 22 µF | SMD 498-671● RL | | | | | |
| 22 µF | SMD 183-3919● | | | | | |
| 33 µF | SMD 165-8145● RL | | | | | |
| 33 µF | SMD 143-2363● | | | | | |
| 47 µF | SMD 143-2366● | | | | | |
| 47 µF | SMD 197-166● RL | | | | | |
| 47 µF | SMD 498-683● RL | | | | | |
| 68 µF | SMD 143-2371● | | | | | |
| 68 µF | SMD 197-178● RL | | | | | |
| 100 µF | SMD 165-8150● RL | | | | | |
| 100 µF | SMD 197-180● RL | | | | | |
| 100 µF | SMD 498-695● RL | | | | | |
| 150 µF | SMD 113-5051● RL | | | | | |
| 220 µF | SMD 197-191● RL | | | | | |
| 330 µF | SMD 113-5052● RL | | | | | |
| 330 µF | SMD 197-208● RL | | | | | |
| 470 µF | SMD 143-2411● | | | | | |

**16 Volt d.c.**

| | DC Leakage Current (µA) | ESR (Ω) @ 100kHz | Case Size | Tolerance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 1 µF | 0.5 | 11 | A | ± 10% | TAJA105K016RNJ | 498-701 |
| 1.5 µF | 0.5 | 8 | A | ± 10% | TAJA155K016RNJ | 197-221 |
| 2.2 µF | 0.5 | 6.5 | A | ± 10% | TAJA225K016RNJ | 197-233 |
| 2.2 µF | 0.5 | 5.5 | B | ± 10% | TAJB225K016RNJ | 197-245 |
| 3.3 µF | 0.5 | 5 | A | ± 10% | TAJA335K016RNJ | 197-257 |
| 4.7 µF | 0.8 | 4 | A | ± 10% | TAJA475K016RNJ | 197-269 |
| 4.7 µF | 0.8 | 3.5 | B | ± 10% | TAJB475K016RNJ | 498-725 |
| 4.7 µF | 0.8 | 3.5 | B | ± 20% | TAJB475M016RNJ | 183-3920 |
| 6.8 µF | 2.4 | 2.5 | B | ± 10% | TAJB685K016RNJ | 165-8158 |
| 10 µF | 1.6 | 3 | A | ± 10% | TAJA106K016RNJ | 143-2339 |
| 10 µF | 1.6 | 2.8 | B | ± 10% | TAJB106K016RNJ | 498-737 |
| 10 µF | 1.6 | 2 | C | ± 10% | TAJC106K016RNJ | 197-270 |
| 15 µF | 2.4 | 2 | A | ± 20% | TAJA156M016RNJ | 165-8144 |
| 15 µF | 2.4 | 2.5 | B | ± 10% | TAJB156K016RNJ | 197-282 |
| 22 µF | 3.5 | 2.3 | B | ± 10% | TAJB226K016RNJ | 197-294 |
| 22 µF | 3.5 | 1.6 | C | ± 10% | TAJC226K016RNJ | 197-300 |
| 22 µF | 3.5 | 1.1 | D | ± 10% | TAJD226K016RNJ | 498-749 |
| 22 µF | 3.5 | 1.1 | D | ± 20% | TAJD226M016RNJ | 183-3925 |
| 33 µF | 5.3 | 2.1 | B | ± 10% | TAJB336K016RNJ | 113-5054 |
| 33 µF | 5.2 | 1.5 | C | ± 10% | TAJC336K016RNJ | 197-312 |
| 33 µF | 5.3 | 0.9 | D | ± 10% | TAJD336K016RNJ | 498-750 |
| 47 µF | 7.5 | 1.4 | C | ± 10% | TAJC476K016RNJ | 197-324 |
| 47 µF | 7.5 | 0.9 | D | ± 10% | TAJD476K016RNJ | 498-762 |
| 47 µF | 7.5 | 0.8 | D | ± 20% | TAJD476M016RNJ | 183-3926 |
| 68 µF | 10.9 | 1.3 | C | ± 10% | TAJC686K016RNJ | 113-5055 |
| 68 µF | 10.8 | 0.9 | D | ± 10% | TAJD686K016RNJ | 197-336 |
| 100 µF | 16 | 0.9 | D | ± 10% | TAJD107K016RNJ | 197-348 |
| 100 µF | 16 | 1 | E | ± 10% | TAJE107K016RNJ | 498-774 |
| 150 µF | 24 | 0.9 | D | ± 10% | TAJD157K016RNJ | 197-350 |
| 150 µF | 24 | 0.3 | E | ± 10% | TAJE157K016RNJ | 165-8180 |
| 220 µF | 35.2 | 0.5 | E | ± 10% | TAJE227K016RNJ | 113-5056 |
| 220 µF | 35.2 | 0.9 | V | ± 10% | TAJV227K016RNJ | 143-2481 |

**16 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1 µF | SMD 498-701● RL | | | | | |
| 1.5 µF | SMD 197-221● RL | | | | | |
| 2.2 µF | SMD 197-233● RL | | | | | |
| 2.2 µF | SMD 197-245● RL | | | | | |
| 3.3 µF | SMD 197-257● RL | | | | | |
| 4.7 µF | SMD 197-269● RL | | | | | |
| 4.7 µF | SMD 498-725● RL | | | | | |
| 4.7 µF | SMD 183-3920● | | | | | |
| 6.8 µF | SMD 165-8158● RL | | | | | |
| 10 µF | SMD 143-2339● | | | | | |
| 10 µF | SMD 498-737● RL | | | | | |
| 10 µF | SMD 197-270● RL | | | | | |
| 15 µF | SMD 165-8144● RL | | | | | |
| 15 µF | SMD 197-282● RL | | | | | |
| 22 µF | SMD 197-294● RL | | | | | |
| 22 µF | SMD 197-300● RL | | | | | |
| 22 µF | SMD 498-749● RL | | | | | |
| 22 µF | SMD 183-3925● | | | | | |

**16 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 33 µF | SMD 113-5054● RL | | | | | |
| 33 µF | SMD 197-312● RL | | | | | |
| 33 µF | SMD 498-750● RL | | | | | |
| 47 µF | SMD 197-324● RL | | | | | |
| 47 µF | SMD 498-762● RL | | | | | |
| 47 µF | SMD 183-3926● | | | | | |
| 68 µF | SMD 113-5055● RL | | | | | |
| 68 µF | SMD 197-336● RL | | | | | |
| 100 µF | SMD 197-348● RL | | | | | |
| 100 µF | SMD 498-774● RL | | | | | |
| 150 µF | SMD 197-350● RL | | | | | |
| 150 µF | SMD 165-8180● RL | | | | | |
| 220 µF | SMD 113-5056● RL | | | | | |
| 220 µF | SMD 143-2481● | | | | | |

**20 Volt d.c.**

| | DC Leakage Current (µA) | ESR (Ω) @ 100kHz | Case Size | Tolerance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 0.1 µF | 0.5 | 25 | R | ± 10% | TAJR104K020RNJ | 113-5082 |
| 1 µF | 0.5 | 9 | A | ± 10% | TAJA105K020RNJ | 197-361 |
| 2.2 µF | 0.5 | 3.5 | B | ± 10% | TAJB225K020RNJ | 197-373 |
| 3.3 µF | 0.7 | 3 | B | ± 10% | TAJB335K020RNJ | 197-385 |
| 4.7 µF | 1 | 4 | A | ± 10% | TAJA475K020RNJ | 197-397 |
| 4.7 µF | 1 | 3 | B | ± 10% | TAJB475K020RNJ | 197-403 |
| 4.7 µF | | 1.4 | C | ± 10% | TAJC475K020R | 183-3922 |
| 6.8 µF | 1.4 | 2.5 | A | ± 10% | TAJA685K020RNJ | 143-2353 |
| 6.8 µF | 1.4 | 2 | C | ± 10% | TAJC685K020RNJ | 498-786 |
| 10 µF | 2 | 2.1 | B | ± 10% | TAJB106K020RNJ | 197-427 |
| 10 µF | 2 | 1.9 | C | ± 10% | TAJC106K020RNJ | 498-798 |
| 10 µF | 2 | 2.1 | B | ± 20% | TAJB106M020RNJ | 183-3921 |
| 15 µF | 3 | 2 | B | ± 10% | TAJB156K020RNJ | 197-439 |
| 22 µF | 4.4 | 1.8 | B | ± 10% | TAJB226K020RNJ | 113-5057 |
| 22 µF | 4.4 | 1.6 | C | ± 10% | TAJC226K020RNJ | 197-440 |
| 22 µF | 4 | 0.9 | D | ± 10% | TAJD226K020RNJ | 498-804 |
| 33 µF | 6.6 | 1.5 | C | ± 10% | TAJC336K020RNJ | 197-452 |
| 47 µF | 9.4 | 0.9 | D | ± 10% | TAJD476K020RNJ | 197-464 |
| 47 µF | 9.4 | 1 | E | ± 10% | TAJE476K020RNJ | 498-816 |
| 68 µF | 13.6 | 0.9 | D | ± 10% | TAJD686K020RNJ | 143-2402 |
| 68 µF | 13.6 | 0.9 | E | ± 10% | TAJE686K020RNJ | 165-8935 |
| 100 µF | 20 | 0.9 | D | ± 10% | TAJD107K020RNJ | 113-5058 |
| 100 µF | 20 | 0.9 | V | ± 10% | TAJV107K020RNJ | 165-8303 |
| 150 µF | 30 | 0.5 | V | ± 10% | TAJV157K020RNJ | 165-8307 |

**20 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.1 µF | SMD 113-5082● RL | | | | | |
| 1 µF | SMD 197-361● RL | | | | | |
| 2.2 µF | SMD 197-373● RL | | | | | |
| 3.3 µF | SMD 197-385● RL | | | | | |
| 4.7 µF | SMD 197-397● RL | | | | | |
| 4.7 µF | SMD 197-403● RL | | | | | |
| 4.7 µF | 183-3922● | | | | | |
| 6.8 µF | SMD 143-2353● | | | | | |
| 6.8 µF | SMD 498-786● RL | | | | | |
| 10 µF | SMD 197-427● RL | | | | | |
| 10 µF | SMD 498-798● RL | | | | | |
| 10 µF | SMD 183-3921● | | | | | |
| 15 µF | SMD 197-439● RL | | | | | |
| 22 µF | SMD 113-5057● RL | | | | | |
| 22 µF | SMD 197-440● RL | | | | | |
| 22 µF | SMD 498-804● RL | | | | | |
| 33 µF | SMD 197-452● RL | | | | | |
| 47 µF | SMD 197-464● RL | | | | | |
| 47 µF | SMD 498-816● RL | | | | | |
| 68 µF | SMD 143-2402● | | | | | |
| 100 µF | SMD 113-5058● RL | | | | | |
| 100 µF | SMD 165-8303● RL | | | | | |
| 150 µF | SMD 165-8307● RL | | | | | |

**25 Volt d.c.**

| | DC Leakage Current (µA) | ESR (Ω) @ 100kHz | Case Size | Tolerance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 0.47 µF | 0.5 | 14 | A | ± 10% | TAJA474K025RNJ | 498-828 |
| 0.68 µF | 0.5 | 10 | A | ± 10% | TAJA684K025RNJ | 498-830 |
| 1 µF | 5 | 8 | A | ± 10% | TAJA105K025RNJ | 197-476 |
| 1.5 µF | 0.5 | 5 | B | ± 10% | TAJB155K025RNJ | 498-841 |
| 2.2 µF | 0.5 | 7 | A | ± 10% | TAJA225K025RNJ | 197-490 |
| 2.2 µF | 0.6 | 4.5 | B | ± 10% | TAJB225K025RNJ | 498-853 |
| 4.7 µF | 1.2 | 3.1 | A | ± 10% | TAJA475K025RNJ | 165-8146 |
| 4.7 µF | 1.1 | 2.8 | B | ± 10% | TAJB475K025RNJ | 197-506 |
| 4.7 µF | 1.2 | 2.4 | C | ± 10% | TAJC475K025RNJ | 498-877 |
| 6.8 µF | 1.7 | 2.8 | B | ± 10% | TAJB685K025RNJ | 113-5059 |
| 10 µF | 2.5 | 1.8 | C | ± 10% | TAJC106K025RNJ | 197-518 |
| 10 µF | 2.5 | 1.2 | D | ± 10% | TAJD106K025RNJ | 498-890 |
| 10 µF | 2.5 | 1.8 | C | ± 20% | TAJC106M025RNJ | 183-3924 |
| 15 µF | 3.8 | 1 | D | ± 10% | TAJD156K025RNJ | 498-907 |
| 22 µF | 5.5 | 1.4 | C | ± 10% | TAJC226K025RNJ | 113-5060 |
| 22 µF | 5.5 | 0.9 | D | ± 10% | TAJD226K025RNJ | 197-520 |
| 22 µF | 5.5 | 0.9 | D | ± 20% | TAJD226M025RNJ | 183-3927 |
| 33 µF | 8.3 | 0.9 | D | ± 10% | TAJD336K025RNJ | 143-2397 |
| 33 µF | 8.3 | 0.9 | E | ± 10% | TAJE336K025RNJ | 165-8934 |
| 47 µF | 11.7 | 0.9 | D | ± 10% | TAJD476K025RNJ | 197-531 |


RoHS ● Compliant ▲ Non-compliant

**25 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.47 µF | SMD 498-828 RL | | | | | |
| 0.68 µF | SMD 498-830 RL | | | | | |
| 1 µF | SMD 197-476 RL | | | | | |
| 1.5 µF | SMD 498-841 RL | | | | | |
| 2.2 µF | SMD 197-490 RL | | | | | |
| 2.2 µF | SMD 498-853 RL | | | | | |
| 4.7 µF | SMD 165-8146 RL | | | | | |
| 4.7 µF | SMD 197-506 RL | | | | | |
| 4.7 µF | SMD 498-877 RL | | | | | |
| 6.8 µF | SMD 113-5059 RL | | | | | |
| 10 µF | SMD 197-518 RL | | | | | |
| 10 µF | SMD 498-890 RL | | | | | |
| 10 µF | SMD 183-3924 | | | | | |
| 15 µF | SMD 498-907 RL | | | | | |
| 22 µF | SMD 113-5060 RL | | | | | |
| 22 µF | SMD 197-520 RL | | | | | |
| 22 µF | SMD 183-3927 | | | | | |
| 33 µF | SMD 143-2397 | | | | | |
| 33 µF | SMD 165-8934 RL | | | | | |
| 47 µF | SMD 197-531 RL | | | | | |

**35 Volt d.c.**

| | DC Leakage Current (µA) | ESR (Ω) @ 100kHz | Case Size | Tolerance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 0.1 µF | 0.5 | 24 | A | ± 10% | TAJA104K035RNJ | 197-543 |
| 0.22 µF | 0.5 | 18 | A | ± 10% | TAJA224K035RNJ | 197-555 |
| 0.33 µF | 0.5 | 15 | A | ± 10% | TAJA334K035RNJ | 498-919 |
| 0.47 µF | 0.5 | 10 | B | ± 10% | TAJB474K035RNJ | 197-579 |
| 0.68 µF | 0.5 | 8 | B | ± 10% | TAJB684K035RNJ | 165-8157 |
| 1 µF | 0.5 | 7.5 | A | ± 10% | TAJA105K035RNJ | 113-5061 |
| 1 µF | 0.5 | 6.5 | B | ± 10% | TAJB105K035RNJ | 498-920 |
| 1.5 µF | 0.5 | 5.2 | A | ± 10% | TAJA155K035RNJ | 197-580 |
| 1.5 µF | 0.5 | 4.5 | C | ± 10% | TAJC155K035RNJ | 165-8160 |
| 2.2 µF | 0.8 | 4.5 | A | ± 10% | TAJA225K035RNJ | 143-2344 |
| 2.2 µF | 0.8 | 4.2 | B | ± 10% | TAJB225K035RNJ | 143-2360 |
| 2.2 µF | 0.8 | 3.5 | C | ± 10% | TAJC225K035RNJ | 498-932 |
| 3.3 µF | 1.2 | 3.5 | B | ± 10% | TAJB335K035RNJ | 143-2362 |
| 4.7 µF | 1.6 | 3.1 | B | ± 10% | TAJB475K035RNJ | 197-592 |
| 4.7 µF | 1.6 | 1.5 | C | ± 10% | TAJC475K035RNJ | 197-609 |
| 4.7 µF | 1.6 | 1.5 | D | ± 10% | TAJD475K035RNJ | 498-944 |
| 6.8 µF | 2.4 | 1.8 | C | ± 10% | TAJC685K035RNJ | 197-610 |
| 6.8 µF | 15 | 1.3 | J | ± 20% | TAJD685M035RNJ | 178-0984 |
| 10 µF | 3.5 | 1.6 | C | ± 10% | TAJC106K035RNJ | 197-634 |
| 10 µF | 3.5 | 1 | D | ± 10% | TAJD106K035RNJ | 498-956 |
| 10 µF | 11.6 | 0.9 | E | ± 10% | TAJE106K035RNJ | 165-8178 |
| 15 µF | 5.3 | 1.4 | C | ± 10% | TAJC156K035RNJ | 143-2376 |
| 15 µF | 5.2 | 1.4 | D | ± 10% | TAJD156K035RNJ | 197-646 |
| 22 µF | 7.7 | 0.9 | D | ± 10% | TAJD226K035RNJ | 197-658 |
| 22 µF | 7.7 | 0.9 | E | ± 10% | TAJE226K035RNJ | 498-968 |
| 33 µF | 11.5 | 0.9 | D | ± 10% | TAJD336K035RNJ | 197-671 |
| 47 µF | 16.5 | 0.9 | E | ± 10% | TAJE476K035RNJ | 113-5062 |
| 68 µF | 23.8 | 0.5 | V | ± 20% | TAJV686M035RNJ | 165-8315 |

**35 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.1 µF | SMD 197-543 RL | | | | | |
| 0.22 µF | SMD 197-555 RL | | | | | |
| 0.33 µF | SMD 498-919 RL | | | | | |
| 0.47 µF | SMD 197-579 RL | | | | | |
| 0.68 µF | SMD 165-8157 RL | | | | | |
| 1 µF | SMD 113-5061 RL | | | | | |
| 1 µF | SMD 498-920 RL | | | | | |
| 1.5 µF | SMD 197-580 RL | | | | | |
| 1.5 µF | SMD 165-8160 RL | | | | | |
| 2.2 µF | SMD 143-2344 | | | | | |
| 2.2 µF | SMD 143-2360 | | | | | |
| 2.2 µF | SMD 498-932 RL | | | | | |
| 3.3 µF | SMD 143-2362 | | | | | |
| 4.7 µF | SMD 197-592 RL | | | | | |
| 4.7 µF | SMD 197-609 RL | | | | | |
| 4.7 µF | SMD 498-944 RL | | | | | |
| 6.8 µF | SMD 197-610 RL | | | | | |
| 6.8 µF | 178-0984 | | | | | |
| 10 µF | SMD 197-634 RL | | | | | |
| 10 µF | SMD 498-956 RL | | | | | |
| 10 µF | SMD 165-8178 RL | | | | | |
| 15 µF | SMD 143-2376 | | | | | |
| 15 µF | SMD 197-646 RL | | | | | |
| 22 µF | SMD 197-658 RL | | | | | |
| 22 µF | SMD 498-968 RL | | | | | |
| 33 µF | SMD 197-671 RL | | | | | |
| 47 µF | SMD 113-5062 RL | | | | | |
| 68 µF | SMD 165-8315 RL | | | | | |

**50 Volt d.c**

| | DC Leakage Current (µA) | ESR (Ω) @ 100kHz | Case Size | Tolerance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 0.1 µF | 0.5 | 22 | A | ± 10% | TAJA104K050RNJ | 143-2337 |
| 0.22 µF | 0.5 | 14 | B | ± 10% | TAJB224K050RNJ | 165-8155 |
| 0.33 µF | 0.5 | 12 | B | ± 10% | TAJB334K050RNJ | 113-5063 |
| 0.47 µF | 0.7 | 9.5 | B | ± 10% | TAJB474K050RNJ | 143-2364 |
| 1 µF | 0.5 | 6.6 | A | ± 20% | TAJA105M050RNJ | 165-8138 |
| 1 µF | 0.5 | 7 | B | ± 10% | TAJB105K050RNJ | 143-2355 |
| 1 µF | 0.5 | 5.5 | C | ± 10% | TAJC105K050RNJ | 113-5064 |
| 2.2 µF | 1.1 | 3 | C | ± 10% | TAJC225K050RNJ | 143-2378 |
| 3.3 µF | 1.7 | 2 | D | ± 10% | TAJD335K050RNJ | 143-2396 |
| 4.7 µF | 0.5 | 1.4 | C | ± 10% | TAJC475K050RNJ | 165-8162 |
| 4.7 µF | 2.4 | 1.4 | D | ± 10% | TAJD475K050RNJ | 143-2398 |
| 6.8 µF | 3.4 | 1 | C | ± 10% | TAJC685K050RNJ | 165-8164 |
| 6.8 µF | 3.4 | 1 | D | ± 10% | TAJD685K050RNJ | 113-5066 |
| 10 µF | 5 | 0.8 | D | ± 10% | TAJD106K050RNJ | 143-2387 |
| 10 µF | 5 | 1 | E | ± 10% | TAJE106K050RNJ | 113-5067 |
| 15 µF | 7.5 | 0.6 | D | ± 10% | TAJD156K050RNJ | 143-2391 |
| 22 µF | 11 | 0.6 | V | ± 10% | TAJV226K050RNJ | 143-2480 |

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**50 Volt d.c.**

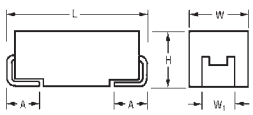
| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.1 µF | SMD 143-2337 | | | | | |
| 0.22 µF | SMD 165-8155 RL | | | | | |
| 0.33 µF | SMD 113-5063 RL | | | | | |
| 0.47 µF | SMD 143-2364 | | | | | |
| 1 µF | SMD 165-8138 RL | | | | | |
| 1 µF | SMD 143-2355 | | | | | |
| 1 µF | SMD 113-5064 RL | | | | | |
| 2.2 µF | SMD 143-2378 | | | | | |
| 3.3 µF | SMD 143-2396 | | | | | |
| 4.7 µF | SMD 165-8162 RL | | | | | |
| 4.7 µF | SMD 143-2398 | | | | | |
| 6.8 µF | SMD 165-8164 RL | | | | | |
| 6.8 µF | SMD 113-5066 RL | | | | | |
| 10 µF | SMD 143-2387 | | | | | |
| 10 µF | SMD 113-5067 RL | | | | | |
| 15 µF | SMD 143-2391 | | | | | |
| 22 µF | SMD 143-2480 | | | | | |

**Capacitance Conversion Table**

| | | | | |
|---|---|---|---|---|
| 0.000001µF | = | 0.001nF | = | 1pF |
| 0.00001µF | = | 0.01nF | = | 10pF |
| 0.0001µF | = | 0.1nF | = | 100pF |
| 0.001µF | = | 1nF | = | 1000pF |
| 0.01µF | = | 10nF | = | 10000pF |
| 0.1µF | = | 100nF | = | 100000pF |
| 1µF | = | 1000nF | = | 1000000pF |
| 10µF | = | 10000nF | = | 10000000pF |
| 100µF | = | 100000nF | = | 100000000pF |

## TAJ Series – Low Profile




- Surface mount tantalum chip capacitors
- Latest low profile case sizes
- For use with modern soldering and washing processes
- Laser marked and conform to **CECC 30801-005**
- S & T case sizes have same footprint A & B
- W & Y case sizes have same footprint as C & D

Case sizes S, T, W, Y are low profile versions of A, B, C, D case sizes respectively
Operating temperature -55°C to +85°C ESR measured at 100kHz 25°C

| Case Code | L ±0.2 | W +0.2 -0.1 | H +0.2 -0.1 | | L | W | H |
|---|---|---|---|---|---|---|---|
| K | 3.2 | 1.60 | 1 | T | 3.50 | 2.80 | 1.2 |
| P | 2.05 | 1.35 | 1.5 | W | 6 | 3.2 | 1.5 |
| R | 2.05 | 1.30 | 1.2 | X | 7.3 | 4.3 | 1.5 |
| S | 3.2 | 1.6 | 1.2 | Y | 7.30 | 4.30 | 2 |

**2.5 Volt d.c.**

| | Tolerance | DC Leakage Current (µA) | ESR (Ω) | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 4.7 µF | ± 10% | 0.5 | 20 | R | TAJR475K002RNJ | 165-8237 |
| 10 µF | ± 10% | 0.5 | 4.5 | R | TAJR106K002RNJ | 165-8212 |
| 10 µF | ± 10% | 0.5 | 8 | S | TAJS106K002RNJ | 165-8246 |
| 15 µF | ± 10% | 0.5 | 4.1 | R | TAJR156K002RNJ | 165-8221 |
| 22 µF | ± 10% | 0.5 | 3.5 | P | TAJP226K002RNJ | 165-8205 |
| 33 µF | ± 10% | 0.7 | 1.5 | S | TAJS336K002RNJ | 165-8262 |
| 47 µF | ± 20% | 1.2 | 3.2 | P | TAJP476M002RNJ | 165-8209 |
| 68 µF | ± 10% | 1.4 | 1.5 | T | TAJT686K002RNJ | 165-8299 |
| 100 µF | ± 10% | 2.5 | 1.3 | T | TAJT107K002RNJ | 165-8279 |
| 150 µF | ± 20% | 3.8 | 1.2 | T | TAJT157M002RNJ | 165-8285 |
| 150 µF | ± 10% | 5.5 | 0.3 | W | TAJW157K002RNJ | 165-8324 |
| 470 µF | ± 10% | 11.8 | 0.3 | F | TAJF477K002RNJ | 165-8193 |
| 470 µF | ± 10% | 11 | 0.2 | Y | TAJY477K002RNJ | 165-8363 |

**2.5 Volt d.c.**

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 4.7 µF | SMD 165-8237 RL | | | | | |
| 10 µF | SMD 165-8212 RL | | | | | |
| 10 µF | SMD 165-8246 RL | | | | | |
| 15 µF | SMD 165-8221 RL | | | | | |
| 22 µF | SMD 165-8205 RL | | | | | |
| 33 µF | SMD 165-8262 RL | | | | | |
| 47 µF | SMD 165-8209 RL | | | | | |
| 68 µF | SMD 165-8299 RL | | | | | |

# Tantalum - Surface Mount - AVX - continued

## TAJ Series – Low Profile - continued

| Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|
| **2.5 Volt d.c.** | | | | | |
| 100 µF SMD 165-8279 ● RL | | | | | |
| 150 µF SMD 165-8285 ● RL | | | | | |
| 150 µF SMD 165-8324 ● RL | | | | | |
| 470 µF SMD 165-8193 ● RL | | | | | |
| 470 µF SMD 165-8363 ● RL | | | | | |

**4 Volt d.c.**

| | Tolerance | DC Leakage Current (µA) | ESR (Ω) | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 2.2 µF | ± 10% | 25 | 25 | R | TAJR225K004RNJ | 165-8225 |
| 3.3 µF | ± 10% | 0.5 | 20 | R | TAJR335K004RNJ | 165-8231 |
| 4.7 µF | ± 10% | 0.5 | 10 | S | TAJS475K004RNJ | 165-8266 |
| 6.8 µF | ± 10% | 0.5 | 5.2 | R | TAJR685K004RNJ | 165-8241 |
| 10 µF | ± 10% | 0.5 | 6 | S | TAJS106K004RNJ | 165-8247 |
| 10 µF | ± 10% | 0.6 | 5 | T | TAJT106K004RNJ | 165-8277 |
| 15 µF | ± 10% | 0.6 | 4 | R | TAJR156K004RNJ | 165-8222 |
| 22 µF | ± 10% | 0.9 | 3.5 | S | TAJS226K004RNJ | 165-8258 |
| 33 µF | ± 10% | 1.3 | 1.7 | K | TAJK336K004RNJ | 165-8201 |
| 33 µF | ± 20% | 1.3 | 3.4 | P | TAJP336M004RNJ | 165-8208 |
| 33 µF | ± 10% | | 1.7 | T | TAJT336K004RNJ | 165-8291 |
| 47 µF | ± 10% | 1.9 | 2 | T | TAJT476K004RNJ | 143-2474 |
| 47 µF | ± 10% | 1.9 | 0.5 | W | TAJW476K004RNJ | 165-8336 |
| 68 µF | ± 10% | 2.7 | 1.5 | T | TAJT686K004RNJ | 165-8301 |
| 100 µF | ± 20% | 4 | 1.4 | T | TAJT107M004RNJ | 165-8280 |
| 100 µF | ± 10% | 4 | 1.3 | W | TAJW107K004RNJ | 165-8318 |
| 150 µF | ± 10% | 6 | 0.4 | Y | TAJY157K004RNJ | 165-8346 |
| 330 µF | ± 10% | 13.2 | 0.3 | F | TAJF337K004RNJ | 165-8192 |
| 330 µF | ± 10% | | 0.3 | Y | TAJY337K004RNJ | 165-8358 |
| 680 µF | ± 20% | 27.2 | 0.2 | Y | TAJY687M004RNJ | 165-8368 |

| Order Code | 5+ | + | + | + | + |
|---|---|---|---|---|---|
| **4 Volt d.c.** | | | | | |
| 2.2 µF SMD 165-8225 ● RL | | | | | |
| 3.3 µF SMD 165-8231 ● RL | | | | | |
| 4.7 µF SMD 165-8266 ● RL | | | | | |
| 6.8 µF SMD 165-8241 ● RL | | | | | |
| 10 µF SMD 165-8247 ● RL | | | | | |
| 10 µF SMD 165-8277 ● RL | | | | | |
| 15 µF SMD 165-8222 ● RL | | | | | |
| 22 µF SMD 165-8258 ● RL | | | | | |
| 33 µF SMD 165-8201 ● RL | | | | | |
| 33 µF SMD 165-8208 ● RL | | | | | |
| 33 µF SMD 165-8291 ● RL | | | | | |
| 47 µF SMD 143-2474 ● | | | | | |
| 47 µF SMD 165-8336 ● RL | | | | | |
| 68 µF SMD 165-8301 ● RL | | | | | |
| 100 µF SMD 165-8280 ● RL | | | | | |
| 100 µF SMD 165-8318 ● RL | | | | | |
| 150 µF SMD 165-8346 ● RL | | | | | |
| 330 µF SMD 165-8192 ● RL | | | | | |
| 330 µF SMD 165-8358 ● RL | | | | | |
| 680 µF SMD 165-8368 ● RL | | | | | |

**6.3 Volt d.c.**

| | Tolerance | DC Leakage Current (µA) | ESR (Ω) | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 1.5 µF | ± 10% | 0.5 | 2 | R | TAJR155K006RNJ | 165-8216 |
| 2.2 µF | ± 10% | 0.5 | 9 | R | TAJR225K006RNJ | 197-002 |
| 3.3 µF | ± 10% | 0.5 | 12 | R | TAJR335K006RNJ | 165-8233 |
| 3.3 µF | ± 10% | 0.5 | 9 | S | TAJS335K006RNJ | 165-8260 |
| 4.7 µF | ± 10% | 0.5 | 7 | R | TAJR475K006RNJ | 113-5070 |
| 4.7 µF | ± 10% | 0.5 | 7.5 | S | TAJS475K006RNJ | 165-8267 |
| 4.7 µF | ± 10% | 0.5 | 6 | T | TAJT475K006RNJ | 165-8294 |
| 6.8 µF | ± 10% | 0.5 | 7 | R | TAJR685K006RNJ | 143-2444 |
| 10 µF | ± 10% | 1 | | P | TAJP106K006RNJ | 165-8203 |
| 10 µF | ± 10% | 0.6 | 6 | R | TAJR106K006RNJ | 113-5071 |
| 10 µF | ± 10% | 0.6 | 4 | S | TAJS106K006RNJ | 165-8937 |
| 15 µF | ± 10% | 0.9 | 3.5 | P | TAJP156K006RNJ | 113-5072 |
| 22 µF | ± 10% | 1.3 | 1.8 | K | TAJK226K006RNJ | 165-8200 |
| 22 µF | ± 20% | 1.3 | 3.8 | P | TAJP226M006RNJ | 165-8206 |
| 22 µF | ± 10% | 1.4 | 2.5 | T | TAJT226K006RNJ | 165-8287 |
| 22 µF | ± 10% | 1.3 | 0.6 | W | TAJW226K006RNJ | 165-8326 |
| 47 µF | ± 10% | 2.8 | 1.6 | T | TAJT476K006RNJ | 113-5074 |
| 68 µF | ± 10% | 4.3 | 1.5 | W | TAJW686K006RNJ | 121-6568 |
| 100 µF | ± 10% | | 0.9 | W | TAJW107K006RNJ | 165-8319 |
| 100 µF | ± 10% | 6.3 | 0.9 | Y | TAJY107K006RNJ | 165-8343 |
| 150 µF | ± 10% | 9 | 0.4 | Y | TAJY157K006RNJ | 165-8348 |
| 330 µF | ± 10% | 20.8 | 0.9 | Y | TAJY337K006RNJ | 113-5075 |

| Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|
| **6.3 Volt d.c.** | | | | | |
| 1.5 µF SMD 165-8216 ● RL | | | | | |
| 2.2 µF SMD 197-002 ● RL | | | | | |
| 3.3 µF SMD 165-8233 ● RL | | | | | |
| 3.3 µF SMD 165-8260 ● RL | | | | | |
| 4.7 µF SMD 113-5070 ● RL | | | | | |
| 4.7 µF SMD 165-8267 ● RL | | | | | |
| 4.7 µF SMD 165-8294 ● RL | | | | | |
| 6.8 µF SMD 143-2444 ● | | | | | |

| Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|
| **6.3 Volt d.c.** | | | | | |
| 10 µF SMD 165-8203 ● RL | | | | | |
| 10 µF SMD 113-5071 ● RL | | | | | |
| 10 µF SMD 165-8937 ● RL | | | | | |
| 15 µF SMD 113-5072 ● RL | | | | | |
| 22 µF SMD 165-8200 ● RL | | | | | |
| 22 µF SMD 165-8206 ● RL | | | | | |
| 22 µF SMD 165-8287 ● RL | | | | | |
| 22 µF SMD 165-8326 ● RL | | | | | |
| 47 µF SMD 113-5074 ● RL | | | | | |
| 68 µF SMD 121-6568 ● | | | | | |
| 100 µF SMD 165-8319 ● RL | | | | | |
| 100 µF SMD 165-8343 ● RL | | | | | |
| 150 µF SMD 165-8348 ● RL | | | | | |
| 330 µF SMD 113-5075 ● RL | | | | | |

**10 Volt d.c.**

| | Tolerance | DC Leakage Current (µA) | ESR (Ω) | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 1 µF | ± 10% | 0.5 | 25 | R | TAJR105K010RNJ | 197-099 |
| 1 µF | ± 10% | 0.5 | 25 | S | TAJS105K010RNJ | 121-6571 |
| 1.5 µF | ± 10% | 0.5 | 20 | R | TAJR155K010RNJ | 165-8217 |
| 1.5 µF | ± 10% | 0.5 | 20 | S | TAJS155K010RNJ | 165-8251 |
| 2.2 µF | ± 10% | 0.5 | 15 | R | TAJR225K010RNJ | 165-8226 |
| 3.3 µF | ± 10% | 0.5 | 8 | R | TAJR335K010RNJ | 165-8234 |
| 3.3 µF | ± 10% | 0.5 | 6 | T | TAJT335K010RNJ | 165-8289 |
| 4.7 µF | ± 10% | 0.5 | 9 | R | TAJR475K010RNJ | 113-5076 |
| 6.8 µF | ± 10% | 0.7 | 5.2 | R | TAJR685K010RNJ | 165-8242 |
| 10 µF | ± 20% | 1 | 6 | P | TAJP106M010RNJ | 113-5078 |
| 10 µF | ± 20% | 1 | 6 | R | TAJR106M010RNJ | 165-8213 |
| 10 µF | ± 10% | 1 | 4 | S | TAJS106K010RNJ | 143-2447 |
| 10 µF | ± 10% | 1 | 3 | T | TAJT106K010RNJ | 121-6576 |
| 15 µF | ± 10% | 1.5 | 2.8 | T | TAJT156K010RNJ | 143-2466 |
| 47 µF | ± 10% | 4.7 | 1.4 | W | TAJW476K010RNJ | 113-5079 |
| 100 µF | ± 10% | 10 | 0.4 | W | TAJW107K010RNJ | 143-2488 |
| 100 µF | ± 10% | 10 | 0.9 | Y | TAJY107K010RNJ | 121-6578 |
| 100 µF | ± 10% | 10 | 0.9 | X | TAJX107K010R | 113-5080 |
| 150 µF | ± 10% | 15 | 0.3 | F | TAJF157K010RNJ | 165-8188 |
| 150 µF | ± 20% | 15 | 0.3 | X | TAJX157M010RNJ | 165-8340 |
| 220 µF | ± 10% | 22 | 0.5 | Y | TAJY227K010RNJ | 113-5081 |

| Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|
| **10 Volt d.c.** | | | | | |
| 1 µF SMD 197-099 ● RL | | | | | |
| 1 µF SMD 121-6571 ● RL | | | | | |
| 1.5 µF SMD 165-8217 ● RL | | | | | |
| 1.5 µF SMD 165-8251 ● RL | | | | | |
| 2.2 µF SMD 165-8226 ● RL | | | | | |
| 3.3 µF SMD 165-8234 ● RL | | | | | |
| 3.3 µF SMD 165-8289 ● RL | | | | | |
| 4.7 µF SMD 113-5076 ● RL | | | | | |
| 6.8 µF SMD 165-8242 ● RL | | | | | |
| 10 µF SMD 113-5078 ● RL | | | | | |
| 10 µF SMD 165-8213 ● RL | | | | | |
| 10 µF SMD 143-2447 ● | | | | | |
| 10 µF SMD 121-6576 ● | | | | | |
| 15 µF SMD 143-2466 ● | | | | | |
| 47 µF SMD 113-5079 ● RL | | | | | |
| 100 µF SMD 143-2488 ● | | | | | |
| 100 µF SMD 121-6578 ● RL | | | | | |
| 100 µF SMD 113-5080 ● RL | | | | | |
| 150 µF SMD 165-8188 ● RL | | | | | |
| 150 µF SMD 165-8340 ● RL | | | | | |
| 220 µF SMD 113-5081 ● RL | | | | | |

**16 Volt d.c.**

| | Tolerance | DC Leakage Current (µA) | ESR (Ω) | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 0.68 µF | ± 10% | 0.5 | 25 | R | TAJR684K016RNJ | 165-8238 |
| 1 µF | ± 10% | 0.5 | 20 | R | TAJR105K016RNJ | 165-8936 |
| 2.2 µF | ± 10% | 0.5 | 6 | S | TAJS225K016RNJ | 165-8257 |
| 4.7 µF | ± 10% | 0.8 | 5 | P | TAJP475K016RNJ | 143-2427 |
| 4.7 µF | ± 10% | 0.8 | 4.5 | S | TAJS475K016RNJ | 143-2459 |
| 4.7 µF | ± 10% | 0.8 | 3.1 | T | TAJT475K016RNJ | 165-8295 |
| 6.8 µF | ± 10% | 1658284 | 2.4 | S | TAJS685K016RNJ | 165-8276 |
| 10 µF | ± 10% | 1.6 | 2 | W | TAJW106K016RNJ | 121-6587 |
| 33 µF | ± 10% | 5.3 | 1.5 | W | TAJW336K016RNJ | 121-6589 |
| 33 µF | ± 10% | 5.3 | 0.9 | Y | TAJY336K016RNJ | 165-8355 |
| 47 µF | ± 10% | 7.5 | 0.4 | W | TAJW476K016RNJ | 165-8338 |
| 47 µF | ± 10% | 7.5 | 0.9 | X | TAJX476K016RNJ | 143-2502 |
| 47 µF | ± 10% | 7.5 | 0.7 | Y | TAJY476K016RNJ | 165-8362 |
| 100 µF | ± 20% | 16 | 0.4 | F | TAJF107M016RNJ | 165-8187 |
| 100 µF | ± 10% | 16 | 0.9 | Y | TAJY107K016RNJ | 143-2506 |

| Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|
| **16 Volt d.c.** | | | | | |
| 0.68 µF SMD 165-8238 ● RL | | | | | |
| 1 µF SMD 165-8936 ● RL | | | | | |
| 2.2 µF SMD 165-8257 ● RL | | | | | |
| 4.7 µF SMD 143-2427 ● | | | | | |
| 4.7 µF SMD 143-2459 ● | | | | | |
| 4.7 µF SMD 165-8295 ● RL | | | | | |
| 6.8 µF SMD 165-8276 ● RL | | | | | |


RoHS ● Compliant ▲ Non-compliant

| Order Code | | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **16 Volt d.c.** | | | | | | |
| 10 µF | SMD 121-6587 RL | | | | | |
| 33 µF | SMD 121-6589 RL | | | | | |
| 33 µF | SMD 165-8355 RL | | | | | |
| 47 µF | SMD 165-8338 RL | | | | | |
| 47 µF | SMD 143-2502 | | | | | |
| 47 µF | SMD 165-8362 RL | | | | | |
| 100 µF | SMD 165-8187 RL | | | | | |
| 100 µF | SMD 143-2506 | | | | | |

| 20 Volt d.c. | Tolerance | DC Leakage Current (µA) | ESR (Ω) | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 0.1 µF | ± 10% | 0.5 | 25 | R | TAJR104K020RNJ | 113-5082 |
| 0.15 µF | ± 10% | 0.5 | 25 | S | TAJS154K020RNJ | 165-8248 |
| 0.22 µF | ± 10% | 0.5 | 25 | S | TAJS224K020RNJ | 165-8254 |
| 0.33 µF | ± 10% | 0.5 | 25 | R | TAJR334K020RNJ | 143-2439 |
| 0.68 µF | ± 10% | 0.5 | 15 | T | TAJT684K020R | 165-8296 |
| 1 µF | ± 10% | 0.5 | 20 | R | TAJR105K020RNJ | 143-2430 |
| 1 µF | ± 10% | 0.5 | 9 | T | TAJT105K020RNJ | 121-6598 |
| 3.3 µF | ± 10% | 0.7 | 3 | T | TAJT335K020RNJ | 165-8290 |

| Order Code | | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **20 Volt d.c.** | | | | | | |
| 0.1 µF | SMD 113-5082 RL | | | | | |
| 0.15 µF | SMD 165-8248 RL | | | | | |
| 0.22 µF | SMD 165-8254 RL | | | | | |
| 0.33 µF | SMD 143-2439 | | | | | |
| 0.68 µF | SMD 165-8296 RL | | | | | |
| 1 µF | SMD 143-2430 | | | | | |
| 1 µF | SMD 121-6598 | | | | | |
| 3.3 µF | SMD 165-8290 RL | | | | | |

| 25 Volt d.c. | Tolerance | DC Leakage Current (µA) | ESR (Ω) | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 0.22 µF | ± 10% | 0.5 | 21 | R | TAJR224K025RNJ | 165-8223 |
| 0.33 µF | ± 10% | 0.5 | 17 | R | TAJR334K025RNJ | 165-8229 |
| 0.47 µF | ± 10% | 0.5 | 15 | R | TAJR474K025RNJ | 165-8235 |
| 0.47 µF | ± 10% | | 14 | S | TAJS474K025RNJ | 165-8264 |
| 0.68 µF | ± 10% | 0.5 | 13 | R | TAJR684K025RNJ | 165-8239 |
| 0.68 µF | ± 10% | 0.5 | 10 | S | TAJS684K025RNJ | 165-8274 |
| 1 µF | ± 10% | 0.5 | 11 | P | TAJP105K025RNJ | 165-8202 |
| 1 µF | ± 10% | 0.5 | 8 | R | TAJR105K025RNJ | 165-8211 |
| 1.5 µF | ± 10% | 0.5 | 5 | T | TAJT155K025RNJ | 165-8282 |
| 2.2 µF | ± 10% | 0.6 | 4.5 | T | TAJT225K025RNJ | 143-2467 |
| 3.3 µF | ± 10% | 0.8 | 3.5 | T | TAJT335K025RNJ | 143-2469 |
| 3.3 µF | ± 10% | | 1.6 | W | TAJW335K025RNJ | 165-8329 |
| 4.7 µF | ± 10% | 1.2 | 1.2 | W | TAJW475K025R | 165-8334 |
| 10 µF | ± 10% | 2.5 | 1.8 | W | TAJW106K025RNJ | 113-5083 |
| 22 µF | ± 10% | 5.5 | 0.9 | Y | TAJY226K025RNJ | 165-8351 |

| Order Code | | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **25 Volt d.c.** | | | | | | |
| 0.22 µF | SMD 165-8223 RL | | | | | |
| 0.33 µF | SMD 165-8229 RL | | | | | |
| 0.47 µF | SMD 165-8235 RL | | | | | |
| 0.47 µF | SMD 165-8264 RL | | | | | |
| 0.68 µF | SMD 165-8239 RL | | | | | |
| 0.68 µF | SMD 165-8274 RL | | | | | |
| 1 µF | SMD 165-8202 RL | | | | | |
| 1 µF | SMD 165-8211 RL | | | | | |
| 1.5 µF | SMD 165-8282 RL | | | | | |
| 2.2 µF | SMD 143-2467 | | | | | |
| 3.3 µF | SMD 143-2469 | | | | | |
| 3.3 µF | SMD 165-8329 RL | | | | | |
| 4.7 µF | SMD 165-8334 RL | | | | | |
| 10 µF | SMD 113-5083 RL | | | | | |
| 22 µF | SMD 165-8351 RL | | | | | |

| 35 Volt d.c. | Tolerance | DC Leakage Current (µA) | ESR (Ω) | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 0.1 µF | ± 10% | 0.5 | 29 | R | TAJR104K035RNJ | 165-8210 |
| 0.1 µF | ± 10% | 0.5 | 24 | S | TAJS104K035RNJ | 143-2445 |
| 0.15 µF | ± 10% | 0.5 | 24 | R | TAJR154K035RNJ | 165-8215 |
| 0.33 µF | ± 10% | 0.5 | 17 | R | TAJR334K035RNJ | 165-8230 |
| 0.33 µF | ± 10% | 0.5 | 15 | S | TAJS334K035RNJ | 165-8259 |
| 0.47 µF | ± 10% | 0.5 | 15 | R | TAJR474K035RNJ | 165-8236 |
| 2.2 µF | ± 10% | 0.6 | 4.2 | T | TAJT225K035RNJ | 113-5084 |
| 3.3 µF | ± 10% | 1.2 | 1.6 | W | TAJW335K035RNJ | 165-8330 |
| 6.8 µF | ± 10% | 2.3 | 0.9 | Y | TAJY685K035RNJ | 165-8365 |
| 15 µF | ± 10% | | 0.6 | Y | TAJY156K035RNJ | 165-8345 |

| Order Code | | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **35 Volt d.c.** | | | | | | |
| 0.1 µF | SMD 165-8210 RL | | | | | |
| 0.1 µF | SMD 143-2445 | | | | | |
| 0.15 µF | SMD 165-8215 RL | | | | | |
| 0.33 µF | SMD 165-8230 RL | | | | | |
| 0.33 µF | SMD 165-8259 RL | | | | | |

| Order Code | | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **35 Volt d.c.** | | | | | | |
| 0.47 µF | SMD 165-8236 RL | | | | | |
| 2.2 µF | SMD 113-5084 RL | | | | | |
| 3.3 µF | SMD 165-8330 RL | | | | | |
| 6.8 µF | SMD 165-8365 RL | | | | | |
| 15 µF | SMD 165-8345 RL | | | | | |

| 50 Volt d.c. | Tolerance | DC Leakage Current (µA) | ESR (Ω) | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 0.1 µF | ± 10% | 0.5 | 19 | S | TAJS104K050RNJ | 165-8243 |
| 0.15 µF | ± 10% | 0.5 | 16 | S | TAJS154K050RNJ | 165-8249 |
| 0.33 µF | ± 10% | | 11 | T | TAJT334K050RNJ | 165-8288 |
| 1 µF | ± 10% | 0.5 | 4.4 | W | TAJW105K050RNJ | 165-8316 |
| 1.5 µF | ± 10% | 0.8 | 3.1 | W | TAJW155K050RNJ | 165-8320 |

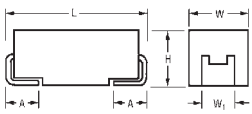
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| Order Code | | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **50 Volt d.c.** | | | | | | |
| 0.1 µF | SMD 165-8243 RL | | | | | |
| 0.15 µF | SMD 165-8249 RL | | | | | |
| 0.33 µF | SMD 165-8288 RL | | | | | |
| 1 µF | SMD 165-8316 RL | | | | | |
| 1.5 µF | SMD 165-8320 RL | | | | | |

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## TAC Microchip™ Series






Supplied on 8mm embossed tape.
Reel=500pcs

- Tantalum capacitor
- Volumetric efficiency, space and weight saving
- Applications include portable computers and mobile communication
- Enhanced ESR and high frequency operation
- Equivalent high frequency performance to larger sized product

| Case Code | L ±0.2 | W +0.2 -0.1 | H +0.2 -0.1 | Case Code | L ±0.2 | W +0.2 -0.1 | H +0.2 -0.1 |
|---|---|---|---|---|---|---|---|
| A | 3.2 | 1.6 | 1.6 | L | 1.6 | 0.85 | 0.85 |
| H | 2 | 1.35 | 1 | R | 2.05 | 1.35 | 1.35 |
| K | 1 | 0.5 | 0.5 | T | 3.5 | 2.8 | 1.2 |

| @ 120Hz | Voltage d.c. | Tolerance | Leakage µA (Max) | ESR Max (Ω) @ 100kHz | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **2.5 Volt d.c.** | | | | | | | |
| 3.3 µF | 2 | ± 20% | 0.5 | 15 | K | TACK335M002QTA | 165-8067 |
| 6.8 µF | 2 | ± 20% | 0.5 | 15 | K | TACK685M002QTA | 165-8071 |
| 10 µF | 2 | ± 10% | 0.5 | 15 | L | TACL106K002XTA | 165-8073 |
| 10 µF | 2.5 | ± 20% | 0.5 | 5 | U | TACU106M002XTA | 165-8134 |
| 47 µF | 2 | ± 10% | 0.9 | 5 | R | TACR476K002XTA | 165-8126 |
| **3 Volt d.c.** | | | | | | | |
| 2.2 µF | 3 | ± 20% | 0.5 | 15 | K | TACK225M003QTA | 165-8066 |
| 2.2 µF | 3 | ± 10% | 0.5 | 7.5 | L | TACL225K003XTA | 165-8081 |
| 4.7 µF | 3 | ± 20% | 0.5 | 15 | K | TACK475M003QTA | 113-5270 |
| 15 µF | 3 | ± 10% | 0.5 | 5 | R | TACR156K003XTA | 165-8110 |
| 22 µF | 3 | ± 20% | 0.7 | 7.5 | L | TACL226M003XTA | 165-8084 |
| 22 µF | 3 | ± 10% | 0.7 | 5 | R | TACR226K003XTA | 165-8115 |
| 68 µF | 3 | ± 20% | 2 | 5 | R | TACR686M003XTA | 165-8133 |
| 100 µF | 3 | ± 20% | 3 | 1 | A | TACA107M003XTA | 165-8057 |
| 100 µF | 3 | ± 20% | 3 | 5 | R | TACR107M003XTA | 113-5276 |
| 220 µF | 3 | ± 20% | 6.6 | 1 | T | TACT227M003XTA | 113-5285 |
| **4 Volt d.c.** | | | | | | | |
| 1.5 µF | 4 | ± 20% | 0.5 | 10 | L | TACL155M004XTA | 121-6604 |
| 1.5 µF | 4 | ± 10% | 0.5 | 7.5 | L | TACL155K004XTA | 165-8077 |
| 2.2 µF | 4 | ± 10% | 0.5 | 7.5 | L | TACL225K004XTA | 165-8082 |
| 4.7 µF | 4 | ± 10% | 0.5 | 7.5 | L | TACL475K004XTA | 165-8095 |
| 4.7 µF | 4 | ± 20% | 0.5 | 5 | U | TACU475M004XTA | 165-8136 |
| 10 µF | 4 | ± 10% | 0.5 | 5 | R | TACR106K004XTA | 165-8107 |
| 15 µF | 4 | ± 20% | 0.6 | 7.5 | L | TACL156M004XTA | 165-8080 |
| 22 µF | 4 | ± 20% | 0.9 | 7.5 | L | TACL226M004XTA | 113-5273 |
| 22 µF | 4 | ± 10% | 0.9 | 5 | R | TACR226K004XTA | 165-8117 |
| 33 µF | 4 | ± 20% | 1.3 | 5 | H | TACH336M004XTA | 165-8063 |
| 47 µF | 4 | ± 20% | 1.9 | 5 | R | TACR476M004XTA | 165-8915 |
| 68 µF | 4 | ± 20% | 2.7 | 1 | A | TACA686M004XTA | 165-8059 |
| **6.3 Volt d.c.** | | | | | | | |
| 1 µF | 6.3 | ± 10% | 0.5 | 7.5 | L | TACL105K006XTA | 165-8072 |
| 1 µF | 6.3 | ± 20% | 0.5 | 10 | L | TACL105M006XTA | 121-6605 |
| 1.5 µF | 6.3 | ± 10% | 0.5 | 7.5 | L | TACL155K006XTA | 165-8078 |
| 2.2 µF | 6.3 | ± 20% | 0.5 | 15 | K | TACK225M006QTA | 113-5088 |
| 2.2 µF | 6.3 | ± 10% | 0.5 | 7.5 | L | TACL225K006XTA | 165-8083 |
| 3.3 µF | 6.3 | ± 10% | 0.5 | 7.5 | L | TACL335K006XTA | 165-8089 |
| 3.3 µF | 6.3 | ± 20% | 0.5 | 5 | U | TACU335M006XTA | 165-8135 |
| 6.8 µF | 6.3 | ± 10% | 0.5 | 5 | R | TACR685K006XTA | 165-8129 |
| 15 µF | 6.3 | ± 20% | 0.9 | 5 | H | TACH156M006XTA | 165-8061 |
| 15 µF | 6.3 | ± 20% | 0.9 | 7.5 | L | TACL156M006XTA | 113-5274 |
| 22 µF | 6.3 | ± 20% | 1.4 | 5 | H | TACH226M006XTA | 113-5093 |
| 22 µF | 6.3 | ± 10% | 1.4 | 5 | R | TACR226K006XTA | 165-8118 |
| 33 µF | 6.3 | ± 10% | 2.1 | 5 | R | TACR336K006XTA | 165-8124 |
| 47 µF | 6.3 | ± 20% | 3 | 5 | R | TACR476M006XTA | 113-5094 |
| 100 µF | 6.3 | ± 20% | 6.3 | 1 | T | TACT107M006XTA | 113-5286 |

# Tantalum - Surface Mount - AVX - continued

## TAC Microchip™ Series - continued

| @ 120Hz | Voltage d.c. | Tolerance | Leakage µA (Max) | ESR Max (Ω) @ 100kHz | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **10 Volt d.c.** | | | | | | | |
| 0.47 µF | 10 | ± 10% | 0.5 | 7.5 | L | TACL474K010XTA | 165-8091 |
| 0.68 µF | 10 | ± 20% | 0.5 | 10 | L | TACL684M010XTA | 121-6606 |
| 0.68 µF | 10 | ± 20% | 0.5 | 15 | K | TACK684M010QTA | 165-8070 |
| 0.68 µF | 10 | ± 10% | 0.5 | 7.5 | L | TACL684K010XTA | 165-8097 |
| 1 µF | 10 | ± 20% | 0.5 | 15 | K | TACK105M010QTA | 113-5271 |
| 1.5 µF | 10 | ± 10% | 0.5 | 7.5 | L | TACL155K010XTA | 165-8079 |
| 3.3 µF | 10 | ± 10% | 0.5 | 7.5 | L | TACL335K010XTA | 165-8090 |
| 3.3 µF | 10 | ± 10% | 0.5 | 5 | R | TACR335K010XTA | 165-8119 |
| 4.7 µF | 10 | ± 10% | 0.5 | 6 | R | TACR475K010XTA | 165-8914 |
| 6.8 µF | 10 | ± 10% | 0.7 | 5 | R | TACR685K010XTA | 165-8131 |
| 10 µF | 10 | ± 20% | 1 | 5 | H | TACH106M010XTA | 165-8060 |
| 10 µF | 10 | ± 20% | 1 | 7.5 | L | TACL106M010XTA | 113-5091 |
| 10 µF | 10 | ± 10% | 1 | 5 | R | TACR106K010XTA | 165-8913 |
| 10 µF | 10 | ± 20% | 1 | 2 | V | TACV106M010XTA | 165-8137 |
| 22 µF | 10 | ± 20% | 2.2 | 5 | R | TACR226M010XTA | 113-5277 |
| 33 µF | 10 | ± 20% | 3.3 | 1 | A | TACA336M010XTA | 113-5282 |
| **16 Volt d.c.** | | | | | | | |
| 0.68 µF | 16 | ± 10% | 0.5 | 7.5 | L | TACL684K016XTA | 165-8099 |
| 2.2 µF | 16.3 | ± 20% | 0.5 | 7.5 | L | TACL225M016XTA | 113-5275 |
| 10 µF | 16 | ± 10% | 1.6 | 5 | R | TACR106K016XTA | 165-8108 |
| 10 µF | 16.3 | ± 20% | 1.6 | 5 | R | TACR106M016XTA | 113-5278 |
| **20 Volt d.c.** | | | | | | | |
| 4.7 µF | 20 | ± 20% | 0.9 | 5 | R | TACR475M020XTA | 113-5279 |
| **25 Volt d.c.** | | | | | | | |
| 1 µF | 25 | ± 10% | 0.5 | 5 | R | TACR105K025XTA | 165-8106 |
| 1 µF | 25 | ± 20% | 0.5 | 5 | R | TACR105M025XTA | 113-5280 |

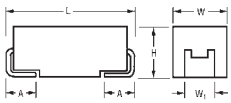
208515

| Order Code | Price Each 1+ | + | + | + | + | + |
|---|---|---|---|---|---|---|
| **2.5 Volt d.c.** | | | | | | |
| 3.3 µF SMD 165-8067 ● RL | | | | | | |
| 6.8 µF SMD 165-8071 ● RL | | | | | | |
| 10 µF SMD 165-8073 ● RL | | | | | | |
| 10 µF SMD 165-8134 ● RL | | | | | | |
| 47 µF SMD 165-8126 ● RL | | | | | | |
| **3 Volt d.c.** | | | | | | |
| 2.2 µF SMD 165-8066 ● RL | | | | | | |
| 2.2 µF SMD 165-8081 ● RL | | | | | | |
| 4.7 µF SMD 113-5270 ● RL | | | | | | |
| 15 µF SMD 165-8110 ● RL | | | | | | |
| 22 µF SMD 165-8084 ● RL | | | | | | |
| 22 µF SMD 165-8115 ● RL | | | | | | |
| 68 µF SMD 165-8133 ● RL | | | | | | |
| 100 µF SMD 165-8057 ● RL | | | | | | |
| 100 µF SMD 113-5276 ● RL | | | | | | |
| 220 µF SMD 113-5285 ● RL | | | | | | |
| **4 Volt d.c.** | | | | | | |
| 1.5 µF SMD 121-6604 ● RL | | | | | | |
| 1.5 µF SMD 165-8077 ● RL | | | | | | |
| 2.2 µF SMD 165-8082 ● RL | | | | | | |
| 4.7 µF SMD 165-8095 ● RL | | | | | | |
| 4.7 µF SMD 165-8136 ● RL | | | | | | |
| 10 µF SMD 165-8107 ● RL | | | | | | |
| 15 µF SMD 165-8080 ● RL | | | | | | |
| 22 µF SMD 113-5273 ● RL | | | | | | |
| 22 µF SMD 165-8117 ● RL | | | | | | |
| 33 µF SMD 165-8063 ● RL | | | | | | |
| 47 µF SMD 165-8915 ● RL | | | | | | |
| 68 µF SMD 165-8059 ● RL | | | | | | |
| **6.3 Volt d.c.** | | | | | | |
| 1 µF SMD 165-8072 ● RL | | | | | | |
| 1 µF SMD 121-6605 ● | | | | | | |
| 1.5 µF SMD 165-8078 ● RL | | | | | | |
| 2.2 µF SMD 113-5088 ● RL | | | | | | |
| 2.2 µF SMD 165-8083 ● RL | | | | | | |
| 3.3 µF SMD 165-8089 ● RL | | | | | | |
| 3.3 µF SMD 165-8135 ● RL | | | | | | |
| 6.8 µF SMD 165-8129 ● RL | | | | | | |
| 15 µF SMD 165-8061 ● RL | | | | | | |
| 15 µF SMD 113-5274 ● RL | | | | | | |
| 22 µF SMD 113-5093 ● RL | | | | | | |
| 22 µF SMD 165-8118 ● RL | | | | | | |
| 33 µF SMD 165-8124 ● RL | | | | | | |
| 47 µF SMD 113-5094 ● RL | | | | | | |
| 100 µF SMD 113-5286 ● RL | | | | | | |
| **10 Volt d.c.** | | | | | | |
| 0.47 µF SMD 165-8091 ● RL | | | | | | |
| 0.68 µF SMD 121-6606 ● RL | | | | | | |
| 0.68 µF SMD 165-8070 ● RL | | | | | | |
| 0.68 µF SMD 165-8097 ● RL | | | | | | |
| 1 µF SMD 113-5271 ● RL | | | | | | |

| Order Code | Price Each 1+ | + | + | + | + | + |
|---|---|---|---|---|---|---|
| **10 Volt d.c.** | | | | | | |
| 1.5 µF SMD 165-8079 ● RL | | | | | | |
| 3.3 µF SMD 165-8090 ● RL | | | | | | |
| 3.3 µF SMD 165-8119 ● RL | | | | | | |
| 4.7 µF SMD 165-8914 ● RL | | | | | | |
| 6.8 µF SMD 165-8131 ● RL | | | | | | |
| 10 µF SMD 165-8060 ● RL | | | | | | |
| 10 µF SMD 113-5091 ● RL | | | | | | |
| 10 µF SMD 165-8913 ● RL | | | | | | |
| 10 µF SMD 165-8137 ● RL | | | | | | |
| 22 µF SMD 113-5277 ● RL | | | | | | |
| 33 µF SMD 113-5282 ● RL | | | | | | |
| **16 Volt d.c.** | | | | | | |
| 0.68 µF SMD 165-8099 ● RL | | | | | | |
| 2.2 µF SMD 113-5275 ● RL | | | | | | |
| 10 µF SMD 165-8108 ● RL | | | | | | |
| 10 µF SMD 113-5278 ● RL | | | | | | |
| **20 Volt d.c.** | | | | | | |
| 4.7 µF SMD 113-5279 ● RL | | | | | | |
| **25 Volt d.c.** | | | | | | |
| 1 µF SMD 113-5280 ● RL | | | | | | |
| 1 µF SMD 165-8106 ● RL | | | | | | |

## TPS Series – High Performance - Low ESR






- Low ESR (equivqlent series resistance)
- For use in power supply and other low ESR applications
- Higher ripple current handling
- ESR clearly marked on the case

Operating temperature -55°C to +125°C

| Capacitance | ESR Max. @ 100 kHz | Tolerance | DC Leakage Current | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| **2.5 Volts d.c.** | | | | | | |
| 220 µF | 600 ohm | ± 10% | 4.4 µA | B | TPSB227K002R0600 | 143-2584 |
| **4 Volts d.c.** | | | | | | |
| 47 µF | 500 ohm | ± 10% | 1.9 µA | A | TPSA476K004R0500 | 143-2573 |
| 470 µF | 45 ohm | ± 10% | 18.8 µA | D | TPSD477K004R0045 | 143-2619 |
| 680 µF | 0.1 ohm | ± 10% | 18.8 µA | D | TPSD687K004R0100 | 143-2623 |
| 1000 µF | 0.035 ohm | ± 10% | 40 µA | V | TPSV108K004R0035 | 113-5098 |
| **6.3 Volts d.c.** | | | | | | |
| 10 µF | 1 ohm | ± 10% | 0.6 µA | R | TPSR106K006R1000 | 143-2638 |
| 22 µF | 0.9 ohm | ± 10% | 1.4 µA | A | TPSA226K006R0900 | 113-5099 |
| 47 µF | 0.25 ohm | ± 10% | 3 µA | B | TPSB476K006R0250 | 113-5100 |
| 68 µF | 500 ohm | ± 10% | 4.3 µA | B | TPSB686K006R0500 | 143-2593 |
| 100 µF | 0.4 ohm | ± 10% | 6.3 µA | B | TPSB107K006R0400 | 143-2579 |
| 100 µF | 0.15 ohm | ± 10% | 6.3 µA | C | TPSC107K6R0150 | 301-8490 |
| 100 µF | 0.075 ohm | ± 10% | 6.3 µA | C | TPSC107K006R0075 | 113-5101 |
| 150 µF | 50 ohm | ± 10% | 9.5 µA | D | TPSD157K006R0050 | 143-2611 |
| 150 µF | 0.125 ohm | ± 10% | 9.5 µA | D | TPSD157K6R0125 | 570-333 |
| 220 µF | 100 ohm | ± 10% | 13.9 µA | C | TPSC227K006R0100 | 143-2601 |
| 330 µF | 0.045 ohm | ± 10% | 20.8 µA | D | TPSD337K006R0045 | 113-5198 |
| 330 µF | 0.1 ohm | ± 10% | 20.8 µA | E | TPSE337K6R0100 | 570-345 |
| 470 µF | 0.1 ohm | ± 10% | 29.6 µA | D | TPSD477K006R0100 | 113-5102 |
| 470 µF | 0.045 ohm | ± 10% | 29.6 µA | E | TPSE477K006R0045 | 113-5103 |
| **10 Volts d.c.** | | | | | | |
| 4.7 µF | 1.4 ohm | ± 10% | 0.5 µA | A | TPSA475K010R1400 | 113-5104 |
| 10 µF | 0.9 ohm | ± 10% | 1 µA | A | TPSA106K010R0900 | 143-2565 |
| 10 µF | 1.8 ohm | ± 10% | 1 µA | A | TPSA106K010R1800 | 113-5105 |
| 15 µF | 1 ohm | ± 10% | 1.5 µA | A | TPSA156K010R1000 | 143-2567 |
| 22 µF | 400 ohm | ± 10% | 2.2 µA | B | TPSB226K010R0400 | 143-2583 |
| 22 µF | 0.7 ohm | ± 10% | 2.2 µA | B | TPSB226K010R0700 | 113-5106 |
| 33 µF | 425 ohm | ± 10% | 3.3 µA | B | TPSB336K010R0425 | 143-2586 |
| 33 µF | 0.375 ohm | ± 10% | 3.3 µA | C | TPSC336K10R0375 | 570-357 |
| 33 µF | 0.15 ohm | ± 10% | 3.3 µA | C | TPSC336K010R0150 | 113-5201 |
| 47 µF | 350 ohm | ± 10% | 4.7 µA | B | TPSB476K010R0350 | 143-2591 |
| 47 µF | 0.35 ohm | ± 10% | 4.7 µA | C | TPSC476K010R0350 | 570-369 |
| 100 µF | 0.075 ohm | ± 10% | 10 µA | C | TPSC107K010R0075 | 113-5108 |
| 100 µF | 0.1 ohm | ± 10% | 10 µA | D | TPSD107K010R0100 | 570-370 |
| 100 µF | 0.05 ohm | ± 10% | 10 µA | D | TPSD107K010R0050 | 113-5109 |
| 150 µF | 0.1 ohm | ± 10% | 15 µA | D | TPSD157K10R0100 | 301-8507 |
| 150 µF | 0.05 ohm | ± 10% | 15 µA | D | TPSD157K010R0050 | 113-5202 |
| 150 µF | 100 ohm | ± 10% | 15 µA | E | TPSE157K010R0100 | 143-2628 |
| 150 µF | 100 ohm | ± 10% | 15 µA | Y | TPSY157K010R0100 | 143-2662 |
| 220 µF | 0.05 ohm | ± 10% | 22 µA | D | TPSD227K010R0050 | 143-2614 |
| 220 µF | 0.1 ohm | ± 10% | 22 µA | D | TPSD227K010R0100 | 113-5110 |
| 220 µF | 0.1 ohm | ± 10% | 22 µA | E | TPSE227K10R0100 | 570-382 |
| 220 µF | 0.05 ohm | ± 10% | 22 µA | E | TPSE227K010R0050 | 113-5111 |
| 330 µF | 50 ohm | ± 10% | 33 µA | E | TPSE337K010R0050 | 143-2633 |
| 330 µF | 0.06 ohm | ± 10% | 33 µA | E | TPSE337K010R0060 | 301-8520 |
| 330 µF | 40 ohm | ± 10% | 33 µA | V | TPSV337K010R0040 | 143-2651 |
| 470 µF | 45 ohm | ± 10% | 47 µA | E | TPSE477K010R0045 | 143-2635 |
| **16 Volts d.c.** | | | | | | |
| 2.2 µF | 1.8 ohm | ± 10% | 0.5 µA | A | TPSA225K016R1800 | 143-2568 |
| 4.7 µF | 800 ohm | ± 10% | 0.8 µA | B | TPSB475K016R0800 | 143-2587 |
| 10 µF | 0.8 ohm | ± 10% | 1.6 µA | B | TPSB106K016R0800 | 113-5112 |
| 22 µF | 250 ohm | ± 10% | 3.5 µA | C | TPSC226K016R0250 | 143-2600 |
| 22 µF | 0.375 ohm | ± 10% | 3.5 µA | C | TPSC226K016R0375 | 570-394 |


RoHS ● Compliant ▲ Non-compliant

| Capacitance | ESR Max. @ 100 kHz | Tolerance | DC Leakage Current | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| **2.5 Volts d.c.** | | | | | | |
| 22 µF | 0.5 ohm | ± 10% | 3.5 µA | W | TPSW226K016R0500 | 143-2657 |
| 33 µF | 225 ohm | ± 10% | 5.3 µA | C | TPSC336K016R0225 | 143-2603 |
| 33 µF | 0.3 ohm | ± 10% | 5.3 µA | C | TPSC336K16R0300 | 301-8544 |
| 47 µF | 0.35 ohm | ± 10% | 7.5 µA | C | TPSC476K016R0350 | 113-5113 |
| 47 µF | 0.08 ohm | ± 10% | 7.5 µA | D | TPSD476K016R0080 | 113-5205 |
| 47 µF | 0.15 ohm | ± 10% | 8.1 µA | D | TPSD476K016R0150 | 570-400 |
| 68 µF | 0.15 ohm | ± 10% | 10.9 µA | D | TPSD686K016R0150 | 301-8556 |
| 68 µF | 200 ohm | ± 10% | 10.9 µA | Y | TPSY686K016R0200 | 143-2666 |
| 100 µF | 60 ohm | ± 10% | 16 µA | D | TPSD107K016R0060 | 143-2609 |
| 150 µF | 0.1 ohm | ± 10% | 24 µA | D | TPSD157K016R0100 | 113-5114 |
| 100 µF | 0.15 ohm | ± 10% | 16 µA | D | TPSD107K016R0150 | 301-8568 |
| 150 µF | 45 ohm | ± 10% | 24 µA | V | TPSV157K016R0045 | 143-2650 |
| 220 µF | 100 ohm | ± 10% | 35.2 µA | E | TPSE227K016R0100 | 143-2630 |
| 220 µF | 0.05 ohm | ± 10% | 35.2 µA | V | TPSV227K016R0050 | 113-5208 |
| 220 µF | 0.075 ohm | ± 10% | 35.2 µA | V | TPSV227K016R0075 | 113-5115 |
| **20 Volts d.c.** | | | | | | |
| 1 µF | 6 ohm | ± 10% | 0.5 µA | R | TPSR105K020R6000 | 143-2637 |
| 4.7 µF | 1.8 ohm | ± 10% | 0.9 µA | A | TPSA475K020R1800 | 143-2572 |
| 10 µF | 1 ohm | ± 10% | 2 µA | B | TPSB106K020R1000 | 143-2577 |
| 15 µF | 0.45 ohm | ± 10% | 3 µA | C | TPSC156K020R0450 | 570-424 |
| 22 µF | 0.15 ohm | ± 10% | 4.4 µA | C | TPSC226K020R0150 | 113-5209 |
| 33 µF | 0.2 ohm | ± 10% | 6.6 µA | D | TPSD336K020R0200 | 570-436 |
| 47 µF | 0.1 ohm | ± 10% | 6.6 µA | D | TPSD476K020R0100 | 113-5210 |
| 47 µF | 70 ohm | ± 10% | 9.4 µA | E | TPSE476K020R0070 | 143-2634 |
| 47 µF | 0.15 ohm | ± 10% | 9.4 µA | E | TPSE476K020R0150 | 301-8570 |
| 68 µF | 0.125 ohm | ± 10% | 13.6 µA | E | TPSE686K020R0125 | 301-8581 |
| 68 µF | 0.2 ohm | ± 10% | 13.6 µA | E | TPSE686K020R0200 | 570-448 |
| 100 µF | 0.15 ohm | ± 10% | 20 µA | E | TPSE107K020R0150 | 113-5116 |
| 100 µF | 0.06 ohm | ± 10% | 20 µA | V | TPSV107K020R0060 | 113-5117 |
| **25 Volts d.c.** | | | | | | |
| 2.2 µF | 1.2 ohm | ± 10% | 0.6 µA | B | TPSB225K025R1200 | 143-2582 |
| 10 µF | 300 ohm | ± 10% | 2.5 µA | C | TPSC106K025R0300 | 143-2595 |
| 10 µF | 0.5 ohm | ± 10% | 2.5 µA | C | TPSC106K025R0500 | 570-450 |
| 15 µF | 300 ohm | ± 10% | 3.8 µA | C | TPSC156K025R0300 | 143-2597 |
| 22 µF | 0.2 ohm | ± 10% | 5.5 µA | D | TPSD226K025R0200 | 570-461 |
| 22 µF | 0.1 ohm | ± 10% | 5.5 µA | D | TPSD226K025R0100 | 113-5118 |
| 33 µF | 0.1 ohm | ± 10% | 8.3 µA | D | TPSD336K025R0100 | 113-5213 |
| 33 µF | 175 ohm | ± 10% | 8.3 µA | E | TPSE336K025R0175 | 143-2632 |
| 33 µF | 0.2 ohm | ± 10% | 8.3 µA | E | TPSE336K25R0200 | 570-473 |
| 47 µF | 150 ohm | ± 10% | 11.8 µA | D | TPSD476K025R0150 | 143-2617 |
| 68 µF | 0.2 ohm | ± 10% | 17 µA | E | TPSE686K025R0200 | 113-5121 |
| 68 µF | 0.125 ohm | ± 10% | 17 µA | E | TPSE686K025R0125 | 113-5214 |
| 68 µF | 0.095 ohm | ± 10% | 17 µA | V | TPSV686K025R0095 | 113-5122 |
| **35 Volts d.c.** | | | | | | |
| 1 µF | 3 ohm | ± 10% | 0.5 µA | A | TPSA105K035R3000 | 113-5123 |
| 1 µF | 2 ohm | ± 10% | 0.5 µA | B | TPSB105K035R2000 | 143-2575 |
| 4.7 µF | 0.6 ohm | ± 10% | 1.6 µA | C | TPSC475K035R0600 | 570-485 |
| 68 µF | 0.125 ohm | ± 10% | 17 µA | E | TPSE686K025R0125 | 113-5214 |
| 10 µF | 0.3 ohm | ± 10% | 3.5 µA | D | TPSD106K035R0300 | 143-2608 |
| 10 µF | 0.2 ohm | ± 10% | 3.5 µA | E | TPSE106K35R0200 | 301-8600 |
| 15 µF | 100 ohm | ± 10% | 5.3 µA | D | TPSD156K035R0100 | 143-2610 |
| 15 µF | 0.3 ohm | ± 10% | 5.3 µA | D | TPSD156K35R0300 | 570-497 |
| 22 µF | 0.4 ohm | ± 10% | 7.7 µA | D | TPSD226K35R0400 | 301-8611 |
| 22 µF | 0.3 ohm | ± 10% | 7.7 µA | E | TPSE226K35R0200 | 570-503 |
| 22 µF | 0.125 ohm | ± 10% | 7.7 µA | E | TPSE226K035R0125 | 113-5124 |
| 33 µF | 0.2 ohm | ± 10% | 11.6 µA | D | TPSD336K035R0200 | 143-2616 |
| 33 µF | 0.3 ohm | ± 10% | 11.6 µA | D | TPSD336K35R0300 | 301-8623 |
| 33 µF | 0.1 ohm | ± 10% | 11.6 µA | E | TPSE336K035R0100 | 113-5217 |
| 47 µF | 0.2 ohm | ± 10% | 16.5 µA | E | TPSE476K035R0200 | 113-5125 |
| **50 Volts d.c.** | | | | | | |
| 1 µF | 2.5 ohm | ± 10% | 0.5 µA | C | TPSC105K050R2500 | 143-2594 |
| 4.7 µF | 0.3 ohm | ± 10% | 2.4 µA | D | TPSD475K050R0300 | 113-5218 |
| 15 µF | 250 ohm | ± 20% | 5 µA | E | TPSE156M050R0250 | 143-2627 |

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| Capacitance | Order Code | Price Each 1+ | + | + | + | + |
|---|---|---|---|---|---|---|
| **2.5 Volts d.c.** | | | | | | |
| 220 µF | SMD 143-2584 ● | | | | | |
| **4 Volts d.c.** | | | | | | |
| 47 µF | SMD 143-2573 ● | | | | | |
| 470 µF | SMD 143-2619 ● | | | | | |
| 680 µF | SMD 143-2623 ● | | | | | |
| 1000 µF | SMD 113-5098 ● RL | | | | | |
| **6.3 Volts d.c.** | | | | | | |
| 10 µF | SMD 143-2638 ● | | | | | |
| 22 µF | SMD 113-5099 ● RL | | | | | |
| 47 µF | SMD 113-5100 ● RL | | | | | |
| 68 µF | SMD 143-2593 ● | | | | | |
| 100 µF | SMD 143-2579 ● | | | | | |
| 100 µF | SMD 301-8490 ● RL | | | | | |
| 100 µF | SMD 113-5101 ● RL | | | | | |
| 150 µF | SMD 143-2611 ● | | | | | |
| 150 µF | SMD 570-333 ● RL | | | | | |
| 220 µF | SMD 143-2601 ● | | | | | |
| 330 µF | SMD 113-5198 ● RL | | | | | |
| 330 µF | SMD 570-345 ● RL | | | | | |
| 470 µF | SMD 113-5102 ● RL | | | | | |
| 470 µF | SMD 113-5103 ● RL | | | | | |
| **10 Volts d.c.** | | | | | | |
| 4.7 µF | SMD 113-5104 ● RL | | | | | |
| 10 µF | SMD 143-2565 ● | | | | | |
| 10 µF | SMD 113-5105 ● RL | | | | | |
| 15 µF | SMD 143-2567 ● | | | | | |
| 22 µF | SMD 143-2583 ● | | | | | |
| 22 µF | SMD 113-5106 ● RL | | | | | |

| Capacitance | Order Code | Price Each 1+ | + | + | + | + |
|---|---|---|---|---|---|---|
| **10 Volts d.c.** | | | | | | |
| 33 µF | SMD 143-2586 ● | | | | | |
| 33 µF | SMD 570-357 ● RL | | | | | |
| 33 µF | SMD 113-5201 ● RL | | | | | |
| 47 µF | SMD 143-2591 ● | | | | | |
| 47 µF | SMD 570-369 ● | | | | | |
| 100 µF | SMD 113-5108 ● RL | | | | | |
| 100 µF | SMD 570-370 ● RL | | | | | |
| 100 µF | SMD 113-5109 ● RL | | | | | |
| 150 µF | SMD 301-8507 ● RL | | | | | |
| 150 µF | SMD 113-5202 ● RL | | | | | |
| 150 µF | SMD 143-2628 ● | | | | | |
| 150 µF | SMD 143-2662 ● | | | | | |
| 220 µF | SMD 143-2614 ● | | | | | |
| 220 µF | SMD 113-5110 ● RL | | | | | |
| 220 µF | SMD 570-382 ● RL | | | | | |
| 220 µF | SMD 113-5111 ● RL | | | | | |
| 330 µF | SMD 143-2633 ● | | | | | |
| 330 µF | SMD 301-8520 ● RL | | | | | |
| 330 µF | SMD 143-2651 ● | | | | | |
| 470 µF | SMD 143-2635 ● | | | | | |
| **16 Volts d.c.** | | | | | | |
| 2.2 µF | SMD 143-2568 ● | | | | | |
| 4.7 µF | SMD 143-2587 ● | | | | | |
| 10 µF | SMD 113-5112 ● RL | | | | | |
| 22 µF | SMD 143-2600 ● | | | | | |
| 22 µF | SMD 570-394 ● | | | | | |
| 22 µF | SMD 143-2657 ● | | | | | |
| 33 µF | SMD 143-2603 ● | | | | | |
| 33 µF | SMD 301-8544 ● RL | | | | | |
| 47 µF | SMD 113-5113 ● RL | | | | | |
| 47 µF | SMD 113-5205 ● RL | | | | | |
| 47 µF | SMD 570-400 ● | | | | | |
| 68 µF | SMD 301-8556 ● | | | | | |
| 68 µF | SMD 143-2666 ● | | | | | |
| 100 µF | SMD 143-2609 ● | | | | | |
| 150 µF | SMD 113-5114 ● RL | | | | | |
| 100 µF | SMD 301-8568 ● | | | | | |
| 150 µF | SMD 143-2650 ● | | | | | |
| 220 µF | SMD 143-2630 ● | | | | | |
| 220 µF | SMD 113-5208 ● RL | | | | | |
| 220 µF | SMD 113-5115 ● RL | | | | | |
| **20 Volts d.c.** | | | | | | |
| 1 µF | SMD 143-2637 ● | | | | | |
| 4.7 µF | SMD 143-2572 ● | | | | | |
| 10 µF | SMD 143-2577 ● | | | | | |
| 15 µF | SMD 570-424 ● | | | | | |
| 22 µF | SMD 113-5209 ● RL | | | | | |
| 33 µF | SMD 570-436 ● | | | | | |
| 47 µF | SMD 113-5210 ● RL | | | | | |
| 47 µF | SMD 143-2634 ● | | | | | |
| 47 µF | SMD 301-8570 ● | | | | | |
| 68 µF | SMD 301-8581 ● | | | | | |
| 68 µF | SMD 570-448 ● | | | | | |
| 100 µF | SMD 113-5116 ● RL | | | | | |
| 100 µF | SMD 113-5117 ● RL | | | | | |
| **25 Volts d.c.** | | | | | | |
| 2.2 µF | SMD 143-2582 ● | | | | | |
| 10 µF | SMD 143-2595 ● | | | | | |
| 10 µF | SMD 570-450 ● | | | | | |
| 15 µF | SMD 143-2597 ● | | | | | |
| 22 µF | SMD 570-461 ● | | | | | |
| 22 µF | SMD 113-5118 ● RL | | | | | |
| 33 µF | SMD 113-5213 ● RL | | | | | |
| 33 µF | SMD 143-2632 ● | | | | | |
| 33 µF | SMD 570-473 ● RL | | | | | |
| 47 µF | SMD 143-2617 ● | | | | | |
| 68 µF | SMD 113-5121 ● RL | | | | | |
| 68 µF | SMD 113-5214 ● RL | | | | | |
| 68 µF | SMD 113-5122 ● RL | | | | | |
| **35 Volts d.c.** | | | | | | |
| 1 µF | SMD 113-5123 ● RL | | | | | |
| 1 µF | SMD 143-2575 ● | | | | | |
| 4.7 µF | SMD 570-485 ● | | | | | |
| 68 µF | SMD 113-5214 ● RL | | | | | |
| 10 µF | SMD 143-2608 ● | | | | | |
| 10 µF | SMD 301-8600 ● RL | | | | | |
| 15 µF | SMD 143-2610 ● | | | | | |
| 15 µF | SMD 570-497 ● RL | | | | | |
| 22 µF | SMD 301-8611 ● RL | | | | | |
| 22 µF | SMD 570-503 ● RL | | | | | |

# Tantalum - Surface Mount - AVX - continued

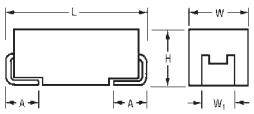
## TPS Series – High Performance - Low ESR - continued

| Capacitance | Order Code | Price Each 1+ | + | + | + | + |
|---|---|---|---|---|---|---|
| **35 Volts d.c.** | | | | | | |
| 22 µF | SMD 113-5124 ● RL | | | | | |
| 33 µF | SMD 143-2616 ● | | | | | |
| 33 µF | SMD 301-8623 ● RL | | | | | |
| 33 µF | SMD 113-5217 ● RL | | | | | |
| 47 µF | SMD 113-5125 ● RL | | | | | |
| **50 Volts d.c.** | | | | | | |
| 1 µF | SMD 143-2594 ● | | | | | |
| 4.7 µF | SMD 113-5218 ● RL | | | | | |
| 15 µF | SMD 143-2627 ● | | | | | |

## TPM Multianode

**Ultra Low ESR Capacitor**






Low ESR, high capacitance and high ripple current are the key parameters for processor filtering. Multianode configuration within a standard E case package meets these requirements. These parameters makes TPM series ready to use with the latest processor families.

Leakage Current 0.01CV

Temperature Range -55°C to +125°C

| Case Code | L ±0.2 | W +0.2 -0.1 | H +0.2 -0.1 | Case Code | L ±0.2 | W +0.2 -0.1 | H +0.2 -0.1 |
|---|---|---|---|---|---|---|---|
| D | 7.3 | 4.3 | 2.9 | V | 7.3 | 6.1 | 3.45 |
| E | 7.3 | 4.3 | 4.1 | | | | |

| Capacitance | ESR | Tolerance | DC Leakage Current (µA) | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| **2.5 Volt d.c.** | | | | | | |
| 1500 µF | 0.015 ohm | ± 10% | 38 | E | TPME158K002R0015 | 113-5195 |
| 2200 µF | 0.018 ohm | ± 20% | 44 | E | TPME228M002R0018 | 165-8482 |
| **4 Volt d.c.** | | | | | | |
| 330 µF | 0.025 ohm | ± 10% | 13.2 | D | TPMD337K004R0025 | 165-8464 |
| 470 µF | 0.035 ohm | ± 10% | 18.8 | D | TPMD477K004R0035 | 165-8469 |
| 1000 µF | 0.018 ohm | ± 10% | 40 | E | TPME108K004R0018 | 756-9505 |
| 1000 µF | 0.018 ohm | ± 10% | 40 | V | TPMV108K004R0018 | 113-5242 |
| 1500 µF | 0.015 ohm | ± 10% | 40 | E | TPME158K004R0015 | 165-8948 |
| **6.3 Volt d.c.** | | | | | | |
| 470 µF | 0.03 ohm | ± 10% | 28.2 | D | TPMD477K006R0030 | 165-8470 |
| 470 µF | 0.018 ohm | ± 10% | 28 | E | TPME477K006R0018 | 165-8952 |
| 470 µF | 0.023 ohm | ± 10% | 28 | E | TPME477K006R0023 | 113-5243 |
| 470 µF | 0.03 ohm | ± 10% | 28 | E | TPME477K006R0030 | 756-9475 |
| 680 µF | 0.018 ohm | ± 10% | 41 | E | TPME687K006R0018 | 113-5199 |
| 680 µF | 0.023 ohm | ± 10% | 41 | E | TPME687K006R0023 | 756-9491 |
| **10 Volt d.c.** | | | | | | |
| 220 µF | 0.35 ohm | ± 10% | 22 | D | TPMD227K010R0035 | 143-2558 |
| 330 µF | 0.35 ohm | ± 10% | 33 | D | TPMD337K010R0035 | 143-2560 |
| 330 µF | 0.023 ohm | ± 10% | 33 | E | TPME337K010R0023 | 165-8950 |
| 330 µF | 0.35 ohm | ± 10% | 33 | E | TPME337K010R0035 | 756-9467 |
| 470 µF | 0.03 ohm | ± 10% | 47 | E | TPME477K010R0030 | 113-5203 |
| 470 µF | 0.023 ohm | ± 10% | 47 | E | TPME477K010R0023 | 113-5245 |
| 470 µF | 0.3 ohm | ± 20% | 47 | E | TPME477M010R0030 | 756-9483 |
| **16 Volt d.c.** | | | | | | |
| 150 µF | 0.04 ohm | ± 10% | 24 | V | TPME157K016R0040 | 113-5206 |
| 220 µF | 0.025 ohm | ± 10% | 35 | E | TPME227K016R0025 | 113-5246 |
| 220 µF | 0.04 ohm | ± 10% | 35 | E | TPME227K016R0040 | 113-5207 |
| **20 Volt d.c.** | | | | | | |
| 100 µF | 0.035 ohm | ± 10% | 20 | E | TPME107K020R0035 | 113-5212 |
| 100 µF | 0.045 ohm | ± 10% | 20 | E | TPME107K020R0045 | 165-8472 |
| **25 Volt d.c.** | | | | | | |
| 68 µF | 0.045 ohm | ± 10% | 17 | E | TPME686K025R0045 | 165-8953 |
| 68 µF | 0.055 ohm | ± 10% | 17 | E | TPME686K025R0055 | 113-5248 |
| **35 Volt d.c.** | | | | | | |
| 22 µF | 0.06 ohm | ± 10% | 8 | E | TPME226K035R0060 | 113-5249 |
| 33 µF | 0.065 ohm | ± 10% | 12 | E | TPME336K035R0065 | 113-5250 |
| 47 µF | 0.055 ohm | ± 10% | 16 | E | TPME476K035R0055 | 165-8951 |
| 47 µF | 0.065 ohm | ± 10% | 16 | E | TPME476K035R0065 | 113-5251 |
| **50 Volt d.c.** | | | | | | |
| 10 µF | 0.12 ohm | ± 10% | 5 | E | TPME106K050R0120 | 113-5252 |
| 22 µF | 0.075 ohm | ± 10% | 11 | E | TPME226K050R0075 | 165-8480 |
| 22 µF | 0.1 ohm | ± 10% | 11 | E | TPME226K050R0100 | 165-8481 |

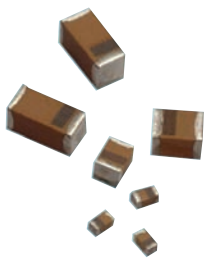
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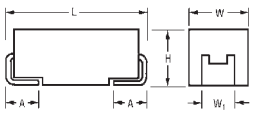
| Capacitance | Order Code | Price Each 1+ | 50+ | 100+ | 400+ | 800+ |
|---|---|---|---|---|---|---|
| **2.5 Volt d.c.** | | | | | | |
| 1500 µF | SMD 113-5195 ● RL | | | | | |
| 2200 µF | SMD 165-8482 ● RL | | | | | |
| **4 Volt d.c.** | | | | | | |
| 330 µF | SMD 165-8464 ● RL | | | | | |
| 470 µF | SMD 165-8469 ● RL | | | | | |
| 1000 µF | SMD 756-9505 ● RL | | | | | |
| 1000 µF | SMD 113-5242 ● RL | | | | | |
| 1500 µF | SMD 165-8948 ● RL | | | | | |

| Capacitance | Order Code | Price Each 1+ | 50+ | 100+ | 400+ | 800+ |
|---|---|---|---|---|---|---|
| **6.3 Volt d.c.** | | | | | | |
| 470 µF | SMD 165-8470 ● RL | | | | | |
| 470 µF | SMD 165-8952 ● RL | | | | | |
| 470 µF | SMD 113-5243 ● RL | | | | | |
| 470 µF | SMD 756-9475 ● RL | | | | | |
| 680 µF | SMD 113-5199 ● RL | | | | | |
| 680 µF | SMD 756-9491 ● RL | | | | | |
| **10 Volt d.c.** | | | | | | |
| 220 µF | SMD 143-2558 ● | | | | | |
| 330 µF | SMD 143-2560 ● | | | | | |
| 330 µF | SMD 165-8950 ● RL | | | | | |
| 330 µF | SMD 756-9467 ● RL | | | | | |
| 470 µF | SMD 113-5203 ● RL | | | | | |
| 470 µF | SMD 113-5245 ● RL | | | | | |
| 470 µF | SMD 756-9483 ● RL | | | | | |
| **16 Volt d.c.** | | | | | | |
| 150 µF | SMD 113-5206 ● RL | | | | | |
| 220 µF | SMD 113-5246 ● RL | | | | | |
| 220 µF | SMD 113-5207 ● RL | | | | | |
| **20 Volt d.c.** | | | | | | |
| 100 µF | SMD 113-5212 ● RL | | | | | |
| 100 µF | SMD 165-8472 ● RL | | | | | |
| **25 Volt d.c.** | | | | | | |
| 68 µF | SMD 165-8953 ● RL | | | | | |
| 68 µF | SMD 113-5248 ● RL | | | | | |
| **35 Volt d.c.** | | | | | | |
| 22 µF | SMD 113-5249 ● RL | | | | | |
| 33 µF | SMD 113-5250 ● RL | | | | | |
| 47 µF | SMD 165-8951 ● RL | | | | | |
| 47 µF | SMD 113-5251 ● RL | | | | | |
| **50 Volt d.c.** | | | | | | |
| 10 µF | SMD 113-5252 ● RL | | | | | |
| 22 µF | SMD 165-8480 ● RL | | | | | |
| 22 µF | SMD 165-8481 ● RL | | | | | |

## TLC Series

**Tantalum Solid Electrolytic Chip Capacitor**






- Super high volumetric efficiency
- Small and low profile case sizes

Operating temperature -55°C to 125°C
Tolerance ±20%

| Capacitance | ESR (Ω) @ 100 kHz | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|
| **2.5 Volt d.c** | | | | |
| 47 µF | 7.5 | 0603 | TLCL476M002XTA | 165-8395 |
| **3 Volt d.c** | | | | |
| 10 µF | 15 | 0402 | TLCK106M003QTA | 165-8388 |
| **4 Volt d.c** | | | | |
| 10 µF | 7.5 | 0603 | TLCJ106M004XTA | 165-8386 |
| 10 µF | 15 | 0602 | TLCZ106M004XTA | 165-8406 |
| 33 µF | 7.5 | 0603 | TLCL336M004XTA | 165-8394 |
| 220 µF | 1 | 1411 | TLCT227M004XTA | 165-8404 |
| **6.3 Volt d.c** | | | | |
| 4.7 µF | 15 | 0402 | TLCK475M006QTA | 165-8391 |
| 47 µF | 5 | 0805 | TLCH476M006XTA | 165-8385 |
| **10 Volt d.c** | | | | |
| 4.7 µF | 7.5 | 0603 | TLCJ475M010XTA | 165-8387 |
| 15 µF | 5 | 0805 | TLCH156M010XTA | 165-8382 |
| 15 µF | 7.5 | 0603 | TLCL156M010XTA | 165-8393 |
| 22 µF | 7.5 | 0803 | TLCM226M010XTA | 165-8398 |
| 100 µF | 1 | 1411 | TLCT107M010XTA | 165-8403 |
| **16 Volt d.c** | | | | |
| 10 µF | 2 | 1206 | TLCV106M016XTA | 165-8405 |
| **20 Volt d.c** | | | | |
| 10 µF | 5 | 0805 | TLCR106M020XTA | 165-8399 |
| **25 Volt d.c** | | | | |
| 1 µF | 7.5 | 0603 | TLCL105M025XTA | 165-8392 |

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| Order Code | Price Each 1+ | + | + | + | + |
|---|---|---|---|---|---|
| **2.5 Volt d.c** | | | | | |
| 47 µF SMD 165-8395 ● RL | | | | | |
| **3 Volt d.c** | | | | | |
| 10 µF SMD 165-8388 ● RL | | | | | |
| **4 Volt d.c** | | | | | |
| 10 µF SMD 165-8386 ● RL | | | | | |
| 10 µF SMD 165-8406 ● RL | | | | | |
| 33 µF SMD 165-8394 ● RL | | | | | |

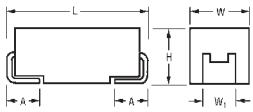

RoHS ● Compliant ▲ Non-compliant

| | Order Code | Price Each 1+ | + | + | + | + |
|---|---|---|---|---|---|---|
| 220 µF | SMD 165-8404 RL | | | | | |
| **6.3 Volt d.c** | | | | | | |
| 4.7 µF | SMD 165-8391 RL | | | | | |
| 47 µF | SMD 165-8385 RL | | | | | |
| **10 Volt d.c** | | | | | | |
| 4.7 µF | SMD 165-8387 RL | | | | | |
| 15 µF | SMD 165-8382 RL | | | | | |
| 15 µF | SMD 165-8393 RL | | | | | |
| 22 µF | SMD 165-8398 RL | | | | | |
| 100 µF | SMD 165-8403 RL | | | | | |
| **16 Volt d.c** | | | | | | |
| 10 µF | SMD 165-8405 RL | | | | | |
| **20 Volt d.c** | | | | | | |
| 10 µF | SMD 165-8399 RL | | | | | |
| **25 Volt d.c** | | | | | | |
| 1 µF | SMD 165-8392 RL | | | | | |

## TLJ Series

**Tantalum Solid Electrolytic Chip Capacitor**






- High volumetric Efficiency
- Small and low profile cases
- Enviromentally friendly

Operating temperature -55°C to 125°C Tolerance ±20%

| Case Code | L ±0.2 | W +0.2 -0.1 | H +0.2 -0.1 | Case Code | L ±0.2 | W +0.2 -0.1 | H +0.2 -0.1 |
|---|---|---|---|---|---|---|---|
| 1206 | 3.2 | 1.6 | 1.6 | 0805 | 2.05 | 1.35 | 1.35 |
| 1210 | 3.5 | 2.8 | 1.9 | 1210 | 3.5 | 2.8 | 1.2 |
| 1206 | 3.2 | 1.6 | 1 | 2312 | 6 | 3.2 | 1.5 |
| 0805 | 2.05 | 1.35 | 1.5 | | | | |

| Capacitance | ESR @ 100kHz | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|
| **4 Volt d.c** | | | | |
| 47 µF | 3 ohm | 0805 | TLJR476M004R3000 | 113-5254 |
| 68 µF | 1.5 ohm | 1206 | TLJS686M004R1500 | 165-8448 |
| 100 µF | 0.5 ohm | 1206 | TLJA107M004R0500 | 113-5255 |
| 100 µF | 1.4 ohm | 1206 | TLJS107M004R1400 | 165-8444 |
| 150 µF | 0.8 ohm | 1206 | TLJA157M004R0800 | 165-8409 |
| 150 µF | 0.8 ohm | 1210 | TLJT157M004R0800 | 165-8453 |
| 220 µF | 0.9 ohm | 1210 | TLJH227M004R0900 | 165-8419 |
| 220 µF | 1.1 ohm | 1210 | TLJT227M004R1100 | 165-8457 |
| **6.3 Volt d.c** | | | | |
| 33 µF | 3 ohm | 0805 | TLJP336M006R3000 | 165-8430 |
| 33 µF | 3 ohm | 0805 | TLJR336M006R3000 | 113-5256 |
| 47 µF | 1.5 ohm | 1206 | TLJK476M006R1500 | 143-2549 |
| 47 µF | 3.2 ohm | 0805 | TLJR476M006R3200 | 165-8442 |
| 47 µF | 1.5 ohm | 1206 | TLJS476M006R1500 | 165-8446 |
| 68 µF | 0.5 ohm | 1206 | TLJA686M006R0500 | 165-8412 |
| 100 µF | 0.5 ohm | 1206 | TLJA107M006R0500 | 113-5257 |
| 100 µF | 0.8 ohm | 1206 | TLJA107M006R0800 | 165-8408 |
| 100 µF | 0.8 ohm | 1210 | TLJT107M006R0800 | 165-8450 |
| 150 µF | 0.9 ohm | 1206 | TLJA157M006R0900 | 165-8410 |
| 150 µF | 1.2 ohm | 1210 | TLJT157M006R1200 | 165-8454 |
| 220 µF | 0.5 ohm | 1210 | TLJB227M006R0500 | 165-8413 |
| 220 µF | 0.2 ohm | 2312 | TLJW227M006R0200 | 165-8460 |
| **10 Volt d.c** | | | | |
| 10 µF | 3 ohm | 0805 | TLJR106M010R3000 | 113-5258 |
| 15 µF | 2 ohm | 0805 | TLJR156M010R2000 | 165-8435 |
| 22 µF | 1.8 ohm | 1206 | TLJK226M010R1800 | 165-8424 |
| 22 µF | 3.8 ohm | 0805 | TLJR226M010R3800 | 165-8437 |
| 33 µF | 1.5 ohm | 1206 | TLJK336M010R1500 | 165-8425 |
| 47 µF | 0.6 ohm | 1206 | TLJA476M010R0600 | 165-8411 |
| 47 µF | 1.5 ohm | 1206 | TLJG476M010R1500 | 165-8416 |
| 47 µF | 0.6 ohm | 1210 | TLJT476M010R0600 | 113-5261 |
| 150 µF | 0.5 ohm | 1210 | TLJB157M010R0500 | 113-5262 |
| 150 µF | 0.15 ohm | 2312 | TLJW157M010R0150 | 165-8459 |
| 150 µF | 0.2 ohm | 2312 | TLJW157M010R0200 | 113-5263 |
| **16 Volt d.c** | | | | |
| 10 µF | 2.2 ohm | 1206 | TLJS106M016R2200 | 165-8443 |
| 22 µF | 1.1 ohm | 1210 | TLJT226M016R1000 | 165-8455 |
| **20 Volt d.c** | | | | |
| 10 µF | 1 ohm | 1210 | TLJT106M020R1000 | 165-8449 |

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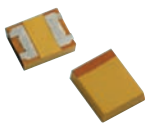
| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 2K+ |
|---|---|---|---|---|---|---|
| **4 Volt d.c** | | | | | | |
| 47 µF | SMD 113-5254 RL | | | | | |
| 68 µF | SMD 165-8448 RL | | | | | |
| 100 µF | SMD 113-5255 RL | | | | | |
| 100 µF | SMD 165-8444 RL | | | | | |
| 150 µF | SMD 165-8409 RL | | | | | |
| 150 µF | SMD 165-8453 RL | | | | | |
| 220 µF | SMD 165-8419 RL | | | | | |
| 220 µF | SMD 165-8457 RL | | | | | |
| **6.3 Volt d.c** | | | | | | |
| 33 µF | SMD 165-8430 RL | | | | | |
| 33 µF | SMD 113-5256 RL | | | | | |
| 47 µF | SMD 143-2549 | | | | | |

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 2K+ |
|---|---|---|---|---|---|---|
| **6.3 Volt d.c** | | | | | | |
| 47 µF | SMD 165-8442 RL | | | | | |
| 47 µF | SMD 165-8446 RL | | | | | |
| 68 µF | SMD 165-8412 RL | | | | | |
| 100 µF | SMD 113-5257 RL | | | | | |
| 100 µF | SMD 165-8408 RL | | | | | |
| 100 µF | SMD 165-8450 RL | | | | | |
| 150 µF | SMD 165-8410 RL | | | | | |
| 150 µF | SMD 165-8454 RL | | | | | |
| 220 µF | SMD 165-8413 RL | | | | | |
| 220 µF | SMD 165-8460 RL | | | | | |
| **10 Volt d.c** | | | | | | |
| 10 µF | SMD 113-5258 RL | | | | | |
| 15 µF | SMD 165-8435 RL | | | | | |
| 22 µF | SMD 165-8424 RL | | | | | |
| 22 µF | SMD 165-8437 RL | | | | | |
| 33 µF | SMD 165-8425 RL | | | | | |
| 47 µF | SMD 165-8411 RL | | | | | |
| 47 µF | SMD 165-8416 RL | | | | | |
| 47 µF | SMD 113-5261 RL | | | | | |
| 150 µF | SMD 113-5262 RL | | | | | |
| 150 µF | SMD 165-8459 RL | | | | | |
| 150 µF | SMD 113-5263 RL | | | | | |
| **16 Volt d.c** | | | | | | |
| 10 µF | SMD 165-8443 RL | | | | | |
| 22 µF | SMD 165-8455 RL | | | | | |
| **20 Volt d.c** | | | | | | |
| 10 µF | SMD 165-8449 RL | | | | | |

## TLN Series

**Tantalum Solid Electrolytic Chip Capacitors**

NEW



- Conductive polymer electrode reduces ignition failure mode
- Lower ESR

Operating Temperature -55°C to +125°C
Tolerance ± 20%

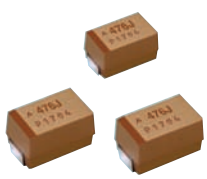
| Capacitance | Voltage Rating (V) | Max ESR @ 100 kHz (Ω) | Mftrs List No. | Order Code |
|---|---|---|---|---|
| 3300 µF | 4 | 0.055 | TLN6338M004R0055 | 186-5010 |
| 2200 µF | 6.3 | 0.055 | TLN6228M006R0055 | 186-5011 |
| 1000 µF | 10 | 0.055 | TLN6108M010R0055 | 186-5012 |
| 1500 µF | 10 | 0.055 | TLN6158M010R0055 | 186-5013 |

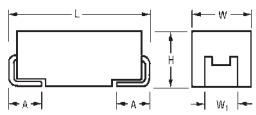
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| Capacitance | Voltage (V) | Mftrs. List No. | Order Code | Price Each 5+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|---|
| 3300 µF | 4 | TLN6338M004R0055 | 186-5010 | | | | |
| 2200 µF | 6.3 | TLN6228M006R0055 | 186-5011 | | | | |
| 1000 µF | 10 | TLN6108M010R0055 | 186-5012 | | | | |
| 1500 µF | 10 | TLN6158M010R0055 | 186-5013 | | | | |

## TCJ Series

**Tantalum Solid Electrolytic Chip Capacitor**






Operating temperature
2.5 V to 16V (less than 33µF) -55°C to +105°C
16V (33µF and greater) to 50V -55°C to +105°C
Tolerance ± 20%

- Tantalum solid electrolytic chip capacitor with a conductive polymer electrode
- Low ESR
- Safe non-ignition failure mode
- Increased capacitance retention compared to conventional $MnO_2$ electrode capacitors

| Case Code | L ±0.2 | W +0.2 -0.1 | H +0.2 -0.1 | K | L 3.2 | W 1.6 | H 1 |
|---|---|---|---|---|---|---|---|
| A | 3.2 | 1.6 | 1.6 | P | 2.05 | 1.35 | 1.5 |
| B | 3.5 | 2.8 | 1.9 | R | 2.05 | 1.3 | 1.2 |
| C | 6.0 | 3.2 | 2.6 | T | 3.5 | 2.8 | 1.2 |
| D | 7.3 | 4.3 | 2.9 | W | 6.0 | 3.2 | 1.5 |
| H | 3.5 | 2.8 | 1.5 | | | | |

| Capacitance | ESR @ 100kHz | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|
| **2.5 Volt d.c** | | | | |
| 10 µF | 0.3 ohm | 1206 | TCJA106M010R0300 | 113-5234 |
| 68 µF | 0.25 ohm | 1206 | TCJA686M002R0250 | 165-8373 |
| 100 µF | 0.2 ohm | 1206 | TCJA107M002R0200 | 165-8369 |
| 100 µF | 0.07 ohm | 1210 | TCJB107M002R0070 | 165-8375 |
| 150 µF | 0.07 ohm | 1210 | TCJB157M002R0070 | 165-8942 |
| **4 Volt d.c** | | | | |
| 15 µF | 0.3 ohm | 1206 | TCJA156M004R0300 | 165-8370 |
| 22 µF | 0.3 ohm | 1206 | TCJA226M004R0300 | 113-5226 |
| 33 µF | 0.3 ohm | 1206 | TCJA336M004R0300 | 165-8371 |

# Tantalum - Surface Mount - AVX - continued

## TCJ Series - continued

**Tantalum Solid Electrolytic Chip Capacitor - continued**

| Capacitance | ESR | | | |
|---|---|---|---|---|
| 47 µF | 0.2 ohm | 1206 | TCJA476M004R0200 | 165-8940 |
| 68 µF | 0.07 ohm | 1210 | TCJB686M004R0070 | 113-5227 |
| 68 µF | 0.25 ohm | 1206 | TCJA686M004R0250 | 165-8374 |
| 100 µF | 0.07 ohm | 1210 | TCJB107M004R0070 | 113-5228 |
| 100 µF | 0.2 ohm | 1206 | TCJA107M004R0200. | 143-2518 |
| 100 µF | 0.15 ohm | 1210 | TCJT107M004R0150 | 143-2536 |
| 100 µF | 0.2 ohm | 1206 | TCJA107M004R0200 | 211-8212 |
| 150 µF | 70 ohm | 1210 | TCJB157M004R0070. | 143-2525 |
| 150 µF | 0.07 ohm | 1210 | TCJB157M004R0070 | 211-8215 |
| 220 µF | 0.045 ohm | 1210 | TCJB227M004R0045 | 186-5004 |
| **6.3 Volt d.c** | | | | |
| 10 µF | 0.3 ohm | 1206 | TCJA106M006R0300 | 113-5229 |
| 10 µF | 0.5 ohm | 0805 | TCJR106M006R0500 | 143-2533 |
| 22 µF | 0.15 ohm | 1210 | TCJT226M006R0150 | 165-8945 |
| 33 µF | 150 ohm | 1210 | TCJT336M006R0150 | 143-2538 |
| 33 µF | 0.2 ohm | 1210 | TCJB336M006R0200 | 165-8944 |
| 47 µF | 0.07 ohm | 1210 | TCJB476M006R0070 | 113-5230 |
| 47 µF | 0.08 ohm | 1210 | TCJT476M006R0080 | 113-5231 |
| 47 µF | 0.2 ohm | 1206 | TCJA476M006R0200 | 143-2522 |
| 47 µF | 0.12 ohm | 1210 | TCJT476M006R0120 | 165-8381 |
| 68 µF | 0.07 ohm | 1210 | TCJB686M006R0070 | 113-5232 |
| 68 µF | 100 ohm | 2312 | TCJC686M006R0100 | 143-2531 |
| 68 µF | 0.055 ohm | 1210 | TCJB686M006R0055 | 165-8377 |
| 100 µF | 0.07 ohm | 1210 | TCJB107M006R0070 | 113-5233 |
| 100 µF | 0.045 ohm | 1210 | TCJB107M006R0045 | 165-8376 |
| 150 µF | 0.2 ohm | 1210 | TCJH157M006R0200 | 143-2532 |
| 150 µF | 40 ohm | 2312 | TCJW157M006R0040 | 143-2543 |
| 150 µF | 0.07 ohm | 2312 | TCJW157M006R0070 | 165-8947 |
| 220 µF | 0.2 ohm | 1210 | TCJB227M006R0200 | 186-5005 |
| **10 Volt d.c** | | | | |
| 4.7 µF | 0.5 ohm | 0805 | TCJR475M010R0500 | 143-2534 |
| 4.7 µF | 0.5 ohm | 1206 | TCJK475M010R0500 | 165-8378 |
| 10 µF | 0.3 ohm | 1206 | TCJA106M010R0300 | 113-5234 |
| 15 µF | 0.2 ohm | 1206 | TCJA156M010R0200 | 143-2519 |
| 22 µF | 0.3 ohm | 1210 | TCJB226M010R0300 | 113-5236 |
| 22 µF | 150 ohm | 1210 | TCJT226M010R0150 | 143-2537 |
| 33 µF | 0.2 ohm | 1210 | TCJB336M010R0200 | 113-5237 |
| 33 µF | 0.1 ohm | 2312 | TCJC336M010R0100 | 143-2529 |
| 33 µF | 150 ohm | 1210 | TCJT336M010R0150 | 143-2541 |
| 33 µF | 0.07 ohm | 1210 | TCJT336M010R0070 | 165-8380 |
| 47 µF | 0.07 ohm | 1210 | TCJB476M010R0070 | 113-5238 |
| 47 µF | 100 ohm | 2312 | TCJC476M010R0100 | 143-2530 |
| **16 Volt d.c** | | | | |
| 6.8 µF | 0.2 ohm | 1206 | TCJA685M016R0200 | 165-8941 |
| 10 µF | 0.15 ohm | 1210 | TCJT106M016R0150 | 143-2535 |
| 10 µF | 0.2 ohm | 1206 | TCJA106M016R0200 | 211-8211 |
| 10 µF | 0.2 ohm | 1206 | TCJA106M016R0200. | 165-8938 |
| 10 µF | 0.2 ohm | 1210 | TCJB106M016R0200 | 186-5007 |
| 15 µF | 150 ohm | 1210 | TCJB156M016R0150. | 143-2524 |
| 15 µF | 0.15 ohm | 1210 | TCJB156M016R0150 | 211-8214 |
| 22 µF | 0.15 ohm | 1210 | TCJB226M016R0150 | 143-2526 |
| **25 Volt d.c** | | | | |
| 1 µF | 0.5 ohm | 0805 | TCJP105M025R0500 | 165-8379 |
| 4.7 µF | 0.1 ohm | 1210 | TCJB475M025R0150 | 211-8218 |
| 6.8 µF | 0.1 ohm | 1210 | TCJB685M025R0150 | 211-8220 |
| 22 µF | 0.1 ohm | 2312 | TCJC226M025R0100 | 211-8223 |
| 22 µF | 0.06 ohm | 2917 | TCJD226M025R0060 | 211-8227 |
| 33 µF | 0.06 ohm | 2917 | TCJD336M025R0060 | 211-8229 |
| 47 µF | 0.06 ohm | 2917 | TCJD476M025R0060 | 211-8231 |
| **35 Volt d.c** | | | | |
| 1.5 µF | 0.2 ohm | 1210 | TCJB155M035R0200 | 211-8213 |
| 2.2 µF | 0.2 ohm | 1210 | TCJB225M035R0200 | 211-8216 |
| 3.3 µF | 0.2 ohm | 1210 | TCJB335M035R0200 | 211-8217 |
| 4.7 µF | 0.2 ohm | 1210 | TCJB475M035R0200 | 211-8219 |
| 6.8 µF | 0.2 ohm | 2312 | TCJC685M035R0200 | 211-8224 |
| 10 µF | 0.2 ohm | 2312 | TCJC106M035R0200 | 186-5008 |
| 15 µF | 0.2 ohm | 2312 | TCJC156M035R0200 | 211-8222 |
| 15 µF | 0.07 ohm | 2917 | TCJD156M035R0070 | 211-8226 |
| 22 µF | 0.07 ohm | 2917 | TCJD226M035R0070 | 211-8228 |
| 33 µF | 0.07 ohm | 2917 | TCJD336M035R0070 | 211-8230 |
| **50 Volt d.c** | | | | |
| 1 µF | 0.3 ohm | 1210 | TCJB105M050R0300 | 186-5009 |
| 10 µF | 0.12 ohm | 2917 | TCJD106M050R0120 | 211-8225 |

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| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **2.5 Volt d.c.** | | | | | | |
| 68 µF | SMD 165-8373 ● RL | | | | | |
| 100 µF | SMD 165-8369 ● RL | | | | | |
| 100 µF | SMD 165-8375 ● RL | | | | | |
| 150 µF | SMD 165-8942 ● RL | | | | | |
| **4 Volt d.c.** | | | | | | |
| 15 µF | SMD 165-8370 ● RL | | | | | |
| 22 µF | SMD 113-5226 ● RL | | | | | |
| 33 µF | SMD 165-8371 ● RL | | | | | |
| 47 µF | SMD 165-8940 ● RL | | | | | |
| 68 µF | SMD 113-5227 ● RL | | | | | |
| 68 µF | SMD 165-8374 ● RL | | | | | |
| 100 µF | SMD 113-5228 ● RL | | | | | |
| 100 µF | SMD 143-2518 ● | | | | | |
| 100 µF | SMD 143-2536 ● | | | | | |
| 100 µF | SMD 211-8212 ● | | | | | |

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **4 Volt d.c.** | | | | | | |
| 150 µF | SMD 143-2525 ● | | | | | |
| 150 µF | SMD 211-8215 ● | | | | | |
| 220 µF | 186-5004 ● | | | | | |
| **6.3 Volt d.c.** | | | | | | |
| 10 µF | SMD 113-5229 ● RL | | | | | |
| 10 µF | SMD 143-2533 ● | | | | | |
| 22 µF | SMD 165-8945 ● RL | | | | | |
| 33 µF | SMD 143-2538 ● | | | | | |
| 33 µF | SMD 165-8944 ● RL | | | | | |
| 47 µF | SMD 113-5230 ● RL | | | | | |
| 47 µF | SMD 113-5231 ● RL | | | | | |
| 47 µF | SMD 143-2522 ● | | | | | |
| 47 µF | SMD 165-8381 ● RL | | | | | |
| 68 µF | SMD 113-5232 ● RL | | | | | |
| 68 µF | SMD 143-2531 ● | | | | | |
| 68 µF | SMD 165-8377 ● RL | | | | | |
| 100 µF | SMD 113-5233 ● RL | | | | | |
| 100 µF | SMD 165-8376 ● RL | | | | | |
| 150 µF | SMD 143-2532 ● | | | | | |
| 150 µF | SMD 143-2543 ● | | | | | |
| 150 µF | SMD 165-8947 ● RL | | | | | |
| 220 µF | 186-5005 ● | | | | | |
| **10 Volt d.c.** | | | | | | |
| 4.7 µF | SMD 143-2534 ● | | | | | |
| 4.7 µF | SMD 165-8378 ● RL | | | | | |
| 10 µF | SMD 113-5234 ● RL | | | | | |
| 15 µF | SMD 143-2519 ● | | | | | |
| 22 µF | SMD 113-5236 ● RL | | | | | |
| 22 µF | SMD 143-2537 ● | | | | | |
| 33 µF | SMD 113-5237 ● RL | | | | | |
| 33 µF | SMD 143-2529 ● | | | | | |
| 33 µF | SMD 143-2541 ● | | | | | |
| 33 µF | SMD 165-8380 ● RL | | | | | |
| 47 µF | SMD 113-5238 ● RL | | | | | |
| 47 µF | SMD 143-2530 ● | | | | | |
| **16 Volt d.c.** | | | | | | |
| 6.8 µF | SMD 165-8941 ● RL | | | | | |
| 10 µF | SMD 143-2535 ● | | | | | |
| 10 µF | SMD 211-8211 ● | | | | | |
| 10 µF | SMD 165-8938 ● RL | | | | | |
| 10 µF | 186-5007 ● | | | | | |
| 15 µF | SMD 143-2524 ● | | | | | |
| 15 µF | SMD 211-8214 ● | | | | | |
| 22 µF | SMD 143-2526 ● | | | | | |
| **25 Volt d.c.** | | | | | | |
| 1 µF | SMD 165-8379 ● RL | | | | | |
| 4.7 µF | SMD 211-8218 ● | | | | | |
| 6.8 µF | SMD 211-8220 ● | | | | | |
| 22 µF | SMD 211-8223 ● | | | | | |
| 22 µF | SMD 211-8227 ● | | | | | |
| 33 µF | SMD 211-8229 ● | | | | | |
| 47 µF | SMD 211-8231 ● | | | | | |
| **35 Volt d.c.** | | | | | | |
| 1.5 µF | SMD 211-8213 ● | | | | | |
| 2.2 µF | SMD 211-8216 ● | | | | | |
| 3.3 µF | SMD 211-8217 ● | | | | | |
| 4.7 µF | SMD 211-8219 ● | | | | | |
| 6.8 µF | SMD 211-8224 ● | | | | | |
| 10 µF | 186-5008 ● | | | | | |
| 15 µF | SMD 211-8222 ● | | | | | |
| 15 µF | SMD 211-8226 ● | | | | | |
| 22 µF | SMD 211-8228 ● | | | | | |
| 33 µF | SMD 211-8230 ● | | | | | |
| **50 Volt d.c.** | | | | | | |
| 1 µF | 186-5009 ● | | | | | |
| 10 µF | SMD 211-8225 ● | | | | | |

## TCM Series

**Tantalum Solid Electrolytic Chip Capacitors**



Operating temperature -55°C to +105°C
Tolerance ± 20%

- Conductive polymer multianode
- Extremely Low ESR
- Volumetric efficiency

NEW

| Capacitance | Voltage Rating (V) | ESR @ 100 kHz (Ω) | Mftrs List No. | Order Code |
|---|---|---|---|---|
| 1000µF | 4 | 0.01 | TCME108M004R0010 | 185-4408 |
| 1000µF | 4 | 0.02 | TCME108M004R0012 | 185-4411 |
| 22µF | 35 | 0.025 | TCME226M035R0025 | 185-4412 |


RoHS ● Compliant ▲ Non-compliant

618860

| Capacitance | Mftrs. List No. | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 400+ |
|---|---|---|---|---|---|---|---|
| 1000µF | TCME108M004R0010 | **185-4408** | | | | | |
| 1000µF | TCME108M004R0012 | **185-4411** | | | | | |
| 22µF | TCME226M035R0025 | **185-4412** | | | | | |

## AVX TRJ Series

**Professional Tantalum Chip Capacitor**



The TRJ surface mount series employs established Tantalum technology together with new process improvements and advanced manufacturing techniques. This robust series enables extension of the guaranteed 0.5% reliability level to 1000 hours at rated voltage, rated temperature and 0.1Ω/volt circuit impedance. The moisture penetration barrier, thicker external dielectric layer and modified manganising process make the capacitor more robust against higher thermo-mechanical stresses during assembly process (lead-free" soldering) and also more robust against more severe working conditions in Automotive, Medical, Aerospace, Military and other applications. Lower ESR options are now available within the professional TRJ while achieving reliability levels twice that of standard tantalum devices. This enables designers of power supplies in long life expectancy applications to use tantalum capacitors with the combined benefits of enhanced reliability (0.5%/1000hrs) and low ESR.

Operating temperature -25°C to +125°C Tolerance ± 10%

**6.3 Volt d.c**

| | ESR max. @ 100kHz | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|
| 10 µF | 2.2 ohm | A | TRJA106K006RRJ | 167-2448 |
| 10 µF | 1.5 ohm | A | TRJA106K006R1500 | 167-2449 |
| 15 µF | 2.03 ohm | A | TRJA156K006RRJ | 167-2462 |
| 15 µF | 1.5 ohm | A | TRJA156K006R1500 | 167-2463 |
| 15 µF | 0.7 ohm | B | TRJB156K006R0700 | 167-2521 |
| 22 µF | 0.9 ohm | A | TRJA226K006R0900 | 167-2478 |
| 22 µF | 1.88 ohm | B | TRJB226K006RRJ | 167-2533 |
| 22 µF | 0.6 ohm | B | TRJB226K006R0600 | 167-2534 |
| 33 µF | 1.74 ohm | B | TRJB336K006RRJ | 167-2547 |
| 33 µF | 0.6 ohm | B | TRJB336K006R0600 | 167-2548 |
| 47 µF | 0.5 ohm | B | TRJB476K006R0500 | 167-2562 |
| 47 µF | 0.54 ohm | C | TRJC476K006RRJ | 167-2612 |
| 47 µF | 0.25 ohm | C | TRJC476K006R0250 | 167-2613 |
| 68 µF | 0.49 ohm | C | TRJC686K006RRJ | 167-2623 |
| 68 µF | 0.2 ohm | C | TRJC686K006R0200 | 167-2624 |
| 100 µF | 0.44 ohm | C | TRJC107K006RRJ | 167-2579 |
| 100 µF | 0.3 ohm | C | TRJC107K006R0300 | 167-2580 |
| 150 µF | 0.5 ohm | C | TRJC157K006RRJ | 167-2590 |
| 150 µF | 0.3 ohm | C | TRJC157K006R0300 | 167-2591 |
| 150 µF | 0.4 ohm | D | TRJD157K006RRJ | 167-2639 |
| 150 µF | 0.15 ohm | D | TRJD157K006R0150 | 167-2640 |
| 220 µF | 0.15 ohm | D | TRJD227K006R0150 | 167-2651 |
| 330 µF | 0.15 ohm | E | TRJE337K006R0150 | 167-2687 |
| 470 µF | 0.25 ohm | E | TRJE477K006RRJ | 167-2692 |
| 470 µF | 0.2 ohm | E | TRJE477K006R0200 | 167-2693 |

**6.3 Volt d.c.** Price Each

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10 µF | SMD **167-2448** RL | | | | | |
| 10 µF | SMD **167-2449** RL | | | | | |
| 15 µF | SMD **167-2462** RL | | | | | |
| 15 µF | SMD **167-2463** RL | | | | | |
| 15 µF | SMD **167-2521** RL | | | | | |
| 22 µF | SMD **167-2478** RL | | | | | |
| 22 µF | SMD **167-2533** RL | | | | | |
| 22 µF | SMD **167-2534** RL | | | | | |
| 33 µF | SMD **167-2547** RL | | | | | |
| 33 µF | SMD **167-2548** RL | | | | | |
| 47 µF | SMD **167-2562** RL | | | | | |
| 47 µF | SMD **167-2612** RL | | | | | |
| 47 µF | SMD **167-2613** RL | | | | | |
| 68 µF | SMD **167-2623** RL | | | | | |
| 68 µF | SMD **167-2624** RL | | | | | |
| 100 µF | SMD **167-2579** RL | | | | | |
| 100 µF | SMD **167-2580** RL | | | | | |
| 150 µF | SMD **167-2590** RL | | | | | |
| 150 µF | SMD **167-2591** RL | | | | | |
| 150 µF | SMD **167-2639** RL | | | | | |
| 150 µF | SMD **167-2640** RL | | | | | |
| 220 µF | SMD **167-2651** RL | | | | | |
| 330 µF | SMD **167-2687** RL | | | | | |
| 470 µF | SMD **167-2692** RL | | | | | |
| 470 µF | SMD **167-2693** RL | | | | | |

**10 Volt d.c**

| | ESR max. @ 100kHz | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|
| 4.7 µF | 3.16 ohm | A | TRJA475K010RRJ | 167-2491 |
| 4.7 µF | 2 ohm | A | TRJA475K010R2000 | 167-2492 |
| 6.8 µF | 2.65 ohm | A | TRJA685K010RRJ | 167-2503 |
| 6.8 µF | 1.8 ohm | A | TRJA685K010R1800 | 167-2504 |
| 10 µF | 2.2 ohm | A | TRJA106K010RRJ | 167-2450 |
| 10 µF | 1.8 ohm | A | TRJA106K010R1800 | 167-2451 |
| 10 µF | 2.2 ohm | B | TRJB106K010RRJ | 167-2511 |
| 15 µF | 1.8 ohm | A | TRJA156K010RRJ | 167-2464 |
| 15 µF | 1 ohm | A | TRJA156K010R1000 | 167-2465 |
| 15 µF | 2.03 ohm | B | TRJB156K010RRJ | 167-2522 |
| 15 µF | 0.6 ohm | B | TRJB156K010R0600 | 167-2523 |
| 22 µF | 0.7 ohm | B | TRJB226K010R0700 | 167-2536 |
| 33 µF | 0.59 ohm | C | TRJC336K010RRJ | 167-2603 |
| 47 µF | 0.54 ohm | C | TRJC476K010RRJ | 167-2614 |
| 47 µF | 0.3 ohm | C | TRJC476K010R0300 | 167-2615 |
| 68 µF | 0.49 ohm | C | TRJC686K010RRJ | 167-2625 |
| 68 µF | 0.3 ohm | C | TRJC686K010R0300 | 167-2626 |
| 100 µF | 0.2 ohm | C | TRJC107K010R0200 | 167-2582 |
| 100 µF | 0.44 ohm | D | TRJD107K010RRJ | 167-2631 |
| 150 µF | 0.4 ohm | D | TRJD157K010RRJ | 167-2641 |
| 150 µF | 0.15 ohm | D | TRJD157K010R0150 | 167-2643 |
| 150 µF | 0.44 ohm | E | TRJE157K010RRJ | 167-2677 |
| 220 µF | 0.36 ohm | E | TRJE227K010RRJ | 167-2683 |
| 220 µF | 0.15 ohm | E | TRJE227K010R0150 | 167-2684 |
| 330 µF | 0.3 ohm | E | TRJE337K010RRJ | 167-2688 |

**10 Volt d.c.** Price Each

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 4.7 µF | SMD **167-2491** RL | | | | | |
| 4.7 µF | SMD **167-2492** RL | | | | | |
| 6.8 µF | SMD **167-2503** RL | | | | | |
| 6.8 µF | SMD **167-2504** RL | | | | | |
| 10 µF | SMD **167-2450** RL | | | | | |
| 10 µF | SMD **167-2451** RL | | | | | |
| 10 µF | SMD **167-2511** RL | | | | | |
| 15 µF | SMD **167-2464** RL | | | | | |
| 15 µF | SMD **167-2465** RL | | | | | |
| 15 µF | SMD **167-2522** RL | | | | | |
| 15 µF | SMD **167-2523** RL | | | | | |
| 22 µF | SMD **167-2536** RL | | | | | |
| 33 µF | SMD **167-2603** RL | | | | | |
| 47 µF | SMD **167-2614** RL | | | | | |
| 47 µF | SMD **167-2615** RL | | | | | |
| 68 µF | SMD **167-2625** RL | | | | | |
| 68 µF | SMD **167-2626** RL | | | | | |
| 100 µF | SMD **167-2582** RL | | | | | |
| 100 µF | SMD **167-2631** RL | | | | | |
| 150 µF | SMD **167-2641** RL | | | | | |
| 150 µF | SMD **167-2643** RL | | | | | |
| 150 µF | SMD **167-2677** RL | | | | | |
| 220 µF | SMD **167-2683** RL | | | | | |
| 220 µF | SMD **167-2684** RL | | | | | |
| 330 µF | SMD **167-2688** RL | | | | | |

**16 Volt d.c**

| | ESR max. @ 100kHz | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|
| 2.2 µF | 4.55 ohm | A | TRJA225K016RRJ | 167-2470 |
| 3.3 µF | 3.5 ohm | A | TRJA335K016R3500 | 167-2483 |
| 4.7 µF | 3.16 ohm | A | TRJA475K016RRJ | 167-2493 |
| 4.7 µF | 2 ohm | A | TRJA475K016R2000 | 167-2494 |
| 4.7 µF | 3.16 ohm | B | TRJB475K016RRJ | 167-2553 |
| 4.7 µF | 1.5 ohm | B | TRJB475K016R1500 | 167-2554 |
| 6.8 µF | 2 ohm | A | TRJA685K016RRJ | 167-2505 |
| 10 µF | 2.2 ohm | B | TRJB106K016RRJ | 167-2513 |
| 10 µF | 0.8 ohm | B | TRJB106K016R0800 | 167-2515 |
| 15 µF | 0.8 ohm | B | TRJB156K016R0800 | 167-2525 |
| 22 µF | 1.1 ohm | B | TRJB226K016RRJ | 167-2537 |
| 22 µF | 0.6 ohm | B | TRJB226K016R0600 | 167-2539 |
| 22 µF | 0.7 ohm | C | TRJC226K016RRJ | 167-2594 |
| 22 µF | 0.35 ohm | C | TRJC226K016R0350 | 167-2595 |
| 33 µF | 0.59 ohm | C | TRJC336K016RRJ | 167-2606 |
| 33 µF | 0.3 ohm | C | TRJC336K016R0300 | 167-2607 |
| 47 µF | 0.54 ohm | C | TRJC476K016RRJ | 167-2616 |
| 47 µF | 0.35 ohm | C | TRJC476K016R0350 | 167-2618 |
| 47 µF | 0.2 ohm | D | TRJD476K016R0200 | 167-2662 |
| 68 µF | 0.49 ohm | D | TRJD686K016RRJ | 167-2667 |
| 68 µF | 0.15 ohm | D | TRJD686K016R0150 | 167-2668 |
| 100 µF | 0.44 ohm | E | TRJE107K016RRJ | 167-2673 |
| 100 µF | 0.15 ohm | E | TRJE107K016R0150 | 167-2674 |
| 150 µF | 0.15 ohm | E | TRJE157K016R0150 | 167-2682 |

**16 Volt d.c.** Price Each

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 2.2 µF | SMD **167-2470** RL | | | | | |
| 3.3 µF | SMD **167-2483** RL | | | | | |
| 4.7 µF | SMD **167-2493** RL | | | | | |
| 4.7 µF | SMD **167-2494** RL | | | | | |
| 4.7 µF | SMD **167-2553** RL | | | | | |
| 4.7 µF | SMD **167-2554** RL | | | | | |
| 6.8 µF | SMD **167-2505** RL | | | | | |
| 10 µF | SMD **167-2513** RL | | | | | |
| 10 µF | SMD **167-2515** RL | | | | | |
| 15 µF | SMD **167-2525** RL | | | | | |
| 22 µF | SMD **167-2537** RL | | | | | |
| 22 µF | SMD **167-2539** RL | | | | | |
| 22 µF | SMD **167-2594** RL | | | | | |
| 22 µF | SMD **167-2595** RL | | | | | |
| 33 µF | SMD **167-2606** RL | | | | | |
| 33 µF | SMD **167-2607** RL | | | | | |
| 47 µF | SMD **167-2616** RL | | | | | |
| 47 µF | SMD **167-2618** RL | | | | | |
| 47 µF | SMD **167-2662** RL | | | | | |

# Tantalum - Surface Mount - AVX - continued

## AVX TRJ Series - continued

### Professional Tantalum Chip Capacitor - continued

**16 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 68 µF | SMD 167-2667 RL | | | | | |
| 68 µF | SMD 167-2668 RL | | | | | |
| 100 µF | SMD 167-2673 RL | | | | | |
| 100 µF | SMD 167-2674 RL | | | | | |
| 150 µF | SMD 167-2682 RL | | | | | |

**20 Volt d.c**

| | ESR max. @ 100kHz | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|
| 1 µF | 3 ohm | A | TRJA105K020R3000 | 167-2442 |
| 1.5 µF | 5.46 ohm | A | TRJA155K020RRJ | 167-2454 |
| 1.5 µF | 3 ohm | A | TRJA155K020R3000 | 167-2455 |
| 2.2 µF | 4.55 ohm | A | TRJA225K020RRJ | 167-2473 |
| 2.2 µF | 3 ohm | A | TRJA225K020R3000 | 167-2474 |
| 3.3 µF | 3.74 ohm | A | TRJA335K020RRJ | 167-2485 |
| 3.3 µF | 3.74 ohm | B | TRJB335K020RRJ | 167-2541 |
| 4.7 µF | 2.5 ohm | A | TRJA475K020RRJ | 167-2495 |
| 4.7 µF | 1.8 ohm | A | TRJA475K020R1800 | 167-2497 |
| 10 µF | 22 ohm | B | TRJB106K020RRJ | 167-2516 |
| 10 µF | 1 ohm | B | TRJB106K020R1000 | 167-2517 |
| 10 µF | 0.8 ohm | C | TRJC106K020RRJ | 167-2572 |
| 10 µF | 0.5 ohm | C | TRJC106K020R0500 | 167-2573 |
| 15 µF | 1.4 ohm | B | TRJB156K020RRJ | 167-2527 |
| 15 µF | 0.5 ohm | B | TRJB156K020R0500 | 167-2528 |
| 15 µF | 0.72 ohm | C | TRJC156K020RRJ | 167-2585 |
| 22 µF | 0.65 ohm | C | TRJC226K020RRJ | 167-2596 |
| 22 µF | 0.4 ohm | C | TRJC226K020R0400 | 167-2597 |
| 22 µF | 0.65 ohm | D | TRJD226K020RRJ | 167-2644 |
| 22 µF | 0.3 ohm | D | TRJD226K020R0300 | 167-2645 |
| 33 µF | 0.59 ohm | C | TRJC336K020RRJ | 167-2608 |
| 33 µF | 0.3 ohm | C | TRJC336K020R0300 | 167-2609 |
| 47 µF | 0.54 ohm | D | TRJD476K020RRJ | 167-2663 |
| 68 µF | 0.49 ohm | D | TRJD686K020RRJ | 167-2669 |
| 68 µF | 0.2 ohm | D | TRJD686K020R0200 | 167-2670 |
| 68 µF | 0.49 ohm | E | TRJE686K020RRJ | 167-2694 |
| 68 µF | 0.2 ohm | E | TRJE686K020R0200 | 167-2695 |
| 100 µF | 0.3 ohm | E | TRJE107K020RRJ | 167-2675 |
| 100 µF | 0.15 ohm | E | TRJE107K020R0150 | 167-2676 |

**20 Volt d.c.**

| | Order Code | Price Each 1+ | + | + | + | + |
|---|---|---|---|---|---|---|
| 1 µF | SMD 167-2442 RL | | | | | |
| 1.5 µF | SMD 167-2454 RL | | | | | |
| 1.5 µF | SMD 167-2455 RL | | | | | |
| 2.2 µF | SMD 167-2473 RL | | | | | |
| 2.2 µF | SMD 167-2474 RL | | | | | |
| 3.3 µF | SMD 167-2485 RL | | | | | |
| 3.3 µF | SMD 167-2541 RL | | | | | |
| 4.7 µF | SMD 167-2495 RL | | | | | |
| 4.7 µF | SMD 167-2497 RL | | | | | |
| 10 µF | SMD 167-2516 RL | | | | | |
| 10 µF | SMD 167-2517 RL | | | | | |
| 10 µF | SMD 167-2572 RL | | | | | |
| 10 µF | SMD 167-2573 RL | | | | | |
| 15 µF | SMD 167-2527 RL | | | | | |
| 15 µF | SMD 167-2528 RL | | | | | |
| 15 µF | SMD 167-2585 RL | | | | | |
| 22 µF | SMD 167-2596 RL | | | | | |
| 22 µF | SMD 167-2597 RL | | | | | |
| 22 µF | SMD 167-2644 RL | | | | | |
| 22 µF | SMD 167-2645 RL | | | | | |
| 33 µF | SMD 167-2608 RL | | | | | |
| 33 µF | SMD 167-2609 RL | | | | | |
| 47 µF | SMD 167-2663 RL | | | | | |
| 68 µF | SMD 167-2669 RL | | | | | |
| 68 µF | SMD 167-2670 RL | | | | | |
| 68 µF | SMD 167-2694 RL | | | | | |
| 68 µF | SMD 167-2695 RL | | | | | |
| 100 µF | SMD 167-2675 RL | | | | | |
| 100 µF | SMD 167-2676 RL | | | | | |

**25 Volt d.c**

| | ESR max. @ 100kHz | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|
| 0.47 µF | 9.53 ohm | A | TRJA474K025RRJ | 167-2487 |
| 0.47 µF | 7 ohm | A | TRJA474K025R7000 | 167-2488 |
| 1 µF | 6.63 ohm | A | TRJA105K025RRJ | 167-2443 |
| 1 µF | 3 ohm | A | TRJA105K025R3000 | 167-2444 |
| 2.2 µF | 1.22 ohm | B | TRJB225K025R1200 | 167-2530 |
| 3.3 µF | 3.74 ohm | B | TRJB335K025RRJ | 167-2543 |
| 3.3 µF | 2 ohm | B | TRJB335K025R2000 | 167-2544 |
| 4.7 µF | 3.16 ohm | B | TRJB475K025RRJ | 167-2557 |
| 4.7 µF | 1 ohm | B | TRJB475K025R1000 | 167-2558 |
| 6.8 µF | 1.5 ohm | B | TRJB685K025RRJ | 167-2570 |
| 6.8 µF | 1 ohm | B | TRJB685K025R1000 | 167-2571 |
| 6.8 µF | 1.07 ohm | C | TRJC685K025RRJ | 167-2619 |
| 6.8 µF | 0.6 ohm | C | TRJC685K025R0600 | 167-2620 |
| 10 µF | 0.8 ohm | C | TRJC106K025RRJ | 167-2574 |
| 15 µF | 0.72 ohm | C | TRJC156K025RRJ | 167-2588 |
| 15 µF | 0.5 ohm | C | TRJC156K025R0500 | 167-2589 |
| 22 µF | 0.65 ohm | D | TRJD226K025RRJ | 167-2646 |
| 22 µF | 0.3 ohm | D | TRJD226K025R0300 | 167-2647 |
| 33 µF | 0.59 ohm | D | TRJD336K025RRJ | 167-2657 |
| 47 µF | 0.54 ohm | E | TRJE476K025RRJ | 167-2689 |
| 47 µF | 0.15 ohm | E | TRJE476K025R0150 | 167-2690 |

**25 Volt d.c.**

| | Order Code | Price Each 1+ | + | + | + | + |
|---|---|---|---|---|---|---|
| 0.47 µF | SMD 167-2487 RL | | | | | |
| 0.47 µF | SMD 167-2488 RL | | | | | |
| 1 µF | SMD 167-2443 RL | | | | | |
| 1 µF | SMD 167-2444 RL | | | | | |
| 2.2 µF | SMD 167-2530 RL | | | | | |
| 3.3 µF | SMD 167-2543 RL | | | | | |
| 3.3 µF | SMD 167-2544 RL | | | | | |
| 4.7 µF | SMD 167-2557 RL | | | | | |
| 4.7 µF | SMD 167-2558 RL | | | | | |
| 6.8 µF | SMD 167-2570 RL | | | | | |
| 6.8 µF | SMD 167-2571 RL | | | | | |
| 6.8 µF | SMD 167-2619 RL | | | | | |
| 6.8 µF | SMD 167-2620 RL | | | | | |
| 10 µF | SMD 167-2574 RL | | | | | |
| 15 µF | SMD 167-2588 RL | | | | | |
| 15 µF | SMD 167-2589 RL | | | | | |
| 22 µF | SMD 167-2646 RL | | | | | |
| 22 µF | SMD 167-2647 RL | | | | | |
| 33 µF | SMD 167-2657 RL | | | | | |
| 47 µF | SMD 167-2689 RL | | | | | |
| 47 µF | SMD 167-2690 RL | | | | | |

**35 Volt d.c**

| | ESR max. @ 100kHz | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|
| 0.15 µF | 16.47 ohm | A | TRJA154K035RRJ | 167-2452 |
| 0.15 µF | 6 ohm | A | TRJA154K035R6000 | 167-2453 |
| 0.22 µF | 13.71 ohm | A | TRJA224K035RRJ | 167-2466 |
| 0.22 µF | 6 ohm | A | TRJA224K035R6000 | 167-2467 |
| 0.33 µF | | A | TRJA334K035RRJ | 167-2479 |
| 0.33 µF | 6 ohm | A | TRJA334K035R6000 | 167-2480 |
| 0.47 µF | 4 ohm | A | TRJA474K035R4000 | 167-2490 |
| 0.68 µF | 7.98 ohm | A | TRJA684K035RRJ | 167-2500 |
| 1 µF | 6.63 ohm | A | TRJA105K035RRJ | 167-2445 |
| 1 µF | 3 ohm | A | TRJA105K035R3000 | 167-2446 |
| 1 µF | 3.4 ohm | B | TRJB105K035RRJ | 167-2507 |
| 1 µF | 2 ohm | B | TRJB105K035R2000 | 167-2508 |
| 1.5 µF | 3.1 ohm | A | TRJA155K035RRJ | 167-2458 |
| 1.5 µF | 5.46 ohm | B | TRJB155K035RRJ | 167-2518 |
| 1.5 µF | 2.5 ohm | B | TRJB155K035R2500 | 167-2519 |
| 2.2 µF | 4.55 ohm | B | TRJB225K035RRJ | 167-2531 |
| 2.2 µF | 2 ohm | B | TRJB225K035R2000 | 167-2532 |
| 3.3 µF | 3.74 ohm | B | TRJB335K035RRJ | 167-2545 |
| 3.3 µF | 1.84 ohm | C | TRJC335K035RRJ | 167-2598 |
| 3.3 µF | 0.8 ohm | C | TRJC335K035R0800 | 167-2600 |
| 4.7 µF | 1.41 ohm | C | TRJC475K035RRJ | 167-2610 |
| 6.8 µF | 1.07 ohm | C | TRJC685K035RRJ | 167-2621 |
| 6.8 µF | 0.6 ohm | C | TRJC685K035R0600 | 167-2622 |
| 10 µF | 0.8 ohm | C | TRJC106K035RRJ | 167-2577 |
| 10 µF | 0.6 ohm | C | TRJC106K035R0600 | 167-2578 |
| 10 µF | 0.8 ohm | D | TRJD106K035RRJ | 167-2627 |
| 10 µF | 0.4 ohm | D | TRJD106K035R0400 | 167-2628 |
| 15 µF | 0.72 ohm | D | TRJD156K035RRJ | 167-2637 |
| 22 µF | 0.4 ohm | D | TRJD226K035R0400 | 167-2649 |

**35 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.15 µF | SMD 167-2452 RL | | | | | |
| 0.15 µF | SMD 167-2453 RL | | | | | |
| 0.22 µF | SMD 167-2466 RL | | | | | |
| 0.22 µF | SMD 167-2467 RL | | | | | |
| 0.33 µF | SMD 167-2479 RL | | | | | |
| 0.33 µF | SMD 167-2480 RL | | | | | |
| 0.47 µF | SMD 167-2490 RL | | | | | |
| 0.68 µF | SMD 167-2500 RL | | | | | |
| 1 µF | SMD 167-2445 RL | | | | | |
| 1 µF | SMD 167-2446 RL | | | | | |
| 1 µF | SMD 167-2507 RL | | | | | |
| 1 µF | SMD 167-2508 RL | | | | | |
| 1.5 µF | SMD 167-2458 RL | | | | | |
| 1.5 µF | SMD 167-2518 RL | | | | | |
| 1.5 µF | SMD 167-2519 RL | | | | | |
| 2.2 µF | SMD 167-2531 RL | | | | | |
| 2.2 µF | SMD 167-2532 RL | | | | | |
| 3.3 µF | SMD 167-2545 RL | | | | | |
| 3.3 µF | SMD 167-2598 RL | | | | | |
| 3.3 µF | SMD 167-2600 RL | | | | | |
| 4.7 µF | SMD 167-2610 RL | | | | | |
| 6.8 µF | SMD 167-2621 RL | | | | | |
| 6.8 µF | SMD 167-2622 RL | | | | | |
| 10 µF | SMD 167-2577 RL | | | | | |
| 10 µF | SMD 167-2578 RL | | | | | |
| 10 µF | SMD 167-2627 RL | | | | | |
| 10 µF | SMD 167-2628 RL | | | | | |
| 15 µF | SMD 167-2637 RL | | | | | |
| 22 µF | SMD 167-2649 RL | | | | | |

**50 Volt d.c**

| | ESR max. @ 100kHz | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|
| 0.22 µF | 7.5 ohm | A | TRJA224K050RRJ | 167-2468 |
| 0.22 µF | 7 ohm | A | TRJA224K050R7000 | 167-2469 |
| 0.33 µF | 7 ohm | A | TRJA334K050RRJ | 167-2481 |
| 0.47 µF | 5 ohm | B | TRJB474K050RRJ | 167-2552 |
| 0.68 µF | 4 ohm | B | TRJB684K050RRJ | 167-2564 |
| 0.68 µF | 2 ohm | B | TRJB684K050R2000 | 167-2565 |
| 1 µF | 2 ohm | B | TRJB105K050R2000 | 167-2510 |
| 1.5 µF | 2.5 ohm | C | TRJC155K050RRJ | 167-2583 |
| 1.5 µF | 1.5 ohm | C | TRJC155K050R1500 | 167-2584 |
| 2.2 µF | 1.7 ohm | C | TRJC225K050RRJ | 167-2592 |
| 3.3 µF | 1.4 ohm | C | TRJC335K050RRJ | 167-2601 |
| 3.3 µF | 1 ohm | C | TRJC335K050R1000 | 167-2602 |
| 3.3 µF | 0.8 ohm | D | TRJD335K050R0800 | 167-2653 |
| 4.7 µF | 0.9 ohm | D | TRJD475K050RRJ | 167-2659 |
| 4.7 µF | 0.6 ohm | D | TRJD475K050R0600 | 167-2660 |
| 6.8 µF | 0.7 ohm | D | TRJD685K050RRJ | 167-2665 |
| 10 µF | 0.7 ohm | E | TRJE106K050RRJ | 167-2671 |
| 10 µF | 0.4 ohm | E | TRJE106K050R0400 | 167-2672 |

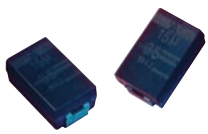
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**50 Volt d.c.**

| | Order Code | Price Each 1+ | + | + | + | + |
|---|---|---|---|---|---|---|
| 0.22 µF | SMD 167-2468 RL | | | | | |
| 0.22 µF | SMD 167-2469 RL | | | | | |
| 0.33 µF | SMD 167-2481 RL | | | | | |
| 0.47 µF | SMD 167-2552 RL | | | | | |
| 0.68 µF | SMD 167-2564 RL | | | | | |
| 0.68 µF | SMD 167-2565 RL | | | | | |
| 1 µF | SMD 167-2510 RL | | | | | |
| 1.5 µF | SMD 167-2583 RL | | | | | |
| 1.5 µF | SMD 167-2584 RL | | | | | |
| 2.2 µF | SMD 167-2592 RL | | | | | |
| 3.3 µF | SMD 167-2601 RL | | | | | |
| 3.3 µF | SMD 167-2602 RL | | | | | |
| 3.3 µF | SMD 167-2653 RL | | | | | |
| 4.7 µF | SMD 167-2659 RL | | | | | |
| 4.7 µF | SMD 167-2660 RL | | | | | |
| 6.8 µF | SMD 167-2665 RL | | | | | |
| 10 µF | SMD 167-2671 RL | | | | | |
| 10 µF | SMD 167-2672 RL | | | | | |

## THJ Series

**High Temperature Tantalum Chip Capacitor**



The THJ surface mount series combines high temperature operation and higher basic reliability for optimal performance in high temperature automotive and industry applications. The operational temperature is up to +175°C with 50% voltage derating. The level of reliability of this tantalum product is 0.5% / 1000 hours at rated voltage, rated temperature and 0.1Ω/volt circuit impedance. The capacitors are produced in black encapsulation with white polarity marking. The THJ series encompasses the 4 case sizes with dimensions identical to TAJ standard series.

Max. operating temperature +175°C Tolerance ± 10%

| Capacitance | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|
| **20 Volt d.c** | | | |
| 3.3µF | B | THJB335K020RJN | 167-2419 |
| 15µF | C | THJC156K020RJN | 167-2425 |
| 33µF | D | THJD336K020RJN | 167-2434 |
| **25 Volt d.c** | | | |
| 2.2µF | B | THJB225K025RJN | 167-2418 |
| 6.8µF | C | THJC685K025RJN | 167-2429 |
| 10µF | C | THJC106K025RJN | 167-2422 |
| 22µF | D | THJD226K025RJN | 167-2432 |
| 33µF | D | THJD336K025RJN | 167-2436 |
| 0.47µF | A | THJA474K025RJN | 167-2415 |
| 0.68µF | A | THJA684K025RJN | 167-2416 |
| **35 Volt d.c** | | | |
| 1µF | A | THJA105K035RJN | 167-2410 |
| 1µF | B | THJB105K035RJN | 167-2417 |
| 1.5µF | C | THJC155K035RJN | 167-2424 |
| 15µF | D | THJD156K035RJN | 167-2431 |
| 2.2µF | C | THJC225K035RJN | 167-2426 |
| 3.3µF | C | THJC335K035RJN | 167-2427 |
| 4.7µF | C | THJC475K035RJN | 167-2428 |
| 6.8µF | D | THJD685K035RJN | 167-2438 |
| 10µF | D | THJD106K035RJN | 167-2430 |
| 22µF | D | THJD226K035RJN | 167-2433 |
| 33µF | E | THJE336K035RJN | 167-2439 |
| 0.15µF | A | THJA154K035RJN | 167-2412 |
| 0.22µF | A | THJA224K035RJN | 167-2413 |
| 0.33µF | A | THJA334K035RJN | 167-2414 |
| 0.47µF | B | THJB474K035RJN | 167-2420 |
| 0.68µF | B | THJB684K035RJN | 167-2421 |

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**Price Each**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **20 Volt d.c** | | | | | | |
| 3.3µF | SMD 167-2419 RL | | | | | |
| 15µF | SMD 167-2425 RL | | | | | |
| 33µF | SMD 167-2434 RL | | | | | |
| **25 Volt d.c** | | | | | | |
| 2.2µF | SMD 167-2418 RL | | | | | |
| 6.8µF | SMD 167-2429 RL | | | | | |
| 10µF | SMD 167-2422 RL | | | | | |
| 22µF | SMD 167-2432 RL | | | | | |
| 33µF | SMD 167-2436 RL | | | | | |
| 0.47µF | SMD 167-2415 RL | | | | | |
| 0.68µF | SMD 167-2416 RL | | | | | |
| **35 Volt d.c** | | | | | | |
| 1µF | SMD 167-2410 RL | | | | | |
| 1µF | SMD 167-2417 RL | | | | | |
| 1.5µF | SMD 167-2424 RL | | | | | |
| 15µF | SMD 167-2431 RL | | | | | |
| 2.2µF | SMD 167-2426 RL | | | | | |
| 3.3µF | SMD 167-2427 RL | | | | | |
| 4.7µF | SMD 167-2428 RL | | | | | |
| 6.8µF | SMD 167-2438 RL | | | | | |
| 10µF | SMD 167-2430 RL | | | | | |
| 22µF | SMD 167-2433 RL | | | | | |
| 33µF | SMD 167-2439 RL | | | | | |
| 0.15µF | SMD 167-2412 RL | | | | | |
| 0.22µF | SMD 167-2413 RL | | | | | |
| 0.33µF | SMD 167-2414 RL | | | | | |
| 0.47µF | SMD 167-2420 RL | | | | | |
| 0.68µF | SMD 167-2421 RL | | | | | |

## TAW Series

**Tantalum Solid Electrolytic Fused Capacitors**



TAW Fused Tantalum Capacitors offer protection from possible damaging short circuit failure modes. This is accomplished with an internal fuse using thin film technology that is in series with the capacitor. The AVX fused tantalum offers lower ESR limits than competitive fused tantalum capacitors.

Max. operating temperature -55°C to +125°C Tolerance ± 10%

| Capacitance | ESR (mΩ) | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|
| **10 Volt d.c** | | | | |
| 47µF | 500 | D | TAWD476K010R0500 | 167-2697 |
| **16 Volt d.c** | | | | |
| 33µF | 600 | D | TAWD336K016R0600 | 167-2700 |
| **25 Volt d.c** | | | | |
| 10µF | 0.6 | D | TAWD106K025R0600 | 167-2698 |
| **50 Volt d.c** | | | | |
| 6.8µF | 700 | D | TAWD685K050R0700 | 167-2701 |

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**Price Each**

| | Order Code | 1+ | + | + | + | + |
|---|---|---|---|---|---|---|
| **10 Volt d.c** | | | | | | |
| 47µF | SMD 167-2697 RL | | | | | |
| **16 Volt d.c** | | | | | | |
| 33µF | SMD 167-2700 RL | | | | | |
| **25 Volt d.c** | | | | | | |
| 10µF | SMD 167-2698 RL | | | | | |
| **50 Volt d.c** | | | | | | |
| 6.8µF | SMD 167-2701 RL | | | | | |

# Tantalum - Surface Mount - Kemet

## T491 Series



- Precision molded tantalum capacitors
- Symmetrical, compliant terminations
- Laser-marked case
- Halogen free epoxy
- 10% Tolerance (*= ±20%)

| 4 Volt d.c. | Current DC | ESR | Case Style | Tolerance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 15 µF | 0.6 µA | 3.5 ohm | B | ± 10% | T491B156K004AT | 179-3868 |
| 33 µF | 1.3 µA | 4 ohm | A | ± 10% | T491A336K004AT | 145-7424 |
| 100 µF | 4 µA | 4 ohm | A | ± 20% | T491A107M004AT | 179-3867 |
| 330 µF | 13.2 µA | 0.9 ohm | C | ± 10% | T491C337K004AT | 179-3869 |
| 1000 µF | 40 µA | 0.2 ohm | E | ± 20% | T491E108M004AT | 145-7521 |
| 1000 µF | 40 µA | 0.5 ohm | X | ± 10% | T491X108K004AT | 179-3870 |

# Tantalum - Surface Mount - Kemet - continued

## T491 Series - continued

**Order Multiple=5**

**4 Volt d.c.**

| µF | Order Code | 5+ | 100+ | 250+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 15 | 179-3868 | | | | | |
| 33 | SMD 145-7424 | | | | | |
| 100 | SMD 179-3867 | | | | | |
| 330 | SMD 179-3869 | | | | | |
| 1000 | SMD 145-7521 | | | | | |
| 1000 | SMD 179-3870 | | | | | |

**6.3 Volt d.c.**

| | Current DC | ESR | Case Style | Tolerance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 10 µF | 0.6 µA | 4 ohm | A | ± 10% | T491A106K006AT | 145-7412 |
| 10 µF | 0.6 µA | 3.5 ohm | B | ± 10% | T491B106K006AT | 145-7434 |
| 47 µF | 3.0 µA | 3.5 ohm | A | ± 20% | T491A476M006AT | 145-7429 |
| 47 µF | 2.9 µA | 2 ohm | B | ± 10% | T491B476K006AT | 145-7456 |
| 47 µF | 3 µA | 4.4 ohm | T | ± 10% | T491T476K006AT | 179-3873 |
| 68 µF | 5 µA | 4 ohm | A | ± 10% | T491A686K006AT | 179-3872 |
| 100 µF | 6.3 µA | 3 ohm | B | ± 10% | T491B107K006AT | 145-7438 |
| 150 µF | 9.5 µA | 3 ohm | B | ± 20% | T491B157M006AT | 197-3090 |
| 220 µF | 13.2 µA | 1.2 ohm | C | ± 10% | T491C227K006AT | 145-7477 |
| 330 µF | 19.8 µA | 0.4 ohm | D | ± 10% | T491D337K006AT | 145-7509 |
| 470 µF | 28.2 µA | 0.4 ohm | X | ± 10% | T491X477K006AT | 145-7547 |
| 680 µF | 42 µA | 0.6 ohm | X | ± 10% | T491X687K006ZT | 179-3874 |

**6.3 Volt d.c.**

| | Order Code | 5+ | 100+ | 250+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10 µF | SMD 145-7412 | | | | | |
| 10 µF | SMD 145-7434 | | | | | |
| 47 µF | SMD 145-7429 | | | | | |
| 47 µF | SMD 145-7456 | | | | | |
| 47 µF | 179-3873 | | | | | |
| 68 µF | SMD 179-3872 | | | | | |
| 100 µF | SMD 145-7438 | | | | | |
| 150 µF | 197-3090 | | | | | |
| 220 µF | SMD 145-7477 | | | | | |
| 330 µF | SMD 145-7509 | | | | | |
| 470 µF | SMD 145-7547 | | | | | |
| 680 µF | 179-3874 | | | | | |

**10 Volt d.c.**

| | Current DC | ESR | Case Style | Tolerance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 2.2 µF | 0.5 µA | 8 ohm | A | ± 10% | T491A225K010AT | 145-7417 |
| 4.7 µF | 0.5 µA | 5 ohm | A | ± 10% | T491A475K010AT | 145-7427 |
| 10 µF | 1.0 µA | 4 ohm | A | ± 10% | T491A106K010AT | 145-7413 |
| 10 µF | 1 µA | 15 ohm | S | ± 10% | T491S106K010AT | 179-3875 |
| 15 µF | 1.5 µA | 6 ohm | A | ± 10% | T491A156K010AT | 179-3876 |
| 22 µF | 2.2 µA | 6 ohm | A | ± 10% | T491A226K010AT | 145-7420 |
| 22 µF | 2.2 µA | 2.4 ohm | B | ± 10% | T491B226K010AT | 145-7446 |
| 47 µF | 4.7 µA | 0.8 ohm | D | ± 10% | T491D476K010AT | 145-7514 |
| 47 µF | 4.7 µA | 1 ohm | B | ± 10% | T491B476K010AT | 145-7458 |
| 47 µF | 4.7 µA | 1.2 ohm | C | ± 10% | T491C476K010AT | 145-7485 |
| 47 µF | 4.7 µA | 2.2 ohm | U | ± 10% | T491U476K010AT | 179-3877 |
| 68 µF | 6.8 µA | 1.2 ohm | C | ± 10% | T491C686K010AT | 145-7489 |
| 100 µF | 10.0 µA | 1.2 ohm | C | ± 10% | T491C107K010AT | No Order Code |
| 100 µF | 10 µA | 0.7 ohm | D | ± 10% | T491D107K010AT | 145-7492 |
| 100 µF | 10 µA | 0.7 ohm | U | ± 10% | T491U107K010ZT | 179-3878 |
| 150 µF | 15.0 µA | 0.7 ohm | D | ± 10% | T491D157K010AT | 145-7497 |
| 150 µF | 15 µA | 0.7 ohm | V | ± 10% | T491V157K010AT | 179-3880 |
| 220 µF | 22.0 µA | 0.5 ohm | D | ± 10% | T491D227K010AT | 145-7505 |
| 220 µF | 22 µA | | C | ± 10% | T491C227K010ZT | 179-3879 |
| 470 µF | 47 µA | 0.2 ohm | X | ± 10% | T491X477K010AT | 197-3091 |

**10 Volt d.c.**

| | Order Code | 5+ | 100+ | 250+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 2.2 µF | SMD 145-7417 | | | | | |
| 4.7 µF | SMD 145-7427 | | | | | |
| 10 µF | SMD 145-7413 | | | | | |
| 10 µF | 179-3875 | | | | | |
| 15 µF | SMD 179-3876 | | | | | |
| 22 µF | SMD 145-7420 | | | | | |
| 22 µF | SMD 145-7446 | | | | | |
| 47 µF | SMD 145-7514 | | | | | |
| 47 µF | SMD 145-7458 | | | | | |
| 47 µF | SMD 145-7485 | | | | | |
| 47 µF | SMD 179-3877 | | | | | |
| 68 µF | SMD 145-7489 | | | | | |
| 100 µF | SMD 145-7465 | | | | | |
| 100 µF | SMD 145-7492 | | | | | |
| 100 µF | 179-3878 | | | | | |
| 150 µF | SMD 145-7497 | | | | | |
| 150 µF | SMD 179-3880 | | | | | |
| 220 µF | SMD 145-7505 | | | | | |
| 220 µF | 179-3879 | | | | | |
| 470 µF | SMD 197-3091 | | | | | |

**16 Volt d.c.**

| | Current DC | ESR | Case Style | Tolerance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 1 µF | 0.5 µA | 10 ohm | A | ± 10% | T491A105K016AT | 145-7406 |
| 2.2 µF | 0.5 µA | 6 ohm | A | ± 10% | T491A225K016AT | 145-7418 |
| 3.3 µF | 0.5 µA | 5 ohm | A | ± 10% | T491A335K016AT | 145-7423 |
| 4.7 µF | 0.8 µA | 4 ohm | A | ± 10% | T491A475K016AT | 145-7428 |
| 4.7 µF | 0.8 µA | 3.5 ohm | B | ± 10% | T491B475K016AT | 145-7453 |
| 4.7 µF | 0.8 µA | 5 ohm | T | ± 10% | T491T475K016AT | 179-3881 |
| 6.8 µF | 1.1 µA | 3.5 ohm | A | ± 10% | T491A685K016AT | 145-7431 |
| 10 µF | 1.6 µA | 7 ohm | A | ± 10% | T491A106K016AT | 145-7414 |
| 10 µF | 1.6 µA | 7 ohm | A | ± 20% | T491A106M016AT | 165-0980 |
| 10 µF | 1.6 µA | 2.8 ohm | B | ± 10% | T491B106K016AT | 145-7436 |
| 10 µF | 1.6 µA | 1.8 ohm | C | ± 10% | T491C106K016AT | 145-7461 |
| 10 µF | 1.6 µA | 8 ohm | T | ± 10% | T491T106K016AT | 179-3882 |
| 15 µF | 2.4 µA | 2.5 ohm | B | ± 10% | T491B156K016AT | 145-7440 |
| 22 µF | 3.6 µA | 2.2 ohm | B | ± 10% | T491B226K016AT | 145-7447 |
| 22 µF | 3.6 µA | 1.6 ohm | C | ± 10% | T491C226K016AT | 145-7474 |
| 22 µF | 3.6 µA | 0.8 ohm | D | ± 10% | T491D226K016AT | 145-7499 |
| 22 µF | 3.6 µA | 3 ohm | U | ± 10% | T491U226K016AT | 179-3884 |
| 33 µF | 5.3 µA | 1.2 ohm | C | ± 10% | T491C336K016ZT | 145-7479 |
| 33 µF | 5.3 µA | 0.8 ohm | D | ± 10% | T491D336K016AT | 145-7507 |
| 47 µF | 7.5 µA | 1.2 ohm | C | ± 10% | T491C476K016AT | 145-7486 |
| 47 µF | 7.5 µA | 0.8 ohm | D | ± 10% | T491D476K016AT | 145-7515 |
| 47 µF | 7.5 µA | 0.7 ohm | V | ± 10% | T491V476K016AT | 179-3886 |
| 68 µF | 10.9 µA | 0.7 ohm | D | ± 10% | T491D686K016AT | 145-7520 |
| 68 µF | 10.9 µA | 0.7 ohm | V | ± 10% | T491V686K016AT | 179-3887 |
| 100 µF | 16.0 µA | 0.7 ohm | D | ± 10% | T491D107K016AT | 145-7493 |
| 100 µF | 16 µA | 1 ohm | C | ± 10% | T491C107K016ZT | 179-3885 |
| 100 µF | 16 µA | 0.7 ohm | V | ± 10% | T491V107K016AT | 179-3888 |
| 150 µF | 24.0 µA | 0.5 ohm | X | ± 10% | T491X157K016AT | 145-7532 |
| 220 µF | 35.2 µA | 0.9 ohm | D | ± 10% | T491D227K016ZT | 179-3889 |

**16 Volt d.c.**

| | Order Code | 5+ | 100+ | 250+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1 µF | SMD 145-7406 | | | | | |
| 2.2 µF | SMD 145-7418 | | | | | |
| 3.3 µF | SMD 145-7423 | | | | | |
| 4.7 µF | SMD 145-7428 | | | | | |
| 4.7 µF | SMD 145-7453 | | | | | |
| 4.7 µF | 179-3881 | | | | | |
| 6.8 µF | SMD 145-7431 | | | | | |
| 10 µF | SMD 145-7414 | | | | | |
| 10 µF | SMD 165-0980 | | | | | |
| 10 µF | SMD 145-7436 | | | | | |
| 10 µF | SMD 145-7461 | | | | | |
| 10 µF | 179-3882 | | | | | |
| 15 µF | SMD 145-7440 | | | | | |
| 22 µF | SMD 145-7447 | | | | | |
| 22 µF | SMD 145-7474 | | | | | |
| 22 µF | SMD 145-7499 | | | | | |
| 22 µF | SMD 179-3884 | | | | | |
| 33 µF | SMD 145-7479 | | | | | |
| 33 µF | SMD 145-7507 | | | | | |
| 47 µF | SMD 145-7486 | | | | | |
| 47 µF | SMD 145-7515 | | | | | |
| 47 µF | SMD 179-3886 | | | | | |
| 68 µF | SMD 145-7520 | | | | | |
| 68 µF | SMD 179-3887 | | | | | |
| 100 µF | SMD 145-7493 | | | | | |
| 100 µF | 179-3885 | | | | | |
| 100 µF | SMD 179-3888 | | | | | |
| 150 µF | SMD 145-7532 | | | | | |
| 220 µF | 179-3889 | | | | | |

**20 Volt d.c.**

| | Current DC | ESR | Case Style | Tolerance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 1 µF | 0.5 µA | 9 ohm | A | ± 10% | T491A105K020AT | 145-7407 |
| 2.2 µF | 0.5 µA | 7 ohm | A | ± 10% | T491A225K020AT | 145-7419 |
| 2.2 µF | 0.5 µA | 3.5 ohm | B | ± 10% | T491B225K020AT | 145-7441 |
| 4.7 µF | 1.0 µA | 3 ohm | B | ± 10% | T491B475K020AT | 145-7454 |
| 4.7 µF | 1.0 µA | 2.4 ohm | C | ± 10% | T491C475K020AT | 145-7480 |
| 6.8 µF | 1.4 µA | 2.5 ohm | B | ± 10% | T491B685K020AT | 145-7459 |
| 10 µF | 2.0 µA | 2.1 ohm | B | ± 10% | T491B106K020AT | 145-7437 |
| 10 µF | 2.0 µA | 1.8 ohm | C | ± 10% | T491C106K020AT | 145-7462 |
| 10 µF | 2 µA | 1.8 ohm | U | ± 10% | T491U106K020AT | 179-3890 |
| 22 µF | 4.4 µA | 1.2 ohm | C | ± 10% | T491C226K020AT | 145-7475 |
| 22 µF | 4.4 µA | 0.8 ohm | D | ± 10% | T491D226K020AT | 145-7502 |
| 33 µF | 6.6 µA | 0.8 ohm | D | ± 10% | T491D336K020AT | 145-7508 |
| 47 µF | 9.4 µA | 0.9 ohm | C | ± 10% | T491C476K020AT | 179-3891 |
| 47 µF | 9.4 µA | 0.7 ohm | D | ± 10% | T491D476K020AT | 145-7516 |
| 68 µF | 13.6 µA | 0.7 ohm | X | ± 10% | T491X686K020AT | 145-7551 |
| 100 µF | 20.0 µA | 0.5 ohm | X | ± 10% | T491X107K020AT | 145-7526 |

**20 Volt d.c.**

| | Order Code | 5+ | 100+ | 250+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1 µF | SMD 145-7407 | | | | | |
| 2.2 µF | SMD 145-7419 | | | | | |
| 2.2 µF | SMD 145-7441 | | | | | |
| 4.7 µF | SMD 145-7454 | | | | | |
| 4.7 µF | SMD 145-7480 | | | | | |
| 6.8 µF | SMD 145-7459 | | | | | |
| 10 µF | SMD 145-7437 | | | | | |
| 10 µF | SMD 145-7462 | | | | | |
| 10 µF | SMD 179-3890 | | | | | |
| 22 µF | SMD 145-7475 | | | | | |
| 22 µF | SMD 145-7502 | | | | | |

| 20 Volt d.c. | Order Code | Price Each 5+ | 100+ | 250+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 33 µF | SMD 145-7508 | | | | | |
| 47 µF | 179-3891 | | | | | |
| 47 µF | SMD 145-7516 | | | | | |
| 68 µF | SMD 145-7551 | | | | | |
| 100 µF | SMD 145-7526 | | | | | |

| 25 Volt d.c. | Current DC | ESR | Case Style | Tolerance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 0.47 µF | 0.5 µA | 14 ohm | A | ± 10% | T491A474K025AT | 145-7425 |
| 1 µF | 0.5 µA | 8 ohm | A | ± 10% | T491A105K025AT | 145-7409 |
| 1 µF | 0.3 µA | 18 ohm | S | ± 10% | T491S105K025AT | 179-3892 |
| 2.2 µF | 0.6 µA | 4.5 ohm | B | ± 10% | T491B225K025AT | 145-7442 |
| 4.7 µF | 1.2 µA | 1.5 ohm | B | ± 10% | T491B475K025AT | 145-7455 |
| 4.7 µF | 1.2 µA | 2.4 ohm | C | ± 10% | T491C475K025AT | 145-7483 |
| 10 µF | 2.5 µA | 1.5 ohm | C | ± 10% | T491C106K025AT | 145-7463 |
| 10 µF | 2.5 µA | 1 ohm | D | ± 10% | T491D106K025AT | 145-7490 |
| 10 µF | 2.5 µA | 3 ohm | B | ± 10% | T491B106K025AT | 179-3894 |
| 15 µF | 3.8 µA | 1.5 ohm | C | ± 10% | T491C156K025AT | 145-7468 |
| 15 µF | 3.8 µA | 1 ohm | D | ± 10% | T491D156K025AT | 145-7495 |
| 22 µF | 5.5 µA | 0.8 ohm | D | ± 10% | T491D226K025AT | 145-7503 |
| 22 µF | 5.5 µA | 0.7 ohm | V | ± 10% | T491V226K025AT | 179-3897 |
| 33 µF | 8.3 µA | 1.2 ohm | C | ± 10% | T491C336K025AT | 179-3896 |
| 47 µF | 11.8 µA | 0.7 ohm | D | ± 10% | T491D476K025AT | 145-7517 |
| 47 µF | 11.8 µA | 0.7 ohm | X | ± 10% | T491X476K025AT | 145-7545 |

| 25 Volt d.c. | Order Code | Price Each 5+ | 100+ | 250+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.47 µF | SMD 145-7425 | | | | | |
| 1 µF | SMD 145-7409 | | | | | |
| 1 µF | 179-3892 | | | | | |
| 2.2 µF | SMD 145-7442 | | | | | |
| 4.7 µF | SMD 145-7455 | | | | | |
| 4.7 µF | SMD 145-7483 | | | | | |
| 10 µF | SMD 145-7463 | | | | | |
| 10 µF | SMD 145-7490 | | | | | |
| 10 µF | 179-3894 | | | | | |
| 15 µF | SMD 145-7468 | | | | | |
| 15 µF | SMD 145-7495 | | | | | |
| 22 µF | SMD 145-7503 | | | | | |
| 22 µF | SMD 179-3897 | | | | | |
| 33 µF | SMD 179-3896 | | | | | |
| 47 µF | SMD 145-7517 | | | | | |
| 47 µF | SMD 145-7545 | | | | | |

| 35 Volt d.c. | Current DC | ESR | Case Style | Tolerance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 0.1 µF | 0.5 µA | 20 ohm | A | ± 10% | T491A104K035AT | 145-7402 |
| 0.33 µF | 0.5 µA | 15 ohm | A | ± 10% | T491A334K035AT | 145-7422 |
| 0.47 µF | 0.5 µA | 12 ohm | A | ± 10% | T491A474K035AT | 145-7426 |
| 1 µF | 0.5 µA | 7.5 ohm | A | ± 10% | T491A105K035AT | 145-7411 |
| 1 µF | 0.5 µA | 5 ohm | B | ± 10% | T491B105K035AT | 145-7432 |
| 2.2 µF | 0.8 µA | 4 ohm | B | ± 10% | T491B225K035AT | 145-7443 |
| 2.2 µF | 0.8 µA | 3.5 ohm | C | ± 10% | T491C225K035AT | 145-7472 |
| 3.3 µF | 1.2 µA | 3.5 ohm | B | ± 10% | T491B335K035AT | 179-3898 |
| 4.7 µF | 1.7 µA | 2.2 ohm | C | ± 10% | T491C475K035AT | 145-7484 |
| 4.7 µF | 1.7 µA | 1.5 ohm | D | ± 10% | T491D475K035AT | 145-7510 |
| 6.8 µF | 2.4 µA | 1.3 ohm | D | ± 10% | T491D685K035AT | 145-7518 |
| 10 µF | 3.5 µA | 1.6 ohm | C | ± 10% | T491C106K035AT | 145-7464 |
| 10 µF | 3.5 µA | 1 ohm | D | ± 10% | T491D106K035AT | 145-7491 |
| 10 µF | 3.5 µA | 2 ohm | V | ± 10% | T491V106K035AT | 179-3899 |
| 22 µF | 7.7 µA | 0.7 ohm | D | ± 10% | T491D226K035AT | 145-7504 |
| 47 µF | 16.5 µA | 0.5 ohm | E | ± 10% | T491E476K035AT | 145-7522 |
| 47 µF | 16.5 µA | 0.6 ohm | X | ± 10% | T491X476K035AT | 145-7546 |

| 35 Volt d.c. | Order Code | Price Each 5+ | 100+ | 250+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.1 µF | SMD 145-7402 | | | | | |
| 0.33 µF | SMD 145-7422 | | | | | |
| 0.47 µF | SMD 145-7426 | | | | | |
| 1 µF | SMD 145-7411 | | | | | |
| 1 µF | SMD 145-7432 | | | | | |
| 2.2 µF | SMD 145-7443 | | | | | |
| 2.2 µF | SMD 145-7472 | | | | | |
| 3.3 µF | SMD 179-3898 | | | | | |
| 4.7 µF | SMD 145-7484 | | | | | |
| 4.7 µF | SMD 145-7510 | | | | | |
| 6.8 µF | SMD 145-7518 | | | | | |
| 10 µF | SMD 145-7464 | | | | | |
| 10 µF | SMD 145-7491 | | | | | |
| 10 µF | SMD 179-3899 | | | | | |
| 22 µF | SMD 145-7504 | | | | | |
| 47 µF | SMD 145-7522 | | | | | |
| 47 µF | SMD 145-7546 | | | | | |

| 50 Volt d.c. | Current DC | ESR | Case Style | Tolerance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 0.1 µF | 0.5 µA | 20 ohm | A | ± 10% | T491A104K050AT | 179-3900 |
| 0.33 µF | 0.5 µA | 10 ohm | B | ± 10% | T491B334K050AT | 145-7448 |
| 0.68 µF | 0.5 µA | 8 ohm | B | ± 10% | T491B684K050AT | 179-3903 |
| 1 µF | 0.5 µA | 5.5 ohm | C | ± 10% | T491C105K050AT | 145-7460 |
| 1 µF | 0.5 µA | 6 ohm | B | ± 10% | T491B105K050AT | 179-3904 |
| 1 µF | 0.5 µA | 6 ohm | V | ± 10% | T491V105K050AT | 179-3905 |
| 1 µF | 0.5 µA | 7 ohm | A | ± 10% | T491A105K050AT | 197-3092 |
| 2.2 µF | 1.1 µA | 2.5 ohm | D | ± 10% | T491D225K050AT | 145-7498 |
| 4.7 µF | 2.4 µA | 1.4 ohm | D | ± 10% | T491D475K050AT | 145-7511 |

| 50 Volt d.c. | Order Code | Price Each 5+ | 100+ | 250+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.1 µF | SMD 179-3900 | | | | | |
| 0.33 µF | SMD 145-7448 | | | | | |
| 0.68 µF | 179-3903 | | | | | |
| 1 µF | SMD 145-7460 | | | | | |
| 1 µF | 179-3904 | | | | | |
| 1 µF | 179-3905 | | | | | |
| 1 µF | 197-3092 | | | | | |
| 2.2 µF | SMD 145-7498 | | | | | |
| 4.7 µF | SMD 145-7511 | | | | | |

RL **FREE Re-reeling service.** Only buy what you need and improve assembly efficiency. For more information visit **local website**

## B45196 Series - Standard

KEMET CHARGED.



- Long life surface mount Tantalum chip capacitors
- Flame retardant plastic case **UL94V-0**
- Suitable for Vapour phase, IR and Wave soldering
- Laser marked and conform to **CECC 30801-801/CECC 30801-802**

SMD

| Case Code | Length | Width | Height | Reel Qty. | Tape Size |
|---|---|---|---|---|---|
| A | 3.2 | 1.6 | 1.6 | 2000 | 8 |
| B | 3.5 | 2.8 | 1.9 | 2000 | 12 |
| C | 6 | 3.2 | 2.6 | 750 | 12 |
| D | 7.3 | 4.3 | 2.9 | 750 | 12 |
| E | 7.3 | 4.3 | 4.1 | 400 | 12 |

Tolerance ± 10%
Operating temperature -55°C to +125°C
Impedance measured at 100kHz 20°C
Supplied on 180mm diameter reel and on 8mm or 12mm tape

| 4 Volt d.c. | DC Leakage Current | Impedance @ 100kHz | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 1000 µF | 40 µA | 0.6 ohm | E | B45196H0108K509 | 975-1840 |

| 4 Volt d.c. | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1000 µF | SMD 975-1840 RL | | | | | |

| 6.3 Volt d.c. | DC Leakage Current | Impedance @ 100kHz | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 22 µF | 1.4 µA | 2 ohm | C | B45196E1226K309 | 975-3761 |
| 47 µF | 3 µA | 1.1 ohm | D | B45196E1476K409 | 975-3770 |
| 68 µF | 4.3 µA | 0.8 ohm | D | B45196E1686K409 | 975-3788 |

| 6.3 Volt d.c. | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 22 µF | SMD 975-3761 RL | | | | | |
| 47 µF | SMD 975-3770 RL | | | | | |
| 68 µF | SMD 975-3788 RL | | | | | |

| 10 Volt d.c. | DC Leakage Current | Impedance @ 100kHz | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 2.2 µF | 0.5 µA | 7 ohm | A | B45196E2225K109 | 975-3796 |
| 10 µF | 1 µA | 3.8 ohm | A | B45196H2106K109 | 975-1041 |
| 4.7 µF | 0.5 µA | 4.5 ohm | B | B45196E2475K209 | 975-3800 |
| 10 µF | 1 µA | 2.4 ohm | C | B45196E2106K309 | 975-3818 |
| 15 µF | 1.5 µA | 2 ohm | C | B45196E2156K309 | 975-3826 |
| 33 µF | 3.3 µA | 1.1 ohm | D | B45196E2336K409 | 975-3834 |
| 47 µF | 4.7 µA | 0.8 ohm | D | B45196E2476K409 | 975-3842 |
| 100 µF | 10 µA | 0.8 ohm | D | B45196H2107K409 | 975-3850 |

| 10 Volt d.c. | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 2.2 µF | SMD 975-3796 RL | | | | | |
| 10 µF | SMD 975-1041 RL | | | | | |
| 4.7 µF | SMD 975-3800 RL | | | | | |
| 10 µF | SMD 975-3818 RL | | | | | |
| 15 µF | SMD 975-3826 RL | | | | | |
| 33 µF | SMD 975-3834 RL | | | | | |
| 47 µF | SMD 975-3842 RL | | | | | |
| 100 µF | SMD 975-3850 RL | | | | | |

| 16 Volt d.c. | DC Leakage Current | Impedance @ 100kHz | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 1 µF | 0.5 µA | 10 ohm | A | B45196E3105K109 | 975-3869 |
| 3.3 µF | 0.6 µA | 5 ohm | B | B45196E3335K209 | 975-3877 |
| 4.7 µF | 0.8 µA | 3.5 ohm | B | B45196E3475K209 | 975-3885 |
| 10 µF | 1 µA | 2.5 ohm | B | B45196H3106K209 | 975-3893 |
| 10 µF | 1.6 µA | 2 ohm | C | B45196E3106K309 | 975-3907 |
| 22 µF | 3.6 µA | 1.1 ohm | D | B45196E3226K409 | 975-3915 |
| 33 µF | 5.3 µA | 1 ohm | D | B45196E3336K409 | 975-3923 |
| 47 µF | 7.5 µA | 0.8 ohm | D | B45196H3476K409 | 975-3931 |

# Tantalum - Surface Mount - Kemet - continued

## B45196 Series - Standard - continued

**16 Volt d.c.**

| Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|
| 1 µF SMD 975-3869 RL | | | | | |
| 3.3 µF SMD 975-3877 RL | | | | | |
| 4.7 µF SMD 975-3885 RL | | | | | |
| 10 µF SMD 975-3893 RL | | | | | |
| 10 µF SMD 975-3907 RL | | | | | |
| 22 µF SMD 975-3915 RL | | | | | |
| 33 µF SMD 975-3923 RL | | | | | |
| 47 µF SMD 975-3931 RL | | | | | |

| 25 Volt d.c | DC Leakage Current | Impedance @ 100kHz | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 0.47 µF | 0.5 µA | 13 ohm | A | B45196E5474K109 | 975-3940 |
| 1 µF | 0.5 µA | 7 ohm | A | B45196H5105K109 | 975-3958 |
| 1.5 µF | 0.6 µA | 5 ohm | B | B45196E5155K209 | 975-3966 |
| 2.2 µF | 0.9 µA | 2.8 ohm | B | B45196E5225K209 | 975-3974 |
| 3.3 µF | 1.2 µA | 2.3 ohm | C | B45196E5335K309 | 975-3982 |
| 4.7 µF | 2.5 µA | 1.2 ohm | C | B45196E5475K309 | 975-3990 |
| 10 µF | 0.5 µA | 8 ohm | D | B45196E5106K409 | 975-4008 |

**25 Volt d.c.**

| Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|
| 0.47 µF SMD 975-3940 RL | | | | | |
| 1 µF SMD 975-3958 RL | | | | | |
| 1.5 µF SMD 975-3966 RL | | | | | |
| 2.2 µF SMD 975-3974 RL | | | | | |
| 3.3 µF SMD 975-3982 RL | | | | | |
| 4.7 µF SMD 975-3990 RL | | | | | |
| 10 µF SMD 975-4008 RL | | | | | |

| 35 Volt d.c. | DC Leakage Current | Impedance @ 100kHz | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 0.1 µF | 0.5 µA | 28 ohm | A | B45196E6104K109 | 975-4016 |
| 0.47 µF | 0.5 µA | 11 ohm | B | B45196E6474K209 | 975-4024 |
| 1 µF | 0.5 µA | 7 ohm | B | B45196E6105K209 | 975-4032 |
| 2.2 µF | 0.8 µA | 3.2 ohm | C | B45196E6225K309 | 975-4040 |
| 3.3 µF | 1.2 µA | 2.4 ohm | C | B45196E6335K309 | 975-4059 |
| 4.7 µF | 1.7 µA | 1.5 ohm | D | B45196E6475K409 | 975-4067 |
| 6.8 µF | 2.4 µA | 1.2 ohm | D | B45196E6685K409 | 975-4075 |
| 10 µF | 3.5 µA | 1 ohm | D | B45196E6106K409 | 975-4083 |
| 15 µF | 5.3 µA | 0.8 ohm | D | B45196H6156K409 | 975-4091 |
| 22 µF | 7.7 µA | 0.8 ohm | E | B45196H6226K509 | 975-4105 |

208543

**35 Volt d.c.**

| Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|
| 0.1 µF SMD 975-4016 RL | | | | | |
| 0.47 µF SMD 975-4024 RL | | | | | |
| 1 µF SMD 975-4032 RL | | | | | |
| 2.2 µF SMD 975-4040 RL | | | | | |
| 3.3 µF SMD 975-4059 RL | | | | | |
| 4.7 µF SMD 975-4067 RL | | | | | |
| 6.8 µF SMD 975-4075 RL | | | | | |
| 10 µF SMD 975-4083 RL | | | | | |
| 15 µF SMD 975-4091 RL | | | | | |
| 22 µF SMD 975-4105 RL | | | | | |

## B45194 Series - Low Profile



- Maximum height 2mm
- High capacitance per unit volume
- Low leakage current, low self-inductance, low dissipation factor
- Suitable for vapour phase, IR and wave soldering
- V case size has same foot print as D case

Tolerance ±10%
Operating temperature -55°C to +125°C
Impedance measured at 100kHz 20°C
Supplied on 180mm diameter reel

| Case Code | Length | Width | Height | Reel Qty | Tape Size |
|---|---|---|---|---|---|
| V | 7.3 | 4.3 | 2.0 | 1000 | 12mm |

| Capacitance | Impedance (Ω) | DC Leakage Current (µA) | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| **6.3 Volt d.c.** | | | | | |
| 330 µF | 0.7 | 21 | V | B45194E1337K409 | 416-0332 |
| **10 Volt d.c.** | | | | | |
| 150 µF | 0.7 | 15 | V | B45194E2157K409 | 121-9095 |
| 220 µF | 0.7 | 22 | V | B45194E2227K409 | 416-0356 |
| **16 Volt d.c.** | | | | | |
| 68 µF | 0.7 | 11 | V | B45194E3686K409 | 121-9096 |

240996

| Capacitance | Order Code | 1+ | 50+ | 100+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| **6.3 Volt d.c.** | | | | | | |
| 330 µF | SMD 416-0332 RL | | | | | |
| **10 Volt d.c.** | | | | | | |
| 150 µF | SMD 121-9095 RL | | | | | |
| 220 µF | SMD 416-0356 RL | | | | | |
| **16 Volt d.c.** | | | | | | |
| 68 µF | SMD 121-9096 RL | | | | | |

## B45192 Series - Low Profile, Low ESR



- Maximum height of 1.5mm
- High volumetric efficiency
- Low ESR, for use in telecommunication and other low ESR application with height constraint
- Low leakage current, low self-inductance, low dissipation factor
- Suitable for vapour phase, IR and wave soldering

Tolerance ±10%
ESR measured at 100kHz 20°C Supplied on 180mm diameter reel
Operating temperature -55°C to +125°C

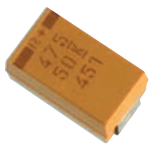
| Case Code | Length (mm) | Width (mm) | Height (mm) | Reel Qty | Tape Size |
|---|---|---|---|---|---|
| W | 6.0 | 3.2 | 1.5 | 1250 | 12mm |

| | ESR (Ω) | DC Leakage Current (µA) | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| **10 Volt d.c.** | | | | | |
| 47 µF | 0.4 | 4.7 | W | B45192R2476K309 | 975-1742 |
| **16 Volt d.c.** | | | | | |
| 33 µF | 0.4 | 5.3 | W | B45192R3336K309 | 975-1769 |

241031

| Capacitance | Order Code | 1+ | 50+ | 100+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| **10 Volt d.c.** | | | | | | |
| 47 µF | SMD 975-1742 RL | | | | | |
| **16 Volt d.c.** | | | | | | |
| 33 µF | SMD 975-1769 RL | | | | | |

## T495 Series–Low ESR Tantalum





- Designed for Very Low ESR
- Extended Values for Low ESR
- High Surge & Ripple Current Capability
- 100% Accelerated Steady-State Aging
- 100% Surge Current Test
- Low Equivalent Series Inductance

Characteristics

| Case size | Dimensions (mm) | | |
|---|---|---|---|
| C | L = 6 | W = 3.2 | H = 2.5 |
| D | L = 7.3 | W = 4.3 | H = 2.8 |
| V | L = 7.3 | W = 4.3 | H = 2 |
| X | L = 7.3 | W = 4.3 | H = 4 |
| Tolerance | | ±10% | |
| Dielectric tpye | | Tantalum | |

406040

| Resistance (ESR) | Case size | Order Code | 1+ | 25+ | 50+ | 100+ |
|---|---|---|---|---|---|---|
| **6 Volts d.c.** | | | | | | |
| 100 µF 0.15ohm | C | SMD 922-9230 RL | | | | |
| 470 µF 0.065ohm | X | SMD 922-9361 RL | | | | |
| **6.3 Volts d.c.** | | | | | | |
| 330 µF 0.2ohm | C | SMD 167-9287 | | | | |
| 150 µF 0.04ohm | V | SMD 135-8518 | | | | |
| 1000 µF 0.1ohm | X | SMD 167-9288 | | | | |
| **10 Volts d.c.** | | | | | | |
| 22 µF 1.5ohm | B | SMD 167-9290 | | | | |
| 22 µF 0.245ohm | C | SMD 167-9289 | | | | |
| 100 µF 0.1ohm | D | SMD 922-9256 RL | | | | |
| 150 µF 0.05ohm | D | SMD 128-8218 RL | | | | |
| 220 µF 0.125ohm | D | SMD 922-9280 RL | | | | |
| 220 µF 0.1ohm | X | SMD 922-9337 RL | | | | |
| **16 Volts d.c.** | | | | | | |
| 10 µF 1.6ohm | B | SMD 167-9291 | | | | |
| 47 µF 0.15ohm | D | SMD 922-9299 RL | | | | |
| 100 µF 0.1ohm | D | SMD 146-3352 | | | | |
| 100 µF 0.125ohm | D | SMD 922-9264 RL | | | | |
| 100 µF 0.1ohm | X | SMD 922-9310 RL | | | | |
| **20 Volts d.c.** | | | | | | |
| 10 µF 0.4ohm | C | SMD 128-8223 RL | | | | |
| 33 µF 0.1ohm | D | SMD 128-8224 RL | | | | |
| 47 µF 0.15ohm | X | SMD 922-9353 RL | | | | |
| **25 Volts d.c.** | | | | | | |
| 6.8 µF 0.4ohm | C | SMD 128-8225 RL | | | | |

| | Resistance | Case | Order Code | Price Each 1+ | 25+ | 50+ | 100+ |
|---|---|---|---|---|---|---|---|
| **35 Volts d.c.** | | | | | | | |
| 10 µF | 0.3ohm | D | SMD 922-9248 RL | | | | |
| 10 µF | 0.25ohm | X | SMD 922-9302 RL | | | | |
| 22 µF | 0.3ohm | D | SMD 922-9272 RL | | | | |
| 22 µF | 0.275ohm | X | SMD 922-9329 RL | | | | |
| **50 Volts d.c.** | | | | | | | |
| 4.7 µF | 0.3ohm | X | SMD 922-9345 RL | | | | |
| 6.8 µF | 0.19ohm | D | SMD 128-8220 RL | | | | |
| 15 µF | 0.2ohm | X | SMD 135-8517 | | | | |

## B45197 Series - Low ESR

KEMET CHARGED. SMD



- Low ESR (equivalent series resistance) version of B45196 series
- Long life surface mount tantalum chip capacitors
- Suitable for vapour phase, IR and wave soldering
- Laser marked and conform to **CECC 30801-805**

Tolerance: ± 10%
Operating temperature -55°C to 125°C
ESR measured at 100kHz 20°C
Supplied in 180mm diameter reel

| Case Code | Length | Width | Height | Reel Qty. | Tape Size |
|---|---|---|---|---|---|
| A | 3.2 | 1.6 | 1.6 | 2000 | 8 |
| B | 3.5 | 2.8 | 1.9 | 2000 | 8 |
| C | 6 | 3.2 | 2.6 | 750 | 12 |
| D | 7.3 | 4.3 | 2.9 | 750 | 12 |
| E | 7.3 | 4.3 | 4.1 | 400 | 12 |

| | ESR @ 100kHz | DC Leakage Current | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| **10 Volt d.c.** | | | | | |
| 2.2 µF | 1.8 ohm | 0.5 ohm | A | B45010A2259K188 | 135-8544 |
| 100 µF | 0.1 ohm | 10 ohm | D | B45197A2107K409 | 975-1050 |
| 220 µF | 0.1 ohm | 22 ohm | E | B45197A2227K509 | 975-1068 |
| 330 µF | 0.1 ohm | 33 ohm | E | B45197A2337K509 | 975-1076 |
| 470 µF | 0.1 ohm | 47.0 ohm | E | B45197A2477K509 | 975-1190 |
| **16 Volt d.c.** | | | | | |
| 15 µF | 2.5 ohm | 2.4 ohm | A | B45016A1569K258 | 135-8548 |
| 33 µF | 0.35 ohm | 5.3 ohm | B | T495B336K016ZT E350 PV18 | 135-8545 |
| 47 µF | 0.18 ohm | 7.5 ohm | D | B45197A3476K409 | 975-1092 |
| 100 µF | 0.1 ohm | 16 ohm | E | B45197A3107K509 | 975-1084 |
| 220 µF | 0.1 ohm | 35.2 ohm | E | B45197A3227K509 | 975-1203 |
| **20 Volt d.c.** | | | | | |
| 4.7 µF | 1.8 ohm | 0.9 ohm | A | B45020A4759K188 | 135-8549 |
| 68 µF | 0.2 ohm | 13.6 ohm | E | B45197A4686K509 | 975-1106 |
| **25 Volt d.c.** | | | | | |
| 4.7 µF | 0.53 ohm | 1.2 ohm | C | B45197A5475K309 | 975-1122 |
| 10 µF | 0.75 ohm | 2.5 ohm | B | B45025B1069K757 | 135-8550 |
| 22 µF | 0.23 ohm | 5.5 ohm | D | B45197A5226K409 | 975-1114 |
| **35 Volt d.c.** | | | | | |
| 4.7 µF | 1 ohm | 1.6 ohm | B | B45035B4759K108 | 135-8551 |
| 10 µF | 0.26 ohm | 3.5 ohm | D | B45197A6106K409 | 975-1130 |
| 22 µF | 0.26 ohm | 7.7 ohm | E | B45197A6226K509 | 975-1149 |

228455

| | Order Code | Price Each 5+ | 50+ | 100+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| **10 Volt d.c.** | | | | | | |
| 2.2 µF | SMD 135-8544 | | | | | |
| 100 µF | SMD 975-1050 RL | | | | | |
| 220 µF | SMD 975-1068 RL | | | | | |
| 330 µF | SMD 975-1076 RL | | | | | |
| 470 µF | SMD 975-1190 RL | | | | | |
| **16 Volt d.c.** | | | | | | |
| 15 µF | SMD 135-8548 | | | | | |
| 33 µF | SMD 135-8545 | | | | | |
| 47 µF | SMD 975-1092 RL | | | | | |
| 100 µF | SMD 975-1084 RL | | | | | |
| 220 µF | SMD 975-1203 RL | | | | | |
| **20 Volt d.c.** | | | | | | |
| 4.7 µF | SMD 135-8549 | | | | | |
| 68 µF | SMD 975-1106 RL | | | | | |
| **25 Volt d.c.** | | | | | | |
| 4.7 µF | SMD 975-1122 RL | | | | | |
| 10 µF | SMD 135-8550 | | | | | |
| 22 µF | SMD 975-1114 RL | | | | | |
| **35 Volt d.c.** | | | | | | |
| 4.7 µF | SMD 135-8551 | | | | | |
| 10 µF | SMD 975-1130 RL | | | | | |
| 22 µF | SMD 975-1149 RL | | | | | |


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## B45396 Series - Multiple Anode Tantalum

KEMET CHARGED. SMD



- Very low ESR, as low as 30mΩ to 35mΩ
- Excellent for DC/DC converters and other very low ESR applications
- High ripple current, up to 3 A
- 100% Inrush tested
- Supplied on 180mm diameter reel

Tolerance ±10%
Operating temperature -55°C to +125°C
ESR measured at 100kHz 20°C

| Case Code | Length | Width | Height | Reel Qty. | Tape Size |
|---|---|---|---|---|---|
| E | 4.1 | 7.3 | 4.3 | 400 | 12 |

| | ESR | DC Leakage Current (µA) | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| **4 Volt d.c.** | | | | | |
| 680 µF | 0.03 | 27.2 | E | B45396R0687K509 | 975-1777 |
| **6.3 Volt d.c.** | | | | | |
| 470 µF | 0.03 | 28.2 | E | B45396R1477K509 | 975-1785 |

241032

| | Capacitance | Order Code | Price Each 1+ | 50+ | 100+ | 400+ | 800+ |
|---|---|---|---|---|---|---|---|
| **4 Volt d.c.** | | | | | | | |
| 680 µF | | SMD 975-1777 RL | | | | | |
| **6.3 Volt d.c.** | | | | | | | |
| 470 µF | | SMD 975-1785 RL | | | | | |

## T520 Series–Tantalum Polymer

KEMET CHARGED. SMD



| Case size | Dimensions (mm) L | W | H |
|---|---|---|---|
| A | 3.2 | 1.6 | 1.6 |
| B | 3.5 | 2.8 | 1.9 |
| C | 6 | 3.2 | 2.5 |
| D | 7.3 | 4.3 | 2.8 |
| V | 7.3 | 4.3 | 1.9 |
| X | 7.3 | 4.3 | 4 |
| Y | 7.3 | 4.3 | 4 |

Tolerance ±20%
Operating Temperature -55 to +105°C

- Surface Mount Replacement for Aluminium Capacitors
- High Frequency Cap Retention
- No-Ignition Failure Mode
- 100% Surge Current Tested
- 100% Accelerated Steady State Aging
- Self-Healing Mechanism
- Volumetrically Efficient

406051

| | Resistance (ESR) | Case size | Order Code | Price Each 1+ | 25+ | 50+ | 100+ |
|---|---|---|---|---|---|---|---|
| **4 Volt d.c.** | | | | | | | |
| 47 µF | 0.07ohm | A | SMD 110-8331 RL | | | | |
| 220 µF | 0.045ohm | B | SMD 110-8333 RL | | | | |
| 220 µF | 0.045ohm | V | SMD 128-1670 RL | | | | |
| 470 µF | 0.012ohm | D | SMD 922-9620 RL | | | | |
| 680 µF | 0.012ohm | D | SMD 128-8226 RL | | | | |
| **6 Volt d.c.** | | | | | | | |
| 22 µF | 0.09ohm | A | SMD 110-8329 RL | | | | |
| 33 µF | 0.07ohm | A | SMD 110-8330 RL | | | | |
| 47 µF | 0.04ohm | B | SMD 922-9566 RL | | | | |
| 47 µF | 0.15ohm | A | SMD 186-2605 | | | | |
| 68 µF | 0.15ohm | A | SMD 186-2606 | | | | |
| 100 µF | 0.07ohm | A | SMD 186-2607 | | | | |
| 150 µF | 0.045ohm | B | SMD 110-8334 RL | | | | |
| 330 µF | 0.015ohm | D | SMD 922-9612 RL | | | | |
| **6.3 Volt d.c.** | | | | | | | |
| 120 µF | 0.035ohm | B | SMD 135-8520 | | | | |
| 150 µF | 0.045ohm | V | SMD 128-1673 RL | | | | |
| 330 µF | 0.015ohm | V | SMD 135-8521 | | | | |
| **10 Volt d.c.** | | | | | | | |
| 10 µF | 0.08ohm | A | SMD 157-2644 | | | | |
| 22 µF | 0.08ohm | A | SMD 157-2646 | | | | |
| 33 µF | 0.035ohm | B | SMD 135-8530 | | | | |
| 47 µF | 0.035ohm | B | SMD 157-2648 | | | | |
| 100 µF | 0.025ohm | C | SMD 135-8525 | | | | |
| 100 µF | 0.04ohm | B | SMD 922-9574 RL | | | | |
| 100 µF | 0.018ohm | D | SMD 922-9582 RL | | | | |
| 150 µF | 0.025ohm | D | SMD 922-9590 RL | | | | |
| 220 µF | 0.018ohm | D | SMD 922-9604 RL | | | | |
| 330 µF | 0.025ohm | X | SMD 922-9647 RL | | | | |

# Tantalum - Surface Mount - Kemet - continued

## T520 Series–Tantalum Polymer - continued

| | Resistance (ESR) | Case size | Order Code | Price Each 1+ | 25+ | 50+ | 100+ |
|---|---|---|---|---|---|---|---|
| **16 Volt d.c.** | | | | | | | |
| 10 µF | 0.1ohm | B | SMD 167-9286 ● | | | | |
| 47 µF | 0.035ohm | D | SMD 922-9639 ● RL | | | | |
| 47 µF | 0.045ohm | W | SMD 110-8338 ● RL | | | | |
| 150 µF | 0.04ohm | X | SMD 135-8528 ● | | | | |
| **20 Volt d.c.** | | | | | | | |
| 22 µF | 0.045ohm | V | SMD 135-8529 ● | | | | |

## T521 Series – High Voltage Polymer

KEMET CHARGED.



- High Voltage (20V - 35V)
- Stable temperature characteristics
- Safe failure mode
- Low ESR (125mOhm)

Case Dimensions

| | | | |
|---|---|---|---|
| D | L =7.3mm | W = 4.3mm | H = 2.8mm |
| V | L =7.3mm | W = 4.3mm | H = 1.9mm |
| X | L =7.3mm | W = 4.3mm | H = 4mm |
| Tolerance | | ± 20% | |

530648

| Capacitance | Case Style | Order Code | Price Each 1+ | 25+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|---|
| 15 µF | V | SMD 169-5345 ● | | | | | |
| 22 µF | V | NEW 182-6336 ● | | | | | |
| 33 µF | V | NEW 182-6337 ● | | | | | |
| 33 µF | D | NEW 186-2611 ● | | | | | |
| 33 µF | D | NEW SMD 197-3088 ● | | | | | |
| 47 µF | D | NEW 179-3826 ● | | | | | |
| 47 µF | V | NEW 186-2610 ● | | | | | |
| 47 µF | V | NEW SMD 197-3085 ● | | | | | |
| 47 µF | X | NEW 186-2612 ● | | | | | |
| 68 µF | V | NEW 186-2608 ● | | | | | |
| 100 µF | D | NEW 186-2609 ● | | | | | |
| 100 µF | X | NEW SMD 197-3089 ● | | | | | |
| 220 µF | X | NEW SMD 197-3086 ● | | | | | |
| 330 µF | X | NEW SMD 197-3087 ● | | | | | |

## B45294 Series - Polymer Tantalum

SMD

KEMET CHARGED.



- Very low ESR, as low as 35mΩ to 45mΩ
- Enhanced high ESR stability versus temperature
- Enhanced high capacity stability versus frequency
- High ripple current: 1700mA rms at 100kHz, 20°C to +105°C
- V case size has same foot print as D case, with maximum height of 2mm
- Supplied on 180mm diameter reel

Tolerance ±20% Operating temperature -55°C to +105°C ESR measured at 100kHz 20°C

| Case Code | Length | Width | Height | Reel Qty. | Tape Size |
|---|---|---|---|---|---|
| V | 7.3 | 4.3 | 2.0 | 1000 | 12mm |

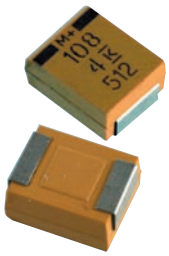
| | ESR (Ω) | DC Leakage Current (µA) | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| **6.3 Volt d.c.** | | | | | |
| 100 µF | 0.045 | 63 | V | B45294R1107M409 | 975-1858 |

241034

| Capacitance | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **6.3 Volt d.c.** | | | | | | |
| 100 µF | SMD 975-1858 ● RL | | | | | |

## T510 Series–Multi Anode Low ESR Tantalum

KEMET CHARGED.



- Ultra-Low ESR
- New E/7260 Case with ESR
- Up to 4 amps Ripple Current
- 100% Surge Current Test
- 100% Accelerated Steady-State Aging

Characteristics

| Case size | | Dimensions (mm) | |
|---|---|---|---|
| E | L = 3.6 | W = 7 | H = 3.6 |
| X | L = 7.3 | W = 6 | H = 4 |
| Tolerance | | ± 10%* | |

* 9229450 is ±20% tolerance

406048

| | Resistance (ESR) | Case size | Order Code | Price Each 1+ | 25+ | 50+ | 100+ |
|---|---|---|---|---|---|---|---|
| **4 Volts d.c.** | | | | | | | |
| 1000 µF | 0.018ohm | E | SMD 922-9450 ● RL | | | | |
| **6 Volts d.c.** | | | | | | | |
| 470 µF | 0.03ohm | X | SMD 922-9485 ● RL | | | | |
| **10 Volts d.c.** | | | | | | | |
| 330 µF | 0.035ohm | X | SMD 922-9477 ● RL | | | | |
| **16 Volts d.c.** | | | | | | | |
| 220 µF | 0.025ohm | X | SMD 179-3863 ● | | | | |
| **20 Volts d.c.** | | | | | | | |
| 100 µF | 0.04ohm | X | SMD 179-3864 ● | | | | |
| **35 Volts d.c.** | | | | | | | |
| 47 µF | 0.05ohm | E | SMD 110-8341 ● RL | | | | |
| **50 Volts d.c.** | | | | | | | |
| 10 µF | 0.09ohm | X | SMD 179-3865 ● | | | | |

## T530 Series–Multi Anode Tantalum Polymer

KEMET CHARGED.



- High Frequency Capacitance Retention
- Non-Ignition Failure Mode
- Moulded Case (pick-and-place precision)
- 100% Accelerated Steady State Aging
- 100% Surge Current Testing
- Utilizes Multiple Tantalum Anode Technology
- Volumetric Efficiency
- Use Up to 80% of Rated Voltage (20% De-rating)
- Self-Healing Mechanism

| | | | |
|---|---|---|---|
| Dimensions(mm) X Case | 4.3 | 7.3 | 4 |
| Dimensions(mm) D Case | 4.3 | 7.3 | 2.8 |
| Tolerance | | ± 20% | |

406054

| | Case | Resistance (ESR) | Order Code | Price Each 1+ | 25+ | 50+ | 100+ |
|---|---|---|---|---|---|---|---|
| **3 Volts d.c.** | | | | | | | |
| 1500 µF | X | 0.008ohm | SMD 922-9728 ● RL | | | | |
| **4 Volts d.c.** | | | | | | | |
| 680 µF | X | 0.006ohm | SMD 922-9752 ● RL | | | | |
| **6 Volts d.c.** | | | | | | | |
| 470 µF | X | 0.006ohm | SMD 922-9744 ● RL | | | | |
| **6.3 Volts d.c.** | | | | | | | |
| 220 µF | D | 0.005ohm | SMD 184-6858 ● | | | | |
| 330 µF | D | 0.01ohm | SMD 184-6859 ● | | | | |
| **10 Volts d.c.** | | | | | | | |
| 220 µF | D | 0.006ohm | SMD 179-3866 ● | | | | |
| 330 µF | X | 0.006ohm | SMD 922-9736 ● RL | | | | |

# Tantalum - Surface Mount - Vishay

## 293D Series

VISHAY




- Compatible withautomatic Pick & Place equipment
- Optical character recognition qualified

Operating Temperature -55°C to +125°C Capacitance Tolerance ± 10%

| Case Code | Length | Width | Height | Reel Qty. | Case Code | Length | Width | Height | Reel Qty. |
|---|---|---|---|---|---|---|---|---|---|
| A | 1.6 | 3.2 | 1.6 | 2000 | D | 2.8 | 7.3 | 4.3 | 500 |
| B | 1.9 | 3.5 | 2.8 | 2000 | E | 4 | 7.3 | 4.3 | 400 |
| C | 2.5 | 6 | 3.2 | 500 | | | | | |

| **6.3 Volt d.c.** | Max ESR @ 100kHz | DC Leakage Current | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 10 µF | 3.4 ohm | 0.6 µA | A | 293D106X96R3A2TE3 | 175-4143 |
| 15 µF | 2.9 ohm | 0.9 µA | A | 293D156X96R3A2TE3 | 175-4144 |
| 15 µF | 2.5 ohm | 0.9 µA | B | 293D156X96R3B2TE3 | 175-4145 |
| 22 µF | 2.9 ohm | 1.3 µA | A | 293D226X96R3A2TE3 | 175-4146 |
| 22 µF | 2 ohm | 1.3 µA | B | 293D226X96R3B2TE3 | 175-4147 |
| 22 µF | 1.8 ohm | 1.3 µA | C | 293D226X96R3C2TE3 | 175-4148 |
| 33 µF | 2.5 ohm | 2 µA | A | 293D336X96R3A2TE3 | 175-4149 |
| 33 µF | 1.9 ohm | 2 µA | B | 293D336X96R3B2TE3 | 175-4150 |
| 47 µF | 1.9 ohm | 2.8 µA | B | 293D476X96R3B2TE3 | 175-4151 |
| 47 µF | 1.4 ohm | 2.8 µA | C | 293D476X96R3C2TE3 | 175-4152 |
| 100 µF | 1.7 ohm | 6 µA | B | 293D107X96R3B2TE3 | 175-4153 |
| 150 µF | 0.7 ohm | 9 µA | C | 293D157X96R3C2TE3 | 175-4155 |
| 150 µF | 0.6 ohm | 9 µA | D | 293D157X96R3D2TE3 | 175-4156 |
| 220 µF | 0.6 ohm | 13.2 µA | D | 293D227X96R3D2TE3 | 175-4157 |
| 220 µF | 0.5 ohm | 13.2 µA | E | 293D227X96R3E2TE3 | 175-4158 |
| 330 µF | 0.6 ohm | 19.8 µA | D | 293D337X96R3D2TE3 | 175-4159 |
| 330 µF | 0.5 ohm | 19.8 µA | E | 293D337X96R3E2TE3 | 175-4160 |
| 470 µF | 1.5 ohm | 28.2 µA | E | 293D477X96R3E2TE3 | 175-4161 |


RoHS ● Compliant ▲ Non-compliant

**6.3 Volt d.c.**

| | Order Code | Price Each 5+ | 50+ | 100+ | 250+ | 2K+ |
|---|---|---|---|---|---|---|
| 10 µF | SMD 175-4143 | | | | | |
| 15 µF | SMD 175-4144 | | | | | |
| 15 µF | SMD 175-4145 | | | | | |
| 22 µF | SMD 175-4146 | | | | | |
| 22 µF | SMD 175-4147 | | | | | |
| 22 µF | SMD 175-4148 | | | | | |
| 33 µF | SMD 175-4149 | | | | | |
| 33 µF | SMD 175-4150 | | | | | |
| 47 µF | SMD 175-4151 | | | | | |
| 47 µF | SMD 175-4152 | | | | | |
| 100 µF | SMD 175-4153 | | | | | |
| 150 µF | SMD 175-4155 | | | | | |
| 150 µF | SMD 175-4156 | | | | | |
| 220 µF | SMD 175-4157 | | | | | |
| 220 µF | SMD 175-4158 | | | | | |
| 330 µF | SMD 175-4159 | | | | | |
| 330 µF | SMD 175-4160 | | | | | |
| 470 µF | SMD 175-4161 | | | | | |

**10 Volt d.c.**

| | Max ESR @ 100kHz | DC Leakage Current | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 4.7 µF | 3.4 ohm | 0.5 µA | B | 293D475X9010B2TE3 | 175-4162 |
| 10 µF | 2.5 ohm | 1 µA | B | 293D106X9010B2TE3 | 175-4163 |
| 10 µF | 1.8 ohm | 1 µA | C | 293D106X9010C2TE3 | 175-4164 |
| 22 µF | 2.5 ohm | 2.2 µA | A | 293D226X9010A2TE3 | 175-4165 |
| 33 µF | 0.8 ohm | 3.3 µA | D | 293D336X9010D2TE3 | 175-4167 |
| 47 µF | 1.8 ohm | 4.7 µA | B | 293D476X9010B2TE3 | 175-4168 |
| 47 µF | 1.1 ohm | 4.7 µA | C | 293D476X9010C2TE3 | 175-4169 |
| 100 µF | 0.6 ohm | 10 µA | D | 293D107X9010D2TE3 | 175-4170 |
| 220 µF | 0.6 ohm | 22 µA | D | 293D227X9010D2TE3 | 175-4171 |
| 220 µF | 0.5 ohm | 22 µA | E | 293D227X9010E2TE3 | 175-4172 |
| 330 µF | 0.5 ohm | 33 µA | E | 293D337X9010E2TE3 | 175-4173 |

**10 Volt d.c.**

| | Order Code | Price Each 5+ | 50+ | 100+ | 250+ | 2K+ |
|---|---|---|---|---|---|---|
| 4.7 µF | SMD 175-4162 | | | | | |
| 10 µF | SMD 175-4163 | | | | | |
| 10 µF | SMD 175-4164 | | | | | |
| 22 µF | SMD 175-4165 | | | | | |
| 33 µF | SMD 175-4167 | | | | | |
| 47 µF | SMD 175-4168 | | | | | |
| 47 µF | SMD 175-4169 | | | | | |
| 100 µF | SMD 175-4170 | | | | | |
| 220 µF | SMD 175-4171 | | | | | |
| 220 µF | SMD 175-4172 | | | | | |
| 330 µF | SMD 175-4173 | | | | | |

**16 Volt d.c.**

| | Max ESR @ 100kHz | DC Leakage Current | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 1 µF | 9.3 ohm | 0.5 µA | A | 293D105X9016A2TE3 | 175-4174 |
| 1.5 µF | 6.7 ohm | 0.5 µA | A | 293D155X9016A2TE3 | 175-4175 |
| 2.2 µF | 5.9 ohm | 0.5 µA | A | 293D225X9016A2TE3 | 175-4176 |
| 2.2 µF | 4.6 ohm | 0.5 µA | B | 293D225X9016B2TE3 | 175-4177 |
| 3.3 µF | 5 ohm | 0.5 µA | A | 293D335X9016A2TE3 | 175-4179 |
| 4.7 µF | 5 ohm | 0.8 µA | A | 293D475X9016A2TE3 | 175-4181 |
| 10 µF | 3 ohm | 1.6 µA | A | 293D106X9016A2TE3 | 175-4182 |
| 10 µF | 2 ohm | 1.6 µA | B | 293D106X9016B2TE3 | 175-4183 |
| 15 µF | 2 ohm | 2.4 µA | B | 293D156X9016B2TE3 | 175-4184 |
| 15 µF | 1.5 ohm | 2.4 µA | C | 293D156X9016C2TE3 | 175-4185 |
| 22 µF | 1.9 ohm | 3.5 µA | B | 293D226X9016B2TE3 | 175-4186 |
| 22 µF | 1.4 ohm | 3.5 µA | C | 293D226X9016C2TE3 | 175-4187 |
| 22 µF | 0.8 ohm | 3.5 µA | D | 293D226X9016D2TE3 | 175-4188 |
| 33 µF | 1.8 ohm | 5.3 µA | B | 293D336X9016B2TE3 | 175-4189 |
| 33 µF | 0.7 ohm | 5.3 µA | D | 293D336X9016D2TE3 | 175-4190 |
| 47 µF | 1 ohm | 7.5 µA | C | 293D476X9016C2TE3 | 175-4192 |
| 100 µF | 0.6 ohm | 16 µA | D | 293D107X9016D2TE3 | 175-4193 |
| 100 µF | 0.6 ohm | 16 µA | E | 293D107X9016E2TE3 | 175-4194 |
| 150 µF | 0.5 ohm | 24 µA | E | 293D157X9016E2TE3 | 175-4195 |

**16 Volt d.c.**

| | Order Code | Price Each 5+ | + | + | + | + |
|---|---|---|---|---|---|---|
| 1 µF | SMD 175-4174 | | | | | |
| 1.5 µF | SMD 175-4175 | | | | | |
| 2.2 µF | SMD 175-4176 | | | | | |
| 2.2 µF | SMD 175-4177 | | | | | |
| 3.3 µF | SMD 175-4179 | | | | | |
| 4.7 µF | SMD 175-4181 | | | | | |
| 10 µF | SMD 175-4182 | | | | | |
| 10 µF | SMD 175-4183 | | | | | |
| 15 µF | SMD 175-4184 | | | | | |
| 15 µF | SMD 175-4185 | | | | | |
| 22 µF | SMD 175-4186 | | | | | |
| 22 µF | SMD 175-4187 | | | | | |
| 22 µF | SMD 175-4188 | | | | | |
| 33 µF | SMD 175-4189 | | | | | |
| 33 µF | SMD 175-4190 | | | | | |
| 47 µF | SMD 175-4192 | | | | | |
| 100 µF | SMD 175-4193 | | | | | |
| 100 µF | SMD 175-4194 | | | | | |
| 150 µF | SMD 175-4195 | | | | | |

**20 Volt d.c.**

| | Max ESR @ 100kHz | DC Leakage Current | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 2.2 µF | 5.9 ohm | 0.5 µA | A | 293D225X9020A2TE3 | 175-4196 |
| 2.2 µF | 3.5 ohm | 0.5 µA | B | 293D225X9020B2TE3 | 175-4197 |
| 3.3 µF | 5.9 ohm | 0.7 µA | A | 293D335X9020A2TE3 | 175-4198 |
| 3.3 µF | 3 ohm | 0.7 µA | B | 293D335X9020B2TE3 | 175-4199 |
| 4.7 µF | 5 ohm | 0.9 µA | A | 293D475X9020A2TE3 | 175-4200 |
| 4.7 µF | 2.9 ohm | 0.9 µA | B | 293D475X9020B2TE3 | 175-4201 |
| 4.7 µF | 2.3 ohm | 0.9 µA | C | 293D475X9020C2TE3 | 175-4202 |
| 10 µF | 2.1 ohm | 2 µA | B | 293D106X9020B2TE3 | 175-4203 |
| 15 µF | 2.3 ohm | 3 µA | B | 293D156X9020B2TE3 | 175-4204 |
| 33 µF | 1 ohm | 6.6 µA | C | 293D336X9020C2TE3 | 175-4205 |
| 47 µF | 0.7 ohm | 9.4 µA | D | 293D476X9020D2TE3 | 175-4206 |
| 47 µF | 0.6 ohm | 9.4 µA | E | 293D476X9020E2TE3 | 175-4207 |
| 100 µF | 0.5 ohm | 20 µA | E | 293D107X9020E2TE3 | 175-4209 |

**20 Volt d.c.**

| | Order Code | Price Each 5+ | 50+ | 100+ | 250+ | 2K+ |
|---|---|---|---|---|---|---|
| 2.2 µF | SMD 175-4196 | | | | | |
| 2.2 µF | SMD 175-4197 | | | | | |
| 3.3 µF | SMD 175-4198 | | | | | |
| 3.3 µF | SMD 175-4199 | | | | | |
| 4.7 µF | SMD 175-4200 | | | | | |
| 4.7 µF | SMD 175-4201 | | | | | |
| 4.7 µF | SMD 175-4202 | | | | | |
| 10 µF | SMD 175-4203 | | | | | |
| 15 µF | SMD 175-4204 | | | | | |
| 33 µF | SMD 175-4205 | | | | | |
| 47 µF | SMD 175-4206 | | | | | |
| 47 µF | SMD 175-4207 | | | | | |
| 100 µF | SMD 175-4209 | | | | | |

**25 Volt d.c.**

| | Max ESR @ 100kHz | DC Leakage Current | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 1 µF | 7.6 ohm | 0.5 µA | A | 293D105X9025A2TE3 | 175-4211 |
| 1.5 µF | 6.7 ohm | 0.5 µA | A | 293D155X9025A2TE3 | 175-4212 |
| 1.5 µF | 4.6 ohm | 0.5 µA | B | 293D155X9025B2TE3 | 175-4213 |
| 2.2 µF | 6.3 ohm | 0.6 µA | A | 293D225X9025A2TE3 | 175-4214 |
| 4.7 µF | 2.8 ohm | 1.2 µA | B | 293D475X9025B2TE3 | 175-4215 |
| 4.7 µF | 2 ohm | 1.2 µA | C | 293D475X9025C2TE3 | 175-4216 |
| 10 µF | 1 ohm | 2.5 µA | D | 293D106X9025D2TE3 | 175-4217 |
| 15 µF | 1.2 ohm | 3.8 µA | C | 293D156X9025C2TE3 | 175-4218 |
| 33 µF | 0.7 ohm | 8.3 µA | D | 293D336X9025D2TE3 | 175-4219 |

**25 Volt d.c.**

| | Order Code | Price Each 5+ | + | + | + | + |
|---|---|---|---|---|---|---|
| 1 µF | SMD 175-4211 | | | | | |
| 1.5 µF | SMD 175-4212 | | | | | |
| 1.5 µF | SMD 175-4213 | | | | | |
| 2.2 µF | SMD 175-4214 | | | | | |
| 4.7 µF | SMD 175-4215 | | | | | |
| 4.7 µF | SMD 175-4216 | | | | | |
| 10 µF | SMD 175-4217 | | | | | |
| 15 µF | SMD 175-4218 | | | | | |
| 33 µF | SMD 175-4219 | | | | | |

**35 Volt d.c.**

| | Max ESR @ 100kHz | DC Leakage Current | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 0.22 µF | 15 ohm | 0.5 µA | A | 293D224X9035A2TE3 | 175-4220 |
| 0.47 µF | 10 ohm | 0.5 µA | A | 293D474X9035A2TE3 | 175-4222 |
| 0.47 µF | 8 ohm | 0.5 µA | B | 293D474X9035B2TE3 | 175-4223 |
| 1 µF | 7.5 ohm | 0.5 µA | A | 293D105X9035A2TE3 | 175-4224 |
| 1 µF | 5 ohm | 0.5 µA | B | 293D105X9035B2TE3 | 175-4225 |
| 1.5 µF | 3.8 ohm | 0.5 µA | C | 293D155X9035C2TE3 | 175-4226 |
| 2.2 µF | 3.8 ohm | 0.8 µA | B | 293D225X9035B2TE3 | 175-4227 |
| 2.2 µF | 2.9 ohm | 0.8 µA | C | 293D225X9035C2TE3 | 175-4228 |
| 3.3 µF | 3.5 ohm | 1.2 µA | B | 293D335X9035B2TE3 | 175-4229 |
| 3.3 µF | 2.1 ohm | 1.2 µA | C | 293D335X9035C2TE3 | 175-4230 |
| 4.7 µF | 1.3 ohm | 1.6 µA | D | 293D475X9035D2TE3 | 175-4231 |
| 10 µF | 1.6 ohm | 3.5 µA | C | 293D106X9035C2TE3 | 175-4232 |
| 15 µF | 0.7 ohm | 5.3 µA | D | 293D156X9035D2TE3 | 175-4234 |
| 22 µF | 0.6 ohm | 7.7 µA | D | 293D226X9035D2TE3 | 175-4235 |

**35 Volt d.c.**

| | Order Code | Price Each 5+ | 50+ | 100+ | 250+ | 2K+ |
|---|---|---|---|---|---|---|
| 0.22 µF | SMD 175-4220 | | | | | |
| 0.47 µF | SMD 175-4222 | | | | | |
| 0.47 µF | SMD 175-4223 | | | | | |
| 1 µF | SMD 175-4224 | | | | | |
| 1 µF | SMD 175-4225 | | | | | |
| 1.5 µF | SMD 175-4226 | | | | | |
| 2.2 µF | SMD 175-4227 | | | | | |
| 2.2 µF | SMD 175-4228 | | | | | |
| 3.3 µF | SMD 175-4229 | | | | | |
| 3.3 µF | SMD 175-4230 | | | | | |
| 4.7 µF | SMD 175-4231 | | | | | |
| 10 µF | SMD 175-4232 | | | | | |
| 15 µF | SMD 175-4234 | | | | | |
| 22 µF | SMD 175-4235 | | | | | |

# Tantalum - Surface Mount - Vishay - continued

## 293D Series - continued

| 50 Volt d.c. | Max ESR @ 100kHz | DC Leakage Current | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 0.47 µF | 8.4 ohm | 0.5 µA | | 293D474X9050B2TE3 | 175-4236 |
| 1 µF | 6.7 ohm | 0.5 µA | | 293D105X9050B2TE3 | 175-4237 |
| 1 µF | 4.6 ohm | 0.5 µA | | 293D105X9050C2TE3 | 175-4238 |
| 2.2 µF | 2.9 ohm | 1.1 µA | | 293D225X9050C2TE3 | 175-4239 |
| 2.2 µF | 2.1 ohm | 1.1 µA | | 293D225X9050D2TE3 | 175-4240 |
| 3.3 µF | 2.5 ohm | 1.7 µA | | 293D335X9050C2TE3 | 175-4241 |
| 10 µF | 0.8 ohm | 5 µA | | 293D106X9050D2TE3 | 175-4242 |

545060

| 50 Volt d.c. | Order Code | Price Each 5+ | 50+ | 100+ | 250+ | 2K+ |
|---|---|---|---|---|---|---|
| 0.47 µF | SMD 175-4236 | | | | | |
| 1 µF | SMD 175-4237 | | | | | |
| 1 µF | SMD 175-4238 | | | | | |
| 2.2 µF | SMD 175-4239 | | | | | |
| 2.2 µF | SMD 175-4240 | | | | | |
| 3.3 µF | SMD 175-4241 | | | | | |
| 10 µF | SMD 175-4242 | | | | | |

| 63 Volt d.c. | Max ESR @ 100kHz | DC Leakage Current | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 4.7 µF | 1.1 ohm | 3 µA | D | 293D475X0063D2TE3 | 182-7846 |
| 10 µF | 1 ohm | 6.3 µA | E | 293D106X0063E2TE3 | 182-7847 |

| 63 Volt d.c. | Order Code | Price Each 1+ | 50+ | 100+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| 4.7 µF | NEW SMD 182-7846 | | | | | |
| 10 µF | NEW SMD 182-7847 | | | | | |

## 298D Series - MicroTan™



- Solid tantalum chip capacitors
- MICROTAN™ lead frameless molded

Operating Temperature -55°C to +85°C

| | Dimensions L | W | H | Tolerance | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **2.5 Volt d.c** | | | | | | | |
| 47 µF | 0.8 | 0.85 | 1.6 | ± 20% | M | 298D476X02R5M2T | 182-7848 |
| 220 µF | 1.1 | 1.45 | 2.4 | ± 20% | P | 298D227X02R5P2T | 182-7849 |
| **4 Volt d.c** | | | | | | | |
| 4.7 µF | 0.6 | 1 | 0.5 | ± 20% | K | 298D475X0004K2T | 182-7850 |
| 10 µF | 0.8 | 0.85 | 1.6 | ± 20% | M | 298D106X0004M2T | 182-7851 |
| 22 µF | 0.8 | 0.85 | 1.6 | ± 20% | M | 298D226X0004M2T | 182-7852 |
| 47 µF | 0.8 | 0.85 | 1.6 | ± 20% | M | 298D476X0004M2T | 182-7853 |
| 33 µF | 0.8 | 0.85 | 1.6 | ± 20% | M | 298D336X0004M2T | 182-7854 |
| 220 µF | 2.4 | 1.45 | 1.1 | ± 20% | P | 298D227X0004P2T | 156-5124 |
| **6.3 Volt d.c** | | | | | | | |
| 2.2 µF | 0.8 | 0.85 | 1.6 | ± 20% | M | 298D225X06R3M2T | 182-7855 |
| 15 µF | 0.8 | 0.85 | 1.6 | ± 20% | M | 298D156X06R3M2T | 182-7857 |
| 33 µF | 0.8 | 0.85 | 1.6 | ± 20% | M | 298D336X06R3M2T | 182-7858 |
| 10 µF | 1.6 | 0.85 | 0.8 | ± 10% | M | 298D106X96R3M2T | 156-5120 |
| 100 µF | 0.8 | 0.85 | 1.6 | ± 20% | M | 298D107X06R3A2T | 196-1933 |
| **10 Volt d.c** | | | | | | | |
| 1.5 µF | 0.8 | 0.85 | 1.6 | ± 20% | M | 298D155X0010M2T | 182-7859 |
| 2.2 µF | 0.8 | 0.85 | 1.6 | ± 20% | M | 298D225X0010M2T | 182-7860 |
| 4.7 µF | 1.1 | 1.45 | 2.4 | ± 20% | P | 298D475X0010P2T | 182-7861 |
| 10 µF | 1.6 | 0.85 | 0.8 | ± 20% | M | 298D106X0010M2T | 156-5121 |
| 15 µF | 1.6 | 0.85 | 0.8 | ± 20% | M | 298D156X0010M2T | 156-5122 |
| **16 Volt d.c** | | | | | | | |
| 2.2 µF | 0.8 | 0.85 | 1.6 | ± 20% | M | 298D225X0016M2T | 182-7862 |
| 4.7 µF | 1.1 | 1.45 | 2.4 | ± 20% | P | 298D475X0016P2T | 182-7863 |
| **20 Volt d.c** | | | | | | | |
| 4.7 µF | 1.1 | 1.45 | 2.4 | ± 20% | P | 298D475X0020P2T | 182-7864 |
| **25 Volt d.c** | | | | | | | |
| 1 µF | 0.8 | 0.85 | 1.6 | ± 20% | M | 298D105X0025M2T | 182-7865 |
| 4.7 µF | 1.1 | 1.45 | 2.4 | ± 20% | P | 298D475X0025P2T | 182-7866 |
| **50 Volt d.c** | | | | | | | |
| 1 µF | 1.1 | 1.45 | 2.4 | ± 20% | P | 298D105X0050P2T | 182-7867 |

527116

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **2.5 Volt d.c.** | | | | | | |
| 47 µF | 182-7848 | | | | | |
| 220 µF | 182-7849 | | | | | |
| **4 Volt d.c.** | | | | | | |
| 4.7 µF | 182-7850 | | | | | |
| 10 µF | 182-7851 | | | | | |
| 22 µF | 182-7852 | | | | | |

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **4 Volt d.c.** | | | | | | |
| 47 µF | 182-7853 | | | | | |
| 33 µF | 182-7854 | | | | | |
| 220 µF | SMD 156-5124 RL | | | | | |
| **6.3 Volt d.c.** | | | | | | |
| 2.2 µF | 182-7855 | | | | | |
| 10 µF | SMD 156-5120 RL | | | | | |
| 15 µF | 182-7857 | | | | | |
| 33 µF | 182-7858 | | | | | |
| 100 µF | SMD 196-1933 | | | | | |
| **10 Volt d.c.** | | | | | | |
| 1.5 µF | 182-7859 | | | | | |
| 2.2 µF | 182-7860 | | | | | |
| 4.7 µF | 182-7861 | | | | | |
| 10 µF | SMD 156-5121 RL | | | | | |
| **16 Volt d.c.** | | | | | | |
| 2.2 µF | 182-7862 | | | | | |
| 4.7 µF | 182-7863 | | | | | |
| **20 Volt d.c.** | | | | | | |
| 4.7 µF | NEW 182-7864 | | | | | |
| **25 Volt d.c.** | | | | | | |
| 1 µF | NEW 182-7865 | | | | | |
| 4.7 µF | NEW 182-7866 | | | | | |
| **50 Volt d.c.** | | | | | | |
| 1 µF | NEW 182-7867 | | | | | |

RL **FREE Re-reeling service.** Only buy what you need and improve assembly efficiency. For more information visit **local website**

## TR3 Series



- Solid Tantalum Surface Mount Capacitors
- High Ripple Current carrying capability
- Low ESR

Operating Temperature -55°C to +125°C

| Case Code | Length | Width | Height | Reel Qty. | Case Code | Length | Width | Height | Reel Qty. |
|---|---|---|---|---|---|---|---|---|---|
| A | 1.6 | 3.2 | 1.6 | 2000 | D | 2.8 | 7.3 | 4.3 | 500 |
| B | 1.9 | 3.5 | 2.8 | 2000 | E | 4 | 7.3 | 4.3 | 400 |
| C | 2.5 | 6 | 3.2 | 500 | | | | | |

| 6.3 Volt d.c. | Max ESR @ 100kHz (Ω) | DC Leakage Current (µA) | Capacitance Tolerance | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 10 µF | 1.5 | 0.6 | ± 20% | A | TR3A106M6R3C1500 | 175-4041 |
| 33 µF | 0.6 | 2 | ± 10% | A | TR3A336K6R3C0600 | 175-4042 |
| 47 µF | 0.5 | 2.8 | ± 10% | B | TR3B476K6R3C0500 | 175-4043 |
| 47 µF | 0.25 | 2.8 | ± 10% | C | TR3C476K6R3C0250 | 175-4044 |
| 68 µF | 0.5 | 4.1 | ± 10% | B | TR3B686K6R3C0500 | 175-4045 |
| 100 µF | 0.4 | 6 | ± 10% | B | TR3B107K6R3C0400 | 175-4046 |
| 100 µF | 0.5 | 6 | ± 10% | B | TR3B107K6R3C0500 | 175-4047 |
| 100 µF | 1.5 | 6 | ± 20% | B | TR3B107M6R3C1500 | 175-4048 |
| 100 µF | 0.15 | 6 | ± 10% | C | TR3C107K6R3C0150 | 175-4049 |
| 100 µF | 0.3 | 6 | ± 10% | C | TR3C107K6R3C0300 | 175-4050 |
| 330 µF | 0.05 | 19.8 | ± 10% | D | TR3D337K6R3C0050 | 175-4052 |
| 330 µF | 0.045 | 19.8 | ± 10% | D | TR3D337K6R3C0045 | 175-4053 |
| 470 µF | 0.065 | 28.2 | ± 10% | E | TR3E477K6R3C0065 | 175-4054 |

**Order Multiple=5**

| 6.3 Volt d.c. | Order Code | Price Each 5+ | + | + | + | + |
|---|---|---|---|---|---|---|
| 10 µF | SMD 175-4041 | | | | | |
| 33 µF | SMD 175-4042 | | | | | |
| 47 µF | SMD 175-4043 | | | | | |
| 47 µF | SMD 175-4044 | | | | | |
| 68 µF | SMD 175-4045 | | | | | |
| 100 µF | SMD 175-4046 | | | | | |
| 100 µF | SMD 175-4047 | | | | | |
| 100 µF | SMD 175-4048 | | | | | |
| 100 µF | SMD 175-4049 | | | | | |
| 100 µF | SMD 175-4050 | | | | | |
| 330 µF | SMD 175-4052 | | | | | |
| 330 µF | SMD 175-4053 | | | | | |
| 470 µF | SMD 175-4054 | | | | | |

| 10 Volt d.c. | Max ESR @ 100kHz (Ω) | DC Leakage Current (µA) | Capacitance Tolerance | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 4.7 µF | 1.4 | 0.5 | ± 10% | A | TR3A475K010C1400 | 175-4055 |
| 10 µF | 0.9 | 1 | ± 10% | A | TR3A106K010C0900 | 175-4056 |
| 10 µF | 1.8 | 1 | ± 10% | A | TR3A106K010C1800 | 175-4057 |
| 10 µF | 0.8 | 1 | ± 10% | B | TR3B106K010C0800 | 175-4058 |
| 15 µF | 1 | 1.5 | ± 10% | A | TR3A156K010C1000 | 175-4059 |
| 22 µF | 1 | 2.2 | ± 10% | A | TR3A226K010C1000 | 175-4060 |
| 22 µF | 0.5 | 2.2 | ± 10% | B | TR3B226K010C0500 | 175-4061 |
| 22 µF | 0.4 | 2.2 | ± 10% | C | TR3C226K010C0400 | 175-4062 |
| 47 µF | 0.35 | 4.7 | ± 10% | C | TR3C476K010C0350 | 175-4064 |
| 100 µF | 0.1 | 10 | ± 10% | C | TR3C107K010C0100 | 175-4065 |
| 100 µF | 0.2 | 10 | ± 10% | C | TR3C107K010C0200 | 175-4066 |
| 100 µF | 0.05 | 10 | ± 10% | D | TR3D107K010C0050 | 175-4067 |
| 100 µF | 0.065 | 10 | ± 10% | D | TR3D107K010C0065 | 175-4068 |

| 10 Volt d.c. | Max ESR | DC Leakage | Capacitance | | | Order |
|---|---|---|---|---|---|---|
| 100 µF | 0.08 | 10 | ± 10% | D | TR3D107K010C0080 | 175-4069 |
| 100 µF | 0.08 | 10 | ± 20% | D | TR3D107M010C0080 | 175-4070 |
| 100 µF | 0.1 | 10 | ± 10% | E | TR3E107K010C0100 | 175-4071 |
| 100 µF | 0.15 | 10 | ± 10% | D | TR3D107K010C0150 | 175-4072 |
| 150 µF | 0.05 | 15 | ± 10% | D | TR3D157K010C0050 | 175-4073 |
| 150 µF | 0.15 | 15 | ± 10% | D | TR3D157K010C0150 | 175-4074 |
| 220 µF | 0.05 | 22 | ± 10% | D | TR3D227K010C0050 | 175-4076 |
| 220 µF | 0.1 | 22 | ± 10% | D | TR3D227K010C0100 | 175-4077 |
| 220 µF | 0.15 | 22 | ± 10% | D | TR3D227K010C0150 | 175-4078 |
| 330 µF | 0.06 | 33 | ± 20% | E | TR3E337M010C0060 | 175-4079 |
| 330 µF | 0.125 | 33 | ± 20% | D | TR3D337M010C0125 | 175-4080 |
| 330 µF | 0.1 | 33 | ± 20% | E | TR3W337M010C0100 | 196-1957 |
| 470 µF | 0.1 | 47 | ± 10% | E | TR3E477K010C0100 | 175-4081 |

**Order Multiple=5**

**10 Volt d.c.** — **Price Each**

| Order Code | 5+ | 50+ | 100+ | 250+ | 2K+ |
|---|---|---|---|---|---|
| 4.7 µF SMD 175-4055 | | | | | |
| 10 µF SMD 175-4056 | | | | | |
| 10 µF SMD 175-4057 | | | | | |
| 10 µF SMD 175-4058 | | | | | |
| 15 µF SMD 175-4059 | | | | | |
| 22 µF SMD 175-4060 | | | | | |
| 22 µF SMD 175-4061 | | | | | |
| 22 µF SMD 175-4062 | | | | | |
| 47 µF SMD 175-4064 | | | | | |
| 100 µF SMD 175-4065 | | | | | |
| 100 µF SMD 175-4066 | | | | | |
| 100 µF SMD 175-4067 | | | | | |
| 100 µF SMD 175-4068 | | | | | |
| 100 µF SMD 175-4069 | | | | | |
| 100 µF SMD 175-4070 | | | | | |
| 100 µF SMD 175-4071 | | | | | |
| 100 µF SMD 175-4072 | | | | | |
| 150 µF SMD 175-4073 | | | | | |
| 150 µF SMD 175-4074 | | | | | |
| 220 µF SMD 175-4076 | | | | | |
| 220 µF SMD 175-4077 | | | | | |
| 220 µF SMD 175-4078 | | | | | |
| 330 µF SMD 175-4079 | | | | | |
| 330 µF SMD 175-4080 | | | | | |
| 330 µF SMD 196-1957 | | | | | |
| 470 µF SMD 175-4081 | | | | | |

| 16 Volt d.c. | Max ESR @ 100kHz (Ω) | DC Leakage Current (µA) | Capacitance Tolerance | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 2.2 µF | 4 | 0.5 | ± 10% | A | TR3A225K016C4000 | 175-4082 |
| 4.7 µF | 2 | 0.8 | ± 10% | A | TR3A475K016C2000 | 175-4083 |
| 10 µF | 0.6 | 1.6 | ± 10% | C | TR3C106K016C0600 | 175-4084 |
| 10 µF | 0.8 | 1.6 | ± 10% | B | TR3B106K016C0800 | 175-4085 |
| 10 µF | 1.7 | 1.6 | ± 10% | A | TR3A106K016C1700 | 175-4086 |
| 22 µF | 0.375 | 3.5 | ± 10% | C | TR3C226K016C0375 | 175-4088 |
| 22 µF | 0.6 | 3.5 | ± 10% | B | TR3B226K016C0600 | 175-4089 |
| 47 µF | 0.2 | 7.5 | ± 10% | D | TR3D476K016C0200 | 175-4100 |
| 47 µF | 0.35 | 7.5 | ± 10% | C | TR3C476K016C0350 | 175-4090 |
| 47 µF | 0.35 | 7.5 | ± 20% | C | TR3C476M016C0350 | 175-4091 |
| 68 µF | 0.07 | 10.9 | ± 20% | D | TR3D686M016C0070 | 175-4092 |
| 100 µF | 0.1 | 16 | ± 10% | D | TR3D107K016C0100 | 175-4093 |
| 100 µF | 0.125 | 16 | ± 10% | D | TR3D107K016C0125 | 175-4094 |
| 100 µF | 0.15 | 16 | ± 10% | D | TR3D107K016C0150 | 175-4095 |
| 150 µF | 0.1 | 24 | ± 10% | D | TR3D157K016C0100 | 175-4096 |
| 220 µF | 0.1 | 35.2 | ± 10% | E | TR3E227K016C0100 | 175-4097 |

**Order Multiple=5**

**16 Volt d.c.** — **Price Each**

| Order Code | 5+ | 50+ | 100+ | 250+ | 2K+ |
|---|---|---|---|---|---|
| 2.2 µF SMD 175-4082 | | | | | |
| 4.7 µF SMD 175-4083 | | | | | |
| 10 µF SMD 175-4084 | | | | | |
| 10 µF SMD 175-4085 | | | | | |
| 10 µF SMD 175-4086 | | | | | |
| 22 µF SMD 175-4088 | | | | | |
| 22 µF SMD 175-4089 | | | | | |
| 47 µF SMD 175-4100 | | | | | |
| 47 µF SMD 175-4090 | | | | | |
| 47 µF SMD 175-4091 | | | | | |
| 68 µF SMD 175-4092 | | | | | |
| 100 µF SMD 175-4093 | | | | | |
| 100 µF SMD 175-4094 | | | | | |
| 100 µF SMD 175-4095 | | | | | |
| 150 µF SMD 175-4096 | | | | | |
| 220 µF SMD 175-4097 | | | | | |

| 20 Volt d.c. | Max ESR @ 100kHz (Ω) | DC Leakage Current (µA) | Capacitance Tolerance | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 4.7 µF | 1.8 | 0.9 | ± 10% | A | TR3A475K020C1800 | 175-4101 |
| 10 µF | 1 | 2 | ± 10% | B | TR3B106K020C1000 | 175-4102 |
| 10 µF | 0.5 | 2 | ± 10% | C | TR3C106K020C0500 | 175-4103 |
| 47 µF | 0.175 | 9.4 | ± 10% | D | TR3D476K020C0175 | 175-4104 |

**Order Multiple=5**

**20 Volt d.c.** — **Price Each**

| Order Code | 5+ | 50+ | 100+ | 250+ | 2K+ |
|---|---|---|---|---|---|
| 4.7 µF SMD 175-4101 | | | | | |
| 10 µF SMD 175-4102 | | | | | |
| 10 µF SMD 175-4103 | | | | | |
| 47 µF SMD 175-4104 | | | | | |

| 25 Volt d.c. | Max ESR @ 100kHz (Ω) | DC Leakage Current (µA) | Capacitance Tolerance | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 10 µF | 0.3 | 2.5 | ± 10% | C | TR3C106K025C0300 | 175-4106 |
| 10 µF | 0.5 | 2.5 | ± 10% | C | TR3C106K025C0500 | 175-4107 |
| 10 µF | 0.6 | 2.5 | ± 10% | C | TR3C106K025C0600 | 175-4108 |
| 10 µF | 0.4 | 2.5 | ± 10% | D | TR3D106K025C0400 | 175-4109 |
| 15 µF | 0.275 | 3.8 | ± 10% | D | TR3D156K025C0275 | 175-4110 |
| 22 µF | 0.4 | 5.5 | ± 10% | C | TR3C226K025C0400 | 175-4111 |
| 22 µF | 0.3 | 5.5 | ± 20% | D | TR3D226M025C0300 | 175-4112 |
| 33 µF | 0.2 | 8.3 | ± 10% | D | TR3D336K025D0200 | 175-4113 |
| 33 µF | 0.4 | 8.3 | ± 10% | D | TR3D336K025C0400 | 175-4114 |
| 33 µF | 0.175 | 6.6 | ± 10% | E | TR3E336K025C0175 | 175-4115 |
| 47 µF | 0.15 | 11.8 | ± 10% | D | TR3D476K025C0150 | 175-4116 |
| 47 µF | 0.25 | 11.8 | ± 10% | D | TR3D476K025C0250 | 175-4118 |

**Order Multiple=5**

**25 Volt d.c.** — **Price Each**

| Order Code | 5+ | + | + | + | + |
|---|---|---|---|---|---|
| 10 µF SMD 175-4106 | | | | | |
| 10 µF SMD 175-4107 | | | | | |
| 10 µF SMD 175-4108 | | | | | |
| 10 µF SMD 175-4109 | | | | | |
| 15 µF SMD 175-4110 | | | | | |
| 22 µF SMD 175-4111 | | | | | |
| 22 µF SMD 175-4112 | | | | | |
| 33 µF SMD 175-4113 | | | | | |
| 33 µF SMD 175-4114 | | | | | |
| 33 µF SMD 175-4115 | | | | | |
| 47 µF SMD 175-4116 | | | | | |
| 47 µF SMD 175-4118 | | | | | |

| 35 Volt d.c. | Max ESR @ 100kHz (Ω) | DC Leakage Current (µA) | Capacitance Tolerance | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 1 µF | 3 | 0.5 | ± 10% | A | TR3A105K035C3000 | 175-4119 |
| 2.2 µF | 2.5 | 0.8 | ± 10% | B | TR3B225K035C2500 | 175-4120 |
| 4.7 µF | 0.6 | 1.6 | ± 10% | C | TR3C475K035C0600 | 175-4121 |
| 10 µF | 0.45 | 3.5 | ± 10% | C | TR3C106K035C0450 | 175-4122 |
| 10 µF | 0.125 | 3.5 | ± 10% | D | TR3D106K035C0125 | 175-4123 |
| 10 µF | 0.25 | 3.5 | ± 10% | D | TR3D106K035C0250 | 175-4124 |
| 10 µF | 0.26 | 3.5 | ± 10% | D | TR3D106K035C0260 | 175-4125 |
| 10 µF | 0.4 | 3.5 | ± 10% | D | TR3D106K035C0400 | 175-4126 |
| 10 µF | 0.2 | 3.5 | ± 10% | E | TR3E106K035C0200 | 175-4127 |
| 10 µF | 0.25 | 3.5 | ± 10% | E | TR3E106K035C0250 | 175-4128 |
| 22 µF | 0.3 | 7.7 | ± 10% | D | TR3D226K035C0300 | 175-4131 |
| 22 µF | 0.4 | 7.7 | ± 20% | D | TR3D226M035C0400 | 175-4132 |
| 22 µF | 0.2 | 7.7 | ± 10% | E | TR3E226K035C0200 | 175-4133 |
| 22 µF | 0.26 | 7.7 | ± 10% | E | TR3E226K035C0260 | 175-4134 |
| 22 µF | 0.3 | 7.7 | ± 10% | E | TR3E226K035C0300 | 175-4135 |

**Order Multiple=5**

**35 Volt d.c.** — **Price Each**

| Order Code | 5+ | 50+ | 100+ | 250+ | 2K+ |
|---|---|---|---|---|---|
| 1 µF SMD 175-4119 | | | | | |
| 2.2 µF SMD 175-4120 | | | | | |
| 4.7 µF SMD 175-4121 | | | | | |
| 10 µF SMD 175-4122 | | | | | |
| 10 µF SMD 175-4123 | | | | | |
| 10 µF SMD 175-4124 | | | | | |
| 10 µF SMD 175-4125 | | | | | |
| 10 µF SMD 175-4126 | | | | | |
| 10 µF SMD 175-4127 | | | | | |
| 10 µF SMD 175-4128 | | | | | |
| 22 µF SMD 175-4131 | | | | | |
| 22 µF SMD 175-4132 | | | | | |
| 22 µF SMD 175-4133 | | | | | |
| 22 µF SMD 175-4134 | | | | | |
| 22 µF SMD 175-4135 | | | | | |

| 50 Volt d.c. | Max ESR @ 100kHz (Ω) | DC Leakage Current (µA) | Capacitance Tolerance | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 4.7 µF | 0.3 | 2.4 | ± 10% | D | TR3D475K050C0300 | 175-4136 |
| 4.7 µF | 0.3 | 2.4 | ± 10% | E | TR3E475K050C0300 | 175-4137 |
| 10 µF | 0.3 | 5 | ± 20% | E | TR3E106M050C0300 | 175-4138 |
| 10 µF | 0.4 | 5 | ± 10% | E | TR3E106K050C0400 | 175-4139 |

**Order Multiple=5**

**50 Volt d.c.** — **Price Each**

| Order Code | 5+ | 50+ | 100+ | 250+ | 500+ |
|---|---|---|---|---|---|
| 4.7 µF SMD 175-4136 | | | | | |
| 4.7 µF SMD 175-4137 | | | | | |
| 10 µF SMD 175-4138 | | | | | |
| 10 µF SMD 175-4139 | | | | | |

| 63 Volt d.c. | Max ESR @ 100kHz (Ω) | DC Leakage Current (µA) | Capacitance Tolerance | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 4.7 µF | 0.7 | 3 | ± 20% | D | TR3D475M063C0700 | 175-4140 |
| 10 µF | 0.6 | 6.3 | ± 20% | E | TR3E106M063C0600 | 175-4141 |

# Tantalum - Surface Mount - Vishay - continued

## TR3 Series - continued

545055

**Order Multiple=5**

**63 Volt d.c.**

| | Order Code | 5+ | 50+ | Price Each 100+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| 4.7 µF | SMD 175-4140 ● | | | | | |
| 10 µF | SMD 175-4141 ● | | | | | |

## T83 Series



- Weibull Grading and Surge Current Test options
- Standard and Low ESR options

Operating Temperature -55°C to +125°C
Capacitance Tolerance ± 10%

| | Dimensions H W D | Max. DC Leakage Current (µA) | Max. ESR @ 25°C, 100 kHz (Ω) | Reel Qty. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| **6.3 Volt d.c** | | | | | | |
| 47µF | 1.9 3.5 2.8 | 2.8 | 2 | 2000 | T83B476K6R3EBZL | 175-4243 |
| **16 Volt d.c** | | | | | | |
| 10µF | 2.5 6 3.2 | 16 | 1.8 | 500 | T83C106K016EBZS | 175-4244 |
| **25 Volt d.c** | | | | | | |
| 47µF | 2.8 7.3 4.3 | 11.8 | 0.6 | 500 | T83D476K025EBZL | 175-4246 |
| **35 Volt d.c** | | | | | | |
| 22µF | 4 7.3 4.3 | 7.7 | 0.6 | 400 | T83E226K035EBZL | 175-4247 |

545069

**Order Multiple=5**

| | Order Code | 5+ | 50+ | Price Each 100+ | 250+ | 2K+ |
|---|---|---|---|---|---|---|
| **6.3 Volt d.c.** | | | | | | |
| 47µF | SMD 175-4243 ▲ | | | | | |
| **16 Volt d.c.** | | | | | | |
| 10µF | SMD 175-4244 ▲ | | | | | |
| **25 Volt d.c.** | | | | | | |
| 47µF | SMD 175-4246 ▲ | | | | | |
| **35 Volt d.c.** | | | | | | |
| 22µF | SMD 175-4247 ▲ | | | | | |

## 893D Series



- Solid Tantalum Chip Capacitors

Operating Temperature -55°C to +125°C
Capacitance Tolerance ± 20%
Reel Qty. 500

| | Dimensions H W D | Max. DC Leakage Current (µA) | Max. ESR @ 25°C, 100 kHz (Ω) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| **16 Volt d.c** | | | | | |
| 10µF | 2.5 6 3.2 | 1.6 | 1.8 | 893D106X0016C2TE3 | 175-4032 |
| **20 Volt d.c** | | | | | |
| 22µF | 2.8 7.3 4.3 | 4.4 | 0.7 | 893D226X0020D2TE3 | 175-4033 |
| **25 Volt d.c** | | | | | |
| 4.7µF | 2.5 6 3.2 | 1.2 | 1.9 | 893D475X0025C2TE3 | 175-4034 |
| **35 Volt d.c** | | | | | |
| 2.2µF | 2.5 6 3.2 | 0.8 | 2.9 | 893D225X0035C2TE3 | 175-4035 |
| 10µF | 2.8 7.3 4.3 | 3.5 | 0.8 | 893D106X0035D2TE3 | 175-4036 |
| **50 Volt d.c** | | | | | |
| 1µF | 2.5 6 3.2 | 0.5 | 4.4 | 893D105X0050C2TE3 | 175-4037 |
| 3.3µF | 2.8 7.3 4.3 | 1.7 | 1.6 | 893D335X0050D2TE3 | 175-4039 |

545050

| | Order Code | 1+ | 10+ | Price Each 100+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| **16 Volt d.c.** | | | | | | |
| 10µF | SMD 175-4032 ● | | | | | |
| **20 Volt d.c.** | | | | | | |
| 22µF | SMD 175-4033 ● | | | | | |
| **25 Volt d.c.** | | | | | | |
| 4.7µF | SMD 175-4034 ● | | | | | |
| **35 Volt d.c.** | | | | | | |
| 2.2µF | SMD 175-4035 ● | | | | | |
| 10µF | SMD 175-4036 ● | | | | | |
| **50 Volt d.c.** | | | | | | |
| 1µF | SMD 175-4037 ● | | | | | |
| 3.3µF | SMD 175-4039 ● | | | | | |

## TF3 Series



- Molded case available in three case codes
- Low ESR
- High Ripple Current carrying capability

NEW

Operating Temperature -55°C to +85°C

| Case Code | Height | Width | Depth | Case Code | Height | Width | Depth | Case Code | Height | Width | Depth |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C | 2.5 | 6 | 3.2 | D | 2.8 | 7.3 | 4.3 | E | 4 | 7.3 | 4.3 |

| **6.3 Volt d.c.** | Max ESR @ 100kHz (Ω) | DC Leakage Current (µA) | Capacitance Tolerance | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 22µF | 0.6 | 1.1 | ± 10% | C | TF3C226K6R3C0600 | 182-7891 |
| 47µF | 0.45 | 2.3 | ± 10% | D | TF3D476K6R3C0450 | 182-7892 |

| **6.3 Volt d.c.** | Order Code | 1+ | 50+ | Price Each 100+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| 22µF | 182-7891 ● | | | | | |
| 47µF | 182-7892 ● | | | | | |

| **10 Volt d.c.** | Max ESR @ 100kHz (Ω) | DC Leakage Current (µA) | Capacitance Tolerance | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 15µF | 1.8 | 1.5 | ± 10% | C | TF3C156K010C1800 | 182-7894 |
| 68µF | 0.4 | 6.8 | ± 10% | D | TF3D686K010C0400 | 182-7895 |
| 220µF | 0.3 | 22 | ± 10% | E | TF3E227K010C0300 | 182-7896 |

| **10 Volt d.c.** | Order Code | 1+ | 50+ | Price Each 100+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| 15µF | 182-7894 ● | | | | | |
| 68µF | 182-7895 ● | | | | | |
| 220µF | 182-7896 ● | | | | | |

| **16 Volt d.c.** | Max ESR @ 100kHz (Ω) | DC Leakage Current (µA) | Capacitance Tolerance | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 10µF | 0.6 | 1.6 | ± 10% | C | TF3C106K016C0600 | 182-7897 |
| 68µF | 0.3 | 10.9 | ± 10% | D | TF3D686K016C0300 | 182-7898 |

| **16 Volt d.c.** | Order Code | 1+ | 50+ | Price Each 100+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| 10µF | 182-7897 ● | | | | | |
| 68µF | 182-7898 ● | | | | | |

| **20 Volt d.c.** | Max ESR @ 100kHz (Ω) | DC Leakage Current (µA) | Capacitance Tolerance | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 33µF | 0.35 | 6.6 | ± 10% | D | TF3D336K020C0350 | 182-7899 |
| 68µF | 0.6 | 13.6 | ± 10% | E | TF3E686K020C0600 | 182-7901 |

| **20 Volt d.c.** | Order Code | 1+ | 50+ | Price Each 100+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| 33µF | 182-7899 ● | | | | | |
| 68µF | 182-7901 ● | | | | | |

| **25 Volt d.c.** | Max ESR @ 100kHz (Ω) | DC Leakage Current (µA) | Capacitance Tolerance | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 4.7µF | 1 | 1.2 | ± 10% | C | TF3C475K025C1000 | 182-7902 |
| 10µF | 0.5 | 2.5 | ± 10% | D | TF3D106K025C0500 | 182-7903 |
| 22µF | 0.4 | 5.5 | ± 10% | D | TF3D226K025C0400 | 182-7904 |

| **25 Volt d.c.** | Order Code | 1+ | 50+ | Price Each 100+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| 4.7µF | 182-7902 ● | | | | | |
| 10µF | 182-7903 ● | | | | | |
| 22µF | 182-7904 ● | | | | | |

| **35 Volt d.c.** | Max ESR @ 100kHz (Ω) | DC Leakage Current (µA) | Capacitance Tolerance | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 4.7µF | 0.7 | 1.6 | ± 10% | D | TF3D475K035C0700 | 182-7905 |
| 10µF | 0.5 | 3.5 | ± 10% | D | TF3D106K035C0500 | 182-7906 |
| 15µF | 0.5 | 5.3 | ± 10% | D | TF3D156K035C0500 | 182-7907 |
| 22µF | 0.6 | 7.7 | ± 10% | E | TF3E226K035C0600 | 182-7908 |

| **35 Volt d.c.** | Order Code | 1+ | 50+ | Price Each 100+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| 4.7µF | 182-7905 ● | | | | | |
| 10µF | 182-7906 ● | | | | | |
| 15µF | 182-7907 ● | | | | | |
| 22µF | 182-7908 ● | | | | | |

| **50 Volt d.c.** | Max ESR @ 100kHz (Ω) | DC Leakage Current (µA) | Capacitance Tolerance | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 1µF | 2.7 | 0.5 | ± 10% | C | TF3C105K050C2700 | 182-7909 |

611884

| **50 Volt d.c.** | Order Code | 1+ | 50+ | Price Each 100+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| 1µF | 182-7909 ● | | | | | |

**TROUBLESHOOTING TIPS**
Chat online to one of our technical engineers at **farnell.com**

## TH3 Series

NEW



- Operating temperature up to 150 °C with 50 % voltage derating
- High reliability
- 100 % surge current tested (B & D cases)
- Dimensions: 6 x 3.2 x 2.5mm (D case), 3.5 x 2.8 x 1.9mm (B case)
- AEC-Q200 qualified

Operating Temperature -55°C to +150°C
Capacitance Tolerance ± 10%

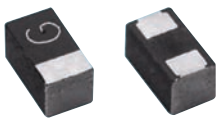
| | Max. DC Leakage Current (µA) | Max. ESR @ 25°C, 100 kHz (Ω) | Mftrs. List No. | Order Code |
|---|---|---|---|---|
| **16 Volt d.c** | | | | |
| 47µF | 7.5 | 600 | TH3D476K016C0600 | 196-1941 |
| **25 Volt d.c** | | | | |
| 33µF | 8.3 | 500 | TH3D336K025C0500 | 196-1942 |
| **35 Volt d.c** | | | | |
| 1µF | 0.5 | 4.4 | TH3B105K035C4400 | 196-1943 |
| 10µF | 3.5 | 700 | TH3D106K035C0700 | 196-1944 |

659483

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | + |
|---|---|---|---|---|---|---|
| **16 Volt d.c.** | | | | | | |
| 47µF | SMD 196-1941 | | | | | |
| **25 Volt d.c.** | | | | | | |
| 33µF | SMD 196-1942 | | | | | |
| **35 Volt d.c.** | | | | | | |
| 1µF | SMD 196-1943 | | | | | |
| 10µF | SMD 196-1944 | | | | | |

## TM8 Series

NEW



- High reliability solid surface mount tantalum capacitors
- Low DCL for extended battery life
- Suitable for medical implantable applications with additional screening

Operating Temperature -55°C to +85°C

| Case Code | Height | Width | Depth | Case Code | Height | Width | Depth |
|---|---|---|---|---|---|---|---|
| L | 1 | 2.05 | 1.3 | R | 1.47 | 2.06 | 1.35 |
| M | 0.84 | 1.6 | 0.84 | T | 1.57 | 3.51 | 2.8 |
| N | 1 | 3.51 | 2.8 | W | 1.2 | 2.06 | 1.35 |
| P | 1.25 | 2.45 | 1.5 | | | | |

| **6.3 Volt d.c.** | Max ESR @ 100kHz (Ω) | DC Leakage Current (µA) | Capacitance Tolerance | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 10µF | 5 | 0.32 | ± 10% | M | TM8M106K6R3UBA | 182-7910 |
| 15µF | 5 | 0.47 | ± 10% | M | TM8M156K6R3UBA | 182-7912 |

| **6.3 Volt d.c.** | Order Code | Price Each 1+ | 50+ | 100+ | 250+ | 300+ |
|---|---|---|---|---|---|---|
| 10µF | 182-7910 | | | | | |
| 15µF | 182-7912 | | | | | |

| **10 Volt d.c.** | Max ESR @ 100kHz (Ω) | DC Leakage Current (µA) | Capacitance Tolerance | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 1µF | 12 | 0.2 | ± 10% | M | TM8M105K010UBA | 182-7913 |
| 4.7µF | 6 | 0.24 | ± 10% | M | TM8M475K010UBA | 182-7914 |
| 7.5µF | 8 | 0.5 | ± 10% | L | TM8L755K010UBA | 182-7915 |
| 10µF | 6 | 0.38 | ± 10% | R | TM8R106K010UBA | 182-7916 |
| 47µF | 1 | 2.35 | ± 10% | T | TM8T476K010UBA | 182-7917 |

| **10 Volt d.c.** | Order Code | Price Each 1+ | 50+ | 100+ | 250+ | 300+ |
|---|---|---|---|---|---|---|
| 1µF | 182-7913 | | | | | |
| 4.7µF | 182-7914 | | | | | |
| 7.5µF | 182-7915 | | | | | |
| 10µF | 182-7916 | | | | | |
| 47µF | 182-7917 | | | | | |

| **16 Volt d.c.** | Max ESR @ 100kHz (Ω) | DC Leakage Current (µA) | Capacitance Tolerance | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 1µF | 12 | 0.2 | ± 10% | M | TM8M105K016UBA | 182-7918 |
| 10µF | 6 | 0.8 | ± 10% | R | TM8R106K016UBA | 182-7919 |

| **16 Volt d.c.** | Order Code | Price Each 1+ | 50+ | 100+ | 250+ | 300+ |
|---|---|---|---|---|---|---|
| 1µF | 182-7918 | | | | | |
| 10µF | 182-7919 | | | | | |

| **20 Volt d.c.** | Max ESR @ 100kHz (Ω) | DC Leakage Current (µA) | Capacitance Tolerance | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 1µF | 8 | 2 | ± 10% | W | TM8W105K020UBA | 182-7926 |
| 3.3µF | 8 | 0.33 | ± 10% | R | TM8R335K020UBA | 182-7920 |
| 7.5µF | 8 | 0.93 | ± 10% | N | TM8N755K020UBA | 182-7924 |

| **20 Volt d.c.** | Order Code | Price Each 1+ | 50+ | 100+ | 250+ | 300+ |
|---|---|---|---|---|---|---|
| 1µF | 182-7926 | | | | | |
| 3.3µF | 182-7920 | | | | | |
| 7.5µF | 182-7924 | | | | | |

| **25 Volt d.c.** | Max ESR @ 100kHz (Ω) | DC Leakage Current (µA) | Capacitance Tolerance | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 1µF | 10 | 0.2 | ± 10% | R | TM8R105K025UBA | 182-7921 |
| 4.7µF | 6 | 0.59 | ± 10% | P | TM8P475K025UBA | 182-7922 |

| **25 Volt d.c.** | Order Code | Price Each 1+ | 50+ | 100+ | 250+ | 300+ |
|---|---|---|---|---|---|---|
| 1µF | 182-7921 | | | | | |
| 4.7µF | 182-7922 | | | | | |

| **40 Volt d.c.** | Max ESR @ 100kHz (Ω) | DC Leakage Current (µA) | Capacitance Tolerance | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 1µF | 10 | 0.2 | ± 10% | P | TM8P105K040UBA | 182-7925 |

611894

| **40 Volt d.c.** | Order Code | Price Each 1+ | 50+ | 100+ | 250+ | 300+ |
|---|---|---|---|---|---|---|
| 1µF | 182-7925 | | | | | |

## TP3 Series

NEW



- Compatible with High Volume, automatic pick and place equipment
- High ripple current carrying capability
- Low ESR
- Meets EIA 535BAAC and compliant terminations

Operating Temperature -55°C to +85°C
Capacitance Tolerance ± 20%

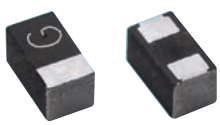
| | Dimensions (mm) L | W | H | Max. DC Leakage Current (µA) | Max. ESR @ 25°C, 100 kHz (Ω) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **10 Volt d.c** | | | | | | | |
| 2.2µF | 3.2 | 1.6 | 1.6 | 0.5 | 6.3 | TP3A225M010C6300AS | 196-1945 |
| 22µF | 3.5 | 2.8 | 1.9 | 2.2 | 1.9 | TP3B226M010C1900AS | 196-1946 |
| 33µF | 3.2 | 1.6 | 1.6 | 3.3 | 1.5 | TP3B336M010C1500AS | 196-1947 |
| 33µF | 7.3 | 4.3 | 4 | 3.3 | 800 | TP3D336M010C0800AS | 196-1948 |
| 100µF | 6 | 3.2 | 2.5 | 10 | 250 | TP3C107K010C0250AS | 196-1951 |
| 100µF | 6 | 3.2 | 2.5 | 10 | 900 | TP3C107K010D0900AS | 196-1952 |
| **16 Volt d.c** | | | | | | | |
| 4.7µF | 3.2 | 1.6 | 1.6 | 0.8 | 2.5 | TP3A475K016C2500AS | 196-1953 |
| **35 Volt d.c** | | | | | | | |
| 1µF | 3.2 | 1.6 | 1.6 | 0.5 | 5 | TP3B105K035C5000AS | 196-1954 |
| 10µF | 7.3 | 4.3 | 4 | 3.5 | 800 | TP3D106M035C0800AS | 196-1955 |
| **50 Volt d.c** | | | | | | | |
| 10µF | 7.3 | 4.3 | 4 | 5 | 300 | TP3E106K050C0300AS | 196-1956 |

659484

| | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 2K+ |
|---|---|---|---|---|---|---|
| **10 Volt d.c.** | | | | | | |
| 2.2µF | SMD 196-1945 | | | | | |
| 22µF | SMD 196-1946 | | | | | |
| 33µF | SMD 196-1947 | | | | | |
| 33µF | SMD 196-1948 | | | | | |
| 100µF | SMD 196-1951 | | | | | |
| 100µF | SMD 196-1952 | | | | | |
| **16 Volt d.c.** | | | | | | |
| 4.7µF | SMD 196-1953 | | | | | |
| **35 Volt d.c.** | | | | | | |
| 1µF | SMD 196-1954 | | | | | |
| 10µF | SMD 196-1955 | | | | | |
| **50 Volt d.c.** | | | | | | |
| 10µF | SMD 196-1956 | | | | | |

## TR8 Series

NEW



- High reliability solid surface mount tantalum capacitors
- Low ESR

Operating Temperature -55°C to +85°C

| Case Code | Height | Width | Depth |
|---|---|---|---|
| M | 0.8 | 1.6 | 0.85 |

| **4 Volt d.c.** | Max ESR @ 100kHz (Ω) | DC Leakage Current (µA) | Capacitance Tolerance | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 33µF | 1.5 | 2.6 | ± 20% | M | TR8M336M0042T1500 | 182-7927 |
| 47µF | 1.5 | 3.8 | ± 20% | M | TR8M476M0042T1500 | 182-7928 |

| **4 Volt d.c.** | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 33µF | 182-7927 | | | | | |
| 47µF | 182-7928 | | | | | |

| **6.3 Volt d.c.** | Max ESR @ 100kHz (Ω) | DC Leakage Current (µA) | Capacitance Tolerance | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 10µF | 2 | 0.6 | ± 20% | M | TR8M106M6R32T2000 | 182-7929 |
| 22µF | 1.5 | 2.8 | ± 20% | M | TR8M226M6R32T1500 | 182-7930 |
| 33µF | 1.5 | 4.2 | ± 20% | M | TR8M336M6R32T1500 | 182-7931 |

# Tantalum - Surface Mount - Vishay - continued

## TR8 Series - continued

| 6.3 Volt d.c. | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10µF | 182-7929● | | | | | |
| 22µF | 182-7930● | | | | | |
| 33µF | 182-7931● | | | | | |

| 10 Volt d.c. | Max ESR @ 100kHz (Ω) | DC Leakage Current (µA) | Capacitance Tolerance | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 10µF | 2 | 1 | ± 20% | M | TR8M106M0102T2000 | 182-7932 |
| 15µF | 3 | 1.5 | ± 20% | M | TR8M156M0102T3000 | 182-7933 |

| 10 Volt d.c. | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10µF | 182-7932● | | | | | |
| 15µF | 182-7933● | | | | | |

| 16 Volt d.c. | Max ESR @ 100kHz (Ω) | DC Leakage Current (µA) | Capacitance Tolerance | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 1µF | 9.5 | 0.5 | ± 20% | M | TR8M105M0162T9500 | 182-7934 |

611896

| 16 Volt d.c. | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1µF | 182-7934● | | | | | |

## Conformally Coated



- High CV for case size
- Low leakage current
- To compliment the standard 595D series, 591D offers low ESR, 597D ultra low ESR with dual anode and 592D offers a low profile package

Operating Temperature -55°C to +125°C

| µF | Dimensions L | W | H | Tolerance | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **4 Volt d.c** | | | | | | | |
| 470µF | 7.3 | 4.4 | 2 | ± 20% | V | 597D477X0004V2T | 156-5106 |
| 680µF | 7.3 | 4.4 | 4 | ± 20% | E | 597D687X0004E2T | 156-5109 |
| **6.3 Volt d.c** | | | | | | | |
| 15µF | 3.5 | 1.8 | 1.4 | ± 10% | A | 595D156X96R3A2T | 116-6792 |
| 33µF | 4 | 2.8 | 1.2 | ± 20% | B | 591D336X06R3B2T15H | 156-5083 |
| 100µF | 6.9 | 3.2 | 2.5 | ± 10% | C | 595D107X96R3C2T | 116-6796 |
| 330µF | 7.3 | 4.4 | 2 | ± 20% | V | 597D337X06R3V2T | 156-5105 |
| 470µF | 7.1 | 3.2 | 2 | ± 20% | C | 592D477X06R3C2T20H | 156-5093 |
| 680µF | 7.2 | 6 | 2 | ± 20% | R | 592D687X06R3R2T20H | 156-5092 |
| 680µF | 7.3 | 4.4 | 4 | ± 20% | E | 597D687X06R3E2T | 156-5111 |
| 1000µF | 7.2 | 6 | 2 | ± 20% | R | 592D108X06R3R2T20H | 156-5091 |
| 1000µF | 7.3 | 6 | 3.6 | ± 20% | R | 597D108X06R3R2T | 156-5097 |
| 1500µF | 7.2 | 6 | 2 | ± 20% | R | 592D158X06R3R2T20H | 156-5089 |
| 2200µF | 14.5 | 7.37 | 2 | ± 20% | X | 592D228X06R3X2T20H | 156-5087 |
| **10 Volt d.c** | | | | | | | |
| 2.2µF | 2 | 8 | 1.2 | ± 10% | T | 595D225X9010T2T | 116-6800 |
| 10µF | 3.5 | 1.8 | 1.4 | ± 10% | A | 595D106X9010A2T | 116-6801 |
| 10µF | 3.7 | 1.8 | 1.2 | ± 20% | T | 591D106X0010A2T15H | 156-5082 |
| 68µF | 6.9 | 3.2 | 2.5 | ± 10% | C | 595D686X9010C2T | 116-6804 |
| 330µF | 7.3 | 4.4 | 4 | ± 20% | E | 597D337X0010E2T | 156-5104 |
| 470µF | 7.3 | 4.4 | 4 | ± 20% | E | 597D477X0010E2T | 156-5107 |
| 680µF | 7.3 | 6 | 3.6 | ± 20% | R | 597D687X0010R2T | 156-5110 |
| 1000µF | 4.7 | 6 | 7.6 | ± 10% | | 597D108X9010F2T | 182-7869 |
| **16 Volt d.c** | | | | | | | |
| 4.7µF | 3.5 | 1.8 | 1.4 | ± 10% | A | 595D475X9016A2T | 116-6805 |
| 10µF | 3.8 | 2.7 | 1.8 | ± 10% | B | 595D106X9016B2T | 116-6806 |
| 10µF | 6.8 | 3.2 | 1.5 | ± 10% | C | 592D106X9016C2T15H | 116-6807 |
| 100µF | 7.2 | 4.3 | 2.8 | ± 10% | D | 595D107X9016D2T | 116-6809 |
| 220µF | 7.3 | 4.4 | 4 | ± 20% | E | 597D227X0016E2T | 156-5101 |
| **20 Volt d.c** | | | | | | | |
| 1µF | 2 | 1.2 | 1.2 | ± 10% | T | 595D105X9020T2T | 116-6811 |
| 2.2µF | 3.5 | 1.4 | 1.2 | ± 10% | A | 595D225X9020A2T | 116-6812 |
| 220µF | 3.6 | 6 | 7.6 | ± 10% | | 597D227X9020R2T | 182-7871 |
| **25 Volt d.c** | | | | | | | |
| 2.2µF | 3.7 | 2.6 | 1.5 | ± 10% | A | 592D225X9025B2T15H | 116-6817 |
| 15µF | 6.9 | 3.2 | 2.5 | ± 10% | A | 595D156X9025C2T | 116-6818 |
| 68µF | 7.2 | 6 | 2 | ± 10% | R | 591D686X9025R2T20H | 156-5086 |
| 68µF | 7.3 | 6 | 3.6 | ± 20% | R | 597D686X0025R2T | 156-5117 |
| **35 Volt d.c** | | | | | | | |
| 1µF | 3.5 | 1.8 | 1.4 | ± 10% | A | 595D105X9035A2T | 116-6819 |
| 1µF | 2.8 | 1.5 | 1.2 | ± 10% | A | 592D105X9035A2T15H | 116-6820 |
| 15µF | 7.2 | 4.3 | 2.8 | ± 10% | D | 595D156X9035D2T | 116-6823 |
| 33µF | 6.9 | 8 | 3.5 | ± 10% | R | 595D336X9035R2T | 116-6824 |
| 47µF | 7.3 | 6 | 3.6 | ± 20% | R | 597D476X0035R2T | 156-5116 |
| **50 Volt d.c** | | | | | | | |
| 15µF | 4 | 4.4 | 7.6 | ± 10% | | 597D156X9050E2T | 182-7872 |
| 15µF | 3.6 | 6 | 7.6 | ± 10% | | 597D156X9050R2T | 182-7873 |
| 22µF | 7.3 | 6 | 3.6 | ± 20% | R | 597D226X0050R2T | 156-5100 |
| 33µF | 7.3 | 6 | 4.7 | ± 20% | F | 597D336X0050F2T | 156-5103 |
| 47µF | 7.3 | 6 | 6 | ± 20% | Z | 597D476X0050Z2T | 156-5113 |
| **63 Volt d.c** | | | | | | | |
| 22µF | 7.3 | 6 | 4.7 | ± 20% | F | 597D226X0063F2T | 156-5112 |
| **75 Volt** | | | | | | | |
| 10µF | 3.6 | 6 | 7.6 | ± 10% | | 597D106X9075R2T | 182-7874 |

208574

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **4 Volt d.c.** | | | | | | |
| 470µF | SMD 156-5106● RL | | | | | |
| 680µF | SMD 156-5109● RL | | | | | |
| **6.3 Volt d.c** | | | | | | |
| 15µF | SMD 116-6792● RL | | | | | |
| 33µF | SMD 156-5083● RL | | | | | |
| 100µF | SMD 116-6796● RL | | | | | |
| 330µF | SMD 156-5105● RL | | | | | |
| 470µF | SMD 156-5093● RL | | | | | |
| 680µF | SMD 156-5092● RL | | | | | |
| 680µF | SMD 156-5111● RL | | | | | |
| 1000µF | SMD 156-5091● RL | | | | | |
| 1000µF | SMD 156-5097● RL | | | | | |
| 1500µF | SMD 156-5089● RL | | | | | |
| 2200µF | SMD 156-5087● RL | | | | | |
| **10 Volt d.c.** | | | | | | |
| 2.2µF | SMD 116-6800● RL | | | | | |
| 10µF | SMD 116-6801● RL | | | | | |
| 68µF | SMD 116-6804● RL | | | | | |
| 330µF | SMD 156-5104● RL | | | | | |
| 470µF | SMD 156-5107● RL | | | | | |
| 680µF | SMD 156-5110● RL | | | | | |
| 1000µF | 182-7869● | | | | | |
| **16 Volt d.c** | | | | | | |
| 4.7µF | SMD 116-6805● RL | | | | | |
| 10µF | SMD 116-6806● RL | | | | | |
| 10µF | SMD 116-6807● RL | | | | | |
| 100µF | SMD 116-6809● RL | | | | | |
| 220µF | SMD 156-5101● RL | | | | | |
| **20 Volt d.c** | | | | | | |
| 1µF | SMD 116-6811● RL | | | | | |
| 2.2µF | SMD 116-6812● RL | | | | | |
| 220µF | 182-7871● | | | | | |
| **256 Volt d.c** | | | | | | |
| 2.2µF | SMD 116-6817● RL | | | | | |
| 15µF | SMD 116-6818● RL | | | | | |
| 68µF | SMD 156-5086● RL | | | | | |
| 68µF | SMD 156-5117● RL | | | | | |
| **35 Volt d.c** | | | | | | |
| 1µF | SMD 116-6819● RL | | | | | |
| 1µF | SMD 116-6820● RL | | | | | |
| 15µF | SMD 116-6823● RL | | | | | |
| 33µF | SMD 116-6824● RL | | | | | |
| 47µF | SMD 156-5116● RL | | | | | |
| **50 Volt d.c** | | | | | | |
| 15µF | 182-7872● | | | | | |
| 15µF | 182-7873● | | | | | |
| 22µF | SMD 156-5100● RL | | | | | |
| 33µF | SMD 156-5103● RL | | | | | |
| 47µF | SMD 156-5113● RL | | | | | |
| **63 Volt d.c** | | | | | | |
| 22µF | SMD 156-5112● RL | | | | | |
| **75 Volt d.c** | | | | | | |
| 10µF | 182-7874● | | | | | |

## 594D Series



- Large capacitance rating range
- Lowest ESR for a surface mount tantalum chip capacitor
- Case code compatibility with EIA 535BAAC and CECC30801 molded chips

Operating temperature -55°C to +85°C
Tolerance ± 10%

| | ESR Max. (mΩ) @ 100kHz | DC Leakage Current (µA) | Dimensions (mm) H | W | D | Reel Qty. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| **6.3 Volt d.c.** | | | | | | | | |
| 120µF | 0.085 | 6.3 | 2.5 | 3.2 | 7.1 | 500 | 594D127X96R3C2T | 175-3997 |
| 1000µF | 0.03 | 63 | 3.5 | 6 | 7.2 | 600 | 594D108X96R3R2T | 175-3998 |
| **10 Volt d.c** | | | | | | | | |
| 47µF | 0.4 | 4.7 | 1.9 | 2.8 | 4 | 2000 | 594D476X9010B2T | 175-3999 |
| 68µF | 0.1 | 6.8 | 2.5 | 3.2 | 7.1 | 500 | 594D686X9010C2T | 175-4000 |
| **16 Volt d.c.** | | | | | | | | |
| 47µF | 0.11 | 7.5 | 2.5 | 3.2 | 7.1 | 500 | 594D476X9016C2T | 175-4003 |
| 100µF | 0.08 | 16 | 2.5 | 3.2 | 7.1 | 500 | 594D107X9016C2T | 175-4004 |
| 100µF | 0.075 | 16 | 1.9 | 4.3 | 7.5 | 500 | 594D107X9016D2T | 175-4005 |
| **20 Volt d.c.** | | | | | | | | |
| 120µF | 0.08 | 24 | 3.5 | 6 | 7.2 | 600 | 594D127X9020R2T | 175-4006 |
| **25 Volt d.c.** | | | | | | | | |
| 100µF | 0.09 | 25 | 3.5 | 6 | 7.2 | 600 | 594D107X9025R2T | 175-4007 |

| | ESR Max. (mΩ) @ 100kHz | DC Leakage Current (µA) | Dimensions (mm) H | W | D | Reel Qty. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| **35 Volt d.c.** | | | | | | | | |
| 33µF | 0.2 | 11.6 | 3.5 | 6 | 7.2 | 600 | 594D336X9035R2T | 175-4008 |
| 47µF | 0.2 | 16.6 | 3.5 | 6 | 7.2 | 600 | 594D476X9035R2T | 175-4009 |
| **50 Volt d.c.** | | | | | | | | |
| 4.7µF | 0.8 | 2.4 | 2.5 | 3.2 | 7.1 | 500 | 594D475X9050C2T | 175-4010 |
| 6.8µF | 0.45 | 3.4 | 1.9 | 4.3 | 7.5 | 500 | 594D685X9050D2T | 175-4011 |

544660

| | Order Code | Price Each 1+ | 10+ | 100+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| **6.3 Volt d.c** | | | | | | |
| 120µF | SMD 175-3997● | | | | | |
| 1000µF | SMD 175-3998● | | | | | |
| **10 Volt d.c** | | | | | | |
| 47µF | SMD 175-3999● | | | | | |
| 68µF | SMD 175-4000● | | | | | |
| **16 Volt d.c.** | | | | | | |
| 47µF | SMD 175-4003● | | | | | |
| 100µF | SMD 175-4004● | | | | | |
| 100µF | SMD 175-4005● | | | | | |
| **20 Volt d.c.** | | | | | | |
| 120µF | SMD 175-4006● | | | | | |
| **25 Volt d.c.** | | | | | | |
| 100µF | SMD 175-4007● | | | | | |
| **35 Volt d.c.** | | | | | | |
| 33µF | SMD 175-4008● | | | | | |
| 47µF | SMD 175-4009● | | | | | |
| **50 Volt d.c.** | | | | | | |
| 4.7µF | SMD 175-4010● | | | | | |
| 6.8µF | SMD 175-4011● | | | | | |

## T86 Series



- High ripple current carrying capability
- Weibull grading and surge current test options per MIL-PRF-55365
- Standard version
- Case C or D

NEW

Operating Temperature -55°C to +125°C
Capacitance Tolerance ± 20%

| | Dimensions (mm) L | W | D | Max. DC Leakage Current (µA) | Max. ESR @ 25°C, 100 kHz (Ω) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **6.3 Volt d.c** | | | | | | | |
| 100µF | 7.3 | 4.3 | 2.5 | 6 | 0.7 | T86D107M6R3ESSS | 196-1934 |
| **10 Volt d.c** | | | | | | | |
| 10µF | 7.3 | 4.3 | 2.5 | 4.7 | 0.7 | T86D476K010ESSS | 196-1935 |
| **16 Volt d.c** | | | | | | | |
| 10µF | 6 | 3.2 | 2.5 | 1.6 | 1.8 | T86C106K016ESSS | 196-1936 |
| **35 Volt d.c** | | | | | | | |
| 10µF | 7.3 | 4.3 | 2.5 | 3.5 | 0.8 | T86D106K035ESSS | 196-1938 |
| **50 Volt d.c** | | | | | | | |
| 4.7µF | 7.3 | 4.3 | 2.5 | 2.4 | 1.1 | T86D475K050ESSS | 196-1939 |

659482

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | + |
|---|---|---|---|---|---|---|
| **6.3 Volt d.c.** | | | | | | |
| 100µF | SMD 196-1934● | | | | | |
| **10 Volt d.c.** | | | | | | |
| 10µF | SMD 196-1935● | | | | | |
| **16 Volt d.c.** | | | | | | |
| 10µF | SMD 196-1936● | | | | | |
| **35 Volt d.c.** | | | | | | |
| 10µF | SMD 196-1938● | | | | | |
| **50 Volt d.c.** | | | | | | |
| 4.7µF | SMD 196-1939● | | | | | |

## T95 Series



- High reliability; Weibull grading available
- Standard and Low ESR options

Operating Temperature -55°C to +85°C
Capacitance Tolerance ± 10%
Reel Qty 600

| | Dimensions H | W | D | Max. DC Leakage Current (µA) | Max. ESR @ 25°C, 100 kHz (Ω) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **10 Volt d.c** | | | | | | | |
| 330µF | 1.3 | 1.83 | 7.2 | 33 | 0.13 | T95R337K010ESAL | 175-4248 |
| **50 Volt d.c** | | | | | | | |
| 15µF | 1.3 | 1.83 | 7.2 | 7.5 | 0.4 | T95R156K050ESAL | 175-4249 |
| 22µF | 1.3 | 1.83 | 7.2 | 11 | 0.39 | T95R226K050EABL | 175-4250 |

545070

Order Multiple=5

| | Order Code | Price Each 5+ | 50+ | 100+ | 250+ | 600+ |
|---|---|---|---|---|---|---|
| **10 Volt d.c.** | | | | | | |
| 330µF | SMD 175-4248▲ | | | | | |
| **50 Volt d.c.** | | | | | | |
| 15µF | SMD 175-4249▲ | | | | | |
| 22µF | SMD 175-4250▲ | | | | | |

## T97 Series



- Ultra-low ESR
- High reliability; Weibull failure rate grading available

Operating Temperature -55°C to +85°C
Capacitance Tolerance ± 10%
Rating Voltage 50V
Reel Qty 300

| | Dimensions H | W | D | Max. DC Leakage Current (µA) | Max. ESR @ 25°C, 100 kHz (mΩ) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **50 Volt d.c** | | | | | | | |
| 22µF | 3.6 | 6 | 7.3 | 11 | 0.17 | T97R226K050ESB | 175-4251 |
| 33µF | 4.7 | 6 | 7.3 | 17 | 0.15 | T97F336K050EAA | 175-4252 |
| **75 Volt d.c.** | | | | | | | |
| 10µF | 3.6 | 6 | 7.6 | 8 | 0.5 | T97R106K075LSA | 182-7875 |

545071

Order Multiple=5

| | Order Code | Price Each 5+ | 50+ | 100+ | 250+ | 300+ |
|---|---|---|---|---|---|---|
| **50 Volt d.c.** | | | | | | |
| 22µF | SMD 175-4251▲ | | | | | |
| 33µF | SMD 175-4252▲ | | | | | |
| **75 Volt d.c.** | | | | | | |
| 10µF | NEW 182-7875● | | | | | |

## M34 Series - Wet Tantalum

NEW



- Very low ESR
- High ripple current capability
- Low DCL
- Model M34 wet tantalum electrolytic chip capacitors incorporate the advantages of all the varieties of electrolytic capacitors and eliminate most of the disadvantages.

Operating temperature -55°C to +85°C
Tolerance ± 10%

| | | ESR Max. (Ω) @ 120Hz | Dimensions (mm) H | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 25V | 120µF | 1.3 | 7.5 | 21.2 | 8 | M34C127K025BZSS | 182-7876 |
| 30V | 100µF | 1.3 | 7.5 | 21.2 | 8 | M34C107K030BZSS | 182-7877 |
| 50V | 68µF | 1.5 | 7.5 | 21.2 | 8 | M34C686K050BZSS | 182-7878 |
| 60V | 47µF | 2 | 7.5 | 21.2 | 8 | M34C476K060BZSS | 182-7879 |
| 75V | 33µF | 2.5 | 7.5 | 21.2 | 8 | M34C336K075BZSS | 182-7880 |
| 100V | 15µF | 3.5 | 7.5 | 21.2 | 8 | M34C156K100BZSS | 182-7882 |
| 125V | 10µF | 5.5 | 7.5 | 21.2 | 8 | M34C106K125BZSS | 182-7883 |

611178

| | | Order Code | Price Each 1+ | 10+ | 25+ |
|---|---|---|---|---|---|
| 25V | 120µF | 182-7876▲ | | | |
| 30V | 100µF | 182-7877▲ | | | |
| 50V | 68µF | 182-7878▲ | | | |
| 60V | 47µF | 182-7879▲ | | | |
| 75V | 33µF | 182-7880▲ | | | |
| 100V | 15µF | 182-7882▲ | | | |
| 125V | 10µF | 182-7883▲ | | | |

## M35 Series - Wet Tantalum

NEW



- Molded surface mountable design
- Industry standard ratings
- Model M35 wet tantalum electrolytic chip capacitors incorporate the advantages of all the varieties of electrolytic capacitors and eliminate most of the disadvantages.

Operating temperature -55°C to +85°C
Tolerance ± 20%

| Voltage (V) | | ESR Max. (Ω) @ 25°C | Dimensions (mm) H | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 6 | 220µF | 3 | 7.5 | 21.2 | 8 | M35C227M006BZSS | 182-7884 |
| 50 | 10µF | 6.4 | 7.5 | 21.2 | 8 | M35C106K050BZSS | 182-7885 |
| 50 | 33µF | 5 | 7.5 | 21.2 | 8 | M35C336K050BZSS | 182-7886 |
| 60 | 27µF | 5 | 7.5 | 21.2 | 8 | M35C276K060BZSS | 182-7887 |
| 75 | 22µF | 5.1 | 7.5 | 21.2 | 8 | M35C226K075BZSS | 182-7888 |
| 100 | 10µF | 5.9 | 7.5 | 21.2 | 8 | M35C106K100BZSS | 182-7889 |
| 125 | 6.8µF | 11.7 | 7.5 | 21.2 | 8 | M35C685K125BZSS | 182-7890 |

# Tantalum - Surface Mount - Vishay - continued

## M35 Series - Wet Tantalum - continued

611180

| Voltage (V) | | Order Code | Price Each 1+ | 10+ | 25+ |
|---|---|---|---|---|---|
| 6 | 220µF | 182-7884▲ | | | |
| 50 | 10µF | 182-7885▲ | | | |
| 50 | 33µF | 182-7886▲ | | | |
| 60 | 27µF | 182-7887▲ | | | |
| 75 | 22µF | 182-7888▲ | | | |
| 100 | 10µF | 182-7889▲ | | | |
| 125 | 6.8µF | 182-7890▲ | | | |

# Tantalum - Leaded - Multicomp

## CB Series



- General purpose
- Wide temperature range
- Resin dipped tantalum capacitors

Lead dia. = 0.5, Lead pitch = 5.0

Operating temperature -55°C to+125°C Tolerance ±20%

| 6.3 Volt d.c. | Dimensions H | W | D | Lead Pitch (mm) | DC Leakage Current (µA) | Impedance (Ω) @ 100kHz 20°C | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 4.7µF | 7 | 4.5 | 4.2 | 5.08 | 0.5 | 10 | CB0J475M2ACB | 186-9974 |
| 6.8µF | 7 | 4.5 | 4.2 | 5.08 | 0.5 | 8 | CB0J685M2ACB | 186-9975 |
| 10µF | 6.5 | 4 | 3 | 5.08 | 0.5 | 6 | CB0J106M2BCB | 970-8200 |
| 15µF | 8 | 5 | 4.7 | 5.08 | 0.8 | 5 | CB0J156M2BCB | 186-9976 |
| µF | 7 | 4.5 | 4.3 | 5.08 | 1.1 | 3.7 | CB0J226M2CCB | 970-8219 |
| 33µF | 9.5 | 5.5 | 5.5 | 5.08 | 1.7 | 3 | CB0J336M2CCB | 186-9977 |
| 47µF | 7 | 5 | 4.8 | 5.08 | 2.4 | 2 | CB0J476M2DCB | 970-8227 |
| 68µF | 7 | 5 | 4.8 | 5.08 | 3.4 | 1.8 | CB0J686M2DCB | 970-8235 |
| 100µF | 7.5 | 5 | 4.8 | 5.08 | 5 | 1.6 | CB0J107M2ECB | 970-8243 |
| 150µF | 13 | 8.5 | 8.5 | 5.08 | 7.6 | 0.9 | CB0J157M2ECB | 186-9979 |
| 220µF | 13 | 8.5 | 8.5 | 5.08 | 11 | 0.9 | CB0J227M2ECB | 186-9981 |

**Order Multiple=5**

| 6.3 Volt d.c. | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 4.7µF | NEW 186-9974● | | | | | |
| 6.8µF | NEW 186-9975● | | | | | |
| 10µF | 970-8200● | | | | | |
| 15µF | NEW 186-9976● | | | | | |
| 22µF | 970-8219● | | | | | |
| 33µF | NEW 186-9977● | | | | | |
| 47µF | 970-8227● | | | | | |
| 68µF | 970-8235● | | | | | |
| 100µF | 970-8243● | | | | | |
| 150µF | NEW 186-9979● | | | | | |
| 220µF | NEW 186-9981● | | | | | |

| 10 Volt d.c. | Dimensions H | W | D | Lead Pitch (mm) | DC Leakage Current (µA) | Impedance (Ω) @ 100kHz 20°C | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 4.7µF | 6 | 4 | 3.8 | 5.08 | 0.5 | 8 | CB1A475M2ACB | 970-8251 |
| 6.8µF | 8 | 5 | 4.7 | 5.08 | 0.5 | 6 | CB1A685M2BCB | 186-9982 |
| 10µF | 6.5 | 4 | 3 | 5.08 | 0.8 | 5 | CB1A106M2BCB | 970-8260 |
| 15µF | 9.5 | 5.5 | 5.5 | 5.08 | 1.2 | 3.7 | CB1A156M2CCB | 186-9983 |
| 22µF | 7 | 4.5 | 4.3 | 5.08 | 1.7 | 2.7 | CB1A226M2CCB | 970-8278 |
| 33µF | 7 | 5 | 4.8 | 5.08 | 2.6 | 2.1 | CB1A336M2DCB | 970-8286 |
| 47µF | 7 | 5 | 4.8 | 5.08 | 3.7 | 1.7 | CB1A476M2DCB | 970-8294 |
| 68µF | 11 | 6.5 | 6.5 | 5.08 | 5.4 | 1.3 | CB1A686M2DCB | 186-9984 |
| 100µF | 7.5 | 5 | 4.8 | 5.08 | 8 | 1 | CB1A107M2ECB | 970-8308 |
| 150µF | 13 | 8.5 | 8.5 | 5.08 | 12 | 0.8 | CB1A157M2ECB | 186-9985 |
| 220µF | 16.5 | 9.5 | 9.5 | 5.08 | 17.6 | 0.8 | CB1A227M2FCB | 186-9986 |

**Order Multiple=5**

| 10 Volt d.c. | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 4.7µF | 970-8251● | | | | | |
| 6.8µF | NEW 186-9982● | | | | | |
| 10µF | 970-8260● | | | | | |
| 15µF | NEW 186-9983● | | | | | |
| 22µF | 970-8278● | | | | | |
| 33µF | 970-8286● | | | | | |
| 47µF | 970-8294● | | | | | |
| 68µF | NEW 186-9984● | | | | | |
| 100µF | 970-8308● | | | | | |
| 150µF | NEW 186-9985● | | | | | |
| 220µF | NEW 186-9986● | | | | | |

| 16 Volt d.c. | Dimensions H | W | D | Lead Pitch (mm) | DC Leakage Current (µA) | Impedance (Ω) @ 100kHz 20°C | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 2.2µF | 6 | 4 | 3.8 | 5.08 | 0.5 | 8 | CB1C225M2ACB | 970-8316 |
| 3.3µF | 7 | 4.5 | 4.2 | 5.08 | 0.5 | 10 | CB1C335M2ACB | 186-9987 |
| 4.7µF | 6.5 | 4 | 3 | 5.08 | 0.6 | 5 | CB1C475M2BCB | 970-8324 |
| 6.8µF | 6.5 | 4 | 3 | 5.08 | 0.8 | 4 | CB1C685M2BCB | 970-8332 |
| 10µF | 6.5 | 4 | 3 | 5.08 | 1.2 | 3.2 | CB1C106M2BCB | 970-8340 |
| 15µF | 9.5 | 5.5 | 5.5 | 5.08 | 1.9 | 3.7 | CB1C156M2CCB | 186-9988 |
| 22µF | 7 | 4.5 | 4.3 | 5.08 | 2.8 | 2 | CB1C226M2CCB | 970-8359 |
| 33µF | 7 | 5 | 4.8 | 5.08 | 4.2 | 1.6 | CB1C336M2DCB | 970-8367 |
| 47µF | 7 | 5 | 4.8 | 5.08 | 6 | 1.3 | CB1C476M2DCB | 970-8375 |
| 68µF | 7.5 | 5 | 4.8 | 5.08 | 8.7 | 1 | CB1C686M2ECB | 970-8383 |
| 100µF | 7.5 | 5 | 4.8 | 5.08 | 12.8 | 0.8 | CB1C107M2ECB | 970-8391 |
| 150µF | 16.5 | 9.5 | 9.5 | 5.08 | 19.2 | 0.8 | CB1C157M2FCB | 186-9989 |

**Order Multiple=5**

| 16 Volt d.c. | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 2.2µF | 970-8316● | | | | | |
| 3.3µF | NEW 186-9987● | | | | | |
| 4.7µF | 970-8324● | | | | | |
| 6.8µF | 970-8332● | | | | | |
| 10µF | 970-8340● | | | | | |
| 15µF | NEW 186-9988● | | | | | |
| 22µF | 970-8359● | | | | | |
| 33µF | 970-8367● | | | | | |
| 47µF | 970-8375● | | | | | |
| 68µF | 970-8383● | | | | | |
| 100µF | 970-8391● | | | | | |
| 150µF | NEW 186-9989● | | | | | |

| 25 Volt d.c. | Dimensions H | W | D | Lead Pitch (mm) | DC Leakage Current (µA) | Impedance (Ω) @ 100kHz 20°C | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 1µF | 6 | 4 | 3.8 | 5.08 | 0.5 | 10 | CB1E105M2ACB | 970-8405 |
| 1.5µF | 7 | 4.5 | 4.2 | 5.08 | 0.5 | 8 | CB1E155M2ACB | 186-9990 |
| 2.2µF | 6 | 4 | 3.8 | 5.08 | 0.5 | 6 | CB1E225M2ACB | 970-8413 |
| 3.3µF | 8 | 5 | 4.7 | 5.08 | 0.6 | 5 | CB1E335M2BCB | 186-9992 |
| 4.7µF | 6.5 | 4 | 3 | 5.08 | 0.9 | 4 | CB1E475M2BCB | 970-8421 |
| 6.8µF | 7 | 4.5 | 4.3 | 5.08 | 6.8 | 3.1 | CB1E685M2CCB | 970-8430 |
| 10µF | 7 | 4.5 | 4.3 | 5.08 | 2 | 2.5 | CB1E106M2CCB | 970-8448 |
| 15µF | 7 | 5 | 4.8 | 5.08 | 3 | 2 | CB1E156M2DCB | 970-8456 |
| 22µF | 7 | 5 | 4.8 | 5.08 | 4.4 | 1.5 | CB1E226M2DCB | 970-8464 |
| 33µF | 7.5 | 5 | 4.8 | 5.08 | 6.6 | 1.2 | CB1E336M2ECB | 970-8472 |
| 47µF | 13 | 8.5 | 8.5 | 5.08 | 9.4 | 1 | CB1E476M2ECB | 186-9993 |
| 68µF | 16.5 | 9.5 | 9.5 | 5.08 | 13.6 | 0.8 | CB1E686M2FCB | 186-9994 |
| 100µF | 16.5 | 9.5 | 9.5 | 5.08 | 20 | 0.8 | CB1E107M2FCB | 186-9995 |

**Order Multiple=5**

| 25 Volt d.c. | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1µF | 970-8405● | | | | | |
| 1.5µF | NEW 186-9990● | | | | | |
| 2.2µF | 970-8413● | | | | | |
| 3.3µF | NEW 186-9992● | | | | | |
| 4.7µF | 970-8421● | | | | | |
| 6.8µF | 970-8430● | | | | | |
| 10µF | 970-8448● | | | | | |
| 15µF | 970-8456● | | | | | |
| 22µF | 970-8464● | | | | | |
| 33µF | 970-8472● | | | | | |
| 47µF | NEW 186-9993● | | | | | |
| 68µF | NEW 186-9994● | | | | | |
| 100µF | NEW 186-9995● | | | | | |

| 35 Volt d.c. | Dimensions H | W | D | Lead Pitch (mm) | DC Leakage Current (µA) | Impedance (Ω) @ 100kHz 20°C | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 0.1µF | 6 | 4 | 3.8 | 5.08 | 0.5 | 26 | CB1V104M2ACB | 970-8480 |
| 0.15µF | 7 | 4.5 | 4.2 | 5.08 | 0.5 | 21 | CB1V154M2ACB | 186-9996 |
| 0.22µF | 6 | 4 | 3.8 | 5.08 | 0.5 | 17 | CB1V224M2ACB | 970-8499 |
| 0.33µF | 6 | 4 | 3.8 | 5.08 | 0.5 | 15 | CB1V334M2ACB | 970-8502 |
| 0.47µF | 6 | 4 | 3.8 | 5.08 | 0.5 | 13 | CB1V474M2ACB | 970-8510 |
| 0.68µF | 7 | 4.5 | 4.2 | 5.08 | 0.5 | 10 | CB1V684M2ACB | 186-9997 |
| 1µF | 6 | 4 | 3.8 | 5.08 | 0.5 | 8 | CB1V105M2ACB | 970-8529 |
| 1.5µF | 7 | 4.5 | 4.2 | 5.08 | 0.5 | 6 | CB1V155M2ACB | 186-9998 |
| 2.2µF | 6.5 | 4 | 3 | 5.08 | 0.6 | 5 | CB1V225M2BCB | 970-8537 |
| 3.3µF | 6.5 | 4 | 3 | 5.08 | 0.9 | 4 | CB1V335M2BCB | 970-8545 |
| 4.7µF | 7 | 4.5 | 4.3 | 5.08 | 4.7 | 3 | CB1V475M2CCB | 970-8553 |
| 6.8µF | 7 | 5 | 4.8 | 5.08 | 1.9 | 2.5 | CB1V685M2DCB | 970-8561 |
| 10µF | 7 | 5 | 4.8 | 5.08 | 2.8 | 2 | CB1V106M2DCB | 970-8570 |
| 15µF | 12 | 5 | 4.8 | 5.08 | 4.2 | 1.6 | CB1V156M2ECB | 970-8588 |
| 22µF | 7.5 | 5 | 4.8 | 5.08 | 6.1 | 1.3 | CB1V226M2ECB | 970-8596 |
| 33µF | 16.5 | 9.5 | 9.5 | 5.08 | 9.2 | 1 | CB1V336M2FCB | 186-9999 |
| 47µF | 8 | 5 | 4.8 | 5.08 | 10 | 0.8 | CB1V476M2FCB | 970-8600 |

**Order Multiple =5**

| 35 Volt d.c. | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.1µF | 970-8480● | | | | | |
| 0.15µF | NEW 186-9996● | | | | | |
| 0.22µF | 970-8499● | | | | | |
| 0.33µF | 970-8502● | | | | | |
| 0.47µF | 970-8510● | | | | | |
| 0.68µF | NEW 186-9997● | | | | | |
| 1µF | 970-8529● | | | | | |
| 1.5µF | NEW 186-9998● | | | | | |
| 2.2µF | 970-8537● | | | | | |
| 3.3µF | 970-8545● | | | | | |
| 4.7µF | 970-8553● | | | | | |
| 6.8µF | 970-8561● | | | | | |

**Order Multiple =5**

**35 Volt d.c.**

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10µF | **970-8570** | | | | | |
| 15µF | **970-8588** | | | | | |
| 22µF | **970-8596** | | | | | |
| 33µF | NEW **186-9999** | | | | | |
| 47µF | **970-8600** | | | | | |

| **50 Volt d.c.** | Dimensions H | W | D | Lead Pitch (mm) | DC Leakage Current (µA) | Impedance (Ω) @ 100kHz 20°C | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 0.1µF | 7 | 4.5 | 4.2 | 5.08 | 0.5 | 26 | CB1H104M2ACB | 187-0000 |
| 0.22µF | 7 | 4.5 | 4.2 | 5.08 | 0.5 | 17 | CB1H224N2ACB | 187-0001 |
| 0.33µF | 7 | 4.5 | 4.2 | 5.08 | 0.5 | 15 | CB1H334M2ACB | 187-0003 |
| 0.47µF | 7 | 4.5 | 4.2 | 5.08 | 0.5 | 13 | CB1H474M2ACB | 187-0004 |
| 0.68µF | 7 | 4.5 | 4.2 | 5.08 | 0.5 | 10 | CB1H684M2ACB | 187-0005 |
| 1µF | 8 | 5 | 4.7 | 5.08 | 0.5 | 8 | CB1H105M2BCB | 187-0006 |
| 1.5µF | 9.5 | 5.5 | 5.5 | 5.08 | 0.6 | 6 | CB1H155M2CCB | 187-0007 |
| 2.2µF | 9.5 | 5.5 | 5.5 | 5.08 | 0.8 | 3.5 | CB1H225M2CCB | 187-0008 |
| 3.3µF | 11 | 6.5 | 6.5 | 5.08 | 1.3 | 3 | CB1H335M2DCB | 187-0009 |
| 4.7µF | 11 | 6.5 | 6.5 | 5.08 | 1.8 | 2.5 | CB1H475M2DCB | 187-0010 |
| 6.8µF | 13 | 8.5 | 8.5 | 5.08 | 2.7 | 2 | CB1H685M2ECB | 187-0011 |
| 10µF | 13 | 8.5 | 8.5 | 5.08 | 4 | 1.6 | CB1H106M2ECB | 187-0012 |

240948

**50 Volt d.c.**

| | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|
| 0.1µF | NEW **187-0000** | | | | |
| 0.22µF | NEW **187-0001** | | | | |
| 0.33 | NEW **187-0003** | | | | |
| 0.47µF | NEW **187-0004** | | | | |
| 0.68µF | NEW **187-0005** | | | | |
| 1µF | NEW **187-0006** | | | | |
| 1.5µF | NEW **187-0007** | | | | |
| 2.2µF | NEW **187-0008** | | | | |
| 3.3µF | NEW **187-0009** | | | | |
| 4.7µF | NEW **187-0010** | | | | |
| 6.8µF | NEW **187-0011** | | | | |
| 10µF | NEW **187-0012** | | | | |

# Tantalum - Leaded - AVX

## TAP Series - Professional Resin Dipped



Operating temperature -55°C to +85°C at rated voltage and up to 125°C with appropriate voltage rating
Climatic category 55/125/56
Tolerance ± 20%

Lead dia.=0.5 mm
Lead pitch=5.0 mm

| Capacitance | Dimensions (mm) H | Dia. | DC Leakage Current (µA) | Impedance (Ω) @ 100kHz 20°C | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| **6.3 Volt d.c.** | | | | | | |
| 10 µF | 9 | 4.5 | 0.5 | 6 | TAP106M006CCS | 110-0451 |
| 22 µF | 10.5 | 5 | 1.1 | 3.7 | TAP226M006CCS | 110-0453 |
| 47 µF | 11.5 | 6 | 2.3 | 2 | TAP476M006CCS | 110-0454 |
| 100 µF | 12 | 7 | 5 | 1.6 | TAP107M006CCS | 110-0455 |
| **10 Volt d.c.** | | | | | | |
| 4.7 µF | 8.5 | 4.5 | 0.5 | 8 | TAP475M010CCS | 110-0456 |
| 10 µF | 10 | 5 | 0.8 | 5 | TAP106M010CCS | 110-0457 |
| 22 µF | 10.5 | 5.5 | 1.7 | 2.7 | TAP226M010CCS | 110-0458 |
| 33 µF | 11.5 | 6 | 2.6 | 2.1 | TAP336M010CCS | 110-0459 |
| 47 µF | 11.5 | 6.5 | 3.7 | 1.7 | TAP476M010CCS | 110-0460 |
| 68 µF | 12 | 7 | 5.4 | 1.3 | TAP686M010CCS | 110-0461 |
| 100 µF | 14 | 8.5 | 8 | 1 | TAP107M010CCS | 110-0462 |
| **16 Volt d.c.** | | | | | | |
| 2.2 µF | 8.5 | 4.5 | 0.5 | 8 | TAP225M016CCS | 110-0463 |
| 3.3 µF | 8.5 | 4.5 | 0.5 | 6 | TAP335M016CCS | 110-0465 |
| 4.7 µF | 9 | 4.5 | 0.6 | 5 | TAP475M016CCS | 110-0466 |
| 6.8 µF | 10 | 5 | 0.8 | 4 | TAP685M016CCS | 110-0467 |
| 10 µF | 10.5 | 5 | 1.2 | 3.2 | TAP106M016CCS | 110-0468 |
| 15 µF | 10.5 | 5.5 | 1.9 | 2.5 | TAP156M016CCS | 110-0469 |
| 22 µF | 11.5 | 6 | 1.7 | 2.7 | TAP226M016CCS | 110-0470 |
| 33 µF | 11.5 | 6 | 4.2 | 1.6 | TAP336M016CCS | 110-0471 |
| 47 µF | 13 | 8 | 6 | 1.3 | TAP476M016CCS | 110-0472 |
| 68 µF | 14 | 9 | 8.7 | 1 | TAP686M016CCS | 110-0473 |
| **25 Volt d.c.** | | | | | | |
| 2.2 µF | 8.5 | 4.5 | 0.5 | 6 | TAP225M025CCS | 110-0474 |
| 3.3 µF | 9 | 4.5 | 0.6 | 5 | TAP335M025CCS | 110-0475 |
| 4.7 µF | 10 | 5 | 0.9 | 4 | TAP475M025CCS | 110-0477 |
| 6.8 µF | 10.5 | 5 | 1.3 | 3.1 | TAP685M025CCS | 110-0478 |
| 10 µF | 10.5 | 5.5 | 2 | 2.5 | TAP106M025CCS | 110-0479 |
| 15 µF | 11.5 | 6 | 3 | 2 | TAP156M025CCS | 110-0480 |
| 22 µF | 12 | 7 | 4.4 | 1.5 | TAP226M025CCS | 110-0481 |
| 33 µF | 13 | 8 | 6.6 | 1.2 | TAP336M025CCS | 110-0482 |
| **35 Volt d.c. COG** | | | | | | |
| 0.1 µF | 8.5 | 4.5 | 0.5 | 8 | TAP104M035CCS | 110-0483 |
| 0.15 µF | 8.5 | 4.5 | 0.5 | 21 | TAP154M035CCS | 110-0484 |
| 0.22 µF | 8.5 | 4.5 | 0.5 | 17 | TAP224M035CCS | 110-0485 |
| 0.33 µF | 8.5 | 4.5 | 0.5 | 15 | TAP334M035CCS | 110-0486 |
| 0.47 µF | 8.5 | 4.5 | 0.5 | 13 | TAP474M035CCS | 110-0487 |
| 1 µF | 8.5 | 4.5 | 0.5 | 8 | TAP105M035CCS | 110-0489 |
| 1.5 µF | 8.5 | 4.5 | 0.5 | 6 | TAP155M035CCS | 110-0491 |
| 2.2 µF | 9 | 4.5 | 0.6 | 5 | TAP225M035CCS | 110-0492 |
| 3.3 µF | 10 | 5 | 0.9 | 4 | TAP335M035CCS | 110-0493 |
| 4.7 µF | 10.5 | 5.5 | 1.3 | 3 | TAP475M035CCS | 110-0494 |
| 6.8 µF | 11.5 | 6 | 1.9 | 2.5 | TAP685M035CCS | 110-0495 |
| 10 µF | 11.5 | 6 | 2.8 | 2 | TAP106M035CCS | 110-0496 |
| 15 µF | 12 | 7 | 4.2 | 1.6 | TAP156M035CCS | 110-0497 |

627433

**Order Multiple=5**

| Capacitance | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **6.3 Volt d.c.** | | | | | | |
| 10 µF | **110-0451** | | | | | |
| 22 µF | **110-0453** | | | | | |
| 47 µF | **110-0454** | | | | | |
| 100 µF | **110-0455** | | | | | |
| **10 Volt d.c.** | | | | | | |
| 4.7 µF | **110-0456** | | | | | |
| 10 µF | **110-0457** | | | | | |
| 22 µF | **110-0458** | | | | | |
| 33 µF | **110-0459** | | | | | |
| 47 µF | **110-0460** | | | | | |
| 68 µF | **110-0461** | | | | | |
| 100 µF | **110-0462** | | | | | |
| **16 Volt d.c.** | | | | | | |
| 2.2 µF | **110-0463** | | | | | |
| 3.3 µF | **110-0465** | | | | | |
| 4.7 µF | **110-0466** | | | | | |
| 6.8 µF | **110-0467** | | | | | |
| 10 µF | **110-0468** | | | | | |
| 15 µF | **110-0469** | | | | | |
| 22 µF | **110-0470** | | | | | |
| 33 µF | **110-0471** | | | | | |
| 47 µF | **110-0472** | | | | | |
| 68 µF | **110-0473** | | | | | |
| **25 Volt d.c.** | | | | | | |
| 2.2 µF | **110-0474** | | | | | |
| 3.3 µF | **110-0475** | | | | | |
| 4.7 µF | **110-0477** | | | | | |
| 6.8 µF | **110-0478** | | | | | |
| 10 µF | **110-0479** | | | | | |
| 15 µF | **110-0480** | | | | | |
| 22 µF | **110-0481** | | | | | |
| 33 µF | **110-0482** | | | | | |
| **35 Volt d.c. COG** | | | | | | |
| 0.1 µF | **110-0483** | | | | | |
| 0.15 µF | **110-0484** | | | | | |
| 0.22 µF | **110-0485** | | | | | |
| 0.33 µF | **110-0486** | | | | | |
| 0.47 µF | **110-0487** | | | | | |
| 1 µF | **110-0489** | | | | | |
| 1.5 µF | **110-0491** | | | | | |
| 2.2 µF | **110-0492** | | | | | |
| 3.3 µF | **110-0493** | | | | | |
| 4.7 µF | **110-0494** | | | | | |
| 6.8 µF | **110-0495** | | | | | |
| 10 µF | **110-0496** | | | | | |
| 15 µF | **110-0497** | | | | | |

## TAP – CECC Release



Operating temp. -55°C to +85°C at rated voltage and up to 125°C with appropriate voltage d.c. rating
Climatic category 55/125/56

Lead dia.=0.5, Lead pitch=5.0

These products are available to fully documented release, upon request

| **10 Volt d.c.** | Tolerance ±20% H | Dia | DC Leakage Current (µA) | Impedance (Ω) 100kHz 20°C | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 220µF | 17 | 10 | 17.6 | 0.6 | TAP220M010CCSY | 110-0545 |

**10 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 220µF | **110-0545** | | | | | |

| **16 Volt d.c.** | Tolerance ±10% H | Dia | DC Leakage Current (µA) | Impedance Ω 100kHz 20°C | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 10µF | 10.5 | 5.5 | 2 | 2 | TAP106K016CCSY | 110-0547 |
| 100µF | 16 | 9 | 12.8 | 0.8 | TAP107K016CCSY | 110-0549 |

**16 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10µF | **110-0547** | | | | | |
| 100µF | **110-0549** | | | | | |

| **16 Volt d.c.** | Tolerance ±20% H | Dia | DC Leakage Current (µA) | Impedance (Ω) 100kHz 20°C | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 10µF | 10.5 | 5 | 1.2 | 3.2 | TAP106M016CCSY | 110-0550 |

**16 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10µF | **110-0550** | | | | | |

| **25 Volt d.c.** | Tolerance ±10% H | Dia | DC Leakage Current (µA) | Impedance (Ω) 100kHz 20°C | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 10µF | 10.5 | 5.5 | 2 | 2.5 | TAP106K025CCSY | 110-0554 |

# Tantalum - Leaded - AVX - continued

## TAP – CECC Release - continued

**25 Volt d.c.**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| | | Price Each | | | | |
| 10µF | **110-0554**● | | | | | |

| 25 Volt d.c. | Tolerance ±20% H | Dia | DC Leakage Current (µA) | Impedance (Ω) 100kHz 20°C | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 2.2µF | 8.5 | 4.5 | 0.5 | 6 | TAP225M025CCSY | 110-0558 |
| 4.7 | 10 | 5 | 0.9 | 4 | TAP475M025CCSY | 663-451 |
| 10 | 12 | 7 | 4.4 | 1.5 | TAP106M025CCSY | 663-475 |
| 33µF | 13 | 8 | 6.6 | 1.2 | TAP336M025CCSY | 110-0560 |
| 47µF | 13 | 8 | 6 | 1.0 | TAP476M025CCSY | 110-0561 |

**25 Volt d.c.**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| | | Price Each | | | | |
| 2.2µF | **110-0558**● | | | | | |
| 4.7 | **663-451** | | | | | |
| 10 | **663-475** | | | | | |
| 33µF | **110-0560**● | | | | | |
| 47µF | **110-0561**● | | | | | |

| 35 Volt d.c. | Tolerance ±10% H | Dia | DC Leakage Current (µA) | Impedance (Ω) 100kHz 20°C | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 1µF | 8.5 | 4.5 | 0.5 | 8 | TAP105K035CCSY | 110-0562 |
| 4.7µF | 10.5 | 5.5 | 1.3 | 3 | TAP475K035CCSY | 110-0564 |
| 10µF | 11.5 | 6 | 2.8 | 2 | TAP106K035CCSY | 110-0565 |
| 22µF | 14 | 8.5 | 6.1 | 1.3 | TAP226K035CCSY | 110-0566 |
| 47µF | 16 | 9 | 10 | 0.8 | TAP476K035CCSY | 110-0568 |

**35 Volt d.c.**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| | | Price Each | | | | |
| 1µF | **110-0562**● | | | | | |
| 4.7µF | **110-0564**● | | | | | |
| 10µF | **110-0565**● | | | | | |
| 22µF | **110-0566**● | | | | | |
| 47µF | **110-0568**● | | | | | |

| 35 Volt d.c. | Tolerance ±20% H | Dia | DC Leakage Current (µA) | Impedance (Ω) 100kHz 20°C | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 0.1µF | 4.8 | 4.5 | 0.5 | 26 | TAP104M035CCSY | 110-0569 |
| 0.22µF | 8.5 | 4.5 | 0.5 | 17 | TAP224M035CCSY | 110-0570 |
| 1µF | 8.5 | 4.5 | 0.5 | 8 | TAP105M035CCSY | 110-0572 |
| 1.5 | 8.5 | 4.5 | 0.5 | 6 | TAP155M035CCSY | 669-192 |
| 2.2µF | 9 | 4.5 | 0.5 | 5 | TAP225M035CCSY | 110-0573 |
| 3.3 | 10 | 5 | 0.9 | 4 | TAP335M035CCSY | 669-210 |
| 4.7 | 10.5 | 5.5 | 1.3 | 3 | TAP475M035CCSY | 669-222 |
| 10µF | 11.5 | 6 | 2.8 | 2 | TAP106M035CCSY | 110-0574 |
| 22µF | 14 | 8.5 | 6.1 | 1.3 | TAP226M035CCSY | 110-0576 |
| 47µF | 16 | 9 | 10 | 0.8 | TAP476M035CCSY | 110-0578 |

**35 Volt d.c.**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| | | Price Each | | | | |
| 0.1µF | **110-0569**● | | | | | |
| 0.22µF | **110-0570**● | | | | | |
| 1µF | **110-0572**● | | | | | |
| 1.5 | **669-192** | | | | | |
| 2.2µF | **110-0573**● | | | | | |
| 3.3 | **669-210** | | | | | |
| 4.7 | **669-222** | | | | | |
| 10µF | **110-0574**● | | | | | |
| 22µF | **110-0576**● | | | | | |
| 47µF | **110-0578**● | | | | | |

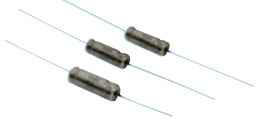
| 50 Volt d.c. | Tolerance ±20% H | Dia | DC Leakage Current (µA) | Impedance (Ω) 100kHz 20°C | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 1µF | 10 | 5 | 0.5 | 8 | TAP105M050CCSY | 110-0582 |
| 2.2µF | 10.5 | 5.5 | 0.8 | 3.5 | TAP225M050CCSY | 110-0583 |
| 4.7µF | 11.5 | 6.5 | 1.8 | 2.5 | TAP475M050CCSY | 110-0585 |
| 10µF | 13 | 8 | 4 | 1.6 | TAP106M050CCSY | 110-0586 |
| 22µF | 14 | 9 | 8.8 | 1 | TAP226M050CCSY | 110-0587 |

208536

**50 Volt d.c.**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| | | Price Each | | | | |
| 1µF | **110-0582**● | | | | | |
| 2.2µF | **110-0583**● | | | | | |
| 4.7µF | **110-0585**● | | | | | |
| 10µF | **110-0586**● | | | | | |
| 22µF | **110-0587**● | | | | | |

## TWA Series – Wet Electrolytic Tantalum



The TWA series is an axial leaded wet electrolytic tantalum capacitor and represents a new level of high CV (capacitance / voltage) previously unavailable in this technology.

Body Dia. = 10.31mm, W = 19.46mm
Lead Length = 57.15mm, Dia 0.64mm

Operating temperature -55°C to +125°C
Tolerance ± 10%

| Capacitance | DC Leakage Current (µA) | Impedance (Ω) @ 120Hz -55°C | ESR (Ω) @ 120Hz | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| **25V dc** | | | | | |
| 1200µF | 20 | 7 | 0.65 | TWAD128K025CBSZ0000 | 177-1754 |
| **30V dc** | | | | | |
| 1000µF | 25 | 7 | 0.7 | TWAD108K030CBSZ0000 | 177-1755 |
| **50V dc** | | | | | |
| 470µF | 25 | 10 | 0.75 | TWAD477K050CBSZ0000 | 177-1756 |
| **60V dc** | | | | | |
| 390µF | 25 | 15 | 0.9 | TWAD397K060CBSZ0000 | 177-1757 |
| **75V dc** | | | | | |
| 330µF | 30 | 12 | 1 | TWAD337K075CBSZ0000 | 177-1758 |
| **100V dc** | | | | | |
| 150µF | 25 | 22 | 1.6 | TWAD157K100CBSZ0000 | 177-1761 |
| **125V dc** | | | | | |
| 100µF | 25 | 35 | 1.8 | TWAD107K125CBSZ0000 | 177-1762 |

549281

| Order Code | 1+ | 5+ | 10+ | + | + |
|---|---|---|---|---|---|
| | Price Each | | | | |
| **All Values**● | | | | | |

## TWM Series

**Wet Tantalum Capacitors**

NEW



- Wet Tantalum Modules

Operating Temperature -55°C to +125°C
Tolerance ± 10%

| Capacitance | Voltage Rating (V) | Max ESR @ 120 Hz (Ω) | Mftrs List No. | Order Code |
|---|---|---|---|---|
| 6600µF | 25 | 0.17 | TW3E668K025CBSZ0S00 | 186-5014 |
| 3000µF | 30 | 0.33 | TW3E308K060CBSZ0S00 | 186-5015 |
| 450µF | 125 | 0.53 | TW3E457K125CBSZ0S00 | 186-5016 |

621743

| Capacitance | Voltage (V) | Mftrs. List No. | Order Code | 1+ | 3+ | 5+ |
|---|---|---|---|---|---|---|
| | | | | Price Each | | |
| 6600µF | 25 | TW3E668K025CBSZ0S00 | **186-5014**▲ | | | |
| 3000µF | 30 | TW3E308K060CBSZ0S00 | **186-5015**▲ | | | |
| 450µF | 125 | TW3E457K125CBSZ0S00 | **186-5016**▲ | | | |

# Tantalum - Leaded - Kemet

## T350 Series



Tolerance ±10% Lead Diameter 0.5mm

| 6.3 Volt d.c. | Dimensions H | Dia. | Lead Pitch | DC Leakage Current (µA) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 100µF | 10.2 | 7.6 | 2.54 | 4.8 | T350H107K006AT | 145-7594 |

**Order Multiple = 5**

**6.3 Volt d.c.**

| Order Code | 5+ | 50+ | 250+ | 500+ | 1K+ |
|---|---|---|---|---|---|
| | Price Each | | | | |
| 100µF **145-7594**● | | | | | |

| 10 Volt d.c. | Dimensions H | Dia. | Lead Pitch | DC Leakage Current (µA) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 10µF | 8.4 | 5.0 | 2.54 | 0.8 | T350C106K010AT | 145-7577 |
| 22µF | 8.9 | 5.5 | 2.54 | 1.8 | T350E226K010AT | 145-7584 |

**Order Multiple = 5**

**10 Volt d.c.**

| Order Code | 5+ | 50+ | 250+ | 500+ | 1K+ |
|---|---|---|---|---|---|
| | Price Each | | | | |
| 10µF **145-7577**● | | | | | |
| 22µF **145-7584**● | | | | | |
| **145-7588**● | | | | | |

| 16 Volt d.c. | Dimensions H | Dia. | Lead Pitch | DC Leakage Current (µA) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 2.2µF | 7.1 | 4.5 | 2.54 | 0.5 | T350A225K016AT | 145-7570 |
| 4.7µF | 7.6 | 4.5 | 2.54 | 0.6 | T350B475K016AT | 145-7576 |
| 22µF | 9.9 | 6.0 | 2.54 | 2.6 | T350F226K016AT | 145-7587 |
| 47µF | 12.7 | 8.4 | 5.08 | 5.6 | T350J476K016AT | 145-7599 |

**Order Multiple = 5**

**16 Volt d.c.**

| Order Code | 5+ | 50+ | 250+ | 500+ | 1K+ |
|---|---|---|---|---|---|
| | Price Each | | | | |
| 2.2µF **145-7570**● | | | | | |
| 4.7µF **145-7576**● | | | | | |
| 22µF **145-7587**● | | | | | |
| 47µF **145-7599**● | | | | | |

| 25 Volt d.c. | Dimensions H | Dia. | Lead Pitch | DC Leakage Current (µA) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 2.2µF | 7.6 | 4.5 | 2.54 | 0.5 | T350B225K025AT | 145-7575 |
| 4.7µF | 8.4 | 5.0 | 2.54 | 0.9 | T350C475K025AT | 145-7579 |
| 10µF | 8.9 | 5.5 | 2.54 | 2.0 | T350E106K025AT | 145-7582 |
| 15µF | 10.2 | 6.3 | 2.54 | 3.0 | T350G156K025AT | 145-7593 |
| 22µF | 10.2 | 7.6 | 2.54 | 4.4 | T350H226K025AT | 145-7595 |

**Order Multiple = 5**

**25 Volt d.c.**

| | Order Code | 5+ | 50+ | Price Each 250+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10µF | **145-7582** | | | | | |
| 15µF | **145-7593** | | | | | |
| 2.2µF | **145-7575** | | | | | |
| 22µF | **145-7595** | | | | | |
| 4.7µF | **145-7579** | | | | | |

| 35 Volt d.c. | Dimensions H | Dia. | Lead Pitch | DC Leakage Current (µA) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 0.1µF | 7.1 | 4.5 | 2.54 | 0.5 | T350A104K035AT | 145-7568 |
| 1µF | 7.1 | 4.5 | 2.54 | 0.5 | T350A105K035AT | 145-7569 |
| 2.2µF | 8.4 | 5.0 | 2.54 | 0.6 | T350C225K035AT | 145-7578 |
| 3.3µF | 8.6 | 5.0 | 2.54 | 0.9 | T350D335K035AT | 145-7581 |
| 4.7µF | 8.9 | 5.5 | 2.54 | 1.3 | T350E475K035AT | 145-7586 |
| 6.8µF | 9.9 | 6.0 | 2.54 | 1.9 | T350F685K035AT | 145-7590 |
| 10µF | 10.2 | 6.3 | 2.54 | 2.8 | T350G106K035AT | 145-7591 |
| 22µF | 13.5 | 8.9 | 5.08 | 6.2 | T350K226K035AT | 145-7600 |
| 33µF | 16.0 | 8.9 | 5.08 | 9.2 | T350L336K035AT | 145-7601 |

**Order Multiple = 5**

**35 Volt d.c.**

| | Order Code | 5+ | 50+ | Price Each 250+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.1µF | **145-7568** | | | | | |
| 1µF | **145-7569** | | | | | |
| 2.2µF | **145-7578** | | | | | |
| 3.3µF | **145-7581** | | | | | |
| 4.7µF | **145-7586** | | | | | |
| 6.8µF | **145-7590** | | | | | |
| 10µF | **145-7591** | | | | | |
| 22µF | **145-7600** | | | | | |
| 33µF | **145-7601** | | | | | |

| 50 Volt d.c. | Dimensions H | Dia. | Lead Pitch | DC Leakage Current (µA) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 1µF | 7.6 | 4.5 | 2.54 | 0.5 | T350B105K050AT | 145-7574 |

486856

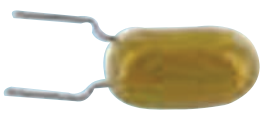
**Order Multiple = 5**

**50 Volt d.c.**

| | Order Code | 5+ | 50+ | Price Each 250+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1µF | **145-7574** | | | | | |

## T356 Series

KEMET



- Dipped Tantalum
- 5mm pitch

Tolerance ±10%

Lead dia. = 0.5mm, Lead pitch = 5.08mm

| 10 Volt d.c. | Dimensions H | Dia. | DC Leakage Current (µA) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 47µF | 11.9 | 7.6 | 3.8 | T356H476K010AT | 145-7622 |

**Order Multiple = 5**

**10 Volt d.c.**

| | Order Code | 5+ | 100+ | Price Each 250+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 47µF | **145-7622** | | | | | |

| 16 Volt d.c. | Dimensions H | Dia. | DC Leakage Current (µA) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 10µF | 10.2 | 5.5 | 1.3 | T356E106K016AT | 145-7612 |
| 22µF | 11.2 | 6 | 2.6 | T356F226K016AT | 145-7616 |
| 47µF | 14 | 8.4 | 5.6 | T356J476K016AT | 145-7623 |
| 100µF | 18.1 | 8.9 | 10 | T356L107K016AT | 145-7629 |

**Order Multiple = 5**

**16 Volt d.c.**

| | Order Code | 5+ | 100+ | Price Each 250+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10µF | **145-7612** | | | | | |
| 22µF | **145-7616** | | | | | |
| 47µF | **145-7623** | | | | | |
| 100µF | **145-7629** | | | | | |

| 25 Volt d.c. | Dimensions H | Dia. | DC Leakage Current (µA) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 4.7µF | 9.6 | 5 | 0.9 | T356C475K025AT | 145-7611 |
| 10µF | 10.2 | 5.5 | 2.0 | T356E106K025AT | 145-7613 |
| 22µF | 11.9 | 7.6 | 4.4 | T356H226K025AT | 145-7620 |
| 47µF | 15.5 | 8.9 | 9.4 | T356K476K025AT | 145-7626 |

**Order Multiple = 5**

**25 Volt d.c.**

| | Order Code | 5+ | 100+ | Price Each 250+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 4.7µF | **145-7611** | | | | | |
| 10µF | **145-7613** | | | | | |
| 22µF | **145-7620** | | | | | |
| 47µF | **145-7626** | | | | | |

| 35 Volt d.c. | Dimensions H | Dia. | DC Leakage Current (µA) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 0.1µF | 8.6 | 4.5 | 0.5 | T356A104K035AT | 145-7602 |
| 1µF | 8.6 | 4.5 | 0.5 | T356A105K035AT | 145-7604 |
| 2.2µF | 9.6 | 5 | 0.6 | T356C225K035AT | 145-7610 |
| 10µF | 11.4 | 6.3 | 2.8 | T356G106K035AT | 145-7618 |
| 22µF | 15.5 | 8.9 | 6.2 | T356K226K035AT | 145-7625 |
| 33µF | 18.1 | 8.9 | 9.2 | T356L336K035AT | 145-7631 |
| 47µF | 18.8 | 10.2 | 10 | T356M476K035AT | 145-7633 |

**Order Multiple = 5**

**35 Volt d.c.**

| | Order Code | 5+ | 100+ | Price Each 250+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.1µF | **145-7602** | | | | | |
| 1µF | **145-7604** | | | | | |
| 2.2µF | **145-7610** | | | | | |
| 10µF | **145-7618** | | | | | |
| 22µF | **145-7625** | | | | | |
| 33µF | **145-7631** | | | | | |
| 47µF | **145-7633** | | | | | |

| 50 Volt d.c. | Dimensions H | Dia. | DC Leakage Current (µA) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 10µF | 15.5 | 8.9 | 4.0 | T356K106K050AT | 145-7624 |

485043

**Order Multiple = 5**

**50 Volt d.c.**

| | Order Code | 5+ | 100+ | Price Each 250+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10µF | **145-7624** | | | | | |

# Tantalum - Leaded - Vishay

## 489D Series

VISHAY



- Large capacitance range
- Encapsulated in a hard orange epoxy resin
- Large variety of lead styles available
- Low impedance and ESR at high frequencies

Operating temperature -55°C to +85°C
Tolerance ± 20%

| Capacitance | Dimensions (mm) Height | Width | DC Leakage Current (µA) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| **Lead Spacing = 2.5mm / Lead Length = 20mm** | | | | | |
| **10V** | | | | | |
| 10µF | 7.5 | 4 | 0.5 | 489D106X0010B1VE3 | 175-3974 |
| **16V** | | | | | |
| 10µF | 8 | 4.5 | 2.4 | 489D106X0016C1VE3 | 175-3975 |
| 22µF | 9 | 5 | 5.2 | 489D226X0016D1VE3 | 175-3977 |
| **25V** | | | | | |
| 1µF | 7 | 3.7 | 1 | 489D105X0025A1VE3 | 175-3978 |
| 2.2µF | 7.5 | 4 | 1 | 489D225X0025B1VE3 | 175-3979 |
| 10µF | 9 | 5 | 3.7 | 489D106X0025D1VE3 | 175-3980 |
| **35V** | | | | | |
| 0.22µF | 7 | 3.7 | 1 | 489D224X0035A1VE3 | 175-3981 |
| 1µF | 7.5 | 4 | 1 | 489D105X0035B1VE3 | 175-3982 |
| 4.7µF | 9 | 5 | 2.4 | 489D475X0035D1VE3 | 175-3983 |
| 10µF | 11 | 6 | 5.2 | 489D106X0035F1VE3 | 175-3984 |
| **Lead Spacing = 5mm / Lead Length = 5.5mm** | | | | | |
| **10V** | | | | | |
| 10µF | 11.5 | 4 | 1.5 | 489D106X0010B6VE3 | 175-3985 |
| **16V** | | | | | |
| 10µF | 12 | 4.5 | 2.4 | 489D106X0016C6VE3 | 175-3986 |
| 22µF | 13 | 5 | 5.2 | 489D226X0016D6VE3 | 175-3987 |
| **25V** | | | | | |
| 1µF | 11 | 3.7 | 1 | 489D105X0025A6VE3 | 175-3989 |
| 2.2µF | 11.5 | 4 | 1 | 489D225X0025B6VE3 | 175-3991 |
| 10µF | 13 | 5 | 3.7 | 489D106X0025D6VE3 | 175-3992 |
| **35V** | | | | | |
| 0.22 | 11 | 3.7 | 1 | 489D224X0035A6VE3 | 175-3993 |
| 1µF | 11.5 | 4 | 1 | 489D105X0035B6VE3 | 175-3994 |
| 4.7µF | 13 | 5 | 2.4 | 489D475X0035D6VE3 | 175-3995 |
| 10µF | 15 | 6 | 5.2 | 489D106X0035F6VE3 | 175-3996 |

# Tantalum - Leaded - Vishay - continued

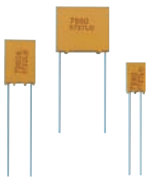
## 489D Series - continued

544659

**Order Multiple = 5**

| | Order Code | Price Each 5+ | 25+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| **Lead Spacing = 2.5mm / Lead Length = 20mm** | | | | | | |
| **10V** | | | | | | |
| 10µF | 175-3974● | | | | | |
| **16V** | | | | | | |
| 10µF | 175-3975● | | | | | |
| 22µF | 175-3977● | | | | | |
| **25V** | | | | | | |
| 1µF | 175-3978● | | | | | |
| 2.2µF | 175-3979● | | | | | |
| 10µF | 175-3980● | | | | | |
| **35V** | | | | | | |
| 0.22µF | 175-3981● | | | | | |
| 1µF | 175-3982● | | | | | |
| 4.7µF | 175-3983● | | | | | |
| 10µF | 175-3984● | | | | | |
| **Lead Spacing = 5mm / Lead Length = 5.5mm** | | | | | | |
| **10V** | | | | | | |
| 10µF | 175-3985● | | | | | |
| **16V** | | | | | | |
| 10µF | 175-3986● | | | | | |
| 22µF | 175-3987● | | | | | |
| **25V** | | | | | | |
| 1µF | 175-3989● | | | | | |
| 2.2µF | 175-3991● | | | | | |
| 10µF | 175-3992● | | | | | |
| **35V** | | | | | | |
| 0.22µF | 175-3993● | | | | | |
| 1µF | 175-3994● | | | | | |
| 4.7µF | 175-3995● | | | | | |
| 10µF | 175-3996● | | | | | |

## 790D Series



- Stand off on all case sizes
- Low leakage current
- Low impedance

Operating temperature -55°C to +125°C
Tolerance ± 10%
Lead Length 12mm

| | DC Leakage Current (µA) | Body Dimensions (mm) Height | Width | Depth | Lead Dimensions (mm) Spacing | Dia | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| **6.3V** | | | | | | | | |
| 150µF | 9.4 | 10.5 | 12.3 | 7.3 | 10.2 | 0.6 | 790D157X96R3C2BE3 | 175-4012 |
| **10V** | | | | | | | | |
| 100µF | 10 | 10.5 | 12.3 | 7.3 | 10.2 | 0.6 | 790D107X9010C2BE3 | 175-4015 |
| **16V** | | | | | | | | |
| 3.3µF | 1 | 7.3 | 4.7 | 4.2 | 2.54 | 0.5 | 790D335X9016A2BE3 | 175-4016 |
| 22µF | 3.5 | 10.5 | 7.3 | 4.8 | 5.08 | 0.5 | 790D226X9016B2BE3 | 175-4017 |
| 68µF | 10.8 | 10.5 | 12.3 | 7.3 | 10.2 | 0.6 | 790D686X9016C2BE3 | 175-4018 |
| **25V** | | | | | | | | |
| 10µF | 2.5 | 10.5 | 7.3 | 4.8 | 5.08 | 0.5 | 790D106X9025B2BE3 | 175-4020 |
| 22µF | 5.5 | 10.5 | 7.3 | 4.8 | 5.08 | 0.5 | 790D226X9025B2BE3 | 175-4021 |
| 33µF | 8.2 | 10.5 | 12.3 | 7.3 | 10.2 | 0.6 | 790D336X9025C2BE3 | 175-4022 |
| **40V** | | | | | | | | |
| 1µF | 1 | 7.3 | 4.7 | 4.2 | 2.54 | 0.5 | 790D105X9040A2BE3 | 175-4023 |
| 2.2µF | 1 | 10.5 | 7.3 | 4.8 | 5.08 | 0.5 | 790D225X9040B2BE3 | 175-4024 |
| 4.7µF | 1.8 | 10.5 | 7.3 | 4.8 | 5.08 | 0.5 | 790D475X9040B2BE3 | 175-4025 |
| 6.8µF | 2.7 | 10.5 | 7.3 | 4.8 | 5.08 | 0.5 | 790D685X9040B2BE3 | 175-4027 |
| 10µF | 4 | 10.5 | 12.3 | 7.3 | 10.2 | 0.6 | 790D106X9040C2BE3 | 175-4028 |
| 22µF | 8.8 | 10.5 | 12.3 | 7.3 | 10.2 | 0.6 | 790D226X9040C2BE3 | 175-4029 |

544665

| | Order Code | Price Each 1+ | 10+ | 100+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| **6.3V** | | | | | | |
| 150µF | 175-4012● | | | | | |
| **10V** | | | | | | |
| 100µF | 175-4015● | | | | | |
| **16V** | | | | | | |
| 3.3µF | 175-4016● | | | | | |
| 22µF | 175-4017● | | | | | |
| 68µF | 175-4018● | | | | | |

| | Order Code | Price Each 1+ | 10+ | 100+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| **25V** | | | | | | |
| 10µF | 175-4020● | | | | | |
| 22µF | 175-4021● | | | | | |
| 33µF | 175-4022● | | | | | |
| **40V** | | | | | | |
| 1µF | 175-4023● | | | | | |
| 2.2µF | 175-4024● | | | | | |
| 4.7µF | 175-4025● | | | | | |
| 6.8µF | 175-4027● | | | | | |
| 10µF | 175-4028● | | | | | |
| 22µF | 175-4029● | | | | | |

## CTS13 Series



- Solid tantalum capacitors in hermetically sealed cases
- High operational stability
- Low leakage current

Operating temperature -55°C to +55°C
Tolerance ±10%

| | L | Dia | Lead Dia | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| **10 Volt d.c.** | | | | | |
| 4.7µF | 10.2 | 3.8 | 0.5 | CTS13475X9010A2P | 118-7278 |
| 33µF | 15 | 5.1 | 0.5 | CTS13336X9010B2P | 118-7279 |
| **16 Volt d.c.** | | | | | |
| 3.3µF | 10.2 | 3.8 | 0.5 | CTS13335X9016A2P | 118-7282 |
| 22µF | 15 | 5.1 | 0.5 | CTS13226X9016B2P | 118-7285 |
| **20 Volt d.c.** | | | | | |
| 2.2µF | 10.2 | 3.8 | 0.5 | CTS13225X9020A2P | 118-7287 |
| 15µF | 15 | 5.1 | 0.5 | CTS13156X9020B2P | 118-7288 |
| 100µF | 24 | 9.3 | 0.6 | CTS13107X9020D2P | 118-7290 |
| **40 Volt d.c.** | | | | | |
| 1µF | 10.2 | 3.8 | 0.5 | CTS13105X9040A2P | 118-7292 |
| 2.2µF | 15 | 5.1 | 0.5 | CTS13225X9040B2P | 118-7294 |
| 6.8µF | 15 | 5.1 | 0.5 | CTS13685X9040B2P | 118-7298 |
| 10µF | 20.5 | 7.7 | 0.6 | CTS13106X9040C2P | 118-7299 |
| 22µF | 20.5 | 7.7 | 0.6 | CTS13226X9040C2P | 118-7300 |
| 47µF | 24 | 9.3 | 0.6 | CTS13476X9040D2P | 118-7301 |

208573

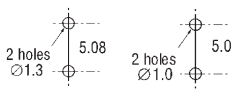
| | Order Code | Price Each 1+ | 25+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| **10 Volt d.c** | | | | | | |
| 4.7µF | 118-7278● | | | | | |
| 33µF | 118-7279● | | | | | |
| **16 Volt d.c** | | | | | | |
| 3.3µF | 118-7282● | | | | | |
| 22µF | 118-7285● | | | | | |
| **20 Volt d.c** | | | | | | |
| 2.2µF | 118-7287● | | | | | |
| 15µF | 118-7288● | | | | | |
| 100µF | 118-7290● | | | | | |
| **40 Volt d.c** | | | | | | |
| 1µF | 118-7292● | | | | | |
| 2.2µF | 118-7294● | | | | | |
| 6.8µF | 118-7298● | | | | | |
| 10µF | 118-7299● | | | | | |
| 22µF | 118-7300● | | | | | |
| 47µF | 118-7301● | | | | | |

# Trimmers

## Miniature Ceramic



H (above board)=6.0, Body dia=5.0,
W (max)=5.8




Drilling plan

- Ultra miniature ceramic trimmer capacitor
- 5mm Pitch

Insulation resistance MΩ
Operating temperature -20°C to +80°C

| Capacitance Min. | Max. | Temperature Coefficient ppm/°C | Q Min. @ 1MHz Max. | Voltage Rating V dc | Order Code |
|---|---|---|---|---|---|
| 1.5pF | 6pF | NPO ±250 | 300 | 200 | 121-9027 |
| 2.8pF | 12.5pF | N600 ±250 | 300 | 200 | 121-9028 |
| 3.5pF | 20pF | N750 ±300 | 300 | 200 | 121-9031 |
| 5pF | 30pF | N1500 ±300 | 300 | 200 | 121-9032 |
| 5.5pF | 50pF | N1500 ±500 | 300 | 200 | 121-9033 |

208608


RoHS ● Compliant ▲ Non-compliant

**Order Multiple=5**

| Capacitance Min. | Capacitance Max. | Colour Code | Order Code | Price Each 5+ | 100+ | 1K+ | 5K+ |
|---|---|---|---|---|---|---|---|
| 1.5pF | 6pF | Red | **121-9027** | | | | |
| 2.8pF | 12.5pF | Nil | **121-9028** | | | | |
| 3.5pF | 20pF | Blue | **121-9031** | | | | |
| 5pF | 30pF | Yellow | **121-9032** | | | | |
| 5.5pF | 50pF | Green | **121-9033** | | | | |

## High Power Capacitor



4.2(W)x5.2(L) x2.6max,4(H)mm

- To meet high power application due to withstanding voltage 550Vdc
- Extremely high self resonant frequency. (More than 3GHz at 1.5pF setting)
- High Q value in more than VHF,UHF and Micro wave band. (More than 200 in 500MHz, C max.)

**Applications:**

- High frequency electric circuit
- High power radio transmission
- Transmitting power amplifier for Cellular Base Station

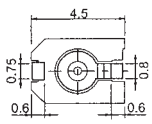
| Inductance (min) pF | Inductance (max) pF | Volts V | Mftrs. List No. | Order Code |
|---|---|---|---|---|
| 0.4 | 1.5 | 250 | TZW4Z1R5A001R00 | 111-5036 |

423318

| Order Code | Price Each 1+ | 25+ | 50+ | 250+ | 500+ |
|---|---|---|---|---|---|
| SMD **111-5036** | | | | | |

## TZCO3 Series – Surface Mount






- Low profile surface mount ceramic trimmer capacitor
- Compatible with both auto-placement and reflow soldering processes
- Colour coded for easy selection
- Easily adjusted using standard trimming tool

Operating temperature -25°C to +85°C

| Capacitance Min. | Capacitance Max. | Temperature Coefficient ppm/°C | Q Min. @ 1 MHz | Voltage Rating V dc | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 1.4pF | 3pF | NPO±300 | 300 | 100 | TZC3Z030A110B00 | 952-8687 |
| 2pF | 6pF | NPO±300 | 500 | 100 | TZC3Z060A110B00 | 952-8695 |
| 3pF | 10pF | NPO±300 | 500 | 100 | TZC3R100A110B00 | 952-8679 |
| 5pF | 20pF | NPO±500 | 300 | 100 | TZC3P200A110B00 | 952-8652 |
| 6pF | 30pF | NPO±500 | 300 | 100 | TZC3P300A110B00 | 952-8660 |

227186

**Order Multiple=5**

| Capacitance Min. | Capacitance Max. | Colour | Order Code | Price Each 5+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **1.4pF** | 3pF | Brown | SMD **952-8687** | | | | |
| **2pF** | 6pF | Blue | SMD **952-8695** | | | | |
| **3pF** | 10pF | White | SMD **952-8679** | | | | |
| **5pF** | 20pF | Red | SMD **952-8652** | | | | |
| **6pF** | 30pF | Green | SMD **952-8660** | | | | |

## TZB Series — Surface Mount



- Washable chip trimmer capacitor
- Thermosetting resin case

Operating temperature -25°C to +85°C

L=4.5, W=4.0, H=3.0
Supplied on 12mm embossed tape (reel=500 pcs)

| Capacitance Min. | Capacitance Max. | Temperature Coefficient ppm/°C | Q Min. @ 1MHz Max. | Voltage Rating V dc | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 1.4pF | 3pF | ±200 | 300 | 100 | TZB4Z030AB10R00 | 952-8610 |
| 2pF | 6pF | ±200 | 300 | 100 | TZB4Z060AB10R00 | 952-8628 |
| 3pF | 10pF | ±300 | 300 | 100 | TZB4Z100AB10R00 | 952-8636 |
| 4pF | 25pF | ±300 | 300 | 50 | TZB4Z250AB10R00 | 952-8644 |
| 4.5pF | 20pF | ±500 | 300 | 100 | TZB4R200AB10R00 | 176-0635 |
| 6.5pF | 30pF | ±500 | 300 | 100 | TZB4P300AB10R00 | 176-0636 |
| 8.5pF | 40pF | ±400 | 500 | 100 | TZB4P400AB10R00 | 176-0637 |
| 7pF | 50pF | ±500 | 300 | 100 | TZB4R500AB10R00 | 176-0638 |

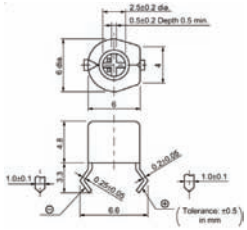
208441

**Order Multiple=5**

| Capacitance Min. | Capacitance Max. | Colour Code | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|---|
| 1.4pF | 3pF | Brown | SMD **952-8610** | | | | | |
| 2pF | 6pF | Blue | SMD **952-8628** | | | | | |
| 3pF | 10pF | White | SMD **952-8636** | | | | | |
| 4pF | 25pF | Black | SMD **952-8644** | | | | | |
| 4.5pF | 20pF | Green | SMD **176-0635** | | | | | |
| 6.5pF | 30pF | Green | SMD **176-0636** | | | | | |
| 8.5pF | 40pF | Red | SMD **176-0637** | | | | | |
| 7pF | 50pF | Yellow | SMD **176-0638** | | | | | |

## TZ03 Series – Miniature Ceramic






Tolerance 0%, +50% Q (min) 500 at 1MHz Cmax
Voltage Rating 100V (6pF to 50pF = 300 at 1MHz Cmax)

| Mftrs. List No. | | Order Code | Mftrs. List No. | | Order Code |
|---|---|---|---|---|---|
| TZ03Z050F169B00 | = | 168-5436 | TZ03R300F169B00 | = | 168-5439 |
| TZ03Z100F169B00 | = | 168-5437 | TZ03Z500F169B00 | = | 168-5440 |
| TZ03R200F169B00 | = | 168-5438 | | | |

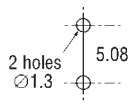
528630

**Order Multiple=**

| Range | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1.5pF to 5pF | **168-5436** | | | | | |
| 3pF to 10pF | **168-5437** | | | | | |
| 4.2pF to 20pF | **168-5438** | | | | | |
| 5.2pF to 30pF | **168-5439** | | | | | |
| 6pF to 50pF | **168-5440** | | | | | |

## BFC2 809 05 Series - PTFE Film






Drilling plan

H (above board)=11, W=7.4, D=6.7

Voltage rating 300V d.c. Climatic category **(IEC68)** 40/125/21
Q min @ 1MHz 300 Operating temperature -40°C to +125°C

**N.B.** Flux Guard treatment to prevent flux penetration.

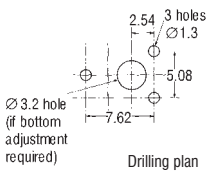
Mftrs. List No: BFC280905215 = 121-5713 BFC280905217 = 121-5714

208611

| Capacitance (pF) Min. | Max. | Colour Code | Order Code | Price Each 1+ | 100+ | 1K+ | 3K+ |
|---|---|---|---|---|---|---|---|
| 1 | 3.5 | Orange | **121-5713** | | | | |
| 2 | 18 | Red | **121-5714** | | | | |

## BFC 809 080 Series - PTFE Film






H (above board)=11, W=7.4, D=6.7

Drilling plan

Voltage rating 300V d.c. Climatic category **(IEC68)** 40/125/21
Q min @ 1MHz 300 Operating temperature -40°C to +125°C

Mftrs. List No: BFC280908002 = 121-5715 BFC280908003 = 121-5716

208612

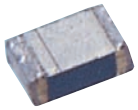
| Capacitance (pF) Min. | Max. | Colour Code | Order Code | Price Each 1+ | 100+ | 1K+ | 3K+ |
|---|---|---|---|---|---|---|---|
| 4BFC2809080024 | 40 | Yellow | **121-5715** | | | | |
| 5BFC2809080035 | 57 | Blue | **121-5716** | | | | |

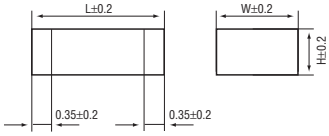
**The first online technical portal for design engineers**
Log on, research, refine and design

# Film - Plastic

## ECHU Series - Plastic Film Surface Mount

Panasonic






SMD

- Metallised polyphenylene sulphide film capacitors
- Stack construction
- Wide temperature range
- Capacitance tolerance options ±5% or ±2%

| | | | |
|---|---|---|---|
| Operating temperature | -55°C to +125°C | Withstand voltage | Rated voltage x 175% for 1-5s |
| Soldering | **Reflow only** | Dissipation factor | 0.6% max. @ 1kHz 20°C |
| Insulation resistance | 3000MΩ @ 50V dc | | |

| Capacitance | Dimensions H mm | W mm | L mm | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| **10 V d.c ±2%** | | | | | |
| 3300pF | 0.7 | 0.8 | 1.6 | ECHU01332GX5 | 174-4758 |
| 3900pF | 0.7 | 0.8 | 1.6 | ECHU01392GX5 | 174-4759 |
| 4700pF | 0.7 | 0.8 | 1.6 | ECHU01472GX5 | 174-4760 |
| 5600pF | 0.7 | 0.8 | 1.6 | ECHU01562GX5 | 174-4761 |
| **16 V d.c ±2%** | | | | | |
| 1000pF | 0.7 | 0.8 | 1.6 | ECHU1C102GX5 | 174-4762 |
| 1200pF | 0.7 | 0.8 | 1.6 | ECHU1C122GX5 | 174-4763 |
| 1500pF | 0.7 | 0.8 | 1.6 | ECHU1C152GX5 | 174-4764 |
| 1800pF | 0.7 | 0.8 | 1.6 | ECHU1C182GX5 | 174-4765 |
| 2200pF | 0.7 | 0.8 | 1.6 | ECHU1C222GX5 | 174-4766 |
| 2700pF | 0.7 | 0.8 | 1.6 | ECHU1C272GX5 | 174-4767 |
| **0805 Case Size** | | | | | |
| **16 V d.c ±2%** | | | | | |
| 3300pF | 0.9 | 1.25 | 2 | ECHU1C332GX5 | 969-4838 |
| 3900pF | 0.9 | 1.25 | 2 | ECHU1C392GX5 | 969-4846 |
| 4700pF | 0.9 | 1.25 | 2 | ECHU1C472GX5 | 969-4854 |
| 5600pF | 0.9 | 1.25 | 2 | ECHU1C562GX5 | 969-4862 |
| 6800pF | 0.9 | 1.25 | 2 | ECHU1C682GX5 | 969-4870 |
| 8200pF | 1.1 | 1.25 | 2 | ECHU1C822GX5 | 969-4889 |
| 0.01µF | 1.1 | 1.25 | 2 | ECHU1C103GX5 | 969-4897 |
| **16 V d.c ±5%** | | | | | |
| 0.01µF | 1.1 | 1.25 | 2 | ECHU1C103JX5 | 969-5028 |
| **50 V d.c ±2%** | | | | | |
| 100pF | 0.9 | 1.25 | 2 | ECHU1H101GX5 | 969-5125 |
| 120pF | 0.9 | 1.25 | 2 | ECHU1H121GX5 | 185-5032 |
| 150pF | 0.9 | 1.25 | 2 | ECHU1H151GX5 | 969-5133 |
| 180pF | 0.9 | 1.25 | 2 | ECHU1H181GX5 | 119-8329 |
| 220pF | 0.9 | 1.25 | 2 | ECHU1H221GX5 | 969-5141 |
| 270pF | 0.9 | 1.25 | 2 | ECHU1H271GX5 | 119-8330 |
| 330pF | 0.9 | 1.25 | 2 | ECHU1H331GX5 | 969-5150 |
| 390pF | 0.9 | 1.25 | 2 | ECHU1H391GX5 | 185-5033 |
| 470pF | 0.9 | 1.25 | 2 | ECHU1H471GX5 | 969-5168 |
| 560pF | 0.9 | 1.25 | 2 | ECHU1H561GX5 | 969-5176 |
| 680pF | 0.9 | 1.25 | 2 | ECHU1H681GX5 | 969-5184 |
| 820pF | 0.9 | 1.25 | 2 | ECHU1H821GX5 | 119-8332 |
| 1000pF | 0.9 | 1.25 | 2 | ECHU1H102GX5 | 969-5192 |
| 1200pF | 0.9 | 1.25 | 2 | ECHU1H122GX5 | 174-4778 |
| 1500pF | 0.9 | 1.25 | 2 | ECHU1H152GX5 | 969-5206 |
| 1800pF | 0.9 | 1.25 | 1.8 | ECHU1H182GX5 | 969-5214 |
| 2200pF | 0.9 | 1.25 | 2 | ECHU1H222GX5 | 969-5222 |
| 2700pF | 0.9 | 1.25 | 2 | ECHU1H272GX5 | 969-5230 |
| **50 V d.c ±5%** | | | | | |
| 100pF | 0.9 | 1.25 | 2 | ECHU1H101JX5 | 969-5249 |
| 120pF | 0.9 | 1.25 | 2 | ECHU1H121JX5 | 185-5034 |
| 150pF | 0.9 | 1.25 | 2 | ECHU1H151JX5 | 185-5035 |
| 180pF | 0.9 | 1.25 | 2 | ECHU1H181JX5 | 185-5036 |
| 270pF | 0.9 | 1.25 | 2 | ECHU1H271JX5 | 185-5038 |
| 390pF | 0.9 | 1.25 | 2 | ECHU1H391JX5 | 185-5039 |
| 470pF | 0.9 | 1.25 | 2 | ECHU1H471JX5 | 969-5257 |
| 560pF | 0.9 | 1.25 | 2 | ECHU1H561JX5 | 185-5040 |
| 680pF | 0.9 | 1.25 | 2 | ECHU1H681JX5 | 185-5041 |
| 820pF | 0.9 | 1.25 | 2 | ECHU1H821JX5 | 185-5042 |
| 1000pF | 0.9 | 1.25 | 2 | ECHU1H102JX5 | 969-5265 |
| 1200pF | 0.9 | 1.25 | 2 | ECHU1H122JX5 | 969-5273 |
| 1500pF | 0.9 | 1.25 | 2 | ECHU1H152JX5 | 185-5043 |
| 2200pF | 0.9 | 1.25 | 2 | ECHU1H222JX5 | 969-5290 |
| **1206 Case Size** | | | | | |
| **16 V d.c ±2%** | | | | | |
| 0.012µF | 0.9 | 1.6 | 3.2 | ECHU1C123GX5 | 119-8323 |
| 0.015µF | 0.9 | 1.6 | 3.2 | ECHU1C153GX5 | 969-4900 |
| 0.018µF | 0.9 | 1.6 | 3.2 | ECHU1C183GX5 | 174-4779 |
| 0.022µF | 0.9 | 1.6 | 3.2 | ECHU1C223GX5 | 969-4919 |
| 0.027µF | 1.1 | 1.6 | 3.2 | ECHU1C273GX5 | 969-4927 |
| 0.033µF | 1.1 | 1.6 | 3.2 | ECHU1C333GX5 | 969-4935 |
| 0.039µF | 1.5 | 1.6 | 3.2 | ECHU1C393GX5 | 969-4943 |
| 0.047µF | 1.5 | 1.6 | 3.2 | ECHU1C473GX5 | 969-4951 |
| **16 V d.c ±5%** | | | | | |
| 0.018µF | 0.9 | 1.6 | 3.2 | ECHU1C183JX5 | 969-5036 |
| 0.022µF | 0.9 | 1.6 | 3.2 | ECHU1C223JX5 | 969-5044 |
| 0.033µF | 1.1 | 1.6 | 3.2 | ECHU1C333JX5 | 969-5060 |
| 0.039µF | 1.5 | 1.6 | 3.2 | ECHU1C393JX5 | 969-5079 |
| 0.047µF | 1.5 | 1.6 | 3.2 | ECHU1C473JX5 | 969-5087 |
| **50 V d.c ±2%** | | | | | |
| 3300pF | 0.9 | 1.6 | 3.2 | ECHU1H332GX5 | 969-5303 |
| 3900pF | 0.9 | 1.6 | 3.2 | ECHU1H392GX5 | 969-5311 |
| 4700pF | 0.9 | 1.6 | 3.2 | ECHU1H472GX5 | 969-5320 |
| 5600pF | 0.9 | 1.6 | 3.2 | ECHU1H562GX5 | 969-5338 |
| 6800pF | 0.9 | 1.6 | 3.2 | ECHU1H682GX5 | 969-5346 |
| 8200pF | 1.1 | 1.6 | 3.2 | ECHU1H822GX5 | 969-5354 |
| 0.01µF | 1.1 | 1.6 | 3.2 | ECHU1H103GX5 | 969-5362 |
| **50 V d.c ±5%** | | | | | |
| 3300pF | 1.1 | 1.6 | 3.2 | ECHU1H332JX5 | 185-5044 |
| 3900pF | 1.1 | 1.6 | 3.2 | ECHU1H392JX5 | 185-5045 |
| 4700pF | 1.1 | 1.6 | 3.2 | ECHU1H472JX5 | 185-5046 |
| 5600pF | 1.1 | 1.6 | 3.2 | ECHU1H562JX5 | 185-5047 |
| 6800pF | 1.1 | 1.6 | 3.2 | ECHU1H682JX5 | 185-5048 |
| 8200pF | 1.1 | 1.6 | 3.2 | ECHU1H822JX5 | 185-5051 |
| 0.01µF | 1.1 | 1.6 | 3.2 | ECHU1H103JX5 | 969-5389 |
| **1210 Case Size** | | | | | |
| **16 V d.c ±2%** | | | | | |
| 0.056µF | 1.5 | 2.5 | 3.2 | ECHU1C563GX5 | 969-4960 |
| 0.068µF | 1.5 | 2.5 | 3.2 | ECHU1C683GX5 | 969-4986 |
| 0.082µF | 2.1 | 2.5 | 3.2 | ECHU1C823GX5 | 969-4994 |
| 0.1µF | 2.1 | 2.5 | 3.2 | ECHU1C104GX5 | 969-5001 |
| **16 V d.c ±5%** | | | | | |
| 0.1µF | 1.5 | 2.5 | 3.2 | ECHU1C104JX5 | 969-5117 |
| **50 V d.c ±2%** | | | | | |
| 0.012µF | 1.1 | 2.5 | 3.2 | ECHU1H123GX5 | 174-4780 |
| 0.015µF | 1.1 | 2.5 | 3.2 | ECHU1H153GX5 | 969-5397 |
| 0.018µF | 1.5 | 2.5 | 3.2 | ECHU1H183GX5 | 174-4782 |
| 0.022µF | 1.5 | 2.5 | 3.2 | ECHU1H223GX5 | 969-5400 |
| 0.027µF | 1.5 | 2.5 | 3.2 | ECHU1H273GX5 | 969-5419 |
| 0.033µF | 2.1 | 2.5 | 3.2 | ECHU1H333GX5 | 969-5427 |
| 0.039 | 2.1 | 2.5 | 3.2 | ECHU1H393GX5 | 174-4783 |
| **50 V d.c ±5%** | | | | | |
| 0.012µF | 1.1 | 2.5 | 3.2 | ECHU1H123JX5 | 185-5052 |
| 0.015µF | 1.1 | 2.5 | 3.2 | ECHU1H153JX5 | 119-8346 |
| 0.018µF | 1.1 | 2.5 | 3.2 | ECHU1H183JX5 | 185-5053 |
| 0.022µF | 1.5 | 2.5 | 3.2 | ECHU1H223JX5 | 969-5443 |
| 0.033µF | 1.1 | 2.5 | 3.2 | ECHU1H333JX5 | 185-5054 |
| 0.039µF | 2.1 | 2.5 | 3.2 | ECHU1H393JX5 | 969-5478 |
| **1913 Case Size** | | | | | |
| **50 V d.c ±5%** | | | | | |
| 0.047µF | 1.5 | 3.3 | 4.8 | ECHU1H473JX9 | 185-5055 |
| 0.056µF | 1.5 | 3.3 | 4.8 | ECHU1H563JX9 | 185-5056 |
| 0.068µF | 1.5 | 3.3 | 4.8 | ECHU1H683JX9 | 185-5057 |
| 0.082µF | 1.5 | 3.3 | 4.8 | ECHU1H823JX9 | 185-5058 |
| 0.1µF | 2.1 | 3.3 | 4.8 | ECHU1H104JX9 | 185-5059 |
| **2416 Case Size** | | | | | |
| **50 V d.c ±5%** | | | | | |
| 0.12µF | 2.8 | 4.1 | 6 | ECHU1H124JX9 | 185-5060 |
| 0.15µF | 2.8 | 4.1 | 6 | ECHU1H154JX9 | 185-5061 |
| 0.18µF | 2.8 | 4.1 | 6 | ECHU1H184JX9 | 185-5063 |
| 0.22µF | 2.8 | 4.1 | 6 | ECHU1H224JX9 | 185-5064 |

234312

| Order Code | | | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **10 Volt d.c.±2%** | | | | | | | |
| 3300pF | SMD | 174-4758 ● | | | | | |
| 3900pF | SMD | 174-4759 ● | | | | | |
| 4700pF | SMD | 174-4760 ● | | | | | |
| 5600pF | SMD | 174-4761 ● | | | | | |
| **16 Volt d.c.±5%** | | | | | | | |
| 0.01µF | SMD | 969-5028 ● RL | | | | | |
| 0.018µF | SMD | 969-5036 ● RL | | | | | |
| 0.022µF | SMD | 969-5044 ● RL | | | | | |
| 0.033µF | SMD | 969-5060 ● | | | | | |
| 0.039µF | SMD | 969-5079 ● RL | | | | | |
| 0.047µF | SMD | 969-5087 ● RL | | | | | |
| 0.1µF | SMD | 969-5117 ● RL | | | | | |
| **16 Volt d.c.±2%** | | | | | | | |
| 1000pF | SMD | 174-4762 ● | | | | | |
| 1200pF | SMD | 174-4763 ● | | | | | |
| 1500pF | SMD | 174-4764 ● | | | | | |
| 1800pF | SMD | 174-4765 ● | | | | | |
| 2200pF | SMD | 174-4766 ● | | | | | |
| 2700pF | SMD | 174-4767 ● | | | | | |
| 3300pF | SMD | 969-4838 ● RL | | | | | |
| 3900pF | SMD | 969-4846 ● RL | | | | | |
| 4700pF | SMD | 969-4854 ● RL | | | | | |
| 5600pF | SMD | 969-4862 ● RL | | | | | |
| 6800pF | SMD | 969-4870 ● RL | | | | | |
| 8200pF | SMD | 969-4889 ● RL | | | | | |
| 0.01µF | SMD | 969-4897 ● RL | | | | | |
| 0.012µF | SMD | 119-8323 ● RL | | | | | |
| 0.015µF | SMD | 969-4900 ● RL | | | | | |
| 0.018µF | SMD | 174-4779 ● | | | | | |
| 0.022µF | SMD | 969-4919 ● RL | | | | | |
| 0.027µF | SMD | 969-4927 ● RL | | | | | |
| 0.033µF | SMD | 969-4935 ● RL | | | | | |
| 0.039µF | SMD | 969-4943 ● RL | | | | | |
| 0.047µF | SMD | 969-4951 ● RL | | | | | |
| 0.056µF | SMD | 969-4960 ● RL | | | | | |
| 0.068µF | SMD | 969-4986 ● RL | | | | | |
| 0.082µF | SMD | 969-4994 ● RL | | | | | |
| 0.1µF | SMD | 969-5001 ● RL | | | | | |
| **50 Volt d.c.±5%** | | | | | | | |
| 100pF | SMD | 969-5249 ● RL | | | | | |
| 120pF | | 185-5034 ● | | | | | |
| 150pF | | 185-5035 ● | | | | | |
| 180pF | | 185-5036 ● | | | | | |



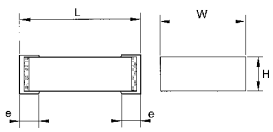
RoHS ● Compliant ▲ Non-compliant

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **50 Volt d.c.±5%** | | | | | | |
| 220pF | SMD 119-8333 RL | | | | | |
| 270pF | 185-5038 | | | | | |
| 390pF | 185-5039 | | | | | |
| 470pF | SMD 969-5257 RL | | | | | |
| 560pF | 185-5040 | | | | | |
| 680pF | 185-5041 | | | | | |
| 820pF | 185-5042 | | | | | |
| 1000pF | SMD 969-5265 RL | | | | | |
| 1200pF | SMD 969-5273 RL | | | | | |
| 1500pF | 185-5043 | | | | | |
| 2200pF | SMD 969-5290 RL | | | | | |
| 3300pF | 185-5044 | | | | | |
| 3900pF | 185-5045 | | | | | |
| 4700pF | 185-5046 | | | | | |
| 5600pF | 185-5047 | | | | | |
| 6800pF | 185-5048 | | | | | |
| 8200pF | 185-5051 | | | | | |
| 0.01μF | SMD 969-5389 RL | | | | | |
| 0.012μF | 185-5052 | | | | | |
| 0.015μF | SMD 119-8346 | | | | | |
| 0.018μF | 185-5053 | | | | | |
| 0.022μF | SMD 969-5443 RL | | | | | |
| 0.033μF | 185-5054 | | | | | |
| 0.039μF | SMD 969-5478 RL | | | | | |
| 0.047μF | 185-5055 | | | | | |
| 0.056μF | 185-5056 | | | | | |
| 0.068μF | 185-5057 | | | | | |
| 0.082μF | 185-5058 | | | | | |
| 0.1μF | 185-5059 | | | | | |
| 0.12μF | 185-5060 | | | | | |
| 0.15μF | 185-5061 | | | | | |
| 0.18μF | 185-5063 | | | | | |
| 0.22μF | 185-5064 | | | | | |
| **50 Volt d.c.±2%** | | | | | | |
| 100pF | SMD 969-5125 RL | | | | | |
| 120pF | 185-5032 | | | | | |
| 150pF | SMD 969-5133 RL | | | | | |
| 180pF | SMD 119-8329 RL | | | | | |
| 220pF | SMD 969-5141 RL | | | | | |
| 270pF | SMD 119-8330 RL | | | | | |
| 330pF | SMD 969-5150 RL | | | | | |
| 390pF | 185-5033 | | | | | |
| 470pF | SMD 969-5168 RL | | | | | |
| 560pF | SMD 969-5176 RL | | | | | |
| 680pF | SMD 969-5184 RL | | | | | |
| 820pF | SMD 119-8332 RL | | | | | |
| 1000pF | SMD 969-5192 RL | | | | | |
| 1200pF | SMD 174-4778 | | | | | |
| 1500pF | SMD 969-5206 RL | | | | | |
| 1800pF | SMD 969-5214 RL | | | | | |
| 2200pF | SMD 969-5222 RL | | | | | |
| 2700pF | SMD 969-5230 RL | | | | | |
| 3300pF | SMD 969-5303 RL | | | | | |
| 3900pF | SMD 969-5311 RL | | | | | |
| 4700pF | SMD 969-5320 RL | | | | | |
| 5600pF | SMD 969-5338 RL | | | | | |
| 6800pF | SMD 969-5346 RL | | | | | |
| 8200pF | SMD 969-5354 RL | | | | | |
| 0.01μF | SMD 969-5362 RL | | | | | |
| 0.012μF | SMD 174-4780 | | | | | |
| 0.015μF | SMD 969-5397 RL | | | | | |
| 0.018μF | SMD 174-4782 | | | | | |
| 0.022μF | SMD 969-5400 RL | | | | | |
| 0.027μF | SMD 969-5419 RL | | | | | |
| 0.033μF | SMD 969-5427 RL | | | | | |
| 0.039μF | SMD 174-4783 | | | | | |

## ECPU Series - Plastic Film Surface Mount - 16 Volt d.c.

Panasonic






SMD

Supplied on 8mm embossed tape.
Reel= 3k pcs, C≤0.33μF
2k pcs, C≤0.33μF

- Submicron film surface mount capacitors
- Stacked film construction
- High capacitance per unit volume
- Low ESR
- Non-polarised
- Tantalum alternative for noise suppression and coupling

| | | | |
|---|---|---|---|
| Operating temperature | -40°C to +85°C | Insulation resistance @ 10Vdc | C≤0.33μF, 1000MΩ |
| Capacitance tolerance | ±20% | | C≤0.33μF, 300MΩ x μF |
| Rated voltage | 16 Volt d.cV | Withstand voltage | Rated voltage x 175% for 1-5s |
| Soldering | Reflow | Dissipation factor | 1.5% max. @ 1kHz 20°C |

| | Dimensions L | W | H | e | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.1μF | 2 | 1.25 | 1 | 0.45 | T(0805) | ECPU1C104MA5 | 969-4250 |
| 0.15μF | 3.2 | 1.6 | 0.8 | 0.65 | A(1206) | ECPU1C154MA5 | 969-4269 |
| 0.22μF | 3.2 | 1.6 | 0.8 | 0.65 | A(1206) | ECPU1C224MA5 | 969-4277 |
| 0.33μF | 3.2 | 1.6 | 1 | 0.65 | A(1206) | ECPU1C334MA5 | 969-4285 |
| 0.47μF | 3.2 | 1.6 | 1.4 | 0.65 | A(1206) | ECPU1C474MA5 | 969-4293 |
| 0.68μF | 3.2 | 1.6 | 1.4 | 0.65 | A(1206) | ECPU1C684MA5 | 969-4307 |
| 1μF | 3.2 | 2.5 | 1.4 | 0.65 | B(1210) | ECPU1C105MA5 | 969-4315 |

218779

**Order Multiple=5**

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.1μF | SMD 969-4250 RL | | | | | |
| 0.15μF | SMD 969-4269 RL | | | | | |
| 0.22μF | SMD 969-4277 RL | | | | | |
| 0.33μF | SMD 969-4285 RL | | | | | |
| 0.47μF | SMD 969-4293 RL | | | | | |
| 0.68μF | SMD 969-4307 RL | | | | | |
| 1μF | SMD 969-4315 RL | | | | | |

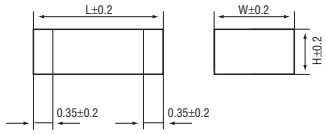
**Capacitance Conversion Table**

| | | | | |
|---|---|---|---|---|
| 0.000001μF | = | 0.001nF | = | 1pF |
| 0.00001μF | = | 0.01nF | = | 10pF |
| 0.0001μF | = | 0.1nF | = | 100pF |
| 0.001μF | = | 1nF | = | 1000pF |
| 0.01μF | = | 10nF | = | 10000pF |
| 0.1μF | = | 100nF | = | 100000pF |
| 1μF | = | 1000nF | = | 1000000pF |
| 10μF | = | 10000nF | = | 10000000pF |
| 100μF | = | 100000nF | = | 100000000pF |

## ECWU Series - Plastic Film Surface Mount

Panasonic






SMD

- Polyethylene film surface mount capacitors
- Stacked film construction
- Small physical size
- Suitable for reflow soldering
- General purpose, coupling and by-pass applications

| | |
|---|---|
| Operating temperature for parts ending C9,CV and JV | -55°C to +125°C |
| Operating temperature for parts ending V16 | -55°C to +85°C |
| Soldering | Reflow |
| Insulation resistance | 3000MΩ |
| Withstand voltage | Rated voltage x 150% for 1-5s |
| Dissipation factor | 1% max. @ 1kHz 20°C |

| Capacitance | Dimensions H | W | L | Tolerance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| **100V DC** | | | | | | |
| 0.012μF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU1123JC9 | 209-9808 |
| 0.012μF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU1123JC9 | 209-9808 |
| 0.015μF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU1153JC9 | 209-9812 |
| 0.018μF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU1183JC9 | 209-9814 |
| 0.022μF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU1223JC9 | 209-9816 |
| 0.027μF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU1273JC9 | 209-9818 |
| 0.033μF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU1333JC9 | 209-9820 |
| 0.039μF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU1393JC9 | 209-9823 |
| 0.047μF | 2 | 3.3 | 4.8 | ± 5% | ECWU1473JC9 | 209-9825 |
| 0.056μF | 2 | 3.3 | 4.8 | ± 5% | ECWU1563JC9 | 209-9826 |
| 0.068μF | 2.4 | 3.3 | 4.8 | ± 5% | ECWU1683JC9 | 209-9828 |
| 0.082μF | 2.8 | 3.3 | 4.8 | ± 5% | ECWU1823JC9 | 209-9830 |
| 0.1μF | 1.8 | 4.1 | 6 | ± 5% | ECWU1104JC9 | 209-9807 |
| 0.12μF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU1124JC9 | 209-9811 |
| 0.15μF | 2.8 | 4.1 | 6 | ± 5% | ECWU1154JC9 | 209-9813 |
| 0.18μF | 2 | 5 | 7.1 | ± 10% | ECWU1184KC9 | 209-9815 |
| 0.22μF | 2.4 | 5 | 7.1 | ± 10% | ECWU1224KC9 | 209-9817 |
| 0.27μF | 2.9 | 5 | 7.1 | ± 10% | ECWU1274KC9.. | 119-8354 |
| 0.27μF | 2.9 | 5 | 7.1 | ± 10% | ECWU1274KC9 | 209-9819 |
| 0.33μF | 3.5 | 5 | 7.1 | ± 10% | ECWU1334KC9 | 209-9821 |
| 0.39μF | 3.4 | 5.5 | 7.7 | ± 10% | ECWU1394KCV | 209-9824 |
| 0.47μF | 4 | 5.5 | 7.7 | ± 10% | ECWU1474KCV | 119-8355 |
| 0.56μF | 3 | 6.3 | 9.8 | ± 10% | ECWU1564KCV | 209-9827 |
| 0.68μF | 3.6 | 6.3 | 9.8 | ± 10% | ECWU1684KCV | 209-9829 |
| 0.82μF | 4.3 | 6.3 | 9.8 | ± 10% | ECWU1824KCV | 209-9831 |
| 1μF | 5.1 | 6.3 | 9.8 | ± 10% | ECWU1105KCV | 119-8356 |
| **250V DC** | | | | | | |
| 1000pF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU2102V16 | 174-4839 |
| 1000pF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU2102V16 | 174-4839 |
| 1000pF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU2102JC9 | 209-9832 |
| 1200pF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU2122V16 | 174-4840 |
| 1200pF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU2122JC9 | 209-9836 |
| 1500pF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU2152V16 | 174-4841 |
| 1500pF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU2152JC9 | 209-9839 |
| 1800pF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU2182V16 | 174-4842 |

# Film - Plastic - continued

## ECWU Series - Plastic Film Surface Mount - continued

| Capacitance | Dimensions H | W | L | Tolerance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| **250V DC** | | | | | | |
| 1800pF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU2182JC9 | 209-9841 |
| 2200pF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU2222V16 | 174-4843 |
| 2200pF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU2222JC9 | 209-9843 |
| 2700pF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU2272V16 | 174-4844 |
| 2700pF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU2272JC9 | 209-9845 |
| 3300pF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU2332V16 | 174-4845 |
| 3300pF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU2332JC9 | 209-9848 |
| 3900pF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU2392V16 | 174-4846 |
| 3900pF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU2392JC9 | 209-9850 |
| 4700pF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU2472V16 | 174-4848 |
| 4700pF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU2472JC9 | 209-9852 |
| 5600pF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU2562V16 | 174-4849 |
| 5600pF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU2562JC9 | 209-9854 |
| 6800pF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU2682JC9 | 209-9856 |
| 6800pF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU2682V16 | 174-4850 |
| 8200pF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU2822JC9 | 209-9859 |
| 8200pF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU2822V16 | 174-4851 |
| 0.01μF | 1.4 | 3.3 | 4.8 | ± 10% | ECWU2103KC9 | 119-8357 |
| 0.01μF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU2103JC9 | 209-9833 |
| 0.01μF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU2103V16 | 174-4852 |
| 0.012μF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU2123JC9 | 209-9837 |
| 0.012μF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU2123V16 | 174-4853 |
| 0.015μF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU2153JC9 | 209-9840 |
| 0.015μF | 1.4 | 3.3 | 4.8 | ± 5% | ECWU2153V16 | 174-4854 |
| 0.018μF | 2 | 3.3 | 4.8 | ± 5% | ECWU2183JC9 | 209-9842 |
| 0.018μF | 2 | 3.3 | 4.8 | ± 5% | ECWU2183V16 | 174-4855 |
| 0.022μF | 2 | 3.3 | 4.8 | ± 5% | ECWU2223JC9 | 209-9844 |
| 0.022μF | 2 | 3.3 | 4.8 | ± 5% | ECWU2223V16 | 174-4856 |
| 0.027μF | 2.4 | 3.3 | 4.8 | ± 5% | ECWU2273JC9 | 209-9847 |
| 0.027μF | 2.4 | 3.3 | 4.8 | ± 5% | ECWU2273V16 | 174-4857 |
| 0.033μF | 2.8 | 3.3 | 4.8 | ± 5% | ECWU2333JC9 | 209-9849 |
| 0.033μF | 2.8 | 3.3 | 4.8 | ± 5% | ECWU2333V16 | 174-4858 |
| 0.039μF | 2 | 4.1 | 6 | ± 5% | ECWU2393JC9 | 209-9851 |
| 0.039μF | 2 | 4.1 | 6 | ± 5% | ECWU2393V16 | 174-4861 |
| 0.047μF | 2.4 | 4.1 | 4 | ± 5% | ECWU2473JC9 | 209-9853 |
| 0.047μF | 2.4 | 4.1 | 6 | ± 5% | ECWU2473V16 | 174-4862 |
| 0.056μF | 2.8 | 4.1 | 6 | ± 5% | ECWU2563JC9 | 209-9855 |
| 0.056μF | 2.8 | 4.1 | 6 | ± 5% | ECWU2563V16 | 174-4863 |
| 0.068μF | 3.2 | 4.1 | 6 | ± 5% | ECWU2683JC9 | 209-9857 |
| 0.068μF | 3.2 | 4.1 | 6 | ± 5% | ECWU2683V16 | 174-4864 |
| 0.082μF | 3.2 | 5 | 6 | ± 5% | ECWU2823JC9 | 209-9861 |
| 0.082μF | 3.2 | 5 | 6 | ± 5% | ECWU2823V16 | 174-4865 |
| 0.1μF | 3.2 | 5 | 6 | ± 10% | ECWU2104KC9 | 119-8358 |
| 0.1μF | 3.8 | 5 | 6 | ± 5% | ECWU2104JC9 | 209-9835 |
| 0.1μF | 3.8 | 5 | 6 | ± 5% | ECWU2104V16 | 174-4866 |
| 0.12μF | 4.5 | 5 | 6 | ± 5% | ECWU2124JC9 | 209-9838 |
| 0.12μF | 4.5 | 5 | 6 | ± 5% | ECWU2124V16 | 174-4867 |
| 1μF | 4.2 | 10 | 15.2 | ± 10% | ECWU2105KCZ | 119-8359 |
| **630V DC** | | | | | | |
| 0.022μF | 3.6 | 6.3 | 7.1 | ± 5% | ECWUC2J223JV | 209-9862 |
| 0.027μF | 4.1 | 6.3 | 7.1 | ± 5% | ECWUC2J273JV | 209-9863 |
| 0.033μF | 5.1 | 6.3 | 7.1 | ± 5% | ECWUC2J333JV | 209-9864 |

234313

| Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 2K+ |
|---|---|---|---|---|---|
| **All Values** | | | | | |

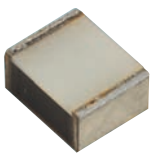
**FREE Re-reeling service.** Only buy what you need and improve assembly efficiency. For more information visit **local website**

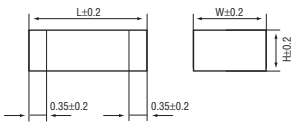
## ECWU Series - Plastic Film Surface Mount

Panasonic

NEW

JX5 Series






SMD

- Polyethylene film surface mount capacitors
- Stacked film construction
- Small physical size
- Suitable for reflow soldering
- General purpose, coupling and by-pass applications

| | |
|---|---|
| Operating temperature Range | -55°C to +105°C |
| Soldering | Reflow |
| Insulation resistance | 3000MΩ |
| Withstand voltage | Rated voltage x 150% for 60s |
| Dissipation factor | 1% max. @ 1kHz 20°C |

| Capacitance | Dimensions H | W | L | Tolerance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| **100V DC** | | | | | | |
| 1000pF | 1.1 | 1.6 | 3.2 | ± 5% | ECWU1102JX5 | 209-9865 |
| 1200pF | 1.1 | 1.6 | 3.2 | ± 5% | ECWU1122JX5 | 209-9867 |
| 1500pF | 1.1 | 1.6 | 3.2 | ± 5% | ECWU1152JX5 | 209-9868 |
| 1800pF | 1.1 | 1.6 | 3.2 | ± 5% | ECWU1182JX5 | 209-9869 |
| 2200pF | 1.1 | 1.6 | 3.2 | ± 5% | ECWU1222JX5 | 209-9870 |
| 2700pF | 1.1 | 1.6 | 3.2 | ± 5% | ECWU1272JX5 | 209-9872 |
| 3300pF | 1.5 | 1.6 | 3.2 | ± 5% | ECWU1332JX5 | 209-9873 |
| 3900pF | 1.5 | 1.6 | 3.2 | ± 5% | ECWU1392JX5 | 209-9874 |
| 4700pF | 1.5 | 1.6 | 3.2 | ± 5% | ECWU1472JX5 | 209-9875 |
| 5600pF | 1.5 | 2.5 | 3.2 | ± 5% | ECWU1562JX5 | 209-9876 |
| 6800pF | 1.5 | 2.5 | 3.2 | ± 5% | ECWU1682JX5 | 209-9877 |
| 8200pF | 2.1 | 2.5 | 3.2 | ± 5% | ECWU1822JX5 | 209-9878 |
| 0.01μF | 2.1 | 2.5 | 3.2 | ± 5% | ECWU1103JX5 | 209-9866 |

656194

| Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 3K+ |
|---|---|---|---|---|---|
| **All Values** | | | | | |

## ECQV Plastic Film

Panasonic



Lead pitch=5, Lead dia.=0.5, Lead length=20

- Stacked Metallized Plastic Film Capacitor
- Small size and large capacitance
- Excellent electric characteristics in non-inductive construction
- Ideal for noise suppression for logic circuits

| | | | |
|---|---|---|---|
| Operating temperature | -40°C to +105°C | Insulation resistance | C ≤ 0.33μF 30000MΩ min. |
| Capacitance tolerance | ± 5% | | C > 0.33μF 10000MΩ min. |

| **50 Volt d.c.** | Dimensions H | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 0.01μF | 5 | 7.3 | 3.2 | ECQV1H103JL | 166-9200 |
| 0.012μF | 5 | 7.3 | 3.2 | ECQV1H123JL | 166-9201 |
| 0.015μF | 5 | 7.3 | 3.2 | ECQV1H153JL | 166-9202 |
| 0.018μF | 5 | 7.3 | 3.2 | ECQV1H183JL | 166-9203 |
| 0.022μF | 5 | 7.3 | 3.2 | ECQV1H223JL | 166-9204 |
| 0.027μF | 5 | 7.3 | 0.5 | ECQV1H273JL | 185-4822 |
| 0.033μF | 5 | 7.3 | 0.5 | ECQV1H333JL | 185-4824 |
| 0.039μF | 5 | 7.3 | 0.5 | ECQV1H393JL | 185-4825 |
| 0.047μF | 5 | 7.3 | 3.2 | ECQV1H473JL | 174-4826 |
| 0.056μF | 5 | 7.3 | 0.5 | ECQV1H563JL | 185-4826 |
| 0.068μF | 5 | 7.3 | 3.2 | ECQV1H683JL | 174-4827 |
| 0.082μF | 5 | 7.3 | 0.5 | ECQV1H823JL | 185-4827 |
| 0.1μF | 5 | 7.3 | 4 | ECQV1H104JL | 174-4828 |
| 0.12μF | 5 | 7.3 | 3.2 | ECQV1H124JL | 185-4828 |
| 0.15μF | 5.5 | 7.3 | 0.5 | ECQV1H154JL | 185-4829 |
| 0.18μF | 5.5 | 7.3 | 0.5 | ECQV1H184JL | 185-4830 |
| 0.22μF | 5.5 | 7.3 | 4.8 | ECQV1H224JL | 174-4829 |
| 0.27μF | 7 | 7.3 | 0.5 | ECQV1H274JL | 185-4831 |
| 0.33μF | 7 | 7.3 | 5.2 | ECQV1H334JL | 174-4830 |
| 0.39μF | 7.3 | 7.3 | 0.5 | ECQV1H394JL | 185-4832 |
| 0.47μF | 7.3 | 7.3 | 6 | ECQV1H474JL | 174-4831 |
| 0.56μF | 10 | 7.3 | 0.5 | ECQV1H564JL | 185-4833 |
| 0.68μF | 10 | 7.3 | 6.5 | ECQV1H684JL | 174-4832 |
| 0.82μF | 10 | 7.3 | 0.5 | ECQV1H824JL | 185-4834 |
| 1μF | 11 | 7.3 | 8 | ECQV1H105JL | 174-4833 |
| 1.2μF | 10.2 | 10 | 0.5 | ECQV1H125JL | 185-4836 |
| 1.5μF | 10 | 10.2 | 0.5 | ECQV1H155JL | 185-4837 |
| 1.8μF | 10.2 | 12 | 0.5 | ECQV1H185JL | 185-4838 |
| 2.2μF | 12 | 10.2 | 7.9 | ECQV1H225JL | 174-4834 |

**Order Multiple=5**

**50 Volt d.c.**

| | Order Code | Price Each 5+ | + | + | + | + |
|---|---|---|---|---|---|---|
| 0.01μF | **166-9200** | | | | | |
| 0.012μF | **166-9201** | | | | | |
| 0.015μF | **166-9202** | | | | | |
| 0.018μF | **166-9203** | | | | | |
| 0.022μF | **166-9204** | | | | | |
| 0.027μF | **185-4822** | | | | | |
| 0.033μF | **185-4824** | | | | | |
| 0.039μF | **185-4825** | | | | | |
| 0.047μF | **174-4826** | | | | | |
| 0.056μF | **185-4826** | | | | | |
| 0.068μF | **174-4827** | | | | | |
| 0.082μF | **185-4827** | | | | | |
| 0.1μF | **174-4828** | | | | | |
| 0.12μF | **185-4828** | | | | | |
| 0.15μF | **185-4829** | | | | | |
| 0.18μF | **185-4830** | | | | | |
| 0.22μF | **174-4829** | | | | | |
| 0.27μF | **185-4831** | | | | | |
| 0.33μF | **174-4830** | | | | | |
| 0.39μF | **185-4832** | | | | | |
| 0.47μF | **174-4831** | | | | | |
| 0.56μF | **185-4833** | | | | | |
| 0.68μF | **174-4832** | | | | | |
| 0.82μF | **185-4834** | | | | | |
| 1μF | **174-4833** | | | | | |
| 1.2μF | **185-4836** | | | | | |
| 1.5μF | **185-4837** | | | | | |
| 1.8μF | **185-4838** | | | | | |
| 2.2μF | **174-4834** | | | | | |

| **50 Volt d.c.** | Dimensions H | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 0.01μF | 6.8 | 7.5 | 0.5 | ECQV1J103JM | 185-4839 |
| 0.012μF | 6.8 | 7.5 | 0.5 | ECQV1J123JM | 185-4840 |
| 0.015μF | 6.8 | 7.5 | 0.5 | ECQV1J153JM | 185-4841 |
| 0.018μF | 6.8 | 7.5 | 0.5 | ECQV1J183JM | 185-4842 |


RoHS ● Compliant ▲ Non-compliant

| 50 Volt d.c. | Dimensions | | | | |
|---|---|---|---|---|---|
| | H | W | D | Mftrs. List No. | Order Code |
| 0.022µF | 6.8 | 7.5 | 0.5 | ECQV1J223JM | 185-4843 |
| 0.027µF | 6.8 | 7.5 | 0.5 | ECQV1J273JM | 185-4844 |
| 0.039µF | 6.8 | 7.5 | 0.5 | ECQV1J393JM | 185-4845 |
| 0.047µF | 6.8 | 7.5 | 0.5 | ECQV1J473JM | 185-4846 |
| 0.056µF | 6.8 | 7.5 | 3.2 | ECQV1J563JM | 174-4836 |
| 0.068µF | 6.8 | 7.5 | 0.5 | ECQV1J683JM | 185-4848 |
| 0.082µF | 6.8 | 7.5 | 0.5 | ECQV1J823JM | 185-4849 |
| 0.1µF | 7 | 7.5 | 3.2 | ECQV1J104JM | 174-4837 |
| 0.12µF | 7 | 7.5 | 0.5 | ECQV1J124JM | 185-4850 |
| 0.15µF | 7 | 7.5 | 0.5 | ECQV1J154JM | 185-4851 |
| 0.18µF | 9 | 10.2 | 0.5 | ECQV1J184JM | 185-4852 |
| 0.22µF | 9 | 10.2 | 0.5 | ECQV1J224JM | 185-4853 |
| 0.27µF | 9 | 10.2 | 0.5 | ECQV1J274JM | 185-4854 |
| 0.33µF | 9 | 10.2 | 0.5 | ECQV1J334JM | 185-4855 |
| 0.39µF | 9 | 10.2 | 0.5 | ECQV1J394JM | 185-4856 |
| 0.47µF | 9 | 10.2 | 0.5 | ECQV1J474JM | 185-4857 |
| 0.56µF | 9 | 10.2 | 0.5 | ECQV1J564JM | 185-4858 |
| 0.68µF | 10 | 10.2 | 0.5 | ECQV1J684JM | 185-4861 |
| 0.82µF | 10 | 10.2 | 0.5 | ECQV1J824JM | 185-4862 |
| 1µF | 10 | 10.2 | 0.5 | ECQV1J105JM | 185-4863 |

**Order Multiple=5**

| 63 Volt d.c. | | Price Each | | | | |
|---|---|---|---|---|---|---|
| | Order Code | 5+ | + | + | + | + |
| 0.01µF | NEW 185-4839 | | | | | |
| 0.012µF | NEW 185-4840 | | | | | |
| 0.015µF | NEW 185-4841 | | | | | |
| 0.018µF | NEW 185-4842 | | | | | |
| 0.022µF | NEW 185-4843 | | | | | |
| 0.027µF | NEW 185-4844 | | | | | |
| 0.039µF | NEW 185-4845 | | | | | |
| 0.047µF | NEW 185-4846 | | | | | |
| 0.056µF | NEW 174-4836 | | | | | |
| 0.068µF | NEW 185-4848 | | | | | |
| 0.082µF | NEW 185-4849 | | | | | |
| 0.1µF | NEW 174-4837 | | | | | |
| 0.12µF | NEW 185-4850 | | | | | |
| 0.15µF | NEW 185-4851 | | | | | |
| 0.18µF | NEW 185-4852 | | | | | |
| 0.22µF | NEW 185-4853 | | | | | |
| 0.27µF | NEW 185-4854 | | | | | |
| 0.33µF | NEW 185-4855 | | | | | |
| 0.39µF | NEW 185-4856 | | | | | |
| 0.47µF | NEW 185-4857 | | | | | |
| 0.56µF | NEW 185-4858 | | | | | |
| 0.68µF | NEW 185-4861 | | | | | |
| 0.82µF | NEW 185-4862 | | | | | |
| 1µF | NEW 185-4863 | | | | | |

| 100 Volt d.c. | Dimensions | | | | |
|---|---|---|---|---|---|
| | H | W | D | Mftrs. List No. | Order Code |
| 0.01µF | 7 | 7.5 | 3.2 | ECQV1103JM | 166-9192 |
| 0.012µF | 7 | 7.5 | 0.5 | ECQV1123JM | 185-4864 |
| 0.015µF | 7 | 7.5 | 3.2 | ECQV1153JM | 166-9193 |
| 0.018µF | 7 | 7.5 | 0.5 | ECQV1183JM | 185-4865 |
| 0.022µF | 7 | 7.5 | 3.2 | ECQV1223JM | 166-9194 |
| 0.027µF | 7 | 7.5 | 0.5 | ECQV1273JM | 185-4866 |
| 0.033µF | 7 | 7.5 | 3.2 | ECQV1333JM | 166-9195 |
| 0.039µF | 7 | 7.5 | 0.5 | ECQV1393JM | 185-4867 |
| 0.056µF | 7 | 7.5 | 3.2 | ECQV1563JM | 174-4838 |
| 0.068µF | 7 | 7.5 | 4 | ECQV1683JM | 166-9197 |
| 0.082µF | 7 | 7.5 | 0.5 | ECQV1823JM | 185-4868 |
| 0.1µF | 7 | 7.5 | 4.5 | ECQV1104JM | 166-9198 |
| 0.12µF | 9 | 10.2 | 0.5 | ECQV1124JM | 185-4869 |
| 0.15µF | 9 | 10.2 | 0.5 | ECQV1154JM | 185-4870 |
| 0.18µF | 9 | 10.2 | 0.5 | ECQV1184JM | 185-4871 |
| 0.22µF | 9 | 10.2 | 0.5 | ECQV1224JM | 185-4873 |
| 0.27µF | 9 | 10.2 | 0.5 | ECQV1274JM | 185-4874 |
| 0.33µF | 10 | 10.2 | 0.5 | ECQV1334JM | 185-4875 |
| 0.39µF | 10 | 10.2 | 0.5 | ECQV1394JM | 185-4876 |
| 0.47µF | 10.5 | 10.2 | 0.5 | ECQV1474JM | 185-4877 |

527450

**Order Multiple=5**

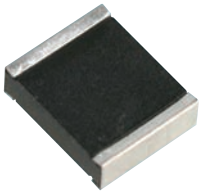
| 100 Volt d.c. | | Price Each | | | | |
|---|---|---|---|---|---|---|
| | Order Code | 5+ | + | + | + | + |
| 0.01µF | 166-9192 | | | | | |
| 0.012µF | NEW 185-4864 | | | | | |
| 0.015µF | 166-9193 | | | | | |
| 0.018µF | NEW 185-4865 | | | | | |
| 0.022µF | 166-9194 | | | | | |
| 0.027µF | NEW 185-4866 | | | | | |
| 0.033µF | 166-9195 | | | | | |
| 0.039µF | NEW 185-4867 | | | | | |
| 0.056µF | NEW 174-4838 | | | | | |
| 0.068µF | 166-9197 | | | | | |
| 0.082µF | NEW 185-4868 | | | | | |
| 0.1µF | 166-9198 | | | | | |
| 0.12µF | NEW 185-4869 | | | | | |
| 0.15µF | NEW 185-4870 | | | | | |
| 0.18µF | NEW 185-4871 | | | | | |

**Order Multiple=5**

| 100 Volt d.c. | | Price Each | | | | |
|---|---|---|---|---|---|---|
| | Order Code | 5+ | + | + | + | + |
| 0.22µF | NEW 185-4873 | | | | | |
| 0.27µF | NEW 185-4874 | | | | | |
| 0.33µF | NEW 185-4875 | | | | | |
| 0.39µF | NEW 185-4876 | | | | | |
| 0.47µF | NEW 185-4877 | | | | | |

# Film - Polyester (PET)

## SMD-PET – Surface Mount



- Metallised polyester film surface mount
- Applications include signal coupling and bypassing
- Flame retardant plastic case
- Low profile high reliability

| | |
|---|---|
| Operating temperature | -55°C to +100°C |
| Life Time @ Temperature | 300000 hours @ 40°C |

| CASE 1812 | | | | | |
|---|---|---|---|---|---|
| | Lead Spacing (mm) | Height (mm) | Tolerance | Mftrs. List No. | Order Code |
| 63 Volt d.c. | | | | | |
| 0.1µF | 3.5 | 3 | ± 10% | SMDTC03100KA00KP00 | 189-0096 |
| 0.22µF | 3.5 | 3 | ± 10% | SMDTC03220KA00KP00 | 189-0097 |
| 0.33µF | 3.5 | 4 | ± 5% | SMDTC03330KB00JP00 | 189-0099 |
| 0.47µF | 3.5 | 4 | ± 10% | SMDTC03470KB00KP00 | 189-0100 |

| | | Price Each | | | | |
|---|---|---|---|---|---|---|
| | Order Code | 5+ | 10+ | 50+ | 100+ | 500+ |
| 63 Volt d.c. | | | | | | |
| 0.1µF | NEW 189-0096 | | | | | |
| 0.22µF | NEW 189-0097 | | | | | |
| 0.33µF | NEW 189-0099 | | | | | |
| 0.47µF | NEW 189-0100 | | | | | |

| CASE 2220 | | | | | |
|---|---|---|---|---|---|
| | Lead Spacing (mm) | Height (mm) | Tolerance | Mftrs. List No. | Order Code |
| 63 Volt d.c. | | | | | |
| 0.01µF | 4.5 | 3.5 | ± 10% | SMDTC02100QA00KP00 | 189-0101 |
| 0.022µF | 4.5 | 3.5 | ± 10% | SMDTC02220QA00KP00 | 189-0102 |
| 0.1µF | 4.5 | 3.5 | ± 10% | SMDTC03100QA00KP00 | 189-0103 |
| 0.22µF | 4.5 | 3.5 | ± 10% | SMDTC03220QA00KP00 | 189-0105 |
| 1µF | 4.5 | 4.5 | ± 10% | SMDTC04100QB00KQ00 | 189-0106 |
| 100 Volt d.c. | | | | | |
| 0.01µF | 4.5 | 3.5 | ± 10% | SMDTD02100QA00KP00 | 100-5950 |
| 0.022µF | 4.5 | 3.5 | ± 10% | SMDTD02220QA00KP00 | 100-5951 |
| 0.033µF | 4.5 | 3.5 | ± 10% | SMDTD02330QA00KP00 | 100-5952 |
| 0.047µF | 4.5 | 3.5 | ± 10% | SMDTD02470QA00KP00 | 100-5953 |
| 0.068µF | 4.5 | 3.5 | ± 10% | SMDTD02680QA00KP00 | 100-5954 |
| 0.1µF | 4.5 | 3.5 | ± 10% | SMDTD03100QA00KP00 | 100-5955 |
| 0.33µF | 4.5 | 4.5 | ± 10% | SMDTD03330QB00KP00 | 189-0107 |

| | | Price Each | | | | |
|---|---|---|---|---|---|---|
| | Order Code | 5+ | 10+ | 50+ | 100+ | 500+ |
| 63 Volt d.c. | | | | | | |
| 0.01µF | NEW 189-0101 | | | | | |
| 0.022µF | NEW 189-0102 | | | | | |
| 0.1µF | NEW 189-0103 | | | | | |
| 0.22µF | NEW 189-0105 | | | | | |
| 1µF | NEW 189-0106 | | | | | |
| 100 Volt d.c. | | | | | | |
| 0.01µF | SMD 100-5950 | | | | | |
| 0.022µF | SMD 100-5951 | | | | | |
| 0.033µF | SMD 100-5952 | | | | | |
| 0.047µF | SMD 100-5953 | | | | | |
| 0.068µF | SMD 100-5954 | | | | | |
| 0.1µF | SMD 100-5955 | | | | | |
| 0.33µF | NEW 189-0107 | | | | | |

| CASE 2824 | | | | | |
|---|---|---|---|---|---|
| | Lead Spacing (mm) | Height (mm) | Tolerance | Mftrs. List No. | Order Code |
| 63 Volt d.c. | | | | | |
| 0.1µF | 6.5 | 3 | ± 10% | SMDTC03100TA00KQ00 | 100-5965 |
| 0.15µF | 6.5 | 3 | ± 10% | SMDTC03150TA00KQ00 | 100-5964 |
| 0.22µF | 6.5 | 3 | ± 10% | SMDTC03220TA00KQ00 | 100-5966 |
| 0.33µF | 6.5 | 3 | ± 10% | SMDTC03330TA00KQ00 | 100-5967 |
| 0.47µF | 6.5 | 3 | ± 10% | SMDTC03470TA00KQ00 | 100-5968 |
| 0.68µF | 6.5 | 3 | ± 10% | SMDTC03680TA00KQ00 | 189-0108 |
| 1µF | 6.5 | 3 | ± 10% | SMDTC04100TA00KQ00 | 189-0109 |
| 1.5µF | 6.5 | 5 | ± 10% | SMDTC04150TB00KQ00 | 189-0110 |
| 2.2µF | 6.5 | 5 | ± 10% | SMDTC04220TB00KQ00 | 189-0111 |

# Film - Polyester (PET) - continued

## SMD-PET – Surface Mount - continued

**CASE 2824**

| | Lead Spacing (mm) | Height (mm) | Tolerance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| **100 Volt d.c.** | | | | | |
| 0.01µF | 6.5 | 3 | ± 10% | SMDTD02100TA00KQ00 | 100-5961 |
| 0.033µF | 6.5 | 3 | ± 5% | SMDTD02330TA00JQ00 | 189-0112 |
| 0.068µF | 6.5 | 3 | ± 10% | SMDTD02680TA00KQ00 | 100-5963 |
| 0.47µF | 6.5 | 5 | ± 10% | SMDTD03470TB00KQ00 | 189-0113 |
| 1µF | 6.5 | 5 | ± 10% | SMDTD04100TB00KQ00 | 189-0114 |

| | Order Code | Price Each 5+ | 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| **63 Volt d.c.** | | | | | | |
| 0.1µF | SMD **100-5965** | | | | | |
| 0.15µF | SMD **100-5964** | | | | | |
| 0.22µF | SMD **100-5966** | | | | | |
| 0.33µF | SMD **100-5967** | | | | | |
| 0.47µF | SMD **100-5968** | | | | | |
| 0.68µF | NEW **189-0108** | | | | | |
| 1µF | NEW **189-0109** | | | | | |
| 1.5µF | NEW **189-0110** | | | | | |
| 2.2µF | NEW **189-0111** | | | | | |
| **100 Volt d.c.** | | | | | | |
| 0.01µF | SMD **100-5961** | | | | | |
| 0.033µF | NEW **189-0112** | | | | | |
| 0.068µF | SMD **100-5963** | | | | | |
| 0.47µF | NEW **189-0113** | | | | | |
| 1µF | NEW **189-0114** | | | | | |

**CASE 4030**

| | Lead Spacing (mm) | Height (mm) | Tolerance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| **63 Volt d.c.** | | | | | |
| 1.5µF | 9 | 5 | ± 10% | SMDTC04150VA00KR00 | 189-0115 |
| **400 Volt d.c.** | | | | | |
| 0.15µF | 9 | 5 | ± 10% | SMDTG03150VA00KS00 | 189-0117 |
| **630 Volt d.c.** | | | | | |
| 0.015µF | 9 | 5 | ± 10% | SMDTJ02150VA00KR00 | 189-0118 |

| | Order Code | Price Each 5+ | 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| **400 Volt d.c.** | | | | | | |
| 1.5µF | NEW **189-0115** | | | | | |
| **400 Volt d.c.** | | | | | | |
| 0.15µF | NEW **189-0117** | | | | | |
| **630 Volt d.c.** | | | | | | |
| 0.015µF | NEW **189-0118** | | | | | |

**CASE 5040**

| | Lead Spacing (mm) | Height (mm) | Tolerance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| **250 Volt d.c.** | | | | | |
| 0.47µF | 11.5 | 6 | ± 10% | SMDTF03470XA00KT00 | 189-0119 |

| | Order Code | Price Each 5+ | 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| **250 Volt d.c.** | | | | | | |
| 0.47µF | NEW **189-0119** | | | | | |

**CASE 6054**

| | Lead Spacing (mm) | Height (mm) | Tolerance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| **100 Volt d.c.** | | | | | |
| 4.7µF | 14 | 7 | ± 10% | SMDTD04470YA00KS00 | 189-0120 |
| 4.7µF | 14 | 7 | ± 10% | SMDTD04470YA00KT00 | 189-0121 |

208459

| | Order Code | Price Each 5+ | 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| **100 Volt d.c.** | | | | | | |
| 4.7µF | NEW **189-0120** | | | | | |
| 4.7µF | NEW **189-0121** | | | | | |

## MKS02 Series



- MKS02 metallised polyester
- Sub miniature 2.5mm lead spacing
- Flame retardant case to **UL94V-0**

Lead length=5, Lead dia.=0.4, Lead Pitch=2.5

Operating temp. -55°C to +100°C
Insulation resistance C <0.033µF @ 63V 3750MΩ @ 100V 10000MΩ
C ≥0.033µF 1250 sec (MΩ µF)
Climatic category 55/100/21
Power factor @ 1kHz, 20°C 0.008

**50 Volt d.c.**

| | Dimensions D | W | H | Tolerance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 1µF | 5.5 | 4.6 | 10 | ± 10% | MKS0B041000F00KSSD | 189-0122 |

| | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ | + |
|---|---|---|---|---|---|---|---|
| **50 Volt d.c.** | | | | | | | |
| 1µF | NEW **189-0122** | | | | | | |

**63 Volt d.c.**

| | Dimensions D | W | H | Tolerance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 0.01µF | 2.5 | 4.6 | 7 | ± 10% | MKS0C021000B00KSSD | 100-6000 |
| 0.015µF | 2.5 | 4.6 | 7 | ± 10% | MKS0C021500B00KSSD | 100-5999 |
| 0.022µF | 2.5 | 4.6 | 7 | ± 10% | MKS0C022200B00KSSD | 100-6001 |
| 0.033µF | 2.5 | 4.6 | 7 | ± 10% | MKS0C023300B00KSSD | 100-6002 |
| 0.047µF | 2.5 | 4.6 | 7 | ± 10% | MKS0C024700B00KSSD | 100-6003 |
| 0.068µF | 3 | 4.6 | 7.5 | ± 10% | MKS0C026800C00KSSD | 100-5998 |
| 0.1µF | 3 | 4.6 | 7.5 | ± 10% | MKS0C031000C00KSSD | 100-6004 |
| 0.22µF | 3 | 4.6 | 7.5 | ± 10% | MKS0C032200C00KSSD | 189-0123 |
| 0.47µF | 4.6 | 4.6 | 9 | ± 10% | MKS0C034700E00KSSD | 189-0124 |
| 0.68µF | 5.5 | 4.6 | 10 | ± 10% | MKS0C036800F00KSSD | 189-0125 |
| 0.1µF | 3 | 4.6 | 7.5 | ± 5% | MKS0C031000C00JSSD | 189-0126 |

| | Order Code | Price Each 5+ | 25+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **63 Volt d.c.** | | | | | | | |
| 0.01µF | **100-6000** | | | | | | |
| 0.015µF | **100-5999** | | | | | | |
| 0.022µF | **100-6001** | | | | | | |
| 0.033µF | **100-6002** | | | | | | |
| 0.047µF | **100-6003** | | | | | | |
| 0.068µF | **100-5998** | | | | | | |
| 0.1µF | **100-6004** | | | | | | |
| 0.22µF | NEW **189-0123** | | | | | | |
| 0.47µF | NEW **189-0124** | | | | | | |
| 0.68µF | NEW **189-0125** | | | | | | |
| 0.1µF | NEW **189-0126** | | | | | | |

**250 Volt d.c.**

| | Dimensions D | W | H | Tolerance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 3300pF | 2.5 | 4.6 | 7 | ± 20% | MKS0F013300B00KSSD | 151-9321 |
| 6800pF | 2.5 | 4.6 | 7 | ± 10% | MKS0F016800B00KSSD | 151-9322 |

208614

| | Order Code | Price Each 5+ | 25+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **250 Volt d.c.** | | | | | | | |
| 3300pF | **151-9321** | | | | | | |
| 6800pF | **151-9322** | | | | | | |

**250 Volt d.c.**

| | Dimensions H | W | D | Order Code |
|---|---|---|---|---|
| 1000pF | 7 | 4.6 | 2.5 | 151-9318 |
| 2200pF | 7 | 4.6 | 2.5 | 151-9320 |
| 3300pF | 7 | 4.6 | 2.5 | 151-9321 |
| 6800pF | 7 | 4.6 | 2.5 | 151-9322 |

494444

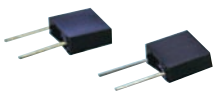
**Order Multiple=5**

| | Order Code | Price Each 5+ | 25+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| **250 Volt d.c.** | | | | | | |
| 1000pF | **151-9318** | | | | | |
| 2200pF | **151-9320** | | | | | |
| 3300pF | **151-9321** | | | | | |
| 6800pF | **151-9322** | | | | | |

## Polyester Capacitors

**5mm**

multicomp



Voltage Rating 63V
Tolerance ± 10%
Lead Pitch 5mm

- A range of industry standard 5mm pitch metallised polyester capacitors
- Stacked construction
- Epoxy resin encapsulated in flame retardent plastic cases with stand-off feet
- Excellent value for money

| | Dimensions H | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 1000pF | 6.5 | 7.2 | 2.5 | MCPBSFC-1J102KA45 | 168-5470 |
| 2200pF | 6.5 | 7.2 | 2.5 | MCPBSFC-1J222KA45 | 168-5471 |
| 4700pF | 6.5 | 7.2 | 2.5 | MCPBSFC-1J472KA45 | 168-5472 |
| 0.01µF | 6.5 | 7.2 | 2.5 | MCPBSFC-1J103KA45 | 168-5473 |
| 0.022µF | 6.5 | 7.2 | 2.5 | MCPBSFC-1J223KA45 | 168-5474 |
| 0.047µF | 6.5 | 7.2 | 2.5 | MCPBSFC-1J473KA45 | 168-5475 |
| 0.1µF | 6.5 | 7.2 | 2.5 | MCPBSFC-1J104KA45 | 168-5476 |
| 0.22µF | 6.5 | 7.2 | 3.2 | MCPBSFC-1J224KA45 | 168-5477 |
| 0.47µF | 6.5 | 7.2 | 3.5 | MCPBSFC-1J4474KB45 | 168-5479 |
| 1µF | 10 | 7.2 | 5 | MCPBSFC-1J105KB45 | 168-5481 |

528780

| | Order Code | Price Each 10+ | 50+ | 100+ | 250+ | 1K+ |
|---|---|---|---|---|---|---|
| 1000pF | **168-5470** | | | | | |
| 2200pF | **168-5471** | | | | | |
| 4700pF | **168-5472** | | | | | |
| 0.01µF | **168-5473** | | | | | |
| 0.022µF | **168-5474** | | | | | |
| 0.047µF | **168-5475** | | | | | |
| 0.1µF | **168-5476** | | | | | |
| 0.22µF | **168-5477** | | | | | |
| 0.47µF | **168-5479** | | | | | |
| 1µF | **168-5481** | | | | | |


RoHS ● Compliant ▲ Non-compliant

## MKS2 Series



- MKS2 metallised polyester capacitor
- Flame retardant case to **UL94V-0**

Lead length=6
Lead dia.=0.5
Lead pitch=5

| | | | |
|---|---|---|---|
| Operating temperature | -55°C to +100°C | Power factor @ | 0.008 |
| Climatic category | 55/100/21 | 1kHz, 20°C | (for C ≥ 1.0µF: 0.01) |

**50 Volt d.c.**

| | Dimensions H | W | D | Tolerance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 2.2µF | 10 | 7.2 | 7.2 | ± 10% | MKS2B042201F00KSSD | 107-422 |
| 3.3µF | 11.5 | 7.2 | 7.2 | ± 10% | MKS2B043301H00KSSD | 107-423 |
| 6.8µF | 14 | 7.2 | 7.2 | ± 5% | MKS2B046801M00JSSD | 189-0127 |

**50 Volt d.c.** — Price Each

| | Order Code | 1+ | 25+ | 100+ | 1K+ | 5K+ |
|---|---|---|---|---|---|---|
| 2.2µF | **107-422** | | | | | |
| 3.3µF | **107-423** | | | | | |
| 6.8µF | NEW **189-0127** | | | | | |

**63 Volt d.c.**

| | Dimensions H | W | D | Tolerance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 0.01µF | 6.5 | 7.2 | 7.2 | ± 10% | MKS2C021001A00KSSD | 100-6018 |
| 0.01µF | 6.5 | 7.2 | 7.2 | ± 5% | MKS2C021001A00JSSD | 189-0129 |
| 0.015µF | 6.5 | 7.2 | 7.2 | ± 10% | MKS2 0.015UF +/-10% 63V | 100-6016 |
| 0.022µF | 6.5 | 7.2 | 7.2 | ± 10% | MKS2C022201A00KSSD | 100-6020 |
| 0.022µF | 6.5 | 7.2 | 7.2 | ± 5% | MKS2C022201A00JSSD | 189-0131 |
| 0.033µF | 6.5 | 7.2 | 7.2 | ± 10% | MKS2C023301A00KSSD | 100-6023 |
| 0.033µF | 6.5 | 7.2 | 7.2 | ± 5% | MKS2C023301A00JSSD | 189-0132 |
| 0.047µF | 6.5 | 7.2 | 7.2 | ± 10% | MKS2C024701A00KSSD | 100-6025 |
| 0.047µF | 6.5 | 7.2 | 7.2 | ± 5% | MKS2C024701A00JSSD | 189-0133 |
| 0.068µF | 6.5 | 7.2 | 7.2 | ± 10% | MKS2C026801A00KSSD | 100-6026 |
| 0.1µF | 6.5 | 7.2 | 7.2 | ± 10% | MKS2C031001A00KSSD | 100-6030 |
| 0.1µF | 6.5 | 7.2 | 7.2 | ± 5% | MKS2C031001A00JSSD | 189-0134 |
| 0.15µF | 6.5 | 7.2 | 7.2 | ± 10% | MKS2C031501A00KSSD | 100-6029 |
| 0.22µF | 7.5 | 7.2 | 7.2 | ± 10% | MKS2C032201B00KSSD | 100-6033 |
| 0.22µF | 7.5 | 7.2 | 7.2 | ± 5% | MKS2C032201B00JSSD | 189-0135 |
| 0.33µF | 8.5 | 7.2 | 7.2 | ± 10% | MKS2C033301C00KSSD | 100-6036 |
| 0.33µF | 8.5 | 7.2 | 7.2 | ± 5% | MKS2C033301C00JSSD | 189-0136 |
| 0.47µF | 8.5 | 7.2 | 7.2 | ± 10% | MKS2C034701C00KSSD | 100-6038 |
| 0.47µF | 8.5 | 7.2 | 7.2 | ± 5% | MKS2C034701C00JSSD | 189-0137 |
| 0.68µF | 9.5 | 7.2 | 7.2 | ± 10% | MKS2C036801E00KSSD | 100-6039 |
| 1µF | 6.5 | 7.2 | 7.2 | ± 10% | MKS2C041001F00KSS | 100-6040 |
| 1µF | 10 | 7.2 | 7.2 | ± 10% | MKS2C041001F00KSSD | 189-0138 |
| 1µF | 10 | 7.2 | 7.2 | ± 5% | MKS2C041001F00JSSD | 189-0139 |
| 2.2µF | 13 | 7.2 | 7.2 | ± 10% | MKS2C042201K00KSSD | 189-0140 |
| 3.3µF | 13 | 7.2 | 7.2 | ± 10% | MKS2C043301K00KSSD | 189-0142 |

**63 Volt d.c.** — Price Each

| | Order Code | 5+ | 25+ | 100+ | 1K+ | 5K+ |
|---|---|---|---|---|---|---|
| 0.01µF | **100-6018** | | | | | |
| 0.01µF | NEW **189-0129** | | | | | |
| 0.015µF | **100-6016** | | | | | |
| 0.022µF | **100-6020** | | | | | |
| 0.022µF | NEW **189-0131** | | | | | |
| 0.033µF | **100-6023** | | | | | |
| 0.033µF | NEW **189-0132** | | | | | |
| 0.047µF | **100-6025** | | | | | |
| 0.047µF | NEW **189-0133** | | | | | |
| 0.068µF | **100-6026** | | | | | |
| 0.1µF | **100-6030** | | | | | |
| 0.1µF | NEW **189-0134** | | | | | |
| 0.15µF | **100-6029** | | | | | |
| 0.22µF | **100-6033** | | | | | |
| 0.22µF | NEW **189-0135** | | | | | |
| 0.33µF | **100-6036** | | | | | |
| 0.33µF | NEW **189-0136** | | | | | |
| 0.47µF | **100-6038** | | | | | |
| 0.47µF | NEW **189-0137** | | | | | |
| 0.68µF | **100-6039** | | | | | |
| 1µF | **100-6040** | | | | | |
| 1µF | NEW **189-0138** | | | | | |
| 1µF | NEW **189-0139** | | | | | |
| 2.2µF | NEW **189-0140** | | | | | |
| 3.3µF | NEW **189-0142** | | | | | |

**50 Volt d.c.**

| | Dimensions H | W | D | Tolerance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 0.01µF | 6.5 | 7.2 | 7.2 | ± 10% | MKS2D021001A00KSSD | 100-6017 |
| 0.01µF | 6.5 | 7.2 | 7.2 | ± 5% | MKS2D021001A00JSSD | 189-0143 |
| 0.022µF | 6.5 | 7.2 | 7.2 | ± 10% | MKS2D022201A00KSSD | 100-6019 |
| 0.022µF | 6.5 | 7.2 | 7.2 | ± 5% | MKS2D022201A00JSSD | 189-0144 |
| 0.047µF | 6.5 | 7.2 | 7.2 | ± 10% | MKS2D024701A00KSSD | 100-6024 |
| 0.1µF | 6.5 | 7.2 | 7.2 | ± 10% | MKS2D031001A00KSSD | 100-6031 |
| 0.1µF | 6.5 | 7.2 | 7.2 | ± 5% | MKS2D031001A00JSSD | 189-0145 |
| 0.22µF | 8.5 | 7.2 | 7.2 | ± 10% | MKS2D032201C00KSSD | 189-0146 |
| 0.33µF | 9.5 | 7.2 | 7.2 | ± 10% | MKS2D033301E00KSSD | 100-6035 |
| 0.47µF | 9.5 | 7.2 | 7.2 | ± 10% | MKS2D034701E00KSSD | 100-6037 |
| 1µF | 13 | 7.2 | 7.2 | ± 10% | MKS2D041001K00KSSD | 189-0147 |
| 2.2µF | 16 | 7.2 | 7.2 | ± 10% | MKS2D042201N00KSSD | 189-0148 |

**100 Volt d.c.** — Price Each

| | Order Code | 5+ | 25+ | 100+ | 1K+ | 5K+ |
|---|---|---|---|---|---|---|
| 0.01µF | **100-6017** | | | | | |
| 0.01µF | NEW **189-0143** | | | | | |
| 0.022µF | **100-6019** | | | | | |
| 0.022µF | NEW **189-0144** | | | | | |
| 0.047µF | **100-6024** | | | | | |
| 0.1µF | **100-6031** | | | | | |
| 0.1µF | NEW **189-0145** | | | | | |
| 0.22µF | NEW **189-0146** | | | | | |
| 0.33µF | **100-6035** | | | | | |
| 0.47µF | **100-6037** | | | | | |
| 1µF | NEW **189-0147** | | | | | |
| 2.2µF | NEW **189-0148** | | | | | |

**250 Volt d.c.**

| | Dimensions H | W | D | Tolerance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 0.1µF | 9.5 | 7.2 | 7.2 | ± 10% | MKS2F031001E00KSSD | 189-0149 |

**250 Volt d.c.** — Price Each

| | Order Code | 1+ | 25+ | 100+ | 1K+ | 5K+ |
|---|---|---|---|---|---|---|
| 0.1µF | NEW **189-0149** | | | | | |

**630 Volt d.c.**

| | Dimensions H | W | D | Tolerance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 1000pF | 7.5 | 7.2 | 7.2 | ± 10% | MKS2J011001B00KSSD | 151-9302 |
| 2200pF | 7.5 | 7.2 | 7.2 | ± 10% | MKS2J012201B00KSSD | 151-9304 |
| 0.01µF | 11.5 | 7.2 | 7.2 | ± 10% | MKS2J021001H00KSSD | 151-9308 |

208616

**630 Volt d.c.** — Price Each

| | Order Code | 1+ | 25+ | 100+ | 1K+ | 5K+ |
|---|---|---|---|---|---|---|
| 1000pF | **151-9302** | | | | | |
| 2200pF | **151-9304** | | | | | |
| 0.01µF | **151-9308** | | | | | |

**630 Volt d.c.**

| | Dimensions H | W | D | Order Code |
|---|---|---|---|---|
| 1000pF | 7.5 | 7.2 | 3 | 151-9302 |
| 2200pF | 7.5 | 7.2 | 3 | 151-9304 |
| 0.01µF | 11.5 | 7.2 | 5.5 | 151-9308 |

494466

**Order Multiple=55Order Multiple=5**

**630 Volt d.c.** — Price Each

| | Order Code | 5+ | 25+ | 100+ | 1K+ | 5K+ |
|---|---|---|---|---|---|---|
| 1000pF | **151-9302** | | | | | |
| 2200pF | **151-9304** | | | | | |
| 0.01µF | **151-9308** | | | | | |

## MKS 4 Series

NEW



- High volume / capacitance ratio
- Solvent-resistant, flame-retardant plastic case with epoxy resin seal, UL 94 V-0
- Self-healing
- Applications: By-pass, blocking, timing, coupling and decoupling
- Dielectric: Polyethylene-terephthalate (PET) film
- Operating temperature ranges from -55°C to +100°C

| Capacitance | Tolerance | Dimensions in mm W | H | L | Lead spacing | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **63 Volt** | | | | | | | |
| 0.22 µF | ± 10% | 13 | 4 | 9 | 10 | MKS4C032203C00KSSD | 100-6050 |
| 0.33 µF | ± 5% | 4 | 9 | 13 | 10 | MKS4C033303C00JSSD | 189-0150 |
| 0.47 µF | ± 10% | 13 | 4 | 9 | 10 | MKS4C034703C00KSSD | 100-6052 |
| 1 µF | ± 10% | 5 | 10.5 | 10.3 | 7.5 | MKS4C041002E00KSSD | 189-0151 |
| 2.2 µF | ± 10% | 18 | 8 | 15 | 15 | MKS4C042204C00KSSD | 100-6054 |
| 3.3 µF | ± 10% | 18 | 7 | 14 | 15 | MKS4C043304D00KSSD | 100-6055 |
| 4.7 µF | ± 10% | 18 | 8 | 15 | 15 | MKS4C044704D00KSSD | 100-6056 |
| 6.8 µF | ± 10% | 26.5 | 7 | 16.5 | 22.5 | MKS4C046805D00KSSD | 100-6057 |
| 10 µF | ± 5% | 11 | 21 | 31.5 | 27.5 | MKS4C051006B00JYSD | 189-0152 |
| **100 Volt** | | | | | | | |
| 0.1 µF | ± 10% | 4 | 9 | 13 | 10 | MKS4D031003C00KSSD | 189-0154 |
| 0.15 µF | ± 10% | 3 | 8.5 | 10 | 7.5 | MKS4D031502B00KSSD | 189-0155 |
| 1 µF | ± 10% | 5 | 11 | 13 | 10 | MKS4D041003F00KSSD | 189-0156 |
| 1.5 µF | ± 10% | 18 | 7 | 14 | 15 | MKS4D041504D00KSSD | 156-887 |
| 2.2 µF | ± 10% | 8 | 15 | 18 | 15 | MKS4D042204F00KSSD | 189-0157 |
| 3.3 µF | ± 10% | 7 | 16.5 | 26.5 | 22.5 | MKS4D043305D00KSSD | 189-0158 |
| 6.8 µF | ± 10% | 11 | 21 | 31.5 | 27.5 | MKS4D046806B00KYSD | 189-0159 |
| 10 µF | ± 10% | 13 | 24 | 31.5 | 27.5 | MKS4D051006D00KYSD | 189-0160 |
| **250 Volt** | | | | | | | |
| 0.01 µF | ± 10% | 13 | 4 | 9 | 10 | MKS4F021003C00KSSD | 100-6041 |
| 0.022 µF | ± 10% | 10 | 3 | 8.5 | 10 | MKS4F022203C00KSSD | 100-6043 |
| 0.033 µF | ± 10% | 3 | 4 | 9 | 7.5 | MKS4F023302B00KSSD | 100-6045 |
| 0.047 µF | ± 10% | 13 | 4 | 9 | 10 | MKS4F024703C00KSSD | 100-6047 |
| 0.047 µF | ± 5% | 4 | 9 | 13 | 10 | MKS4F024703C00JSSD | 189-0161 |
| 0.1 µF | ± 10% | 13 | 4 | 9.5 | 10 | MKS4F031003C00KSSD | 100-6049 |
| 0.1 µF | ± 5% | 4 | 9 | 13 | 10 | MKS4F031003C00JSSD | 189-0162 |
| 0.22 µF | ± 10% | 18 | 5 | 11 | 15 | MKS4F032204BS0KSSD | 148-890 |
| 0.47 µF | ± 10% | 26.5 | 7 | 16.5 | 22.5 | MKS4F034705BS0KSSD | 148-892 |
| 1 µF | ± 10% | 26.5 | 7 | 18.5 | 22.5 | MKS4F041005B00KSSD | 148-894 |
| 1 µF | ± 5% | 8 | 15 | 18 | 15 | MKS4F041004F00JSSD | 189-0163 |
| 2.2 µF | ± 10% | 31.5 | 11 | 21 | 27.5 | MKS4F042206A00KSSD | 148-896 |
| 2.2 µF | ± 5% | 9 | 19 | 31.5 | 27.5 | MKS4F042206A00JYSD | 189-0164 |
| 10 µF | ± 10% | 17 | 29 | 31.5 | 27.5 | MKS4F051006G00KYSD | 189-0166 |

# Film - Polyester (PET) - continued

## MKS 4 Series - continued

| Capacitance | Tolerance | Dimensions in mm | | | | Mftrs. | |
|---|---|---|---|---|---|---|---|
| **400 Volt** | | | | | | | |
| 0.01 µF | ± 10% | 13 | 4 | 9 | 10 | MKS4G021003C00KSSD | 100-6042 |
| 0.022 µF | ± 10% | 13 | 4 | 9 | 10 | MKS4G022203C00KSSD | 100-6044 |
| 0.1 µF | ± 10% | 5 | 10.5 | 10.3 | 7.5 | MKS4G031002E00KSSD | 189-0167 |
| 0.22 µF | ± 10% | 26.5 | 6 | 15 | 22.5 | MKS4G032205BS0KSSD | 148-905 |
| 0.47 µF | ± 10% | 26.5 | 8.5 | 16.5 | 22.5 | MKS4G034705B00KSSD | 100-6051 |
| 1 µF | ± 10% | 31.5 | 11 | 21 | 27.5 | MKS4G041006B00KYSD | 148-909 |
| 2.2 µF | ± 10% | 31.5 | 11 | 21 | 27.5 | MKS4G042206B00KSSD | 100-6053 |
| **630 Volt** | | | | | | | |
| 0.033 µF | ± 10% | 5 | 11 | 13 | 10 | MKS4J023303F00KSSD | 189-0168 |
| 0.047 µF | ± 10% | 5.7 | 12.5 | 10.3 | 7.5 | MKS4J024702F00KSSD | 189-0169 |
| 0.22 µF | ± 10% | 5.7 | 12.5 | 10.3 | 15 | MKS4J032204F00KSSD | 189-0170 |
| 0.33 µF | ± 10% | 9 | 19 | 31.5 | 27.5 | MKS4J033306A00KYSD | 189-0171 |
| 2.2 µF | ± 10% | 17 | 34.5 | 31.5 | 27.5 | MKS4J042206I00KYSD | 189-0172 |

630786

| Capacitance | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 3K+ |
|---|---|---|---|---|---|---|
| **63 Volt** | | | | | | |
| 0.33 µF | **189-0150** | | | | | |
| 0.22 µF | **100-6050** | | | | | |
| 0.33 µF | **189-0150** | | | | | |
| 0.47 µF | **100-6052** | | | | | |
| 1 µF | **189-0151** | | | | | |
| 2.2 µF | **100-6054** | | | | | |
| 3.3 µF | **100-6055** | | | | | |
| 4.7 µF | **100-6056** | | | | | |
| 6.8 µF | **100-6057** | | | | | |
| 10 µF | **189-0152** | | | | | |
| **100 Volt** | | | | | | |
| 0.1 µF | **189-0154** | | | | | |
| 0.15 µF | **189-0155** | | | | | |
| 1 µF | **189-0156** | | | | | |
| 1.5 µF | **156-887** | | | | | |
| 2.2 µF | **189-0157** | | | | | |
| 3.3 µF | **189-0158** | | | | | |
| 6.8 µF | **189-0159** | | | | | |
| 10 µF | **189-0160** | | | | | |
| **250 Volt** | | | | | | |
| 0.01 µF | **100-6041** | | | | | |
| 0.022 µF | **100-6043** | | | | | |
| 0.033 µF | **100-6045** | | | | | |
| 0.047 µF | **100-6047** | | | | | |
| 0.047 µF | **189-0161** | | | | | |
| 0.1 µF | **100-6049** | | | | | |
| 0.1 µF | **189-0162** | | | | | |
| 0.22 µF | **148-890** | | | | | |
| 0.47 µF | **148-892** | | | | | |
| 1 µF | **148-894** | | | | | |
| 1 µF | **189-0163** | | | | | |
| 2.2 µF | **148-896** | | | | | |
| 2.2 µF | **189-0164** | | | | | |
| 10 µF | **189-0166** | | | | | |
| **400 Volt** | | | | | | |
| 0.01 µF | **100-6042** | | | | | |
| 0.022 µF | **100-6044** | | | | | |
| 0.1 µF | **189-0167** | | | | | |
| 0.22 µF | **148-905** | | | | | |
| 0.47 µF | **100-6051** | | | | | |
| 1 µF | **148-909** | | | | | |
| 2.2 µF | **100-6053** | | | | | |
| **630 Volt** | | | | | | |
| 0.033 µF | **189-0168** | | | | | |
| 0.047 µF | **189-0169** | | | | | |
| 0.22 µF | **189-0170** | | | | | |
| 0.33 µF | **189-0171** | | | | | |
| 2.2 µF | **189-0172** | | | | | |

## FKS2 Series

NEW



- Polyester film capacitors for pulse applications
- Flame retardant case, **UL 94 V-0**
- Operational life > 300000 hours
- Failure rate < 5 fit (@ 50% rated voltage and 40°C)
- Operating temperature: -55°C to +100°C

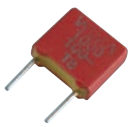
Lead length=6 mm
Lead dia.=0.5 mm
Lead pitch=5 mm

| Capacitance | Capacitance Tolerance | Dimensions (mm) L | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| **100 Volts** | | | | | | |
| 1000 pF | ± 10% | 7.2 | 2.5 | 6.5 | FKS2D011001A00KSSD | 100-5992 |
| 1000 pF | ± 5% | 7.2 | 2.5 | 6.5 | FKS2D011001A00JSSD | 189-0182 |
| 1500 pF | ± 10% | 7.2 | 2.5 | 6.5 | FKS2D011501A00KSSD | 100-5993 |
| 2200 pF | ± 10% | 7.2 | 2.5 | 6.5 | FKS2D012201A00KSSD | 100-5949 |
| 3300 pF | ± 10% | 7.2 | 2.5 | 6.5 | FKS2D013301A00KSSD | 100-5994 |
| 4700 pF | ± 10% | 7.2 | 2.5 | 6.5 | FKS2D014701A00KSSD | 100-5995 |
| 4700 pF | ± 5% | 7.2 | 2.5 | 6.5 | FKS2D014701A00JSSD | 189-0183 |
| 6800 pF | ± 10% | 7.2 | 2.5 | 6.5 | FKS2D016801A00KSSD | 100-5997 |
| 0.01 µF | ± 10% | 7.2 | 3 | 7.5 | FKS2D021001B00KSSD | 100-5991 |
| 0.01 µF | ± 5% | 7.2 | 3 | 7.5 | FKS2D021001B00JSSD | 189-0184 |
| **400 Volts** | | | | | | |
| 1000 pF | ± 10% | 7.2 | 2.5 | 6.5 | FKS2G011001A00KSSD | 189-0185 |
| 2200 pF | ± 10% | 7.2 | 2.5 | 6.5 | FKS2G012201A00KSSD | 189-0186 |
| 0.01 µF | ± 5% | 7.2 | 3.5 | 8.5 | FKS2G021001C00JSSD | 189-0187 |

634554

| Capacitance | Order Code | Price Each 5+ | 25+ | 100+ | 1K+ | 5K+ |
|---|---|---|---|---|---|---|
| **100 Volts** | | | | | | |
| 1000 pF | **100-5992** | | | | | |
| 1000 pF | **189-0182** | | | | | |
| 1500 pF | **100-5993** | | | | | |
| 2200 pF | **100-5949** | | | | | |
| 3300 pF | **100-5994** | | | | | |
| 4700 pF | **100-5995** | | | | | |
| 4700 pF | **189-0183** | | | | | |
| 6800 pF | **100-5997** | | | | | |
| 0.01 µF | **100-5991** | | | | | |
| 0.01 µF | **189-0184** | | | | | |
| **400 Volts** | | | | | | |
| 1000 pF | **189-0185** | | | | | |
| 2200 pF | **189-0186** | | | | | |
| 0.01 µF | **189-0187** | | | | | |

## FKS2 Series – 100 Volt d.c. (63 Volt a.c.)



- FKS2 polyester film capacitors
- Flame retardant case to **UL94V-0**

Lead length=6
Lead dia.=0.5
Lead pitch=5

| | | | |
|---|---|---|---|
| Operating temperature | -55°C to +100°C | Climatic category | 55/100/56 |
| Insulation resistance | MΩ | Tolerance | ±20% |
| Temperature coefficient | +330ppm/°C (+20°C to +70°C) | Power factor @ 1 kHz, 20°C | 0.007 |

**N.B.** For ease of selection, capacitance value is listed in both **pF** and **nF.**

| | Dimensions H | W | D | Order Code |
|---|---|---|---|---|
| 1000pF | 7.2 | 2.5 | 6.5 | 100-5992 |
| 1500pF | 7.2 | 2.5 | 6.5 | 100-5993 |
| 2200pF | 7.2 | 2.5 | 6.5 | 100-5949 |
| 3300pF | 7.2 | 2.5 | 6.5 | 100-5994 |
| 4700pF | 7.2 | 2.5 | 6.5 | 100-5995 |
| 6800pF | 7.2 | 2.5 | 6.5 | 100-5997 |
| 0.01µF | 7.2 | 3 | 7.5 | 100-5991 |

208617

| **Order Multiple=5** | | Price Each 5+ | 25+ | 100+ | 1K+ | 5K+ |
|---|---|---|---|---|---|---|
| | **Order Code** | | | | | |
| 1000pF | **100-5992** | | | | | |
| 1500pF | **100-5993** | | | | | |
| 2200pF | **100-5949** | | | | | |
| 3300pF | **100-5994** | | | | | |
| 4700pF | **100-5995** | | | | | |
| 6800pF | **100-5997** | | | | | |
| 0.01µF | **100-5991** | | | | | |

## MKS2/FKP2/FKS2 Kit



- Kit contains 18 values
- MKS2 FKP2 and FKS2 ranges
- Can be restocked when required

Kit contains 20 each of the following :-

| | |
|---|---|
| MKS2 | 0.01µf/63V, 0.022µF/63V, 0.047µF/63V, 0.1µF/63V 0.22µF/63V, 0.47µF/63V, 1µF/63V, 2.2µF/50V* |
| FKP2 | 100pF/100V, 220pF/100V, 470pF/100V, 1000pF/100V, 2200pF/100V, 4700pF/63V, 10000pF/63V |
| FKS2 | 1000pF/100V, 2200pF/100V, 4700pF/100V |

* = 10 pieces only

208435

| Order Code | Price Each 1+ | 5+ | 10+ |
|---|---|---|---|
| **100-6066** | | | |

## R82 Series

ARCOTRONICS GROUP
A KEMET Company



- Metallised polyetser film capacitor
- D.C. multipurpose applications
- Typical applications: by-passing, blocking, coupling, decoupling, timing and oscillator circuits

| | |
|---|---|
| Lead Pitch | 5mm |
| Tolerance | ± 5% |
| Lead Length | 17mm |

**50 Volt**

| | Dimensions H | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 2.2µF | 11 | 7 | 6 | R82CC4220Z370J | 167-9398 |
| 3.3µF | 13 | 7 | 7 | R82CC4330Z330J | 167-9400 |
| 4.7µF | 13 | 7 | 7 | R82CC4470Z330J | 167-9401 |

**50 Volts** — Price Each

| | Order Code | 10+ | 50+ | 100+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| 2.2µF | **167-9398** | | | | | |
| 3.3µF | **167-9400** | | | | | |
| 4.7µF | **167-9401** | | | | | |

**63 Volt**

| | Dimensions H | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 0.1µF | 7 | 7 | 3 | R82DC3100Z350J | 167-9402 |
| 0.22µF | 7 | 7 | 3 | R82DC3220Z360J | 167-9404 |
| 0.33µF | 8 | 7 | 4 | R82DC3330Z360J | 167-9406 |
| 0.47µF | 8 | 7 | 4 | R82DC3470Z360J | 167-9407 |
| 0.68µF | 10 | 7 | 5 | R82DC3680Z360J | 167-9408 |
| 1µF | 10 | 7 | 5 | R82DC4100Z360J | 167-9409 |
| 1.5µF | 11 | 7 | 6 | R82DC4150Z360J | 167-9410 |

**63 Volts** — Price Each

| | Order Code | 10+ | 50+ | 100+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| 0.1µF | **167-9402** | | | | | |
| 0.22µF | **167-9404** | | | | | |
| 0.33µF | **167-9406** | | | | | |
| 0.47µF | **167-9407** | | | | | |
| 0.68µF | **167-9408** | | | | | |
| 1µF | **167-9409** | | | | | |
| 1.5µF | **167-9410** | | | | | |

**100 Volt**

| | Dimensions H | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 1000pF | 7 | 7 | 3 | R82EC1100Z350J | 167-9411 |
| 1500pF | 7 | 7 | 3 | R82EC1150Z350J | 167-9412 |
| 2200pF | 7 | 7 | 3 | R82EC1220Z350J | 167-9413 |
| 3300pF | 7 | 7 | 3 | R82EC1330Z350J | 167-9414 |
| 4700pF | 7 | 7 | 3 | R82EC1470Z350J | 167-9415 |
| 6800pF | 7 | 7 | 3 | R82EC1680Z350J | 167-9416 |
| 0.01µF | 7 | 7 | 3 | R82EC2100Z350J | 167-9418 |
| 0.015µF | 7 | 7 | 3 | R82EC2150Z350J | 167-9419 |
| 0.022µF | 7 | 7 | 3 | R82EC2220Z350J | 167-9420 |
| 0.047µF | 7 | 7 | 3 | R82EC2470Z360J | 167-9422 |
| 0.068µF | 7 | 7 | 3 | R82EC2680Z360J | 167-9423 |
| 0.1µF | 7 | 7 | 3 | R82EC3100Z370J | 167-9424 |
| 0.15µF | 8 | 7 | 4 | R82EC3150Z370J | 167-9426 |
| 0.22µF | 8 | 7 | 4 | R82EC3220Z370J | 167-9427 |
| 0.47µF | 10 | 7 | 5 | R82EC3470Z370J | 167-9431 |
| 0.68µF | 10 | 7 | 5 | R82EC3680Z370J | 167-9432 |
| 1µF | 11 | 7 | 6 | R82EC4100Z370J | 167-9433 |

**100 Volts** — Price Each

| | Order Code | 10+ | 50+ | 100+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| 1000pF | **167-9411** | | | | | |
| 1500pF | **167-9412** | | | | | |
| 2200pF | **167-9413** | | | | | |
| 3300pF | **167-9414** | | | | | |
| 4700pF | **167-9415** | | | | | |
| 6800pF | **167-9416** | | | | | |
| 0.01µF | **167-9418** | | | | | |
| 0.015µF | **167-9419** | | | | | |
| 0.022µF | **167-9420** | | | | | |
| 0.047µF | **167-9422** | | | | | |
| 0.068µF | **167-9423** | | | | | |
| 0.1µF | **167-9424** | | | | | |
| 0.15µF | **167-9426** | | | | | |
| 0.22µF | **167-9427** | | | | | |
| 0.47µF | **167-9431** | | | | | |
| 0.68µF | **167-9432** | | | | | |
| 1µF | **167-9433** | | | | | |

**250 Volt**

| | Dimensions H | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 6800pF | 7 | 7 | 3 | R82IC1680Z350J | 167-9434 |
| 0.015µF | 7 | 7 | 3 | R82IC2150Z350J | 167-9436 |
| 0.022µF | 8 | 7 | 4 | R82IC2220Z350J | 167-9437 |
| 0.033µF | 8 | 7 | 4 | R82IC2330Z350J | 167-9438 |
| 0.047µF | 10 | 7 | 5 | R82IC2470Z350J | 167-9439 |
| 0.15µF | 11 | 7 | 6 | R82IC3150Z350J | 167-9440 |

**250 Volts** — Price Each

| | Order Code | 10+ | 50+ | 100+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| 6800pF | **167-9434** | | | | | |
| 0.015µF | **167-9436** | | | | | |
| 0.022µF | **167-9437** | | | | | |
| 0.033µF | **167-9438** | | | | | |
| 0.047µF | **167-9439** | | | | | |
| 0.15µF | **167-9440** | | | | | |

**400 Volt**

| | Dimensions H | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 1000pF | 7 | 7 | 3 | R82MC1100Z350J | 167-9441 |
| 1500pF | 7 | 7 | 3 | R82MC1150Z350J | 167-9443 |
| 3300pF | 7 | 7 | 3 | R82MC1330Z350J | 167-9445 |
| 4700pF | 7 | 7 | 3 | R82MC1470Z350J | 167-9446 |
| 0.01µF | 8 | 7 | 4 | R82MC2100Z350J | 167-9447 |
| 0.015µF | 10 | 7 | 5 | R82MC2150Z350J | 167-9448 |
| 0.022µF | 10 | 7 | 5 | R82MC2220Z350J | 167-9449 |
| 0.033µF | 10 | 7 | 5 | R82MC2330Z350J | 167-9450 |

527589

**400 Volts** — Price Each

| µF | Order Code | 10+ | 50+ | 100+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| 1000 | **167-9441** | | | | | |
| 1500 | **167-9443** | | | | | |
| 3300 | **167-9445** | | | | | |
| 4700 | **167-9446** | | | | | |
| 0.01 | **167-9447** | | | | | |
| 0.015 | **167-9448** | | | | | |
| 0.022 | **167-9449** | | | | | |
| 0.033 | **167-9450** | | | | | |

## MKT 470 Series

BC COMPONENTS




- Blocking and coupling signals
- Filter networks
- Potted with epoxy resin
- Flame retardant case

| | | | |
|---|---|---|---|
| Operating temperature | -55°C to +125°C | Climatic category | 55/125/56 |
| Tolerance | ±5% | Basic specification | **IEC60384-2** long life |

Lead dia.=0.5, Supplied on paper tape

**63 Volt d.c.**

| | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 0.068µF | 6.5 | 7.2 | 2.5 | 5 | BFC247076683 | 116-6035 |
| 0.1µF | 6.5 | 7.2 | 2.5 | 5 | BFC247076104 | 116-6036 |
| 0.15µF | 8 | 7.2 | 3.5 | 5 | BFC247076154 | 116-6038 |
| 0.22µF | 8 | 7.2 | 3.5 | 5 | BFC247076224 | 116-6039 |
| 0.33µF | 8 | 7.2 | 3.5 | 5 | BFC247076334 | 116-6040 |
| 0.47µF | 9.5 | 7.2 | 4.5 | 5 | BFC247076474 | 116-6041 |
| 0.68µF | 9.5 | 7.2 | 4.5 | 5 | BFC247076684 | 116-6042 |
| 1µF | 11 | 7.2 | 6 | 5 | BFC247076105 | 116-6043 |

**Order Multiple=10**

**63 Volt d.c.** — Price Each

| | Order Code | 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.068µF | **116-6035** | | | | | |
| 0.1µF | **116-6036** | | | | | |
| 0.15µF | **116-6038** | | | | | |
| 0.22µF | **116-6039** | | | | | |
| 0.33µF | **116-6040** | | | | | |
| 0.47µF | **116-6041** | | | | | |
| 0.68µF | **116-6042** | | | | | |
| 1µF | **116-6043** | | | | | |

**100 Volt d.c.**

| | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 0.022µF | 6.5 | 7.2 | 2.5 | 5 | BFC247086223 | 116-6044 |
| 0.033µF | 6.5 | 7.2 | 2.5 | 5 | BFC247086333 | 116-6045 |
| 0.047µF | 6.5 | 7.2 | 2.5 | 5 | BFC247086473 | 116-6046 |
| 0.068µF | 8 | 7.2 | 3.5 | 5 | BFC247086683 | 116-6047 |
| 0.1µF | 8 | 7.2 | 3.5 | 5 | BFC247086104 | 116-6048 |
| 0.15µF | 9.5 | 7.2 | 4.5 | 5 | BFC247086154 | 116-6051 |
| 0.22µF | 9.5 | 7.2 | 4.5 | 5 | BFC247086224 | 116-6052 |
| 0.33µF | 11 | 7.2 | 6 | 5 | BFC247086334 | 116-6053 |
| 0.47µF | 11 | 7.2 | 6 | 5 | BFC247086474 | 116-6054 |

**Order Multiple=10**

**100 Volt d.c.** — Price Each

| | Order Code | 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.022µF | **116-6044** | | | | | |
| 0.033µF | **116-6045** | | | | | |
| 0.047µF | **116-6046** | | | | | |
| 0.068µF | **116-6047** | | | | | |
| 0.1µF | **116-6048** | | | | | |
| 0.15µF | **116-6051** | | | | | |
| 0.22µF | **116-6052** | | | | | |
| 0.33µF | **116-6053** | | | | | |
| 0.47µF | **116-6054** | | | | | |

# Film - Polyester (PET) - continued

## MKT 470 Series - continued

**250 Volt d.c.**

| | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 0.01µF | 6.5 | 7.2 | 2.5 | 5 | BFC247036103 | 116-6055 |
| 0.015µF | 6.5 | 7.2 | 2.5 | 5 | BFC247036153 | 116-6056 |
| 0.022µF | 8 | 7.2 | 3.5 | 5 | BFC247036223 | 116-6057 |
| 0.033µF | 8 | 7.2 | 3.5 | 5 | BFC247036333 | 116-6058 |
| 0.047µF | 9.5 | 7.2 | 4.5 | 5 | BFC247036473 | 116-6059 |
| 0.068µF | 9.5 | 7.2 | 4.5 | 5 | BFC247036683 | 116-6060 |
| 0.1µF | 11 | 7.2 | 6 | 5 | BFC247036104 | 116-6061 |

**Order Multiple=10**

**250 Volt d.c.**

| | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.01µF | 116-6055 | | | | | |
| 0.015µF | 116-6056 | | | | | |
| 0.022µF | 116-6057 | | | | | |
| 0.033µF | 116-6058 | | | | | |
| 0.047µF | 116-6059 | | | | | |
| 0.068µF | 116-6060 | | | | | |
| 0.1µF | 116-6061 | | | | | |

**400 Volt d.c.**

| | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 1000pF | 6.5 | 7.2 | 2.5 | 5 | BFC247066102 | 116-6063 |
| 1500pF | 6.5 | 7.2 | 2.5 | 5 | BFC247066152 | 116-6064 |
| 2200pF | 6.5 | 7.2 | 2.5 | 5 | BFC247066222 | 116-6065 |
| 3300pF | 6.5 | 7.2 | 2.5 | 5 | BFC247066332 | 116-6066 |
| 4700pF | 6.5 | 7.2 | 2.5 | 5 | BFC247066472 | 116-6067 |
| 6800pF | 6.5 | 7.2 | 2.5 | 5 | BFC247066682 | 116-6068 |
| 0.01µF | 8 | 7.2 | 3.5 | 5 | BFC247066103 | 116-6069 |
| 0.015µF | 8 | 7.2 | 3.5 | 5 | BFC247066153 | 116-6070 |
| 0.033µF | 11 | 7.2 | 6 | 5 | BFC247066333 | 116-6072 |
| 0.047µF | 11 | 7.2 | 6 | 5 | BFC247066473 | 116-6073 |

208428

**Order Multiple=10**

**400 Volt d.c.**

| | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1000pF | 116-6063 | | | | | |
| 1500pF | 116-6064 | | | | | |
| 2200pF | 116-6065 | | | | | |
| 3300pF | 116-6066 | | | | | |
| 4700pF | 116-6067 | | | | | |
| 6800pF | 116-6068 | | | | | |
| 0.01µF | 116-6069 | | | | | |
| 0.015µF | 116-6070 | | | | | |
| 0.033µF | 116-6072 | | | | | |
| 0.047µF | 116-6073 | | | | | |

## MKT 370 Series



- Metallised polyester decoupling capacitors
- Resistant to modern cleaning solvents
- Flame retardant case

Lead length=4 min
Lead dia.=0.5 min
Lead pitch=5

| | | | |
|---|---|---|---|
| Operating temperature | -55°C to +100°C | Tolerance | +10% |
| Insulation resistance | 50/100Vc ≤0.33uF 15000MΩ<br>63/100Vc >0.33uF 5000 sec (MΩ µF)<br>250/400V 3000 MΩ | Climatic category | 55/100/56 |
| | | Power factor | 0.01 |
| Basic specification | **IEC60384-2**, long life | | |

**63 Volt d.c. (40 Volt a.c.)***

| | Dimensions H | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 0.068µF | 8 | 7.2 | 2.5 | BFC237011683 | 121-5514 |
| 0.1µF | 8 | 7.2 | 2.5 | BFC237011104 | 121-5508 |
| 0.15µF | 9 | 7.2 | 3.5 | BFC237011154 | 121-5510 |
| 0.22µF | 9 | 7.2 | 3.5 | BFC237011224 | 121-5511 |
| 0.33µF | 10 | 7.2 | 3.5 | BFC237011334 | 121-5512 |
| 0.47µF | 10 | 7.2 | 4.5 | BFC237011474 | 121-5513 |
| 0.68µF | 10 | 7.2 | 5 | BFC237011684 | 116-6075 |
| 1µF | 11 | 7.2 | 6 | BFC237011105 | 121-5509 |
| 1.5µF | 11 | 7.2 | 6 | BFC237011155 | 116-6008 |

*1.5µF rated at 50 volt d.c. (32Va.c.)

**Order Multiple=5**

**63 Volt d.c.**

| | Order Code | Price Each 5+ | 100+ | 1K+ | 3K+ |
|---|---|---|---|---|---|
| 0.068µF | 121-5514 | | | | |
| 0.1µF | 121-5508 | | | | |
| 0.15µF | 121-5510 | | | | |
| 0.22µF | 121-5511 | | | | |
| 0.33µF | 121-5512 | | | | |
| 0.47µF | 121-5513 | | | | |
| 0.68µF | 116-6075 | | | | |
| 1µF | 121-5509 | | | | |
| 1.5µF | 116-6008 | | | | |

**100 Volt d.c. (63 Volt a.c.)**

| | Dimensions H | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 0.015µF | 8 | 7.2 | 2.5 | BFC237021153 | 121-5517 |
| 0.022µF | 8 | 7.2 | 2.5 | BFC237021223 | 121-5518 |
| 0.033µF | 8 | 7.2 | 2.5 | BFC237021333 | 121-5519 |
| 0.047µF | 9 | 7.2 | 2.5 | BFC237021473 | 121-5520 |
| 0.068µF | 9 | 7.2 | 3.5 | BFC237021683 | 121-5521 |
| 0.1µF | 8 | 7.2 | 3.5 | BFC237021104 | 121-5515 |
| 0.15µF | 8 | 7.2 | 3.5 | BFC237021154 | 116-6009 |
| 0.22µF | 9 | 7.2 | 4.5 | BFC237021224 | 116-6010 |
| 0.33µF | 9 | 7.2 | 4.5 | BFC237021334 | 116-6011 |
| 0.47µF | 11 | 7.2 | 6 | BFC237021474 | 116-6012 |

**Order Multiple=10**

**100 Volt d.c.**

| | Order Code | Price Each 10+ | + | + | + |
|---|---|---|---|---|---|
| 0.015µF | 121-5517 | | | | |
| 0.022µF | 121-5518 | | | | |
| 0.033µF | 121-5519 | | | | |
| 0.047µF | 121-5520 | | | | |
| 0.068µF | 121-5521 | | | | |
| 0.1µF | 121-5515 | | | | |
| 0.15µF | 116-6009 | | | | |
| 0.22µF | 116-6010 | | | | |
| 0.33µF | 116-6011 | | | | |
| 0.47µF | 116-6012 | | | | |

**250 Volt d.c.**

| | Dimensions H | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 4700pF | 6.5 | 7.2 | 2.5 | BFC237041472 | 116-6076 |
| 6800pF | 6.5 | 7.2 | 2.5 | BFC237041682 | 116-6077 |
| 0.01µF | 6.5 | 7.2 | 2.5 | BFC237041103 | 116-6078 |
| 0.015µF | 6.5 | 7.2 | 2.5 | BFC237041153 | 116-6079 |
| 0.022µF | 8 | 7.2 | 3.5 | BFC237041223 | 116-6080 |
| 0.033µF | 8 | 7.2 | 3.5 | BFC237041333 | 116-6081 |
| 0.047µF | 9 | 7.2 | 4.5 | BFC237041473 | 116-6082 |
| 0.1µF | 11 | 7.2 | 6 | BFC237041104 | 116-6084 |

**Order Multiple=10**

**250 Volt d.c.**

| | Order Code | Price Each 10+ | + | + | + |
|---|---|---|---|---|---|
| 4700pF | 116-6076 | | | | |
| 6800pF | 116-6077 | | | | |
| 0.01µF | 116-6078 | | | | |
| 0.015µF | 116-6079 | | | | |
| 0.022µF | 116-6080 | | | | |
| 0.033µF | 116-6081 | | | | |
| 0.047µF | 116-6082 | | | | |
| 0.1µF | 116-6084 | | | | |

**400 Volt d.c.**

| | Dimensions H | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 1000pF | 6.5 | 7.2 | 2.5 | BFC237051102 | 116-6085 |
| 1500pF | 6.5 | 7.2 | 2.5 | BFC237051152 | 116-6087 |
| 2200pF | 8 | 7.2 | 3.5 | BFC237051222 | 116-6088 |
| 3300pF | 8 | 7.7 | 3.5 | BFC237051332 | 116-6089 |
| 4700pF | 9 | 7.2 | 4.5 | BFC237065472 | 116-6028 |
| 6800pF | 10 | 7.2 | 5 | BFC237065682 | 116-6029 |
| 0.01µF | 8 | 7.2 | 3.5 | BFC237065103 | 116-6030 |
| 0.015µF | 8 | 7.2 | 3.5 | BFC237065153 | 116-6031 |
| 0.022µF | 9 | 7.2 | 4.5 | BFC237065223 | 116-6032 |
| 0.033µF | 11 | 7.2 | 6 | BFC237065333 | 116-6033 |
| 0.047µF | 11 | 7.2 | 6 | BFC237065473 | 116-6034 |

208621

**Order Multiple=10**

**400 Volt d.c.**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 3K+ |
|---|---|---|---|---|---|
| 1000pF | 116-6085 | | | | |
| 1500pF | 116-6087 | | | | |
| 2200pF | 116-6088 | | | | |
| 3300pF | 116-6089 | | | | |
| 4700pF | 116-6028 | | | | |
| 6800pF | 116-6029 | | | | |
| 0.01µF | 116-6030 | | | | |
| 0.015µF | 116-6031 | | | | |
| 0.022µF | 116-6032 | | | | |
| 0.033µF | 116-6033 | | | | |
| 0.047µF | 116-6034 | | | | |

## B3252* Series



- Stacked film polyester capacitors
- Excellent self-healing properties
- Flame retardant encapsulation

Lead length=6, Lead dia.=0.5

| | |
|---|---|
| Operating temperature | -55°C to +125°C |
| Tolerance | ±10% |
| Power factor @ 1kHz | 0.007 |
| Insulation resistance | 15000MΩ for C≤ 0.33µF ≤100V<br>5000sec (MΩ x µF) for C>0.33µF @ ≤100V<br>30000MΩ for C @ ≥250V |
| Climatic category | 55/100/56 |

**63 Volt d.c. (40 Volt a.c.)**

| | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 1000pF | 6.5 | 7.2 | 2.5 | 5 | B32529C102K | 975-2897 |
| 1500pF | 6.5 | 7.2 | 2.5 | 5 | B32529C152K | 975-2900 |
| 2200pF | 6.5 | 7.2 | 2.5 | 5 | B32529C222K | 975-2919 |
| 3300pF | 6.5 | 7.2 | 2.5 | 5 | B32529C332K | 975-2927 |
| 4700pF | 6.5 | 7.2 | 2.5 | 5 | B32529C472K | 975-2935 |
| 6800pF | 6.5 | 7.2 | 2.5 | 5 | B32529C682K | 975-2943 |
| 0.01µF | 6.5 | 7.2 | 2.5 | 5 | B32529C103K | 975-2951 |
| 0.015µF | 6.5 | 7.2 | 2.5 | 5 | B32529C153K | 975-2960 |
| 0.022µF | 6.5 | 7.2 | 2.5 | 5 | B32529C223K | 975-2978 |
| 0.033µF | 6.5 | 7.2 | 2.5 | 5 | B32529C333K | 975-2986 |
| 0.047µF | 6.5 | 7.2 | 2.5 | 5 | B32529C473K | 975-2994 |
| 0.068µF | 6.5 | 7.2 | 2.5 | 5 | B32529C683K | 975-0860 |
| 0.1µF | 6.5 | 7.2 | 2.5 | 5 | B32529C104K | 975-0878 |
| 0.15µF | 6.5 | 7.2 | 3 | 5 | B32529C154K | 975-0886 |
| 0.22µF | 8 | 7.2 | 3.5 | 5 | B32529C224K | 975-0894 |
| 0.33µF | 8 | 7.2 | 3.5 | 5 | B32529C334K | 975-0908 |
| 0.47µF | 9.5 | 7.2 | 4.5 | 5 | B32529C474K | 975-0916 |
| 0.68µF | 10 | 7.2 | 5 | 5 | B32529C684K | 975-0924 |
| 1µF | 10.5 | 7.2 | 5 | 5 | B32529C105K | 975-0932 |
| 1µF | 9.5 | 7.3 | 4.5 | 5 | B32529-C 105-J | 169-2372 |
| 1.5µF | 13 | 7.2 | 7.2 | 5 | B32529C155K | 975-0940 |

**Order Multiple=5**

**63 Volt d.c.**

| | Order Code | Price Each 5+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|
| 1000pF | 975-2897 | | | | |
| 1500pF | 975-2900 | | | | |
| 2200pF | 975-2919 | | | | |
| 3300pF | 975-2927 | | | | |
| 4700pF | 975-2935 | | | | |
| 6800pF | 975-2943 | | | | |
| 0.01µF | 975-2951 | | | | |
| 0.015µF | 975-2960 | | | | |
| 0.022µF | 975-2978 | | | | |
| 0.033µF | 975-2986 | | | | |
| 0.047µF | 975-2994 | | | | |
| 0.068µF | 975-0860 | | | | |
| 0.1µF | 975-0878 | | | | |
| 0.15µF | 975-0886 | | | | |
| 0.22µF | 975-0894 | | | | |
| 0.33µF | 975-0908 | | | | |
| 0.47µF | 975-0916 | | | | |
| 0.68µF | 975-0924 | | | | |
| 1µF | 975-0932 | | | | |
| 1µF | 169-2372 | | | | |
| 1.5µF | 975-0940 | | | | |

**100 Volt d.c. (63 Volt a.c.)**

| | nF | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.022µF | 22 | 6.5 | 7.2 | 2.5 | 5 | B32529C1223K | 975-0959 |
| 0.047µF | 47 | 6.5 | 7.2 | 2.5 | 5 | B32529C1473K | 975-0975 |
| 0.1µF | 100 | 8 | 7.2 | 3.5 | 5 | B32529C1104K | 975-0983 |
| 0.22µF | 220 | 8.5 | 10 | 4 | 7.5 | B32520C1224K | 975-3001 |
| 0.47µF | 470 | 12 | 10 | 6 | 7.5 | B32520C1474K | 975-3010 |

**Order Multiple=5**

**100 Volt d.c.**

| | Order Code | Price Each 5+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|
| 0.022µF | 975-0959 | | | | |
| 0.047µF | 975-0975 | | | | |
| 0.1µF | 975-0983 | | | | |
| 0.22µF | 975-3001 | | | | |
| 0.47µF | 975-3010 | | | | |

**250 Volt d.c. (160 Volt a.c.)**

| | nF | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.1µF | 100 | 8.5 | 10 | 4 | 7.5 | B32520-C3104-K | 975-1211 |
| 0.01µF | 10 | 6.5 | 7.2 | 2.5 | 5 | B32529C3103K | 975-0991 |

**Order Multiple=5**

**250 Volt d.c.**

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ |
|---|---|---|---|---|---|
| 0.1µF | 975-1211 | | | | |
| 0.01µF | 975-0991 | | | | |

**400 Volt d.c. (200 Volt a.c.)**

| | nF | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 1000pF | 1000000 | 6.5 | 7.2 | 2.5 | 5 | B32529C6102K | 975-1009 |
| 2200pF | 2200000 | 6.5 | 7.2 | 2.5 | 5 | B32529C6222K | 975-1017 |
| 0.01µF | 10 | 8 | 10 | 3 | 7.5 | B32520C6103K | 975-3028 |
| 0.022µF | 22 | 8.5 | 10 | 5 | 7.5 | B32520C6223K | 975-3036 |
| 0.047µF | 47 | 10.5 | 10 | 5 | 7.5 | B32520C6473K | 975-3044 |
| 0.068µF | 68 | 11 | 13 | 5 | 10 | B32521C6683K | 975-1220 |
| 0.1µF | 100 | 12 | 13 | 6 | 10 | B32521C6104K | 975-1238 |
| 0.22µF | 220 | 12.5 | 18 | 7 | 15 | B32522C6224K | 975-1246 |

208424

**Order Multiple=5**

**400 Volt d.c.**

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ |
|---|---|---|---|---|---|
| 1000pF | 975-1009 | | | | |
| 2200pF | 975-1017 | | | | |
| 0.01µF | 975-3028 | | | | |
| 0.022µF | 975-3036 | | | | |
| 0.047µF | 975-3044 | | | | |
| 0.068µF | 975-1220 | | | | |
| 0.1µF | 975-1238 | | | | |
| 0.22µF | 975-1246 | | | | |

## B32560/1/2 Series – Open Frame

EPCOS



- Open frame stacked polyester film
- Excellent self-healing properties
- Compact size

**Warning:** Care must be taken to avoid live parts.

| | |
|---|---|
| Operating temperature | -55°C to +100°C |
| Insulation resistance | 3750MΩ for C≤ 0.33µF @ 100V 1250 sec (MΩ x µF) for C>0.33µF @ 100V |
| Climatic category | 55/100/56 |

**63 Volt d.c. (40 Volt a.c.)**

| | Dimensions H | W | D | Lead Pitch | Tolerance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 1µF | 6.8 | 9 | 4 | 7.5 | 10% | B32560J105K | 975-2293 |
| 2.2µF | 8.2 | 9 | 6.5 | 7.5 | 10% | B32560J225K | 975-2307 |
| 4.7µF | 11 | 9 | 9.8 | 7.5 | 10% | B32560J475K | 975-2315 |

**63 Volt d.c.**

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| 1µF | 975-2293 | | | | | |
| 2.2µF | 975-2307 | | | | | |
| 4.7µF | 975-2315 | | | | | |

**100 Volt d.c. (63 Volt a.c.)**

| | Dimensions H | W | D | Lead Pitch | Tolerance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.1µF | 4.7 | 9 | 2.5 | 7.5 | 10% | B32560J1104K | 975-2323 |
| 0.15µF | 4.7 | 9 | 2.5 | 7.5 | 10% | B32560J1154K | 975-2331 |
| 0.22µF | 5.1 | 9 | 2.5 | 7.5 | 10% | B32560J1224K | 975-2340 |
| 0.33µF | 5.7 | 9 | 2.7 | 7.5 | 10% | B32560J1334K | 975-2358 |
| 0.47µF | 6.1 | 9 | 3.4 | 7.5 | 10% | B32560J1474K | 975-2366 |
| 0.68µF | 6.5 | 9 | 4.2 | 7.5 | 10% | B32560J1684K | 975-2374 |
| 1µF | 7 | 9 | 5.5 | 7.5 | 10% | B32560J1105K | 975-2382 |
| 2.2µF | 9.2 | 9 | 8.5 | 7.5 | 10% | B32560J1225K | 975-2390 |

**100 Volt d.c.**

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| 0.1µF | 975-2323 | | | | | |
| 0.15µF | 975-2331 | | | | | |
| 0.22µF | 975-2340 | | | | | |
| 0.33µF | 975-2358 | | | | | |
| 0.47µF | 975-2366 | | | | | |
| 0.68µF | 975-2374 | | | | | |
| 1µF | 975-2382 | | | | | |
| 2.2µF | 975-2390 | | | | | |

**250 Volt d.c. (160 Volt a.c.)**

| | Dimensions H | W | D | Lead Pitch | Tolerance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.033µF | 4.8 | 9 | 2.5 | 7.5 | 10% | B32560J3333K | 975-2404 |
| 0.047µF | 5.2 | 9 | 2.5 | 7.5 | 10% | B32560J3473K | 975-2412 |
| 0.068µF | 5.7 | 9 | 2.6 | 7.5 | 10% | B32560J3683K | 975-2420 |
| 0.1µF | 6.1 | 9 | 3.2 | 7.5 | 10% | B32560J3104K | 975-2439 |
| 0.22µF | 7.5 | 9 | 4.9 | 7.5 | 10% | B32560J3224K | 975-2447 |

**250 Volt d.c.**

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| 0.033µF | 975-2404 | | | | | |
| 0.047µF | 975-2412 | | | | | |
| 0.068µF | 975-2420 | | | | | |
| 0.1µF | 975-2439 | | | | | |
| 0.22µF | 975-2447 | | | | | |

**400 Volt d.c. (200 Volt a.c.)**

| | Dimensions H | W | D | Lead Pitch | Tolerance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 1000pF | 5.5 | 9 | 2.5 | 7.5 | 10% | B32560J6102K | 975-2455 |
| 1500pF | 5.5 | 9 | 2.5 | 7.5 | 10% | B32560J6152K | 975-2463 |
| 2200pF | 5.5 | 9 | 2.5 | 7.5 | 10% | B32560J6222K | 975-2471 |
| 3300pF | 5.5 | 9 | 2.5 | 7.5 | 10% | B32560J6332K | 975-2480 |
| 4700pF | 5.5 | 9 | 2.5 | 7.5 | 10% | B32560J6472K | 975-2498 |
| 0.01µF | 5.5 | 9 | 2.5 | 7.5 | 10% | B32560J6103K | 975-2501 |
| 0.015µF | 5.5 | 9 | 2.5 | 7.5 | 10% | B32560J6153K | 975-2510 |
| 0.022µF | 5.5 | 9 | 2.5 | 7.5 | 10% | B32560J6223K | 975-2528 |
| 0.047µF | 6.5 | 9 | 3.2 | 7.5 | 10% | B32560J6473K | 975-2536 |
| 0.1µF | 7.7 | 9 | 4.9 | 7.5 | 10% | B32560J6104K | 975-2544 |

# Film - Polyester (PET) - continued

## B32560/1/2 Series – Open Frame - continued

**400 Volt d.c.**

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| 1000pF | 975-2455 | | | | | |
| 1500pF | 975-2463 | | | | | |
| 2200pF | 975-2471 | | | | | |
| 3300pF | 975-2480 | | | | | |
| 4700pF | 975-2498 | | | | | |
| 0.01µF | 975-2501 | | | | | |
| 0.015µF | 975-2510 | | | | | |
| 0.022µF | 975-2528 | | | | | |
| 0.047µF | 975-2536 | | | | | |
| 0.1µF | 975-2544 | | | | | |

**100 Volt d.c. (63 Volt a.c.)**

| | Dimensions H | W | D | Lead Pitch | Toler-ance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.33µF | 5.2 | 11.5 | 2.5 | 10 | 10% | B32561J1334K | 975-2552 |
| 0.47µF | 5.8 | 11.5 | 2.9 | 10 | 10% | B32561J1474K | 975-2560 |
| 1µF | 6.9 | 11.5 | 4.5 | 10 | 10% | B32561J1105K | 975-2587 |
| 2.2µF | 9 | 11.5 | 6.9 | 10 | 10% | B32561J1225K | 975-2595 |

**100 Volt d.c.**

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| 0.33µF | 975-2552 | | | | | |
| 0.47µF | 975-2560 | | | | | |
| 1µF | 975-2587 | | | | | |
| 2.2µF | 975-2595 | | | | | |

**250 Volt d.c. (160 Volt a.c.)**

| | Dimensions H | W | D | Lead Pitch | Toler-ance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.1µF | 5.3 | 11.5 | 2.8 | 10 | 10% | B32561J3104K | 975-2609 |
| 0.15µF | 6 | 11.5 | 3.3 | 10 | 10% | B32561J3154K | 120-0765 |
| 0.22µF | 6.6 | 11.5 | 4.2 | 10 | 10% | B32561J3224K | 975-2617 |
| 0.47µF | 8.5 | 11.5 | 6.3 | 10 | 10% | B32561J3474K | 975-2625 |

**250 Volt d.c.**

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| 0.1µF | 975-2609 | | | | | |
| 0.15µF | 120-0765 | | | | | |
| 0.22µF | 975-2617 | | | | | |
| 0.47µF | 975-2625 | | | | | |

**400 Volt d.c. (200 Volt a.c.)**

| | Dimensions H | W | D | Lead Pitch | Toler-ance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.01µF | 5.1 | 11.5 | 2.3 | 10 | 10% | B32561J6103K | 120-0766 |
| 0.047µF | 6 | 11.5 | 2.6 | 10 | 10% | B32561J6473K | 975-2641 |
| 0.1µF | 6.9 | 11.5 | 4 | 10 | 10% | B32561J6104K | 975-2650 |
| 0.22µF | 8.5 | 11.5 | 6.6 | 10 | 10% | B32561J6224K | 975-2668 |

**400 Volt d.c.**

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| 0.01µF | 120-0766 | | | | | |
| 0.047µF | 975-2641 | | | | | |
| 0.1µF | 975-2650 | | | | | |
| 0.22µF | 975-2668 | | | | | |

**100 Volt d.c. (63 Volt a.c.)**

| | Dimensions H | W | D | Lead Pitch | Toler-ance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 1µF | 6.3 | 16.5 | 3.2 | 15 | 10% | B32562J1105K | 975-2676 |
| 2.2µF | 8 | 16.5 | 4.9 | 15 | 10% | B32562J1225K | 975-2692 |
| 3.3µF | 9.3 | 16.5 | 6 | 15 | 10% | B32562J1335K | 975-2706 |
| 4.7µF | 10.6 | 16.5 | 7.3 | 15 | 10% | B32562J1475K | 975-2714 |
| 6.8µF | 11.8 | 16.5 | 9 | 15 | 10% | B32562J1685K | 975-2722 |
| 10µF | 13 | 16.5 | 11.8 | 15 | 10% | B32562J1106K | 975-2730 |

**100 Volt d.c.**

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| 1µF | 975-2676 | | | | | |
| 2.2µF | 975-2692 | | | | | |
| 3.3µF | 975-2706 | | | | | |
| 4.7µF | 975-2714 | | | | | |
| 6.8µF | 975-2722 | | | | | |
| 10µF | 975-2730 | | | | | |

**250 Volt d.c. (160 Volt a.c.)**

| | Dimensions H | W | D | Lead Pitch | Toler-ance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.47µF | 6.7 | 16.5 | 5 | 15 | 10% | B32562J3474K | 975-2757 |
| 0.68µF | 7.8 | 16.5 | 6 | 15 | 10% | B32562J3684K | 975-2765 |
| 1µF | 9.3 | 16.5 | 7 | 15 | 10% | B32562J3105K | 975-2773 |
| 1.5µF | 11 | 16.5 | 8.7 | 15 | 10% | B32562J3155K | 975-2790 |
| 2.2µF | 12.8 | 16.5 | 10.7 | 15 | 10% | B32562J3225K | 975-2803 |
| 3.3µF | 14.5 | 16.5 | 13.9 | 15 | 10% | B32562J3335K | 975-2811 |

**250 Volt d.c.**

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| 0.47µF | 975-2757 | | | | | |
| 0.68µF | 975-2765 | | | | | |
| 1µF | 975-2773 | | | | | |
| 1.5µF | 975-2790 | | | | | |
| 2.2µF | 975-2803 | | | | | |
| 3.3µF | 975-2811 | | | | | |

**400 Volt d.c. (200 Volt a.c.)**

| | Dimensions H | W | D | Lead Pitch | Toler-ance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.1µF | 5.6 | 16.5 | 3.3 | 15 | 10% | B32562J6104K | 975-2820 |
| 0.22µF | 7.5 | 16.5 | 4.7 | 15 | 10% | B32562J6224K | 975-2846 |
| 0.33µF | 8.3 | 16.5 | 6 | 15 | 10% | B32562J6334K | 975-2854 |
| 0.47µF | 9.3 | 16.5 | 7.3 | 15 | 10% | B32562J6474K | 975-2862 |
| 1µF | 12.5 | 16.5 | 10.9 | 15 | 10% | B32562J6105K | 975-2889 |

208429

**400 Volt d.c.**

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| 0.1µF | 975-2820 | | | | | |
| 0.22µF | 975-2846 | | | | | |
| 0.33µF | 975-2854 | | | | | |
| 0.47µF | 975-2862 | | | | | |
| 0.68µF | 975-2870 | | | | | |

## R60 Series

ARCOTRONICS GROUP
A KEMET Company



- Metallised polyester film capacitor
- D.C. multipurpose applications
- Typical applications: blocking, coupling, decoupling and by-passing

Tolerance ± 5%
Lead Length 25mm

**63 Volt**

| | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 1µF | 9 | 13 | 4 | 10 | R60DF4100506AJ | 167-9333 |
| 1.5µF | 11 | 13 | 5 | 10 | R60DF4150506AJ | 167-9334 |
| 2.2µF | 11 | 13 | 5 | 10 | R60DF4220506AJ | 167-9335 |
| 3.3µF | 12 | 13 | 6 | 10 | R60DF4330506AJ | 167-9336 |
| 0.68µF | 11 | 18 | 5 | 15 | R60DI36805030J | 167-9337 |
| 1µF | 11 | 18 | 5 | 15 | R60DI41005030J | 167-9339 |
| 4.7µF | 16 | 27 | 7 | 22.5 | R60DN44705030J | 167-9343 |
| 6.8µF | 16 | 27 | 7 | 22.5 | R60DN46805030J | 167-9344 |
| 15µF | 20 | 27 | 11 | 22.5 | R60DN51505030J | 167-9346 |
| 22µF | 20 | 32 | 11 | 27.5 | R60DR52205040J | 167-9347 |

**63 Volt**

| | Order Code | Price Each 10+ | 25+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| 1µF | 167-9333 | | | | | |
| 1.5µF | 167-9334 | | | | | |
| 2.2µF | 167-9335 | | | | | |
| 3.3µF | 167-9336 | | | | | |
| 0.68µF | 167-9337 | | | | | |
| 1µF | 167-9339 | | | | | |
| 4.7µF | 167-9343 | | | | | |
| 6.8µF | 167-9344 | | | | | |
| 15µF | 167-9346 | | | | | |
| 22µF | 167-9347 | | | | | |

**100 Volt**

| | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 0.47µF | 9 | 13 | 4 | 10 | R60EF3470506AJ | 167-9348 |
| 1µF | 11 | 13 | 5 | 10 | R60EF4100506AJ | 167-9350 |
| 1µF | 11 | 18 | 5 | 15 | R60EI41005030J | 167-9352 |
| 2.2µF | 15 | 18 | 9 | 15 | R60EI42205030J | 167-9353 |
| 3.3µF | 16 | 18 | 10 | 15 | R60EI43305030J | 167-9354 |
| 4.7µF | 17 | 27 | 9 | 22.5 | R60EN44705030J | 167-9355 |
| 6.8µF | 19 | 27 | 10 | 22.5 | R60EN46805030J | 167-9356 |
| 10µF | 17 | 32 | 9 | 27.5 | R60ER51005040J | 167-9357 |

**100 Volt**

| | Order Code | Price Each 10+ | 25+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| 0.47µF | 167-9348 | | | | | |
| 1µF | 167-9350 | | | | | |
| 1µF | 167-9352 | | | | | |
| 2.2µF | 167-9353 | | | | | |
| 3.3µF | 167-9354 | | | | | |
| 4.7µF | 167-9355 | | | | | |
| 6.8µF | 167-9356 | | | | | |
| 10µF | 167-9357 | | | | | |

**160 Volt**

| | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 0.22µF | 9 | 13 | 4 | 10 | R60GF3220506AJ | 167-9358 |

**160 Volt**

| | Order Code | Price Each 10+ | 25+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| 0.22µF | 167-9358 | | | | | |


RoHS ● Compliant ▲ Non-compliant

**250 Volt**

| | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 0.1µF | 9 | 13 | 4 | 10 | R60IF3100506AJ | 167-9359 |
| 0.22µF | 11 | 13 | 5 | 10 | R60IF3220506AJ | 167-9360 |
| 0.47µF | 12 | 13 | 6 | 10 | R60IF3470506AJ | 167-9361 |
| 0.1µF | 11 | 18 | 5 | 15 | R60II31005030J | 167-9362 |
| 0.22µF | 11 | 18 | 5 | 15 | R60II32205030J | 167-9364 |
| 0.33µF | 11 | 18 | 5 | 15 | R60II33305030J | 167-9365 |
| 0.47µF | 12 | 18 | 6 | 15 | R60II34705030J | 167-9366 |
| 1µF | 15 | 18 | 9 | 15 | R60II41005030J | 167-9367 |
| 1µF | 15 | 27 | 6 | 22.5 | R60IN41005030J | 167-9368 |
| 2.2µF | 19 | 27 | 10 | 22.5 | R60IN42205030J | 167-9369 |
| 3.3µF | 20 | 27 | 11 | 22.5 | R60IN43305030J | 167-9370 |
| 4.7µF | 17 | 32 | 9 | 27.5 | R60IR44705040J | 167-9371 |

**250 Volt** — **Price Each**

| | Order Code | 10+ | 25+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| 0.1µF | 167-9359 | | | | | |
| 0.22µF | 167-9360 | | | | | |
| 0.47µF | 167-9361 | | | | | |
| 0.1µF | 167-9362 | | | | | |
| 0.22µF | 167-9364 | | | | | |
| 0.33µF | 167-9365 | | | | | |
| 0.47µF | 167-9366 | | | | | |
| 1µF | 167-9367 | | | | | |
| 1µF | 167-9368 | | | | | |
| 2.2µF | 167-9369 | | | | | |
| 3.3µF | 167-9370 | | | | | |
| 4.7µF | 167-9371 | | | | | |

**400 Volt**

| | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 0.022µF | 9 | 13 | 4 | 10 | R60MF2220506AJ | 167-9372 |
| 0.033µF | 9 | 13 | 4 | 10 | R60MF2330506AJ | 167-9373 |
| 0.047µF | 9 | 13 | 4 | 10 | R60MF2470506AJ | 167-9374 |
| 0.1µF | 11 | 13 | 5 | 10 | R60MF3100506AJ | 167-9376 |
| 0.1µF | 11 | 18 | 5 | 15 | R60MI31005030J | 167-9377 |
| 0.22µF | 11 | 18 | 5 | 15 | R60MI32205040J | 167-9378 |
| 0.33µF | 14 | 18 | 8 | 15 | R60MI33305030J | 167-9379 |
| 0.47µF | 15 | 27 | 6 | 22.5 | R60MN34705030J | 167-9381 |
| 1µF | 17 | 27 | 9 | 22.5 | R60MN41005040J | 167-9382 |
| 1.5µF | 19 | 27 | 10 | 22.5 | R60MN41505040J | 167-9383 |
| 2.2µF | 20 | 32 | 11 | 27.5 | R60MR42205040J | 167-9384 |

**400 Volt** — **Price Each**

| | Order Code | 10+ | 25+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| 0.022µF | 167-9372 | | | | | |
| 0.033µF | 167-9373 | | | | | |
| 0.047µF | 167-9374 | | | | | |
| 0.1µF | 167-9376 | | | | | |
| 0.1µF | 167-9377 | | | | | |
| 0.22µF | 167-9378 | | | | | |
| 0.33µF | 167-9379 | | | | | |
| 0.47µF | 167-9381 | | | | | |
| 1µF | 167-9382 | | | | | |
| 1.5µF | 167-9383 | | | | | |
| 2.2µF | 167-9384 | | | | | |

**630 Volt**

| | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 0.01µF | 9 | 13 | 4 | 10 | R60PF2100506AJ | 167-9385 |
| 0.022µF | 9 | 13 | 4 | 10 | R60PF2220506AJ | 167-9388 |
| 0.047µF | 11 | 13 | 5 | 10 | R60PF2470506AJ | 167-9389 |
| 0.1µF | 12 | 18 | 6 | 15 | R60PI31005040J | 167-9391 |
| 0.22µF | 15 | 27 | 6 | 22.5 | R60PN32205040J | 167-9392 |
| 0.33µF | 16 | 27 | 7 | 22.5 | R60PN33305050J | 167-9393 |
| 0.47µF | 19 | 27 | 10 | 27.5 | R60PR34705040J | 167-9394 |

**630 Volt** — **Price Each**

| | Order Code | 10+ | 25+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| 0.01µF | 167-9385 | | | | | |
| 0.022µF | 167-9388 | | | | | |
| 0.047µF | 167-9389 | | | | | |
| 0.1µF | 167-9391 | | | | | |
| 0.22µF | 167-9392 | | | | | |
| 0.33µF | 167-9393 | | | | | |
| 0.47µF | 167-9394 | | | | | |

**1000 Volt**

| | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 1000pF | 9 | 13 | 4 | 10 | R60QF11005001J | 167-9396 |
| 2200pF | 9 | 13 | 4 | 10 | R60QF12205001J | 167-9397 |

527588

**1000 Volt** — **Price Each**

| | Order Code | 10+ | 25+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| 1000pF | 167-9396 | | | | | |
| 2200pF | 167-9397 | | | | | |

## MKT 368 Series

AUTOMOTIVE GRADE — BC COMPONENTS



- Metallised PETP film capacitors
- Hard epoxy coated
- Crimped and cropped leads for direct PCB mounting

Lead length=5

| | | | |
|---|---|---|---|
| Operating temperature | -55°C to +100°C | Climatic category **(IEC68)** | 40/100/56 |
| Insulation resistance | MΩ | Tolerance | ±10% |
| Basic specification | **IEC384/2**, long life grade | Power factor | 0.01 |

**100 Volt d.c. (63 Volt a.c.)**

| | Dimensions H | W | D | Lead Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.1µF | 13 | 12.5 | 4 | 0.6 | 10 | BFC236825104 | 121-5469 |
| 0.15µF | 12.9 | 12.5 | 3.9 | 0.6 | 10 | BFC236825154 | 121-5471 |
| 0.22µF | 13.6 | 12.5 | 4.5 | 0.6 | 10 | BFC236825224 | 121-5473 |
| 0.33µF | 14 | 17.5 | 5 | 0.8 | 15 | BFC236825334 | 121-5476 |
| 0.47µF | 14.5 | 17.5 | 5.5 | 0.8 | 15 | BFC236825474 | 121-5478 |
| 0.68µF | 15 | 17.5 | 6 | 0.8 | 15 | BFC236825684 | 121-5480 |
| 1µF | 16.5 | 17.5 | 7.5 | 0.8 | 15 | BFC236825105 | 121-5470 |
| 1.5µF | 18 | 26 | 6 | 0.8 | 22.5 | BFC236825155 | 121-5472 |
| 2.2µF | 19.5 | 26 | 7.5 | 0.8 | 22.5 | BFC236825225 | 121-5475 |
| 3.3µF | 22 | 26 | 9 | 0.8 | 22.5 | BFC236825335 | 121-5477 |
| 4.7µF | 23 | 30 | 10 | 0.8 | 27.5 | BFC236825475 | 121-5479 |

**250 Volt d.c. (160 Volt a.c.)**

| | Dimensions H | W | D | Lead Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.033µF | 13 | 12.5 | 4.6 | 0.6 | 10 | BFC236845333 | 121-5488 |
| 0.047µF | 13.5 | 12.5 | 4.5 | 0.6 | 10 | BFC236845473 | 121-5490 |
| 0.068µF | 13.5 | 12.5 | 4.6 | 0.6 | 10 | BFC236845683 | 121-5492 |
| 0.1µF | 13.7 | 12.5 | 4.7 | 0.6 | 10 | 2222 368 45104 | 121-5481 |
| 0.22µF | 15 | 17.5 | 6 | 0.8 | 15 | BFC236845224 | 121-5485 |
| 0.33µF | 16 | 17.5 | 6.8 | 0.8 | 15 | BFC236845334 | 121-5489 |
| 0.47µF | 17.5 | 26 | 5.5 | 0.8 | 22.5 | BFC236845474 | 121-5491 |
| 0.68µF | 18.5 | 26 | 6.6 | 0.8 | 22.5 | BFC236845684 | 121-5493 |
| 1µF | 20 | 26 | 8 | 0.8 | 22.5 | BFC236845105 | 121-5482 |
| 1.5µF | 22 | 30 | 9 | 0.8 | 27.5 | BFC236845155 | 121-5484 |
| 2.2µF | 24 | 30 | 11 | 0.8 | 27.5 | BFC236845225 | 121-5487 |

**400 Volt d.c. (220 Volt a.c.)**

| | Dimensions H | W | D | Lead Dia | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.015µF | 13 | 12.5 | 4.1 | 0.6 | 10 | BFC236855153 | 121-5496 |
| 0.022µF | 12.9 | 12.5 | 4.2 | 0.6 | 10 | BFC236855223 | 121-5499 |
| 0.033µF | 13.7 | 12.5 | 4.6 | 0.6 | 10 | BFC236855333 | 121-5501 |
| 0.047µF | 14.5 | 17.5 | 5.4 | 0.8 | 15 | BFC236855473 | 121-5503 |
| 0.068µF | 13.5 | 17.5 | 5 | 0.8 | 15 | BFC236855683 | 121-5506 |
| 0.1µF | 14.5 | 17.5 | 5.3 | 0.8 | 15 | BFC236855104 | 121-5494 |
| 0.15µF | 15.5 | 17.5 | 6.4 | 0.8 | 15 | BFC236855154 | 121-5497 |
| 0.22µF | 18.5 | 26 | 6.3 | 0.8 | 22.5 | BFC236855224 | 121-5500 |
| 0.33µF | 18 | 26 | 6.4 | 0.8 | 22.5 | BFC236855334 | 121-5502 |
| 0.47µF | 20 | 26 | 8 | 0.8 | 22.5 | BFC236855474 | 121-5505 |
| 0.68µF | 21.5 | 30 | 8.5 | 0.8 | 27.5 | BFC236855684 | 121-5507 |
| 1µF | 23.5 | 30 | 10.5 | 0.8 | 27.5 | BFC236855105 | 121-5495 |

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**250 Volt d.c.** — **Price Each**

| | Order Code | 5+ | 100+ | 1K+ | 3K+ |
|---|---|---|---|---|---|
| 0.033µF | 121-5488 | | | | |
| 0.047µF | 121-5490 | | | | |
| 0.068µF | 121-5492 | | | | |
| 0.1µF | 121-5481 | | | | |
| 0.22µF | 121-5485 | | | | |
| 0.33µF | 121-5489 | | | | |
| 0.47µF | 121-5491 | | | | |
| 0.68µF | 121-5493 | | | | |
| 1µF | 121-5482 | | | | |
| 1.5µF | 121-5484 | | | | |
| 2.2µF | 121-5487 | | | | |

**100 Volt d.c.** — **Price Each**

| | Order Code | 5+ | 100+ | 1K+ | 3K+ |
|---|---|---|---|---|---|
| 0.1µF | 121-5469 | | | | |
| 0.15µF | 121-5471 | | | | |
| 0.22µF | 121-5473 | | | | |
| 0.33µF | 121-5476 | | | | |
| 0.47µF | 121-5478 | | | | |
| 0.68µF | 121-5480 | | | | |
| 1µF | 121-5470 | | | | |
| 1.5µF | 121-5472 | | | | |
| 2.2µF | 121-5475 | | | | |
| 3.3µF | 121-5477 | | | | |
| 4.7µF | 121-5479 | | | | |

**400 Volt d.c.** — **Price Each**

| | Order Code | 5+ | 100+ | 1K+ | 3K+ |
|---|---|---|---|---|---|
| 0.015µF | 121-5496 | | | | |
| 0.022µF | 121-5499 | | | | |
| 0.033µF | 121-5501 | | | | |
| 0.047µF | 121-5503 | | | | |
| 0.068µF | 121-5506 | | | | |
| 0.1µF | 121-5494 | | | | |
| 0.15µF | 121-5497 | | | | |
| 0.22µF | 121-5500 | | | | |
| 0.33µF | 121-5502 | | | | |
| 0.47µF | 121-5505 | | | | |
| 0.68µF | 121-5507 | | | | |
| 1µF | 121-5495 | | | | |

# Film - Polyester (PET) - continued

**Capacitance Conversion Table**

| | | | | |
|---|---|---|---|---|
| 0.000001µF | = | 0.001nF | = | 1pF |
| 0.00001µF | = | 0.01nF | = | 10pF |
| 0.0001µF | = | 0.1nF | = | 100pF |
| 0.001µF | = | 1nF | = | 1000pF |
| 0.01µF | = | 10nF | = | 10000pF |
| 0.1µF | = | 100nF | = | 100000pF |
| 1µF | = | 1000nF | = | 1000000pF |
| 10µF | = | 10000nF | = | 10000000pF |
| 100µF | = | 100000nF | = | 100000000pF |

## MKT 468 Series



- Metallised PETP film capacitors
- Hard epoxy coated
- Crimped and cropped leads for direct PCB mounting

Lead length=3.5

Operating temperature -40°C to +85°
Basic specification **IEC384-2**, long life grade

**100 Volt d.c. (63 Volt a.c.)**

| | Dimensions H | W | D | Lead Dia | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 1.5µF | 15 | 17.5 | 5.5 | 0.8 | 15 | BFC246804155 | 116-6115 |
| 2.2µF | 16 | 17.5 | 6.5 | 0.8 | 15 | BFC246804225 | 116-6117 |
| 3.3µF | 17.5 | 17.5 | 8 | 0.8 | 15 | BFC246804335 | 116-6118 |
| 4.7µF | 19.5 | 26 | 6.5 | 0.8 | 22.5 | BFC246804475 | 116-6119 |
| 6.8µF | 21 | 26 | 8 | 0.8 | 22.5 | BFC246804685 | 116-6120 |
| 10µF | 22.5 | 26 | 10 | 0.8 | 22.5 | BFC246804106 | 116-6121 |

**100 Volt d.c.** — **Price Each**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ | 3K+ |
|---|---|---|---|---|---|---|---|
| 1.5µF | **116-6115** | | | | | | |
| 2.2µF | **116-6117** | | | | | | |
| 3.3µF | **116-6118** | | | | | | |
| 4.7µF | **116-6119** | | | | | | |
| 6.8µF | **116-6120** | | | | | | |
| 10µF | **116-6121** | | | | | | |

**250 Volt d. c. (160 Volt a. c.)**

| | Dimensions H | W | D | Lead Dia | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.47µF | 15 | 17.5 | 6 | 0.8 | 15 | BFC246816474 | 116-6122 |
| 0.68µF | 16.5 | 17.5 | 7 | 0.8 | 15 | BFC246816684 | 116-6123 |
| 1µF | 19.5 | 17.5 | 7.5 | 0.8 | 15 | BFC246816105 | 116-6124 |
| 1.5µF | 19.5 | 26.5 | 7.5 | 0.8 | 22.5 | BFC246816155 | 116-6125 |
| 2.2µF | 21 | 26 | 9.5 | 0.8 | 22.5 | BFC246816225 | 116-6126 |
| 3.3µF | 23.5 | 26 | 11.5 | 0.8 | 22.5 | BFC246816335 | 116-6127 |
| 4.7µF | 25.5 | 26 | 14.5 | 0.8 | 22.5 | BFC246816475 | 116-6129 |

**250 Volt d.c.** — **Price Each**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ | 3K+ |
|---|---|---|---|---|---|---|---|
| 0.47µF | **116-6122** | | | | | | |
| 0.68µF | **116-6123** | | | | | | |
| 1µF | **116-6124** | | | | | | |
| 1.5µF | **116-6125** | | | | | | |
| 2.2µF | **116-6126** | | | | | | |
| 3.3µF | **116-6127** | | | | | | |
| 4.7µF | **116-6129** | | | | | | |

**400 Volt d. c. (200 Volt a. c.)**

| | Dimensions H | W | D | Lead Dia | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.15µF | 14 | 17.5 | 5 | 0.8 | 15 | BFC246828154 | 116-6131 |
| 0.22µF | 15 | 17.5 | 6 | 0.8 | 15 | BFC246828224 | 116-6132 |
| 0.33µF | 16.5 | 17.5 | 7.5 | 0.8 | 15 | BFC246828334 | 116-6133 |
| 0.47µF | 20 | 17.5 | 7.5 | 0.8 | 15 | BFC246828474 | 116-6134 |
| 0.68µF | 19.5 | 26 | 7.5 | 0.8 | 22.5 | BFC246828684 | 116-6135 |
| 1µF | 21 | 26 | 9.5 | 0.8 | 22.5 | BFC246828105 | 116-6136 |
| 1.5µF | 22.5 | 30 | 10.5 | 0.8 | 27.5 | BFC246828155 | 116-6137 |
| 2.2µF | 24.5 | 30 | 13.5 | 0.8 | 27.5 | BFC246828225 | 116-6138 |

**400 Volt d.c.** — **Price Each**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ | 3K+ |
|---|---|---|---|---|---|---|---|
| 0.15µF | **116-6131** | | | | | | |
| 0.22µF | **116-6132** | | | | | | |
| 0.33µF | **116-6133** | | | | | | |
| 0.47µF | **116-6134** | | | | | | |
| 0.68µF | **116-6135** | | | | | | |
| 1µF | **116-6136** | | | | | | |
| 1.5µF | **116-6137** | | | | | | |
| 2.2µF | **116-6138** | | | | | | |

**630 Volt d. c. (250 Volt a. c.)**

| | Dimensions H | W | D | Lead Dia | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.068µF | 14.5 | 17.5 | 6 | 0.8 | 15 | BFC246840683 | 116-6139 |
| 0.1µF | 15.5 | 17.5 | 7.5 | 0.8 | 15 | BFC246840104 | 116-6140 |
| 0.22µF | 19 | 26 | 7.5 | 0.8 | 22.5 | BFC246840224 | 116-6143 |
| 0.33µF | 20.5 | 26 | 9.5 | 0.8 | 22.5 | BFC246840334 | 116-6144 |
| 0.47µF | 22 | 26 | 11.5 | 0.8 | 22.5 | BFC246840474 | 116-6145 |
| 0.68µF | 23.5 | 26 | 14.5 | 0.8 | 22.5 | BFC246840684 | 116-6146 |

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**630 Volt d.c.** — **Price Each**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ | 3K+ |
|---|---|---|---|---|---|---|---|
| 0.068µF | **116-6139** | | | | | | |
| 0.1µF | **116-6140** | | | | | | |
| 0.22µF | **116-6143** | | | | | | |
| 0.33µF | **116-6144** | | | | | | |
| 0.47µF | **116-6145** | | | | | | |
| 0.68µF | **116-6146** | | | | | | |

## ECQE Series

Panasonic

**250V, 400V & 630V**



Operating temperature -40°C to +105°C
Capacitance tolerance ± 5%

- Self-healing property
- Excellent electrical characteristics
- Flame retardant epoxy resin coating
- General purpose usage

**250 Volt d.c.**

| Capacitance | Body Dimensions (mm) H | W | D | Lead Dimensions (mm) Spacing | Dia | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.01µF | 7.4 | 10.3 | 4.3 | 7.5 | 0.6 | ECQE2103JF | 174-4784 |
| 0.022µF | 7.5 | 10.3 | 4.4 | 7.5 | 0.6 | ECQE2223JF | 174-4785 |
| 0.033µF | 7.5 | 10.3 | 4.5 | 7.5 | 0.6 | ECQE2333JF | 174-4786 |
| 0.047µF | 7.5 | 10.3 | 4.5 | 7.5 | 0.6 | ECQE2473JF | 174-4787 |
| 0.068µF | 7.5 | 10.3 | 4.5 | 7.5 | 0.6 | ECQE2683JF | 174-4788 |
| 0.1µF | 8.4 | 10.3 | 5.8 | 7.5 | 0.6 | ECQE2104JF | 174-4789 |
| 0.22µF | 10.5 | 12 | 5.5 | 10 | 0.6 | ECQE2224JF | 174-4790 |
| 0.33µF | 12 | 12 | 6.5 | 10 | 0.6 | ECQE2334JF | 174-4791 |
| 0.47µF | 12.5 | 18.5 | 5.3 | 15 | 0.6 | ECQE2474JF | 174-4792 |
| 0.68µF | 13.5 | 18.5 | 6 | 15 | 0.8 | ECQE2684JF | 174-4794 |
| 1µF | 15 | 18.5 | 7.4 | 15 | 0.8 | ECQE2105JF | 174-4795 |
| 2.2µF | 16.3 | 26 | 8.5 | 22.5 | 0.8 | ECQE2225JF | 174-4796 |
| 3.3µF | 18 | 26 | 10.3 | 22.5 | 0.8 | ECQE2335JF | 174-4797 |
| 4.7µF | 21.5 | 26 | 12 | 22.5 | 0.8 | ECQE2475JF | 174-4798 |

**Order Multiple=5**

**250 Volt d.c.** — **Price Each**

| | Order Code | 5+ | + | + | + | + |
|---|---|---|---|---|---|---|
| 0.01µF | **174-4784** | | | | | |
| 0.022µF | **174-4785** | | | | | |
| 0.033µF | **174-4786** | | | | | |
| 0.047µF | **174-4787** | | | | | |
| 0.068µF | **174-4788** | | | | | |
| 0.1µF | **174-4789** | | | | | |
| 0.22µF | **174-4790** | | | | | |
| 0.33µF | **174-4791** | | | | | |
| 0.47µF | **174-4792** | | | | | |
| 0.68µF | **174-4794** | | | | | |
| 1µF | **174-4795** | | | | | |
| 2.2µF | **174-4796** | | | | | |
| 3.3µF | **174-4797** | | | | | |
| 4.7µF | **174-4798** | | | | | |

**400 Volt d.c.**

| Capacitance | Body Dimensions (mm) H | W | D | Lead Dimensions (mm) Spacing | Dia | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.01µF | 7.4 | 10.3 | 4.3 | 7.5 | 0.6 | ECQE4103JF | 174-4799 |
| 0.022µF | 7.9 | 10.3 | 4.8 | 7.5 | 0.6 | ECQE4223JF | 174-4801 |
| 0.033µF | 9 | 10.3 | 6 | 7.5 | 0.6 | ECQE4333JF | 174-4802 |
| 0.047µF | 8.3 | 12 | 5 | 10 | 0.6 | ECQE4473JF | 174-4803 |
| 0.068µF | 10.5 | 12 | 5.4 | 10 | 0.6 | ECQE4683JF | 174-4804 |
| 0.1µF | 12 | 12 | 6.3 | 10 | 0.6 | ECQE4104JF | 174-4805 |
| 0.22µF | 13 | 18.5 | 5.9 | 15 | 0.6 | ECQE4224JF | 174-4806 |
| 0.33µF | 14.9 | 18.5 | 7 | 15 | 0.8 | ECQE4334JF | 174-4807 |
| 0.47µF | 17 | 18.5 | 7.8 | 15 | 0.8 | ECQE4474JF | 174-4808 |
| 0.68µF | 16.5 | 26 | 7 | 22.5 | 0.8 | ECQE4684JF | 174-4809 |
| 1µF | 18 | 26 | 8.5 | 22.5 | 0.8 | ECQE4105JF | 174-4810 |
| 2.2µF | 22 | 31 | 11 | 27.5 | 0.8 | ECQE4225JF | 174-4812 |

**Order Multiple=5**

**400 Volt d.c.** — **Price Each**

| | Order Code | 5+ | + | + | + | + |
|---|---|---|---|---|---|---|
| 0.01µF | **174-4799** | | | | | |
| 0.022µF | **174-4801** | | | | | |
| 0.033µF | **174-4802** | | | | | |
| 0.047µF | **174-4803** | | | | | |
| 0.068µF | **174-4804** | | | | | |
| 0.1µF | **174-4805** | | | | | |
| 0.22µF | **174-4806** | | | | | |
| 0.33µF | **174-4807** | | | | | |
| 0.47µF | **174-4808** | | | | | |
| 0.68µF | **174-4809** | | | | | |
| 1µF | **174-4810** | | | | | |
| 2.2µF | **174-4812** | | | | | |

**630 Volt d.c.**

| Capacitance | Body Dimensions (mm) H | W | D | Lead Dimensions (mm) Spacing | Dia | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.01µF | 7.5 | 12 | 12 | 10 | 0.6 | ECQE6103JF | 174-4813 |
| 0.022µF | 10.5 | 12 | 12 | 10 | 0.6 | ECQE6223JF | 174-4814 |
| 0.033µF | 11.9 | 12 | 12 | 10 | 0.6 | ECQE6333JF | 174-4815 |
| 0.047µF | 13.5 | 12 | 12 | 10 | 0.6 | ECQE6473JF | 174-4816 |
| 0.068µF | 11 | 18.5 | 18.5 | 15 | 0.6 | ECQE6683JF | 174-4817 |
| 0.1µF | 14 | 18.5 | 18.5 | 15 | 0.6 | ECQE6104JF | 174-4818 |
| 0.22µF | 16.5 | 18.5 | 18.5 | 15 | 0.8 | ECQE6224JF | 174-4819 |

| 630 Volt d.c. | Body Dimensions (mm) | | | Lead Dimensions (mm) | | | |
|---|---|---|---|---|---|---|---|
| 0.33µF | 17 | 26 | 26 | 22.5 | 0.8 | ECQE6334JF | 174-4820 |
| 0.47µF | 18.5 | 26 | 26 | 22.5 | 0.8 | ECQE6474JF | 174-4821 |
| 0.68µF | 21 | 26 | 26 | 22.5 | 0.8 | ECQE6684JF | 174-4822 |
| 1µF | 21.9 | 31 | 31 | 27.5 | 0.8 | ECQE6105JF | 174-4824 |
| 2.2µF | 29 | 31 | 31 | 27.5 | 0.8 | ECQE6225JF | 174-4825 |

542062

**Order Multiple=5**

**630 Volt d.c.** — **Price Each**

| | Order Code | 5+ | + | + | + | + |
|---|---|---|---|---|---|---|
| 0.01µF | **174-4813** | | | | | |
| 0.022µF | **174-4814** | | | | | |
| 0.033µF | **174-4815** | | | | | |
| 0.047µF | **174-4816** | | | | | |
| 0.068µF | **174-4817** | | | | | |
| 0.1µF | **174-4818** | | | | | |
| 0.22µF | **174-4819** | | | | | |
| 0.33µF | **174-4820** | | | | | |
| 0.47µF | **174-4821** | | | | | |
| 0.68µF | **174-4822** | | | | | |
| 1µF | **174-4824** | | | | | |
| 2.2µF | **174-4825** | | | | | |

## MKT 372, 373 Series



- Metallised polyester capacitors
- Flame retardant and solvent resistant case

373 Series
Lead length=5, Lead dia.=0.8

372 Series
Lead length=4, Lead dia.=0.6

| | | | |
|---|---|---|---|
| Operating temperature | -55°C to +105°C | Climatic category **(IEC68)** | 55/105/56 |
| Insulation resistance | MΩ | Tolerance | ±10% |
| Grade | Grade 1 (long life) | Power factor | 0.01 |

**100 Volt d.c. (63 Volt a.c.)**

| | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 0.1µF | 9 | 12.5 | 4 | 10 | BFC237221104 | 121-5522 |
| 0.15µF | 9 | 12.5 | 4 | 10 | BFC237221154 | 121-5523 |
| 0.22µF | 9 | 12.5 | 4 | 10 | BFC237221224 | 121-5524 |
| 0.33µF | 11 | 17.5 | 5 | 15 | BFC237321334 | 121-5532 |
| 0.47µF | 11 | 17.5 | 5 | 15 | BFC237321474 | 121-5534 |
| 0.68µF | 11 | 17.5 | 5 | 15 | BFC237321684 | 121-5535 |
| 1µF | 11 | 17.5 | 5 | 15 | BFC237323105 | 121-5531 |
| 1.5µF | 16.5 | 26 | 7 | 22.5 | BFC237390012 | 121-5546 |
| 2.2µF | 16.5 | 26 | 7 | 22.5 | BFC237390002 | 121-5545 |
| 3.3µF | 18 | 26 | 8.5 | 22.5 | BFC237321335 | 121-5533 |
| 4.7µF | 19 | 31 | 9 | 27.5 | BFC237390032 | 121-5547 |
| 6.8µF | 21 | 31 | 11 | 27.5 | BFC237321685 | 121-5536 |

**Order Multiple=5**

**100 Volt d.c.** — **Price Each**

| | Order Code | 5+ | 100+ | 1K+ | 3K+ | 5K+ |
|---|---|---|---|---|---|---|
| 0.1µF | **121-5522** | | | | | |
| 0.15µF | **121-5523** | | | | | |
| 0.22µF | **121-5524** | | | | | |
| 0.33µF | **121-5532** | | | | | |
| 0.47µF | **121-5534** | | | | | |
| 0.68µF | **121-5535** | | | | | |
| 1µF | **121-5531** | | | | | |
| 1.5µF | **121-5546** | | | | | |
| 2.2µF | **121-5545** | | | | | |
| 3.3µF | **121-5533** | | | | | |
| 4.7µF | **121-5547** | | | | | |
| 6.8µF | **121-5536** | | | | | |

**250 Volt d.c. (160 Volt a.c.)**

| | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 0.1µF | 10 | 12.5 | 4 | 10 | BFC237241104 | 121-5525 |
| 0.22µF | 11 | 17.5 | 5 | 15 | BFC237341224 | 121-5538 |
| 0.47µF | 15.5 | 26 | 6 | 22.5 | BFC237390042 | 121-5548 |
| 0.82µF | 15 | 17.5 | 8.5 | 15 | BFC237343824 | 141-3809 |
| 1µF | 14.5 | 26 | 7 | 22.5 | BFC237390082 | 121-5549 |
| 1.5µF | 19 | 31 | 9 | 27.5 | BFC237390092 | 121-5550 |
| 2.2µF | 21 | 31 | 11 | 27.5 | BFC237390112 | 121-5551 |

**Order Multiple=5**

**250 Volt d.c.** — **Price Each**

| | Order Code | 5+ | 100+ | 1K+ | 3K+ | 5K+ |
|---|---|---|---|---|---|---|
| 0.1µF | **121-5525** | | | | | |
| 0.22µF | **121-5538** | | | | | |
| 0.47µF | **121-5548** | | | | | |
| 0.82µF | **141-3809** | | | | | |
| 1µF | **121-5549** | | | | | |
| 1.5µF | **121-5550** | | | | | |
| 2.2µF | **121-5551** | | | | | |

**400 Volt d.c. (220 Volt a.c.)**

| | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 0.01µF | 9 | 12.5 | 4 | 10 | BFC237251103 | 121-5526 |
| 0.022µF | 9 | 12.5 | 4 | 10 | BFC237251223 | 121-5527 |
| 0.033µF | 10 | 12.5 | 4 | 10 | BFC237251333 | 121-5529 |
| 0.047µF | 11 | 17.5 | 5 | 15 | BFC237351473 | 121-5542 |
| 0.1µF | 11 | 17.5 | 5 | 15 | BFC237351104 | 121-5539 |
| 0.15µF | 11 | 17.5 | 5 | 15 | BFC237353154 | 141-3812 |
| 0.22µF | 12 | 17.5 | 6 | 15 | BFC237353224 | 141-3813 |
| 0.33µF | 13.5 | 17.5 | 7 | 15 | BFC237353334 | 141-3814 |
| 0.47µF | 18 | 26 | 8.5 | 22.5 | BFC237351474 | 121-5543 |
| 1µF | 21 | 31 | 11 | 27.5 | BFC237351105 | 121-5540 |

**Order Multiple=5**

**400 Volt d.c.** — **Price Each**

| | Order Code | 5+ | 100+ | 1K+ | 3K+ | 5K+ |
|---|---|---|---|---|---|---|
| 0.01µF | **121-5526** | | | | | |
| 0.022µF | **121-5527** | | | | | |
| 0.033µF | **121-5529** | | | | | |
| 0.15µF | **141-3812** | | | | | |
| 0.22µF | **141-3813** | | | | | |
| 0.33µF | **141-3814** | | | | | |
| 0.047µF | **121-5542** | | | | | |
| 0.1µF | **121-5539** | | | | | |
| 0.47µF | **121-5543** | | | | | |
| 1µF | **121-5540** | | | | | |

**630 Volt d.c. (250 Volt a.c.)**

| | Dimensions mm H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 0.01µF | 10 | 12.5 | 4 | 10 | BFC237261103 | 116-6014 |
| 0.015µF | 10 | 12.5 | 4 | 10 | BFC237261153 | 116-6015 |
| 0.022µF | 10 | 12.5 | 4 | 10 | BFC237261223 | 116-6016 |
| 0.033µF | 11 | 12.5 | 5 | 10 | BFC237261333 | 116-6017 |
| 0.047µF | 12 | 12.5 | 6 | 10 | BFC237261473 | 116-6018 |
| 0.068µF | 12 | 12.5 | 6 | 15 | BFC237363683 | 116-6019 |
| 0.1µF | 13.5 | 17.5 | 7 | 15 | BFC237363104 | 116-6020 |
| 0.15µF | 15 | 17.5 | 8.5 | 15 | BFC237363154 | 116-6021 |
| 0.22µF | 16.5 | 17.5 | 10 | 15 | BFC237363224 | 116-6022 |
| 0.33µF | 18 | 26 | 8.5 | 22.5 | BFC237363334 | 116-6023 |
| 0.47µF | 19.5 | 26 | 10 | 22.5 | BFC237363474 | 116-6024 |
| 0.68µF | 23 | 31 | 13 | 27.5 | BFC237363684 | 116-6026 |
| 1µF | 25 | 31 | 15 | 27.5 | BFC237363105 | 116-6027 |

208404

**Order Multiple=5**

**630 Volt d.c.** — **Price Each**

| | Order Code | 5+ | 100+ | 1K+ | 3K+ | 5K+ |
|---|---|---|---|---|---|---|
| 0.01µF | **116-6014** | | | | | |
| 0.015µF | **116-6015** | | | | | |
| 0.022µF | **116-6016** | | | | | |
| 0.033µF | **116-6017** | | | | | |
| 0.047µF | **116-6018** | | | | | |
| 0.068µF | **116-6019** | | | | | |
| 0.1µF | **116-6020** | | | | | |
| 0.15µF | **116-6021** | | | | | |
| 0.22µF | **116-6022** | | | | | |
| 0.33µF | **116-6023** | | | | | |
| 0.47µF | **116-6024** | | | | | |
| 0.68µF | **116-6026** | | | | | |
| 1µF | **116-6027** | | | | | |

## MKT 1822 Series




Lead dia. = 0.8

- Metallised polyester film capacitors
- Stacked film technology
- Flame retardant case to **UL94V-0**
- Potted with epoxy resin
- Conform to **DIN44122**

| | | | | |
|---|---|---|---|---|
| Operating temperature | -55°C to +100°C | Climatic category | 55/100/56 | Tolerance ±20% |

**100 Volt d.c. (63 Volt a.c.)**

| | Dimensions H | W | D | Lead Pitch | Order Code |
|---|---|---|---|---|---|
| 0.1µF | 9 | 4 | 13 | 10 | 116-6897 |
| 1µF | 13.5 | 7.5 | 18 | 15 | 116-6898 |
| 2.2µF | 16.5 | 8.5 | 26.5 | 22.5 | 116-6899 |
| 10µF | 24.5 | 15 | 31.5 | 27.5 | 116-6900 |

**100 Volt d.c.** — **Price Each**

| | Order Code | 5+ | 10+ | 50+ | 100+ |
|---|---|---|---|---|---|
| 0.1µF | **116-6897** | | | | |
| 1µF | **116-6898** | | | | |
| 2.2µF | **116-6899** | | | | |
| 10µF | **116-6900** | | | | |

**400 Volt d.c. (200 Volt a.c.)**

| | nF | Dimensions H | W | D | Lead Pitch | Order Code |
|---|---|---|---|---|---|---|
| 0.1µF | 100 | 10.5 | 5.5 | 18 | 15 | 116-6901 |
| 0.47µF | 470 | 18 | 10.5 | 26.5 | 22.5 | 116-6902 |

208576

**400 Volt d.c.** — **Price Each**

| | Order Code | 5+ | 10+ | 50+ | 100+ |
|---|---|---|---|---|---|
| 0.1µF | **116-6901** | | | | |
| 0.47µF | **116-6902** | | | | |

# Film - Polyester (PET) - continued

## MKT1813 - Series



- Axial polyester film
- Wide voltage and temperature range

**63 Volt d. c. (40 Volt a. c.)**

| | Dimensions L | Dia. | Lead Length | Lead Dia. | List No. Mftrs. | Order Code |
|---|---|---|---|---|---|---|
| 0.33µF | 14 | 6 | 40 | 0.7 | MKT1813433065G | 116-6825 |
| 0.47µF | 14 | 7 | 40 | 0.8 | MKT1813447065G | 116-6826 |
| 1µF | 19 | 7 | 40 | 0.8 | MKT1813510065G | 116-6828 |
| 1.5µF | 19 | 8.5 | 40 | 0.8 | MKT1813515065G | 116-6829 |
| 2.2µF | 26.5 | 8.5 | 40 | 0.8 | MKT1813522065G | 116-6830 |
| 3.3µF | 26.5 | 10 | 40 | 0.8 | MKT1813533065G | 116-6831 |
| 4.7µF | 26.5 | 11.5 | 40 | 0.8 | MKT1813547065G | 116-6832 |
| 10µF | 31.5 | 14.5 | 40 | 0.8 | MKT1813610065G | 116-6833 |

**63 Volt d.c. (40 Volt a.c.)** — Price Each

| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.33µF | **116-6825** | | | | | |
| 0.47µF | **116-6826** | | | | | |
| 1µF | **116-6828** | | | | | |
| 1.5µF | **116-6829** | | | | | |
| 2.2µF | **116-6830** | | | | | |
| 3.3µF | **116-6831** | | | | | |
| 4.7µF | **116-6832** | | | | | |
| 10µF | **116-6833** | | | | | |

**100 Volt d. c. (63 Volt a. c.)**

| | Dimensions L | Dia. | Lead Length | Lead Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 1µF | 19 | 8.5 | 40 | 0.8 | MKT1813510015 | 141-3824 |
| 10µF | 31.5 | 16.5 | 40 | 1 | MKT1813610015 | 141-3825 |

**100 Volt d.c. (63 Volt a.c.)** — Price Each

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1µF | **141-3824** | | | | | |
| 10µF | **141-3825** | | | | | |

**250 Volt d. c. (160 Volt a. c.)**

| | Dimensions L | Dia. | Lead Length | Lead Dia | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 0.022µF | 11 | 5 | 40 | 0.6 | MKT1813322255G | 116-6835 |
| 0.047µF | 14 | 6 | 40 | 0.07 | MKT1813347255G | 116-6836 |
| 0.1µF | 14 | 6 | 40 | 0.7 | MKT1813410255G | 116-6837 |
| 0.22µF | 19 | 7 | 40 | 0.8 | MKT1813422255G | 116-6838 |
| 0.33µF | 19 | 8 | 40 | 0.8 | MKT1813433255G | 116-6841 |
| 0.47µF | 19 | 9 | 40 | 0.8 | MKT1813447255G | 116-6842 |
| 0.68µF | 26.5 | 8.5 | 40 | 0.8 | MKT1813468255G | 116-6843 |
| 1µF | 26.5 | 10 | 40 | 0.8 | MKT1813510255G | 116-6844 |
| 1.5µF | 31.5 | 11 | 40 | 0.8 | MKT1813515255G | 116-6845 |
| 2.2µF | 31.5 | 13 | 40 | 0.8 | MKT1813522255G | 116-6846 |
| 3.3µF | 31.5 | 15.5 | 40 | 0.8 | MKT1813533255G | 116-6847 |
| 4.7µF | 41.5 | 15.5 | 40 | 0.8 | MKT1813547255G | 116-6848 |
| 6.8µF | 41.5 | 17.5 | 40 | 1 | MKT1813568255G | 116-6849 |
| 10µF | 41.5 | 21 | 25 | 1 | MKT1813610255GQ | 116-6850 |

**250 Volt d.c. (160 Volt a.c.)** — Price Each

| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.022µF | **116-6835** | | | | | |
| 0.047µF | **116-6836** | | | | | |
| 0.1µF | **116-6837** | | | | | |
| 0.22µF | **116-6838** | | | | | |
| 0.33µF | **116-6841** | | | | | |
| 0.47µF | **116-6842** | | | | | |
| 0.68µF | **116-6843** | | | | | |
| 1µF | **116-6844** | | | | | |
| 1.5µF | **116-6845** | | | | | |
| 2.2µF | **116-6846** | | | | | |
| 3.3µF | **116-6847** | | | | | |
| 4.7µF | **116-6848** | | | | | |
| 6.8µF | **116-6849** | | | | | |
| 10µF | **116-6850** | | | | | |

**400 Volt d. c. (200 Volt a. c.)**

| | Dimensions L | Dia. | Lead Length | Lead Dia | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 0.01µF | 11 | 5 | 40 | 0.6 | MKT1813310405G | 116-6851 |
| 0.022µF | 14 | 6 | 40 | 0.7 | MKT1813322405G | 116-6853 |
| 0.033µF | 14 | 6 | 40 | 0.7 | MKT1813333405G | 116-6854 |
| 0.047µF | 14 | 7 | 40 | 0.8 | MKT1813347405G | 116-6855 |
| 0.1 | 19 | 7 | 40 | 0.8 | MKT1813410405G | 116-6856 |
| 0.22µF | 26.5 | 8 | 40 | 0.8 | MKT1813422405G | 116-6857 |
| 0.47 | 26.5 | 11 | 40 | 0.8 | MKT1813447405G | 116-6858 |
| 1µF | 31.5 | 13.5 | 40 | 0.8 | MKT1813510405G | 116-6859 |
| 1.5µF | 41.5 | 14 | 40 | 0.8 | MKT1813515405G | 116-6861 |
| 2.2µF | 41.5 | 16.5 | 40 | 1 | MKT1813522405G | 116-6862 |

**400 Volt d.c. (200 Volt a.c.)** — Price Each

| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.01µF | **116-6851** | | | | | |
| 0.022µF | **116-6853** | | | | | |
| 0.033µF | **116-6854** | | | | | |
| 0.047µF | **116-6855** | | | | | |
| 0.1 | **116-6856**† | | | | | |

**400 Volt d.c. (200 Volt a.c.)** — Price Each

| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.22µF | **116-6857** | | | | | |
| 0.47 | **116-6858**† | | | | | |
| 1µF | **116-6859** | | | | | |
| 1.5µF | **116-6861** | | | | | |
| 2.2µF | **116-6862** | | | | | |

**630 Volt d. c. (220 Volt a. c.)**

| | Dimensions L | Dia. | Lead Length | Lead Dia | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 1000pF | 11 | 5 | 40 | 0.6 | MKT1813210635G | 116-6865 |
| 1500pF | 11 | 5 | 40 | 0.6 | MKT1813215635G | 116-6866 |
| 2200pF | 11 | 5 | 40 | 0.6 | MKT1813222635G | 116-6867 |
| 3300pF | 11 | 5 | 40 | 0.6 | MKT1813233635G | 116-6868 |
| 4700pF | 11 | 5 | 40 | 0.6 | MKT1813247635G | 116-6869 |
| 6800pF | 14 | 6 | 40 | 0.7 | MKT1813268635G | 116-6870 |

**630 Volt d.c. (220 Volt a.c.)** — Price Each

| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1000pF | **116-6865** | | | | | |
| 1500pF | **116-6866** | | | | | |
| 2200pF | **116-6867** | | | | | |
| 3300pF | **116-6868** | | | | | |
| 4700pF | **116-6869** | | | | | |
| 6800pF | **116-6870** | | | | | |

**630 Volt d. c. (220 Volt a. c.)**

| | Dimensions L | Dia. | Lead Length | Lead Dia | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 0.01µF | 14 | 6 | 40 | 0.7 | MKT1813310635G | 116-6871 |
| 0.015µF | 14 | 6.5 | 40 | 0.7 | MKT1813315635G | 116-6872 |
| 0.022µF | 14 | 7.5 | 40 | 0.8 | MKT1813322635G | 116-6873 |
| 0.047µF | 19 | 7.7 | 40 | 0.8 | MKT1813347635G | 116-6874 |
| 0.068µF | 19 | 8.5 | 40 | 0.8 | MKT1813368635G | 116-6875 |
| 0.1µF | 19 | 10.5 | 40 | 0.8 | MKT1813410635G | 116-6877 |
| 0.15µF | 26.5 | 10 | 40 | 0.8 | MKT1813415635G | 116-6878 |
| 0.22µF | 26.5 | 11.5 | 40 | 0.8 | MKT1813422635G | 116-6879 |
| 0.47µF | 31.5 | 14.5 | 40 | 0.8 | MKT1813447635G | 116-6880 |

208554

**630 Volt d.c. (220 Volt a.c.)** — Price Each

| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.01µF | **116-6871** | | | | | |
| 0.015µF | **116-6872** | | | | | |
| 0.022µF | **116-6873** | | | | | |
| 0.047µF | **116-6874** | | | | | |
| 0.068µF | **116-6875** | | | | | |
| 0.1µF | **116-6877** | | | | | |
| 0.15µF | **116-6878** | | | | | |
| 0.22µF | **116-6879** | | | | | |
| 0.47µF | **116-6880** | | | | | |

# Film - Polypropylene

## MKP 1848 DC-Link




**Features:**
- Operating Temperature Range -40°C to +105°C
- ±5% Tolerance
- Lifetime of 100000 hours @ 70°C

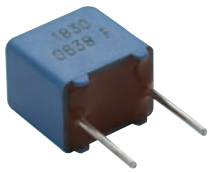
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663186

| Capacitance | Lead Spacing | Mftrs. List No. | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|---|---|
| **500V** | | | | | | | | |
| 5µF | 27.5mm | MKP1848S55050JK2A | **213-3974** | | | | | |
| 20µF | 52.5mm | MKP1848S62050JY2B | **213-3975** | | | | | |
| 10µF | 37.5mm | MKP1848S61050JP2C | **213-3976** | | | | | |
| 30µF | 52.5mm | MKP1848S63050JY5C | **213-3977** | | | | | |
| **700V** | | | | | | | | |
| 3µF | 27.5mm | MKP1848S53070JK2A | **213-3978** | | | | | |
| 7µF | 37.5mm | MKP1848S57070JP2C | **213-3980** | | | | | |
| 10µF | 37.5mm | MKP1848S61070JP2C | **213-3981** | | | | | |
| 15µF | 37.5mm | MKP1848S61570JP2C | **213-3983** | | | | | |
| 20µF | 37.5mm | MKP1848S62070JP2F | **213-3984** | | | | | |
| 20µF | 52.5mm | MKP1848S62070JY5B | **213-3979** | | | | | |
| 30µF | 52.5mm | MKP1848S63070JY5F | **213-3985** | | | | | |
| **0805 Case** | | | | | | | | |
| 5µF | 37.5mm | MKP1848S55010JP2C | **213-3987** | | | | | |
| 10µF | 52.5mm | MKP1848S61010JY2B | **213-3986** | | | | | |
| 20µF | 52.5mm | MKP1848S62010JY5F | **213-3988** | | | | | |


RoHS ● Compliant ▲ Non-compliant

## KP 1830 Series



- Polypropylene film capacitors

**Applications:**

- Oscillator, timing and LC/RC filter circuits
- High frequency coupling of fast digital and analog IC's

Tolerance ±1% Operating temperature -55°C to +100°C

| 63 Volt d.c. | Dimensions H | W | D | Lead Pitch | Lead Length | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.022µF | 9 | 7.2 | 7.5 | 5 | 6 | KP1830322061 | 141-3952 |

**63 Volt d.c.** — **Price Each**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.022µF | 141-3952● | | | | | |

| 250 Volt d.c. | Dimensions H | W | D | Lead Pitch | Lead Length | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 2200pF | 6 | 7.2 | 4.5 | 5 | 6 | KP1830222251 | 141-3949 |
| 4700pF | 7 | 7.2 | 5.5 | 5 | 6 | KP1830247251 | 141-3950 |
| 0.01µF | 9 | 7.2 | 7.5 | 5 | 6 | KP1830310251 | 141-3951 |

**250 Volt d.c.** — **Price Each**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 2200pF | 141-3949● | | | | | |
| 4700pF | 141-3950● | | | | | |
| 0.01µF | 141-3951● | | | | | |

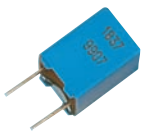
| 630 Volt d.c. | Dimensions H | W | D | Lead Pitch | Lead Length | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 100pF | 6 | 7.2 | 4.5 | 5 | 6 | KP1830110631 | 141-3944 |
| 220pF | 6 | 7.2 | 4.5 | 5 | 6 | KP1830122631 | 141-3945 |
| 470pF | 6 | 7.2 | 4.5 | 5 | 6 | KP1830147631 | 141-3947 |
| 1000pF | 6 | 7.2 | 4.5 | 5 | 6 | KP1830210631 | 141-3948 |

494033

**630 Volt d.c.** — **Price Each**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 100pF | 141-3944● | | | | | |
| 220pF | 141-3945● | | | | | |
| 470pF | 141-3947● | | | | | |
| 1000pF | 141-3948● | | | | | |

## MKP 1837 Series– Precision Film



- Precison metallised polypropylene film
- 5mm box
- Flame retardant case to **UL94V-0**

Operating temperature -55°C to +100°C
IEC test classification 55/100/56
Lead Pitch (mm) 5mm

| 160 Volt d.c. ±1% | Dimensions (mm) H | W | L | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 0.01µF | 5.5 | 7 | 7.5 | MKP1837310161G | 116-6881 |
| 0.015µF | 5.5 | 7 | 7.5 | MKP1837315161G | 116-6882 |
| 0.022µF | 5.5 | 7 | 7.5 | MKP1837322161G | 116-6883 |
| 0.033µF | 7.5 | 9 | 7.5 | MKP1837333161G | 116-6884 |
| 0.047µF | 7.5 | 9 | 7.5 | MKP1837347161G | 116-6885 |
| 0.068µF | 7.5 | 9 | 7.5 | MKP1837368161G | 116-6886 |
| 0.1µF | 9 | 7.5 | 11 | MKP1837410161G | 116-6887 |

208556

**160 Volt d.c. ±1%** — **Price Each**

| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.01µF | 116-6881● | | | | | |
| 0.015µF | 116-6882● | | | | | |
| 0.022µF | 116-6883● | | | | | |
| 0.033µF | 116-6884● | | | | | |
| 0.047µF | 116-6885● | | | | | |
| 0.068µF | 116-6886● | | | | | |
| 0.1µF | 116-6887● | | | | | |

## PHE426 Series



- Single metallized film pulse capacitors
- Polypropylene dielectric
- Applications include pulse operation in SMPS, TV monitor, electrical ballast and other high frequency applications demanding stable operation

Operating temperature -55°C to +85°C
Temperature coefficient +50ppm/°C, -100ppm/°C

**250V**

| Capacitance | Tolerance | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.1µF | ± 5% | 11 | 7.2 | 6 | 5 | PHE426HJ6100JR05 | 157-2146 |
| 0.22µF | ± 5% | 10.5 | 18 | 5.5 | 15 | PHE426HB6220JR06 | 157-2142 |
| 0.47µF | ± 5% | 14.5 | 18 | 7.5 | 15 | PHE426HB6470JR06 | 157-2144 |
| 1µF | ± 5% | 16.5 | 26 | 7 | 22.5 | PHE426HD7100JR06L2 | 157-2145 |
| 2.2µF | ± 5% | 20.5 | 31.5 | 10.5 | 27.5 | PHE426HF7220JR06L2 | 157-2147 |
| 4.7µF | ± 5% | 23 | 31.5 | 13.5 | 27.5 | PHE426HF7470JR06L2 | 157-2148 |

**Price Each**

| | Order Code | 5+ | 75+ | 250+ | 500+ | 1K+ | 2K+ |
|---|---|---|---|---|---|---|---|
| 0.1µF | 157-2146● | | | | | | |
| 0.22µF | 157-2142● | | | | | | |
| 0.47µF | 157-2144● | | | | | | |
| 1µF | 157-2145● | | | | | | |
| 2.2µF | 157-2147● | | | | | | |
| 4.7µF | 157-2148● | | | | | | |

**400V**

| Capacitance | Tolerance | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.022µF | ± 5% | 9 | 13 | 4 | 10 | PHE426KA5220JR05 | 157-2149 |
| 2.2µF | ± 5% | 24.5 | 31.5 | 14.5 | 27.5 | PHE426KF7220JR06L2 | 157-2150 |

506974

**Price Each**

| | Order Code | 5+ | 75+ | 250+ | 500+ | 1K+ | 2K+ |
|---|---|---|---|---|---|---|---|
| 0.022µF | 157-2149● | | | | | | |
| 2.2µF | 157-2150● | | | | | | |

## FKP 1 Series



NEW

- Extremely high pulse duty
- Self-healing
- Internal series connection
- Used for high pulse and high frequency applications
- Dielectric: Polypropylene (PP) film
- Operating temperature ranges from -55°C to 100°C

| Capacitance | Tolerance | Dimensions in mm W | H | L | Lead spacing | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **1000 Volt d.c** | | | | | | | |
| 3300 pF | ± 10% | 5 | 11 | 18 | 15 | FKP1O113304B00KSSD | 189-0188 |
| 4700 pF | ± 10% | 6 | 12.5 | 18 | 15 | FKP1O114704C00KSSD | 189-0191 |
| 0.01 µF | ± 10% | 8 | 15 | 18 | 15 | FKP1O121004F00KSSD | 189-0192 |
| 0.015 µF | ± 10% | 6 | 15 | 26.5 | 22.5 | FKP1O121505B00KSSD | 189-0193 |
| 0.022 µF | ± 10% | 8.5 | 18.5 | 26.5 | 22.5 | FKP1O122205F00KSSD | 189-0194 |
| 0.22 µF | ± 10% | 19 | 32 | 41.5 | 37.5 | FKP1O132207F00KYSD | 189-0195 |
| **1250 Volt d.c** | | | | | | | |
| 1000 pF | ± 10% | 5 | 11 | 18 | 15 | FKP1R011004B00KSSD | 189-0196 |
| 2200 pF | ± 10% | 5 | 11 | 18 | 15 | FKP1R012204B00KSSD | 189-0197 |
| 3300 pF | ± 10% | 6 | 12.5 | 18 | 15 | FKP1R013304C00KSSD | 189-0198 |
| 4700 pF | ± 10% | 7 | 14 | 18 | 15 | FKP1R014704D00KSSD | 189-0199 |
| 6800 pF | ± 10% | 8 | 15 | 18 | 15 | FKP1R016804F00KSSD | 189-0200 |
| 0.01 µF | ± 10% | 7 | 16.5 | 26.5 | 22.5 | FKP1R021005D00KSSD | 189-0201 |
| 0.1 µF | ± 10% | 15 | 26 | 41.5 | 37.5 | FKP1R031007D00KYSD | 189-0202 |
| 0.15 µF | ± 10% | 17 | 29 | 41.5 | 37.5 | FKP1R031507E00KYSD | 189-0203 |
| 0.22 µF | ± 5% | 19 | 32 | 41.5 | 37.5 | FKP1R032207F00JYSD | 189-0204 |
| **1600 Volt d.c** | | | | | | | |
| 100 pF | ± 10% | 5 | 11 | 18 | 15 | FKP1T001004B00KSSD | 189-0205 |
| 220 pF | ± 10% | 5 | 11 | 18 | 15 | FKP1T002204B00KSSD | 189-0206 |
| 330 pF | ± 10% | 5 | 11 | 18 | 15 | FKP1T003304B00KSSD | 189-0208 |
| 470 pF | ± 10% | 5 | 11 | 18 | 15 | FKP1T004704B00KSSD | 189-0209 |
| 680 pF | ± 10% | 5 | 11 | 18 | 15 | FKP1T006804B00KSSD | 189-0210 |
| 1000 pF | ± 10% | 6 | 12.5 | 18 | 15 | FKP1T011004C00KSSD | 189-0211 |
| 2200 pF | ± 10% | 8 | 15 | 18 | 15 | FKP1T012204F00KSSD | 189-0212 |
| 3300 pF | ± 10% | 6 | 15 | 26.5 | 22.5 | FKP1T013305B00KSSD | 189-0213 |
| 4700 pF | ± 10% | 7 | 16.5 | 26.5 | 22.5 | FKP1T014705D00KSSD | 189-0214 |
| 6800 pF | ± 10% | 8.5 | 18.5 | 26.5 | 22.5 | FKP1T016805F00KSSD | 189-0215 |
| 0.015 µF | ± 10% | 11 | 21 | 31.5 | 27.5 | FKP1T021506B00KYSD | 189-0216 |
| 0.022 µF | ± 5% | 11 | 21 | 31.5 | 27.5 | FKP1T022206B00JYSD | 189-0217 |
| 0.047 µF | ± 10% | 13 | 24 | 41.5 | 37.5 | FKP1T024707C00KYSD | 189-0218 |
| 0.1 µF | ± 10% | 17 | 29 | 41.5 | 37.5 | FKP1T031007E00KYSD | 189-0221 |
| **2000 Volt d.c** | | | | | | | |
| 100 pF | ± 10% | 5 | 11 | 18 | 15 | FKP1U001004B00KSSD | 189-0222 |
| 150 pF | ± 10% | 5 | 11 | 18 | 15 | FKP1U001504B00KSSD | 189-0223 |
| 330 pF | ± 10% | 6 | 12.5 | 18 | 15 | FKP1U003304C00KSSD | 189-0224 |
| 470 pF | ± 10% | 6 | 12.5 | 18 | 15 | FKP1U004704C00KSSD | 189-0225 |
| 680 pF | ± 10% | 6 | 12.5 | 18 | 15 | FKP1U006804C00KSSD | 189-0226 |
| 1000 pF | ± 10% | 5 | 14 | 26.5 | 22.5 | FKP1U011005A00KSSD | 189-0227 |
| 2200 pF | ± 10% | 15 | 26 | 31.5 | 27.5 | FKP1U022206F00KYSD | 189-0228 |

630855

**Price Each**

| Capacitance | Order Code | 10+ | 50+ | 100+ | 500+ | 2K4+ |
|---|---|---|---|---|---|---|
| **1000 Volt d.c** | | | | | | |
| 3300 pF | 189-0188● | | | | | |
| 4700 pF | 189-0191● | | | | | |
| 0.01 µF | 189-0192● | | | | | |
| 0.015 µF | 189-0193● | | | | | |
| 0.022 µF | 189-0194● | | | | | |
| 0.22 µF | 189-0195● | | | | | |
| **1250 Volt d.c** | | | | | | |
| 1000 pF | 189-0196● | | | | | |
| 2200 pF | 189-0197● | | | | | |
| 3300 pF | 189-0198● | | | | | |
| 4700 pF | 189-0199● | | | | | |

# Film - Polypropylene - continued

## FKP 1 Series - continued

| Capacitance | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 2K4+ |
|---|---|---|---|---|---|---|
| **1000 Volt d.c** | | | | | | |
| 6800 pF | **189-0200** | | | | | |
| 0.01 µF | **189-0201** | | | | | |
| 0.1 µF | **189-0202** | | | | | |
| 0.15 µF | **189-0203** | | | | | |
| 0.22 µF | **189-0204** | | | | | |
| **1600 Volt d.c** | | | | | | |
| 100 pF | **189-0205** | | | | | |
| 220 pF | **189-0206** | | | | | |
| 330 pF | **189-0208** | | | | | |
| 470 pF | **189-0209** | | | | | |
| 680 pF | **189-0210** | | | | | |
| 1000 pF | **189-0211** | | | | | |
| 2200 pF | **189-0212** | | | | | |
| 3300 pF | **189-0213** | | | | | |
| 4700 pF | **189-0214** | | | | | |
| 6800 pF | **189-0215** | | | | | |
| 0.015 µF | **189-0216** | | | | | |
| 0.022 µF | **189-0217** | | | | | |
| 0.047 µF | **189-0218** | | | | | |
| 0.1 µF | **189-0221** | | | | | |
| **2000 Volt d.c** | | | | | | |
| 100 pF | **189-0222** | | | | | |
| 150 pF | **189-0223** | | | | | |
| 330 pF | **189-0224** | | | | | |
| 470 pF | **189-0225** | | | | | |
| 680 pF | **189-0226** | | | | | |
| 1000 pF | **189-0227** | | | | | |
| 2200 pF | **189-0228** | | | | | |

## FKP 2 Series



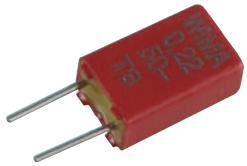
- Pulse duty construction
- Very low dissipation factor and dielectric absorption
- Applications: Timing, LC filtering, oscillating circuits, audio equipment, sample and hold
- Dielectric: Polypropylene (PP) film
- Operating temperature ranges from -55°C to +100°C

| Capacitance | Tolerance | Dimensions in mm W | H | L | Lead spacing | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **63 Volt d.c** | | | | | | | |
| 3300 pF | ± 2.5% | 4.5 | 6 | 7.2 | 5 | FKP2C013301D00HSSD | 189-0173 |
| 4700 pF | ± 2.5% | 4.5 | 6 | 7.2 | 5 | FKP2C014701D00HSSD | 189-0174 |
| 0.01 µF | ± 2.5% | 5.5 | 7 | 7.2 | 5 | FKP2C021001G00HSSD | 189-0175 |
| **100 Volt d.c** | | | | | | | |
| 1000 pF | ± 2.5% | 4.5 | 6 | 7.2 | 5 | FKP2D011001D00HSSD | 189-0176 |
| 3300 pF | ± 5% | 5.5 | 7 | 7.2 | 5 | FKP2D013301G00JSSD | 189-0178 |
| 0.01 µF | ± 2.5% | 6.5 | 8 | 7.2 | 5 | FKP2D021001I00HSSD | 189-0179 |
| **630 Volt d.c** | | | | | | | |
| 1000 pF | ± 5% | 4.5 | 6 | 7.2 | 5 | FKP2J011001D00JSSD | 189-0180 |
| 0.01 µF | ± 2.5% | 8.5 | 10 | 7.2 | 5 | FKP2J021001L00HSSD | 189-0181 |

630804

| Capacitance | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 6K+ |
|---|---|---|---|---|---|---|
| **63 Volt d.c** | | | | | | |
| 3300 pF | **189-0173** | | | | | |
| 4700 pF | **189-0174** | | | | | |
| 0.01 µF | **189-0175** | | | | | |
| **100 Volt d.c** | | | | | | |
| 1000 pF | **189-0176** | | | | | |
| 3300 pF | **189-0178** | | | | | |
| 0.01 µF | **189-0179** | | | | | |
| **630 Volt d.c** | | | | | | |
| 1000 pF | **189-0180** | | | | | |
| 0.01 µF | **189-0181** | | | | | |

## FKP 3 Series



- Pulse duty construction
- Very low dissipation factor and dielectric absorption
- Operating temperature ranges from -55°C to +100°C
- Applications: Timing, LC-filtering, oscillating circuits, audio equipment, sample and hold
- Dielectric: Polypropylene (PP) film
- Tolerance: ±10%

| Capacitance | Dimensions in mm W | H | L | Lead spacing | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| **630 Volt d.c** | | | | | | |
| 1000 pF | 4 | 9 | 10 | 7.5 | FKP3J011002C00KSSD | 189-0229 |
| 1500 pF | 3 | 8.5 | 10 | 7.5 | FKP3F011502B00KSSD | 189-0230 |
| 2200 pF | 4 | 9 | 10 | 7.5 | FKP3G012202C00KSSD | 189-0231 |

630860

| Capacitance | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 4K+ |
|---|---|---|---|---|---|---|
| **630 Volt d.c** | | | | | | |
| 1000 pF | **189-0229** | | | | | |
| 1500 pF | **189-0230** | | | | | |
| 2200 pF | **189-0231** | | | | | |

## ECWF Series

Panasonic

**Metallised Polypropylene Film Capacitors**



ECWFxAQ


ECWFxA

- Excellent frequency characteristics
- Low Hum Sound Noise

Operating Temperature -40°C to +105°C
Tolerance ± 5%

**250 VDC**

| Capacitance | Dimensions in mm H | W | D | Lead Pitch | Lead Dia | Mftrs List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.1µF | 14.1 | 13 | 5.0 | 10 | 0.6 | ECWF2104JAQ | 185-4878 |
| 0.12µF | 14.4 | 13 | 5.3 | 10 | 0.6 | ECWF2124JAQ | 185-4879 |
| 0.15µF | 14.7 | 13 | 5.6 | 10 | 0.6 | ECWF2154JAQ | 185-4880 |
| 0.18µF | 15.1 | 13 | 5.9 | 10 | 0.6 | ECWF2184JAQ | 185-4881 |
| 0.22µF | 15.4 | 13 | 6.3 | 10 | 0.6 | ECWF2224JAQ | 185-4882 |
| 0.27µF | 15.9 | 13 | 6.8 | 10 | 0.6 | ECWF2274JAQ | 185-4883 |
| 0.33µF | 16.4 | 13 | 7.3 | 10 | 0.6 | ECWF2334JAQ | 185-4885 |
| 0.39µF | 16.9 | 13 | 7.8 | 10 | 0.6 | ECWF2394JAQ | 185-4886 |
| 0.47µF | 17.6 | 13 | 8.4 | 10 | 0.6 | ECWF2474JAQ | 185-4887 |
| 0.56µF | 18.4 | 18.1 | 6.9 | 15 | 0.8 | ECWF2564JAQ | 185-4888 |
| 0.68µF | 19 | 18.1 | 7.4 | 15 | 0.8 | ECWF2684JAQ | 185-4889 |
| 0.82µF | 19.6 | 18.1 | 8.0 | 15 | 0.8 | ECWF2824JAQ | 185-4890 |
| 1µF | 13.3 | 18.1 | 8.5 | 15 | 0.8 | ECWF2105JA | 185-4891 |
| 1.2µF | 14.6 | 18.8 | 9.5 | 15 | 0.8 | ECWF2125JA | 185-4892 |
| 1.5µF | 15.6 | 18.8 | 10.5 | 15 | 0.8 | ECWF2155JA | 185-4893 |
| 1.8µF | 16.5 | 18.8 | 11.4 | 15 | 0.8 | ECWF2185JA | 185-4894 |
| 2.2µF | 17.6 | 18.8 | 12.6 | 15 | 0.8 | ECWF2225JA | 185-4895 |
| 2.7µF | 17.2 | 23.8 | 11.4 | 20 | 0.8 | ECWF2275JA | 185-4897 |
| 3.3µF | 18.3 | 23.8 | 12.5 | 20 | 0.8 | ECWF2335JA | 185-4898 |
| 3.9µF | 19.3 | 23.8 | 13.5 | 20 | 0.8 | ECWF2395JA | 185-4899 |
| 4.7µF | 20.6 | 23.8 | 14.8 | 20 | 0.8 | ECWF2475JA | 185-4900 |
| 5.6µF | 21.9 | 23.8 | 16.2 | 20 | 0.8 | ECWF2565JA | 185-4901 |
| 6.8µF | 23.5 | 23.8 | 17.8 | 20 | 0.8 | ECWF2685JA | 185-4903 |

| Capacitance | Mftrs. List No. | Order Code | Price Each 5+ | + | + | + |
|---|---|---|---|---|---|---|
| 0.1µF | ECWF2104JAQ | **185-4878** | | | | |
| 0.12µF | ECWF2124JAQ | **185-4879** | | | | |
| 0.15µF | ECWF2154JAQ | **185-4880** | | | | |
| 0.18µF | ECWF2184JAQ | **185-4881** | | | | |
| 0.22µF | ECWF2224JAQ | **185-4882** | | | | |
| 0.27µF | ECWF2274JAQ | **185-4883** | | | | |
| 0.33µF | ECWF2334JAQ | **185-4885** | | | | |
| 0.39µF | ECWF2394JAQ | **185-4886** | | | | |
| 0.47µF | ECWF2474JAQ | **185-4887** | | | | |
| 0.56µF | ECWF2564JAQ | **185-4888** | | | | |
| 0.68µF | ECWF2684JAQ | **185-4889** | | | | |
| 0.82µF | ECWF2824JAQ | **185-4890** | | | | |
| 1µF | ECWF2105JA | **185-4891** | | | | |
| 1.2µF | ECWF2125JA | **185-4892** | | | | |
| 1.5µF | ECWF2155JA | **185-4893** | | | | |
| 1.8µF | ECWF2185JA | **185-4894** | | | | |
| 2.2µF | ECWF2225JA | **185-4895** | | | | |
| 2.7µF | ECWF2275JA | **185-4897** | | | | |
| 3.3µF | ECWF2335JA | **185-4898** | | | | |
| 3.9µF | ECWF2395JA | **185-4899** | | | | |
| 4.7µF | ECWF2475JA | **185-4900** | | | | |
| 5.6Capacitance | ECWF2565JA | **185-4901** | | | | |
| 6.8µF | ECWF2685JA | **185-4903** | | | | |

**450 VDC**

| Capacitance | Dimensions in mm H | W | D | Lead Pitch | Lead Dia | Mftrs List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.1µF | 14.3 | 13 | 5.1 | 10 | 0.6 | ECWF2W104JAQ | 185-4904 |
| 0.12µF | 14.5 | 13 | 5.4 | 10 | 0.6 | ECWF2W124JAQ | 185-4905 |
| 0.15µF | 14.9 | 13 | 5.7 | 10 | 0.6 | ECWF2W154JAQ | 185-4906 |
| 0.18µF | 15.2 | 13 | 6.1 | 10 | 0.6 | ECWF2W184JAQ | 185-4907 |
| 0.22µF | 15.6 | 13 | 6.5 | 10 | 0.6 | ECWF2W224JAQ | 185-4908 |
| 0.27µF | 16.1 | 13 | 7.0 | 10 | 0.6 | ECWF2W274JAQ | 185-4909 |
| 0.33µF | 16.7 | 13 | 7.6 | 10 | 0.6 | ECWF2W334JAQ | 185-4910 |
| 0.39µF | 17.2 | 13 | 8.1 | 10 | 0.6 | ECWF2W394JAQ | 185-4911 |
| 0.47µF | 17.9 | 13 | 8.7 | 10 | 0.6 | ECWF2W474JAQ | 185-4912 |
| 0.56µF | 18.5 | 18.1 | 7.0 | 15 | 0.8 | ECWF2W564JA | 185-4913 |
| 0.68µF | 19.1 | 18.1 | 7.5 | 15 | 0.8 | ECWF2W684JA | 185-4915 |
| 0.82µF | 19.7 | 18.1 | 8.2 | 15 | 0.8 | ECWF2W824JA | 185-4916 |
| 1µF | 19.6 | 18.1 | 9.3 | 15 | 0.8 | ECWF2W105JA | 185-4917 |
| 1.2µF | 21.7 | 18.8 | 9.7 | 15 | 0.8 | ECWF2W125JA | 185-4918 |
| 1.5µF | 22.8 | 18.8 | 10.7 | 15 | 0.8 | ECWF2W155JA | 185-4919 |

| Capacitance | Dimensions in mm H | W | D | Lead Pitch | Lead Dia | Mftrs List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 1.8µF | 23.7 | 18.8 | 11.6 | 15 | 0.8 | ECWF2W185JA | 185-4920 |
| 2.2µF | 24.9 | 18.8 | 12.8 | 15 | 0.8 | ECWF2W225JA | 185-4921 |
| 2.7µF | 23.5 | 26.3 | 10.6 | 22.5 | 0.8 | ECWF2W275JA | 185-4922 |
| 3.3µF | 24.5 | 26.3 | 11.7 | 22.5 | 0.8 | ECWF2W335JA | 185-4923 |
| 3.9µF | 25.4 | 26.3 | 12.6 | 22.5 | 0.8 | ECWF2W395JA | 185-4924 |
| 4.7µF | 26.6 | 26.3 | 13.8 | 22.5 | 0.8 | ECWF2W475JA | 185-4925 |

618877

| Capacitance | Mftrs. List No. | Order Code | Price Each 5+ | + | + | + |
|---|---|---|---|---|---|---|
| 0.1µF | ECWF2W104JAQ | 185-4904 | | | | |
| 0.12µF | ECWF2W124JAQ | 185-4905 | | | | |
| 0.15µF | ECWF2W154JAQ | 185-4906 | | | | |
| 0.18µF | ECWF2W184JAQ | 185-4907 | | | | |
| 0.22µF | ECWF2W224JAQ | 185-4908 | | | | |
| 0.27µF | ECWF2W274JAQ | 185-4909 | | | | |
| 0.33µF | ECWF2W334JAQ | 185-4910 | | | | |
| 0.39µF | ECWF2W394JAQ | 185-4911 | | | | |
| 0.47µF | ECWF2W474JAQ | 185-4912 | | | | |
| 0.56µF | ECWF2W564JA | 185-4913 | | | | |
| 0.68µF | ECWF2W684JA | 185-4915 | | | | |
| 0.82µF | ECWF2W824JA | 185-4916 | | | | |
| 1µF | ECWF2W105JA | 185-4917 | | | | |
| 1.2µF | ECWF2W125JA | 185-4918 | | | | |
| 1.5µF | ECWF2W155JA | 185-4919 | | | | |
| 1.8µF | ECWF2W185JA | 185-4920 | | | | |
| 2.2µF | ECWF2W225JA | 185-4921 | | | | |
| 2.7µF | ECWF2W275JA | 185-4922 | | | | |
| 3.3µF | ECWF2W335JA | 185-4923 | | | | |
| 3.9µF | ECWF2W395JA | 185-4924 | | | | |
| 4.7µF | ECWF2W475JA | 185-4925 | | | | |

## MKP10 Series



- Pulse duty construction
- Self healing
- Very low dissipation factor
- Used in switching mode power supplies, TV and monitor sets, lighting and audio/video equipment
- Operating temperature range: -55°C to +100°C

NEW

| Capacitance | Tolerance | Dimensions (mm) L | W | D | Lead Pitch (mm) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **250 Volts d.c.** | | | | | | | |
| 0.047 µF | ± 10% | 13 | 4 | 9 | 10 | MKP1F024703C00KSSD | 189-0233 |
| 0.22 µF | ± 5% | 18 | 7 | 14 | 15 | MKP1F032204D00JSSD | 189-0234 |
| 0.33 µF | ± 10% | 18 | 8 | 15 | 15 | MKP1F033304F00KSSD | 189-0235 |
| **400 Volts d.c.** | | | | | | | |
| 0.015 µF | ± 10% | 13 | 4 | 9 | 10 | MKP1G021503C00KSSD | 189-0236 |
| 0.022 µF | ± 5% | 13 | 4 | 9 | 10 | MKP1G022203C00JSSD | 189-0237 |
| 0.1 µF | ± 10% | 18 | 7 | 14 | 15 | MKP1G031004D00KSSD | 189-0238 |
| 0.22 µF | ± 10% | 26.5 | 7 | 16.5 | 22.5 | MKP1G032205D00KSSD | 189-0239 |
| 0.47 µF | ± 10% | 31.5 | 9 | 19 | 27.5 | MKP1G034706A00KYSD | 189-0240 |
| **630 Volts d.c.** | | | | | | | |
| 1000 pF | ± 10% | 10 | 4 | 9 | 7.5 | MKP1J011002C00KSSD | 189-0241 |
| 2200 pF | ± 5% | 10 | 4 | 9 | 7.5 | MKP1J012202C00JSSD | 189-0242 |
| 4700 pF | ± 10% | 10 | 4 | 9 | 7.5 | MKP1J014702C00KSSD | 189-0243 |
| 0.022 µF | ± 5% | 13 | 5 | 11 | 10 | MKP1J022203F00JSSD | 189-0245 |
| 0.047 µF | ± 5% | 26.5 | 6 | 15 | 22.5 | MKP1J024705B00JSSD | 189-0246 |
| 0.068 µF | ± 10% | 26.5 | 6 | 15 | 22.5 | MKP1J026805B00KSSD | 189-0247 |
| 0.1 µF | ± 10% | 26.5 | 7 | 16.5 | 22.5 | MKP1J031005D00KSSD | 189-0248 |
| **1000 Volts d.c.** | | | | | | | |
| 0.01 µF | ± 10% | 18 | 5 | 11 | 15 | MKP1O121004B00KSSD | 189-0249 |
| 0.015 µF | ± 10% | 18 | 5 | 11 | 15 | MKP1O121504B00KSSD | 189-0250 |
| 0.022 µF | ± 5% | 18 | 6 | 12.5 | 15 | MKP1O122204C00JSSD | 189-0251 |
| 0.1 µF | ± 10% | 31.5 | 11 | 21 | 27.5 | MKP1O131006B00KYSD | 189-0252 |
| **1600 Volts d.c.** | | | | | | | |
| 6800 pF | ± 5% | 18 | 5 | 11 | 15 | MKP1T016804B00JSSD | 189-0253 |
| 0.068 µF | ± 5% | 31.5 | 9 | 19 | 27.5 | MKP1T026806A00JYSD | 189-0254 |
| 0.15 µF | ± 5% | 31.5 | 13 | 24 | 27.5 | MKP1T031506D00JYSD | 189-0255 |
| 0.22 µF | ± 10% | 41.5 | 13 | 24 | 37.5 | MKP1T032207C00KYSD | 189-0257 |
| 0.47 µF | ± 5% | 41.5 | 19 | 32 | 37.5 | MKP1T034707F00JYSD | 189-0258 |
| **2000 Volts d.c.** | | | | | | | |
| 3300 pF | ± 5% | 18 | 5 | 11 | 15 | MKP1U013304B00JSSD | 189-0259 |
| 6800 pF | ± 10% | 18 | 6 | 12.5 | 15 | MKP1U016804C00KSSD | 189-0260 |
| 0.015 µF | ± 10% | 26.5 | 6 | 15 | 22.5 | MKP1U021505B00KSSD | 189-0261 |
| **2500 Volts d.c.** | | | | | | | |
| 1000 pF | ± 5% | 18 | 5 | 11 | 15 | MKP1V011004B00JSSD | 189-0262 |

630785

| Capacitance | Mftrs. List No. | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **250 Volts d.c.** | | | | | | | |
| 0.047 µF | MKP1F024703C00KSSD | 189-0233 | | | | | |
| 0.22 µF | MKP1F032204D00JSSD | 189-0234 | | | | | |
| 0.33 µF | MKP1F033304F00KSSD | 189-0235 | | | | | |
| **400 Volts d.c.** | | | | | | | |
| 0.015 µF | MKP1G021503C00KSSD | 189-0236 | | | | | |
| 0.022 µF | MKP1G022203C00JSSD | 189-0237 | | | | | |
| 0.1 µF | MKP1G031004D00KSSD | 189-0238 | | | | | |
| 0.22 µF | MKP1G032205D00KSSD | 189-0239 | | | | | |
| 0.47 µF | MKP1G034706A00KYSD | 189-0240 | | | | | |

| Capacitance | Mftrs. List No. | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **630 Volts d.c.** | | | | | | | |
| 1000 pF | MKP1J011002C00KSSD | 189-0241 | | | | | |
| 2200 pF | MKP1J012202C00JSSD | 189-0242 | | | | | |
| 4700 pF | MKP1J014702C00KSSD | 189-0243 | | | | | |
| 0.022 µF | MKP1J022203F00JSSD | 189-0245 | | | | | |
| 0.047 µF | MKP1J024705B00JSSD | 189-0246 | | | | | |
| 0.068 µF | MKP1J026805B00KSSD | 189-0247 | | | | | |
| 0.1 µF | MKP1J031005D00KSSD | 189-0248 | | | | | |
| **1000 Volts d.c.** | | | | | | | |
| 0.01 µF | MKP1O121004B00KSSD | 189-0249 | | | | | |
| 0.015 µF | MKP1O121504B00KSSD | 189-0250 | | | | | |
| 0.022 µF | MKP1O122204C00JSSD | 189-0251 | | | | | |
| 0.1 µF | MKP1O131006B00KYSD | 189-0252 | | | | | |
| **1600 Volts d.c.** | | | | | | | |
| 6800 pF | MKP1T016804B00JSSD | 189-0253 | | | | | |
| 0.068 µF | MKP1T026806A00JYSD | 189-0254 | | | | | |
| 0.15 µF | MKP1T031506D00JYSD | 189-0255 | | | | | |
| 0.22 µF | MKP1T032207C00KYSD | 189-0257 | | | | | |
| 0.47 µF | MKP1T034707F00JYSD | 189-0258 | | | | | |
| **2000 Volts d.c.** | | | | | | | |
| 3300 pF | MKP1U013304B00JSSD | 189-0259 | | | | | |
| 6800 pF | MKP1U016804C00KSSD | 189-0260 | | | | | |
| 0.015 µF | MKP1U021505B00KSSD | 189-0261 | | | | | |
| **2500 Volts d.c.** | | | | | | | |
| 1000 pF | MKP1V011004B00JSSD | 189-0262 | | | | | |

## MKP2 Series



- High capacitance ratio
- Self healing
- Increased pulse duty
- Very low dissipation factor and dielectric absorption
- Used in high frequency coupling and decoupling, oscillating circuits, timing and sample & hold

NEW

| | |
|---|---|
| Operating temperature range | -55°C to +100°C |
| Tolerance | ± 10% |
| Lead spacing | 5 mm |
| Life time @ temperature | 300000 hours @ 40°C |

| Capacitance | Dimensions (mm) L | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| **100 Volts d.c.** | | | | | |
| 0.01 µF | 7.2 | 3 | 7.5 | MKP2D021001B00KSSD | 189-0263 |
| 0.068 µF | 7.2 | 4.5 | 9.5 | MKP2D026801E00KSSD | 189-0264 |
| 0.1 µF | 7.2 | 5 | 10 | MKP2D031001F00KSSD | 189-0265 |
| **250 Volts d.c.** | | | | | |
| 0.068 µF | 7.2 | 4.5 | 9.5 | MKP2F026801E00KSSD | 189-0266 |
| 0.1 µF | 7.2 | 5 | 10 | MKP2F031001F00KSSD | 189-0267 |
| 0.33 µF | 7.2 | 8.5 | 14 | MKP2F033301M00KSSD | 189-0269 |
| **630 Volts d.c.** | | | | | |
| 1000 pF | 7.2 | 3 | 7.5 | MKP2J011001B00KSSD | 189-0271 |
| 2200 pF | 7.2 | 3 | 7.5 | MKP2J012201B00KSSD | 189-0272 |
| 3300 pF | 7.2 | 3 | 7.5 | MKP2J013301B00KSSD | 189-0273 |
| 6800 pF | 7.2 | 3.5 | 8.5 | MKP2J016801C00KSSD | 189-0274 |
| 0.01 µF | 7.2 | 9.5 | 4.5 | MKP2J021001E00KSSD | 189-0275 |
| 0.047 µF | 7.2 | 8.5 | 14 | MKP2J024701M00KSSD | 189-0276 |

630831

| Capacitance | Mftrs. List No. | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 5K+ |
|---|---|---|---|---|---|---|---|
| **100 Volts d.c.** | | | | | | | |
| 0.01 µF | MKP2D021001B00KSSD | 189-0263 | | | | | |
| 0.068 µF | MKP2D026801E00KSSD | 189-0264 | | | | | |
| 0.1 µF | MKP2D031001F00KSSD | 189-0265 | | | | | |
| **250 Volts d.c.** | | | | | | | |
| 0.068 µF | MKP2F026801E00KSSD | 189-0266 | | | | | |
| 0.1 µF | MKP2F031001F00KSSD | 189-0267 | | | | | |
| 0.33 µF | MKP2F033301M00KSSD | 189-0269 | | | | | |
| **630 Volts d.c.** | | | | | | | |
| 1000 pF | MKP2J011001B00KSSD | 189-0271 | | | | | |
| 2200 pF | MKP2J012201B00KSSD | 189-0272 | | | | | |
| 3300 pF | MKP2J013301B00KSSD | 189-0273 | | | | | |
| 6800 pF | MKP2J016801C00KSSD | 189-0274 | | | | | |
| 0.01 µF | MKP2J021001E00KSSD | 189-0275 | | | | | |
| 0.047 µF | MKP2J024701M00KSSD | 189-0276 | | | | | |

## MKP4 Series



- High capacitance ratio
- Self healing
- Very low dissipation factor and dielectric absorption
- Used in high frequency coupling and decoupling, oscillating circuits, timing and sample & hold

NEW

# Film - Polypropylene - continued

## MKP4 Series - continued

| Capacitance | Tolerance | Dimensions (mm) L | W | D | Lead Pitch (mm) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| | | | | | **250 Volts d.c.** | | |
| 0.1 µF | ± 5% | 13 | 4 | 9 | 10 | MKP4F031003C00JSSD | 189-0277 |
| 0.15 µF | ± 5% | 13 | 5 | 11 | 10 | MKP4F031503F00JSSD | 189-0278 |
| 0.33 µF | ± 5% | 18 | 6 | 12.5 | 15 | MKP4F033304C00JSSD | 189-0279 |
| 0.47 µF | ± 10% | 18 | 7 | 14 | 15 | MKP4F034704D00KSSD | 189-0280 |
| 1.5 µF | ± 5% | 26.5 | 10.5 | 19 | 22.5 | MKP4F041505G00JSSD | 189-0282 |
| 2.2 µF | ± 10% | 26.5 | 11 | 21 | 22.5 | MKP4F042205I00KSSD | 189-0283 |
| 6.8 µF | ± 10% | 41.5 | 15 | 26 | 37.5 | MKP4F046807D00KYSD | 189-0284 |
| | | | | | **630 Volts d.c.** | | |
| 0.033 µF | ± 10% | 13 | 4 | 9 | 10 | MKP4J023303C00KSSD | 189-0285 |
| 0.047 µF | ± 10% | 13 | 5 | 11 | 10 | MKP4J024703F00KSSD | 189-0286 |
| 1.5 µF | ± 10% | 13.5 | 15 | 26 | 27.5 | MKP4J041506F00KYSD | 189-0287 |
| 4.7 µF | ± 10% | 41.5 | 20 | 39.5 | 37.5 | MKP4J044707G00KYSD | 189-0288 |
| | | | | | **1000 Volts d.c.** | | |
| 0.01 µF | ± 10% | 10.3 | 5.7 | 12.5 | 7.5 | MKP4O121002F00KSSD | 189-0289 |
| 0.1 µF | ± 10% | 26.5 | 7 | 16.5 | 22.5 | MKP4O131005D00KSSD | 189-0290 |
| 0.1 µF | ± 10% | 18 | 9 | 16 | 15 | MKP4O131004J00KSSD | 189-0291 |
| 0.33 µF | ± 10% | 31.5 | 11 | 21 | 27.5 | MKP4O133306B00KYSD | 189-0292 |
| 0.47 µF | ± 10% | 31.5 | 13 | 24 | 27.5 | MKP4O134706D00KYSD | 189-0294 |
| 1 µF | ± 10% | 41.5 | 17 | 29 | 37.5 | MKP4O141007E00KYSD | 189-0295 |

630833

| Capacitance | Mftrs. List No. | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 3K+ |
|---|---|---|---|---|---|---|---|
| **250 Volts d.c.** | | | | | | | |
| 0.1 µF | MKP4F031003C00JSSD | **189-0277** | | | | | |
| 0.15 µF | MKP4F031503F00JSSD | **189-0278** | | | | | |
| 0.33 µF | MKP4F033304C00JSSD | **189-0279** | | | | | |
| 0.47 µF | MKP4F034704D00KSSD | **189-0280** | | | | | |
| 1.5 µF | MKP4F041505G00JSSD | **189-0282** | | | | | |
| 2.2 µF | MKP4F042205I00KSSD | **189-0283** | | | | | |
| 6.8 µF | MKP4F046807D00KYSD | **189-0284** | | | | | |
| **630 Volts d.c.** | | | | | | | |
| 0.033 µF | MKP4J023303C00KSSD | **189-0285** | | | | | |
| 0.047 µF | MKP4J024703F00KSSD | **189-0286** | | | | | |
| 1.5 µF | MKP4J041506F00KYSD | **189-0287** | | | | | |
| 4.7 µF | MKP4J044707G00KYSD | **189-0288** | | | | | |
| **1000 Volts d.c.** | | | | | | | |
| 0.01 µF | MKP4O121002F00KSSD | **189-0289** | | | | | |
| 0.1 µF | MKP4O131005D00KSSD | **189-0290** | | | | | |
| 0.1 µF | MKP4O131004J00KSSD | **189-0291** | | | | | |
| 0.33 µF | MKP4O133306B00KYSD | **189-0292** | | | | | |
| 0.47 µF | MKP4O134706D00KYSD | **189-0294** | | | | | |
| 1 µF | MKP4O141007E00KYSD | **189-0295** | | | | | |

## MKP 1840 Series



- Metallised polypropylene film capacitors
- Miniature case size

**Applications:**

- High frequency and pulse operations
- Deflection circuits
- Loudspeaker crossover networks
- Timing and sample and hold circuits

Tolerance ±5% Operating temperature -55°C to +100°C

| 400 Volt d.c. | Dimensions H | W | D | Lead Pitch | Lead Length | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.01µF | 8.5 | 7.5 | 3.5 | 5 | 6 | MKP1840310404M | 141-3869 |
| 0.47µF | 15.5 | 26.5 | 7.5 | 22.5 | 6 | MKP1840447404M | 141-3874 |
| 1µF | 23.5 | 31.5 | 13.5 | 22.5 | 6 | MKP1840510404M | 141-3875 |
| 2.2µF | 24.5 | 31.5 | 15 | 27.5 | 6 | MKP1840522404M | 141-3876 |
| 4.7µF | 32.2 | 41.5 | 18 | 37.5 | 6 | MKP1840547404M | 141-3877 |

| 400 Volt d.c. | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.01µF | **141-3869** | | | | | |
| 0.47µF | **141-3874** | | | | | |
| 1µF | **141-3875** | | | | | |
| 2.2µF | **141-3876** | | | | | |
| 4.7µF | **141-3877** | | | | | |

| 1000 Volt d.c. | Dimensions H | W | D | Lead Pitch | Lead Length | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.01µF | 10.5 | 13 | 5.5 | 10 | 6 | MKP1840310104M | 141-3881 |
| 0.1µF | 15.5 | 26.5 | 7.5 | 22.5 | 6 | MKP1840410104M | 141-3884 |
| 0.22µF | 18.5 | 26.5 | 10.5 | 22.5 | 6 | MKP1840422104M | 141-3885 |
| 0.47µF | 23.5 | 31.5 | 13.5 | 27.5 | 6 | MKP1840447104M | 141-3886 |
| 1µF | 33 | 31.5 | 18 | 27.5 | 6 | MKP1840510104M | 141-3887 |

493620

| 1000 Volt d.c. | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.01µF | **141-3881** | | | | | |
| 0.1µF | **141-3884** | | | | | |
| 0.22µF | **141-3885** | | | | | |
| 0.47µF | **141-3886** | | | | | |
| 1µF | **141-3887** | | | | | |

## MKP 1848 DC-Link Series



- High performance DC filtering applications
- Polypropylene film

Tolerance ± 5%
Life Time @ Temperature 100000 hours @ 40°C

| 500 Volt d.c. | Dimensions(mm) H | W | D | No. of Pins | Lead Pitch(mm) P1 | P2 | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 15µF | 35.5 | 37.5 | 18.5 | 4 | 37.5 | 10.2 | MKP1848 615 454P4 | 179-1613 |
| 22µF | 38.5 | 43 | 21.5 | 4 | 37.5 | 10.2 | MKP1848 622 454P4 | 179-1614 |
| 25µF | 38.5 | 43 | 21.5 | 4 | 37.5 | 10.2 | MKP1848 625 454P4 | 179-1615 |
| 50µF | 45 | 57.5 | 30 | 4 | 52.5 | 20.3 | MKP1848 650 454Y5 | 179-1616 |
| 100µF | 45 | 57.5 | 45 | 4 | 52.5 | 20.3 | MKP1848 710 454Y5 | 179-1617 |
| 200µF | 70 | 57.5 | 60 | 4 | 52.5 | 20.3 | MKP1848 720 454Y5 | 179-1619 |
| 400µF | 60 | 57.5 | 130 | 4 | 52.5 | 20.3 | MKP1848 740 454Y5 | 179-1621 |

| 500 Volt d.c. | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 15µF | **179-1613** | | | | | |
| 22µF | **179-1614** | | | | | |
| 25µF | **179-1615** | | | | | |
| 50µF | **179-1616** | | | | | |
| 100µF | **179-1617** | | | | | |
| 200µF | **179-1619** | | | | | |
| 400µF | **179-1621** | | | | | |

| 800 Volt d.c. | Dimensions(mm) H | W | D | No. of Pins | Lead Pitch(mm) P1 | P2 | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 3µF | 21 | 32 | 11 | 2 | 27.5 | — | MKP1848 530 704K2 | 179-1622 |
| 5µF | 25 | 32 | 15 | 2 | 27.5 | — | MKP1848 550 704K2 | 179-1623 |
| 8µF | 28 | 32 | 18 | 2 | 27.5 | — | MKP1848 580 704K2 | 179-1624 |
| 20µF | 38.5 | 43 | 21.5 | 4 | 37.5 | 10.2 | MKP1848 620 704P4 | 179-1625 |
| 40µF | 45 | 57.5 | 25 | 4 | 52.5 | 20.3 | MKP1848 640 704Y5 | 179-1626 |
| 80µF | 45 | 57.5 | 45 | 4 | 52.5 | 20.3 | MKP1848 680 704Y5 | 179-1627 |
| 160µF | 60 | 57.5 | 70 | 4 | 52.5 | 20.3 | MKP1848 716 704Y5 | 179-1628 |

| 800 Volt d.c. | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 5µF | **179-1623** | | | | | |
| 8µF | **179-1624** | | | | | |
| 20µF | **179-1625** | | | | | |
| 40µF | **179-1626** | | | | | |
| 80µF | **179-1627** | | | | | |
| 160µF | **179-1628** | | | | | |

| 1100 Volt d.c. | Dimensions(mm) H | W | D | No. of Pins | Lead Pitch(mm) P1 | P2 | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 1µF | 19 | 32 | 9 | 2 | 27.5 | — | MKP1848 510 094K2 | 179-1629 |
| 3µF | 25 | 32 | 15 | 2 | 27.5 | — | MKP1848 530 094K2 | 179-1630 |
| 5µF | 31 | 32 | 21 | 2 | 27.5 | — | MKP1848 550 094K2 | 179-1632 |
| 10µF | 38.5 | 43 | 21.5 | 4 | 37.5 | 10.2 | MKP1848 610 094P4 | 179-1633 |
| 12µF | 38.5 | 43 | 21.5 | 4 | 37.5 | 10.2 | MKP1848 612 094P4 | 179-1634 |
| 20µF | 45 | 42 | 30 | 4 | 37.5 | 20.3 | MKP1848 620 094P4 | 179-1635 |
| 30µF | 45 | 57.5 | 30 | 4 | 52.5 | 20.3 | MKP1848 630 094Y5 | 179-1636 |
| 40µF | 50 | 57.5 | 35 | 4 | 52.5 | 20.3 | MKP1848 640 094Y5 | 179-1637 |
| 50µF | 45 | 57.5 | 45 | 4 | 52.5 | 20.3 | MKP1848 650 094Y5 | 179-1638 |

603478

| 1100 Volt d.c. | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1µF | **179-1629** | | | | | |
| 3µF | **179-1630** | | | | | |
| 5µF | **179-1632** | | | | | |
| 10µF | **179-1633** | | | | | |
| 12µF | **179-1634** | | | | | |
| 20µF | **179-1635** | | | | | |
| 30µF | **179-1636** | | | | | |
| 40µF | **179-1637** | | | | | |
| 50µF | **179-1638** | | | | | |

## Metallised Polypropylene DC link

**800 V, B3277* Series**



- DC link - high density series
- High CV product, compact
- Plastic case (UL 94 V-0)
- High reliability

Tolerance ± 10%
Operating Temperature Range: -40°C to +105°C
Voltage rating 800V

| | No. of Pins | µF | H | W | D | ∅ Lead mm | Mftrs List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| **Pitch 27.5mm** | | | | | | | | |
| 5 | 2 | 5µF | 24.5 | 31.5 | 14 | 0.8 | B32774D8505K | 178-1918 |
| **Pitch 37.5mm** | | | | | | | | |
| 15 | 4 | 15µF | 39.5 | 41.5 | 20 | 1.2 | B32776G8156K | 178-1919 |
| 20 | 2 | 20µF | 37 | 42 | 28 | 1 | B32776E8206K | 178-1920 |
| 30 | 2 | 30µF | 45 | 42 | 30 | 1 | B32776E8306K | 178-1921 |
| **Pitch 52.5mm** | | | | | | | | |
| 60 | 4 | 60µF | 50 | 57.5 | 35 | 1.2 | B32778G8606K | 178-1924 |


RoHS ● Compliant ▲ Non-compliant

600558

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ |
|---|---|---|---|---|---|
| **Pitch 27.5 mm** | | | | | |
| 5µF | **178-1918** | | | | |
| **Pitch 37.5 mm** | | | | | |
| 15µF | **178-1919** | | | | |
| 20µF | **178-1920** | | | | |
| 30µF | **178-1921** | | | | |
| **Pitch 52.5 mm** | | | | | |
| 60µF | **178-1924** | | | | |

## ECWH Series

Panasonic

**Metallised Polypropylene Film Capacitors**



NEW

- Low Hum Sound Noise
- Flame-retardant epoxy resin coating

| | |
|---|---|
| Operating Temperature | -40°C to +105°C |
| Tolerance | ± 3% |
| Voltage Rating | 800V |

| Capacitance | Dimensions in mm H | W | D | Lead Pitch | Lamp Lead Dia | Mftrs List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.01µF | 14.8 | 15.4 | 5.4 | 12.5 | 0.6 | ECWH8103HA | 185-4927 |
| 0.012µF | 15.2 | 15.4 | 5.8 | 12.5 | 0.6 | ECWH8123HA | 185-4928 |
| 0.015µF | 15.6 | 15.4 | 6.2 | 12.5 | 0.6 | ECWH8153HA | 185-4929 |
| 0.018µF | 16 | 15.7 | 6.6 | 12.5 | 0.8 | ECWH8183HA | 185-4930 |
| 0.022µF | 16.5 | 15.7 | 7.1 | 12.5 | 0.8 | ECWH8223HA | 185-4931 |
| 0.027µF | 17 | 15.7 | 7.6 | 12.5 | 0.8 | ECWH8273HA | 185-4932 |
| 0.033µF | 17.8 | 15.7 | 8.4 | 12.5 | 0.8 | ECWH8333HA | 185-4933 |
| 0.039µF | 18.3 | 15.7 | 8.9 | 12.5 | 0.8 | ECWH8393HA | 185-4934 |
| 0.047µF | 19.1 | 15.7 | 9.7 | 12.5 | 0.8 | ECWH8473HA | 185-4935 |

618871

| Capacitance | Mftrs. List No. | Order Code | Price Each 5+ | + | + | + | + |
|---|---|---|---|---|---|---|---|
| 0.01µF | ECWH8103HA | **185-4927** | | | | | |
| 0.012µF | ECWH8123HA | **185-4928** | | | | | |
| 0.015µF | ECWH8153HA | **185-4929** | | | | | |
| 0.018µF | ECWH8183HA | **185-4930** | | | | | |
| 0.022µF | ECWH8223HA | **185-4931** | | | | | |
| 0.027µF | ECWH8273HA | **185-4932** | | | | | |
| 0.033µF | ECWH8333HA | **185-4933** | | | | | |
| 0.039µF | ECWH8393HA | **185-4934** | | | | | |
| 0.047µF | ECWH8473HA | **185-4935** | | | | | |

## MKP 385 Series

VISHAY

**2000 Volts d.c.**



- Polypropylene film capacitors
- Low contact resistance
- Low loss dielectric
- Small dimensions for high density packaging

**Applications:**

- Where steep pulses occur
- Electronic lighting
- Motor control circuits

Tolerance ±5% Operating temperature -55°C to +110°C

| Capacitance | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 1000pF | 10 | 12.5 | 4 | 10 | BFC238560102 | 141-3888 |
| 1000pF | 11 | 18 | 5 | 15 | BFC238580102 | 141-3889 |
| 1500pF | 10 | 12.5 | 4 | 10 | BFC238560152 | 141-3890 |
| 1500pF | 11 | 18 | 5 | 15 | BFC238580152 | 141-3891 |
| 2200pF | 11 | 18 | 5 | 15 | BFC238580222 | 141-3894 |
| 3300pF | 11 | 18 | 5 | 15 | BFC238580332 | 141-3896 |
| 4700pF | 11 | 17.5 | 5 | 15 | BFC238560472 | 141-3897 |
| 0.01µF | 13.5 | 17.5 | 7 | 15 | BFC238560103 | 141-3899 |
| 0.015µF | 16.5 | 17.5 | 10 | 15 | BFC238560153 | 141-3900 |

494225

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1000pF | **141-3888** | | | | | |
| 1000pF | **141-3889** | | | | | |
| 1500pF | **141-3890** | | | | | |
| 1500pF | **141-3891** | | | | | |
| 2200pF | **141-3894** | | | | | |
| 3300pF | **141-3896** | | | | | |
| 4700pF | **141-3897** | | | | | |
| 0.01µF | **141-3899** | | | | | |
| 0.015µF | **141-3900** | | | | | |

## PHE448 Series

EVOX RIFA A KEMET Company



- High frequency and high voltage applications, requiring capacitors with extremely high current handling capability, i.e. high dU/dt values
- Polypropylene film dielectric with aluminum foil and metallized film as electrodes, encapsulated in self-extinguishing material meeting the requirements of UL94V-0

| | |
|---|---|
| Tolerance | ± 5% |
| Lead Pitch | 15mm |

| | Voltage | Dimensions H | W | D | Lead Pitch | Dia | Mftrs. LIst No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 100pF | 2kV | 10.5 | 18 | 5.5 | 15 | 0.8 | PHE448SB3100JR06 | 167-8916 |
| 220pF | 2kV | 10.5 | 18 | 5.5 | 15 | 0.8 | PHE448SB3220JR06 | 167-8919 |
| 330pF | 2kV | 10.5 | 18 | 5.5 | 15 | 0.8 | PHE448SB3330JR06 | 167-8920 |
| 470pF | 2kV | 10.5 | 18 | 5.5 | 15 | 0.8 | PHE448SB3470JR06 | 167-8921 |
| 1000pF | 2kV | 10.5 | 18 | 5.5 | 15 | 0.8 | PHE448SB4100JR06 | 167-8922 |
| 1500pF | 2kV | 12.5 | 18 | 6.5 | 15 | 0.8 | PHE448SB4150JR06 | 167-8923 |
| 2200pF | 2kV | 16 | 18 | 8.5 | 15 | 0.8 | PHE448SB4220JR06 | 167-8924 |
| 3300pF | 1.6kV | 12.5 | 18 | 6.5 | 15 | 0.8 | PHE448RB4330JR06 | 167-8912 |
| 4700pF | 1.6kV | 12.5 | 18 | 6.5 | 15 | 0.8 | PHE448RB4470JR06 | 167-8913 |
| 0.01µF | 1.6kV | 16 | 18 | 8.5 | 15 | 0.8 | PHE448RB5100JR06 | 167-8914 |

527572

**Order Multiple=1**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 100pF | **167-8916** | | | | | |
| 220pF | **167-8919** | | | | | |
| 330pF | **167-8920** | | | | | |
| 470pF | **167-8921** | | | | | |
| 1000pF | **167-8922** | | | | | |
| 1500pF | **167-8923** | | | | | |
| 2200pF | **167-8924** | | | | | |
| 3300pF | **167-8912** | | | | | |
| 4700pF | **167-8913** | | | | | |
| 0.01µF | **167-8914** | | | | | |

## PHE450 Series

EVOX RIFA A KEMET Company



- Double metallized film pulse capacitors
- Polypropylene dielectric
- Suitable for high frequency applications with high current stress
- Applications include deflection circuits in TV sets, protection circuits in SMPS and electronic ballasts

Operating temperature -55°C to +85°C

**400V**

| Capacitance | Tolerance | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.1µF | ± 10% | 12.5 | 18 | 6.5 | 15 | PHE450KB6100JR06 | 157-2151 |

| | Order Code | Price Each 5+ | 75+ | 250+ | 500+ | 1K+ | 2K+ |
|---|---|---|---|---|---|---|---|
| 0.1µF | **157-2151** | | | | | | |

**1000V**

| Capacitance | Tolerance | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.01µF | ± 5% | 10.5 | 18 | 5.5 | 15 | PHE450PB5100JR06 | 157-2152 |

506975

| | Order Code | Price Each 5+ | 75+ | 250+ | 500+ | 1K+ | 2K+ |
|---|---|---|---|---|---|---|---|
| 0.01µF | **157-2152** | | | | | | |

## MKP-B32652/3 Series

EPCOS



- High performance wound metallised polypropylene film capacitors
- Flame retardant case to **UL94V-0**
- TV S-correction, flyback and electronic ballast circuit applications

| | |
|---|---|
| Operating temperature | -55°C to +100°C |
| Climatic category | 55/100/56 |
| Tolerance | ± 10% |
| Service life | 200000 hours @ 40°C |

Lead dia.=0.8 mm

| Capacitance | Voltage V (a.c) | Dimensions (mm) H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **2000 Volts d.c.** | | | | | | | |
| 1000 pF | 700 | 10.5 | 18 | 5 | 15 | B32652A2102K | 975-1254 |
| 2200 pF | 700 | 12.5 | 18 | 7 | 15 | B32652A2222K | 975-1262 |
| 4700 pF | 700 | 17.5 | 18 | 9 | 15 | B32652A2472K | 975-1270 |
| **1600 Volts d.c.** | | | | | | | |
| 0.01 µF | 500 | 15 | 26.5 | 6 | 22.5 | B32653A1103K | 975-1289 |
| **1200 Volts d.c.** | | | | | | | |
| 0.022 µF | 500 | 15 | 26.5 | 6 | 22.5 | B32653A7223K | 975-1297 |
| **1000 Volts d.c.** | | | | | | | |
| 0.047 µF | 250 | 15 | 26.5 | 6 | 22.5 | B32653A0473K | 975-1300 |
| 0.068 µF | 250 | 15 | 26.5 | 6 | 22.5 | B32653A0683K | 975-1319 |

# Film - Polypropylene - continued

## MKP-B32652/3 Series - continued

| | Voltage | Dimensions (mm) | | | Lead | Mftrs. | |
|---|---|---|---|---|---|---|---|
| **630 Volts d.c.** | | | | | | | |
| 0.1 µF | 250 | 15 | 26.5 | 6 | 22.5 | B32653A6104K | 975-1327 |
| 0.22 µF | 250 | 16.5 | 26.5 | 8.5 | 22.5 | B32653A6224K | 975-1335 |
| 0.47 µF | 250 | 20.5 | 26.5 | 11 | 22.5 | B32653A6474K | 975-1343 |
| **400 Volts d.c.** | | | | | | | |
| 0.68 µF | 200 | 16.5 | 26.5 | 10.5 | 22.5 | B32653A4684K | 975-1351 |

627794

| | | Price Each | | | | |
|---|---|---|---|---|---|---|
| Capacitance | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
| **2000 Volts d.c.** | | | | | | |
| 1000 pF | **975-1254** | | | | | |
| 2200 pF | **975-1262** | | | | | |
| 4700 pF | **975-1270** | | | | | |
| **1600 Volts d.c.** | | | | | | |
| 0.01 µF | **975-1289** | | | | | |
| **1250 Volts d.c.** | | | | | | |
| 0.022 µF | **975-1297** | | | | | |
| **1000 Volts d.c.** | | | | | | |
| 0.047 µF | **975-1300** | | | | | |
| 0.068 µF | **975-1319** | | | | | |
| **630 Volts d.c.** | | | | | | |
| 0.1 µF | **975-1327** | | | | | |
| 0.22 µF | **975-1335** | | | | | |
| 0.47 µF | **975-1343** | | | | | |
| **400 Volts d.c.** | | | | | | |
| 0.68 µF | **975-1351** | | | | | |

## MKP 375 Series



Lead dia.=0.8

- Metallised polypropylene film
- High current pulse applications include deflection circuits in monitors

| | |
|---|---|
| Operating temperature | -55°C to +105°C |
| Tolerance | ±5% |
| Climatic category | 55/105/56 |

**1000 Volt d.c. (400 Volt a.c.)**

| | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 0.022µF | 19.5 | 26 | 6.5 | 22.5 | BFC237520223 | 116-6090 |
| 0.033µF | 21 | 26 | 8 | 22.5 | BFC237520333 | 116-6091 |
| 0.047µF | 19 | 30 | 6 | 27.5 | BFC237520473 | 116-6092 |
| 0.056µF | 20.5 | 30 | 7.5 | 27.5 | BFC237520563 | 116-6093 |
| 0.068µF | 21.5 | 30 | 8.5 | 27.5 | BFC237520683 | 116-6094 |
| 0.082µF | 22.5 | 30 | 9.5 | 27.5 | BFC237520823 | 116-6095 |
| 0.1µF | 23.5 | 30 | 10.5 | 27.5 | BFC237520104 | 116-6096 |

| **1000 Volt d.c.** | | Price Each | | | | | |
|---|---|---|---|---|---|---|---|
| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ | 3K+ |
| 0.022µF | **116-6090** | | | | | | |
| 0.033µF | **116-6091** | | | | | | |
| 0.047µF | **116-6092** | | | | | | |
| 0.056µF | **116-6093** | | | | | | |
| 0.068µF | **116-6094** | | | | | | |
| 0.082µF | **116-6095** | | | | | | |
| 0.1µF | **116-6096** | | | | | | |

**1600 Volt d. c. (500 Volt a. c.)**

| | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 4700pF | 19 | 26 | 6 | 22.5 | BFC237530472 | 116-6097 |
| 8200pF | 20 | 26 | 7 | 22.5 | BFC237530822 | 116-6100 |
| 0.01µF | 21 | 26 | 8 | 22.5 | BFC237530103 | 116-6101 |
| 0.015µF | 22.5 | 26 | 9.5 | 22.5 | BFC237530153 | 116-6102 |
| 0.018µF | 23.5 | 26 | 11.5 | 22.5 | BFC237530183 | 116-6103 |
| 0.022µF | 22.5 | 30 | 9.5 | 27.5 | BFC237530223 | 116-6105 |
| 0.033µF | 24.5 | 30 | 11.5 | 27.5 | BFC237534333 | 116-6106 |

| **1600 Volt d.c.** | | Price Each | | | | | |
|---|---|---|---|---|---|---|---|
| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ | 3K+ |
| 4700pF | **116-6097** | | | | | | |
| 8200pF | **116-6100** | | | | | | |
| 0.01µF | **116-6101** | | | | | | |
| 0.015µF | **116-6102** | | | | | | |
| 0.018µF | **116-6103** | | | | | | |
| 0.022µF | **116-6105** | | | | | | |
| 0.033µF | **116-6106** | | | | | | |

**2000 Volt d.c. (600 Volt a.c.)**

| | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 3300pF | 19 | 26 | 6 | 22.5 | BFC237540332 | 116-6107 |
| 4700pF | 19.5 | 26 | 6.5 | 22.5 | BFC237540472 | 116-6108 |
| 5600pF | 20 | 26 | 7 | 22.5 | BFC237540562 | 116-6109 |
| 6800pF | 21 | 26 | 8 | 22.5 | BFC237540682 | 116-6110 |
| 0.01µF | 22.5 | 26 | 9.5 | 22.5 | BFC237540103 | 116-6112 |
| 0.022µF | 26 | 30 | 13 | 27.5 | BFC237540223 | 116-6114 |

208469

| **2000 Volt d.c.** | | Price Each | | | | | |
|---|---|---|---|---|---|---|---|
| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ | 3K+ |
| 3300pF | **116-6107** | | | | | | |
| 4700pF | **116-6108** | | | | | | |
| 5600pF | **116-6109** | | | | | | |
| 6800pF | **116-6110** | | | | | | |
| 0.01µF | **116-6112** | | | | | | |
| 0.022µF | **116-6114** | | | | | | |

## MKP 378 Series



Lead dia.=0.8

- High performance AC and pulse metallised polypropylene film capacitors
- Flame retardant polypropylene case
- SMPS and motor control applications

| | | | |
|---|---|---|---|
| Operating temperature | -55°C to +85°C | Tolerance | ±5% |
| Insulation resitance | MΩ | Power factor @10kHz, 20°C | 0.02 |
| Climatic category | 55/085/56 | | |

| Capacitance | Voltage V (d.c.) | V (a.c) | Pulse Rating V/µs | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|---|
| 4700pF | 2000 | 600 | 2000 | 16.5 | 26 | 7 | 22.5 | BFC237892472 | 121-5561 |
| 0.01µF | 2000 | 600 | 2000 | 19.5 | 26 | 10 | 22.5 | BFC237892103 | 121-5560 |
| 0.022µF | 1600 | 500 | 1600 | 19.5 | 26 | 10 | 22.5 | BFC237882223 | 121-5558 |
| 0.047µF | 1600 | 500 | 900 | 23 | 31 | 13 | 27.5 | BFC237882473 | 121-5559 |
| 0.1µF | 1000 | 600 | 600 | 19.5 | 31 | 10 | 27.5 | BFC237872104 | 121-5556 |
| 0.22µF | 1000 | 400 | 300 | 31 | 31 | 21 | 27.5 | BFC237872224 | 121-5557 |
| 0.47µF | 630 | 300 | 120 | 25 | 31 | 15 | 27.5 | BFC237862474 | 121-5555 |
| 1µF | 250 | 160 | 60 | 21 | 31 | 11 | 27.5 | BFC237842105 | 121-5552 |
| 2.2µF | 250 | 160 | 30 | 25 | 31 | 15 | 27.5 | BFC237842225 | 121-5554 |

208391

| | | Price Each | | | |
|---|---|---|---|---|---|
| | Order Code | 1+ | 100+ | 1K+ | 3K+ |
| **2000 Volt d.c.** | | | | | |
| 4700pF | **121-5561** | | | | |
| 0.01µF | **121-5560** | | | | |
| **1600 Volt d.c.** | | | | | |
| 0.022µF | **121-5558** | | | | |
| 0.047µF | **121-5559** | | | | |
| **1000 Volt d.c.** | | | | | |
| 0.1µF | **121-5556** | | | | |
| 0.22µF | **121-5557** | | | | |
| **630 Volt d.c.** | | | | | |
| 0.47µF | **121-5555** | | | | |
| **250 Volt d.c.** | | | | | |
| 1µF | **121-5552** | | | | |
| 2.2µF | **121-5554** | | | | |

## MKP 1839 Series



- Metallised polypropylene film capacitors
- Miniature case size

**Applications:**

- Pulse operations
- Storage
- Deflection circuits
- Timing and sample and hold circuits

| | | | |
|---|---|---|---|
| Tolerance | ±5% | Operating temperature | -55°C to +100°C |

**160 Volt d.c.**

| | Dimensions L | ∅ | Lead Length | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 0.047µF | 11 | 5.5 | 40 | MKP1839347164 | 141-3914 |
| 0.1µF | 14 | 6.5 | 40 | MKP1839410164 | 141-3915 |
| 0.22µF | 19 | 7 | 40 | MKP1839422164 | 141-3916 |
| 1µF | 26.5 | 10.5 | 40 | MKP1839510164 | 141-3918 |
| 4.7µF | 41.5 | 15.5 | 40 | MKP1839547164 | 141-3920 |
| 10µF | 41.5 | 22 | 40 | MKP1839610164 | 141-3921 |

| **160 Volt d.c.** | | Price Each | | | | |
|---|---|---|---|---|---|---|
| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
| 0.047µF | **141-3914** | | | | | |
| 0.1µF | **141-3915** | | | | | |
| 0.22µF | **141-3916** | | | | | |
| 1µF | **141-3918** | | | | | |
| 4.7µF | **141-3920** | | | | | |
| 10µF | **141-3921** | | | | | |

**400 Volt d.c.**

| | Dimensions L | ∅ | Lead Length | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 0.01µF | 11 | 5 | 40 | MKP1839310404 | 141-3923 |
| 0.047µF | 14 | 8 | 40 | MKP1839347404 | 141-3925 |
| 2.2µF | 41.5 | 21 | 40 | MKP1839522404 | 141-3930 |

493648

| **400 Volt d.c.** | | Price Each | | | | |
|---|---|---|---|---|---|---|
| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
| 0.01µF | **141-3923** | | | | | |
| 0.047µF | **141-3925** | | | | | |
| 2.2µF | **141-3930** | | | | | |


RoHS ● Compliant ▲ Non-compliant

## MKP 1839 HQ Series



Tolerance ± 5%
Life @ Temperature 2000 hours @ 100°C

● High current and high pulse operations ● Polypropylene film

**630 V**

| | Dimensions(mm) L | Body ∅ | Lead ∅ | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 2.2µF | 31.5 | 23 | 1 | MKP1839 522 634HQ | 179-1602 |
| 3.3µF | 31.5 | 28 | 1 | MKP1839 533 634HQ | 179-1603 |

**630 V** — Price Each

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 2.2µF | 179-1602● | | | | | |
| 3.3µF | 179-1603● | | | | | |

**850 V**

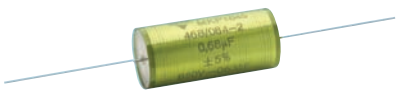
| | Body Dimensions(mm) L | Body ∅ | Lead ∅ | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 0.1µF | 31.5 | 8.5 | 0.8 | MKP1839 410 084HQ | 179-1604 |
| 0.15µF | 31.5 | 10 | 0.8 | MKP1839 415 084HQ | 179-1605 |
| 0.22µF | 31.5 | 11.5 | 0.8 | MKP1839 422 084HQ | 179-1607 |
| 0.33µF | 31.5 | 14 | 0.8 | MKP1839 433 084HQ | 179-1608 |
| 0.47µF | 31.5 | 16.5 | 0.8 | MKP1839 447 084HQ | 179-1609 |
| 0.68µF | 31.5 | 16.5 | 0.8 | MKP1839 468 084HQ | 179-1610 |
| 1µF | 31.5 | 19.5 | 1 | MKP1839 510 084HQ | 179-1611 |
| 1.5µF | 31.5 | 24 | 1 | MKP1839 515 084HQ | 179-1612 |

603469

**850 V** — Price Each

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.1µF | 179-1604● | | | | | |
| 0.15µF | 179-1605● | | | | | |
| 0.22µF | 179-1607● | | | | | |
| 0.33µF | 179-1608● | | | | | |
| 0.47µF | 179-1609● | | | | | |
| 0.68µF | 179-1610● | | | | | |
| 1µF | 179-1611● | | | | | |
| 1.5µF | 179-1612● | | | | | |

## MKP 1845 Series



● Metallised polypropylene film capacitors ● Deflection circuits
**Applications:** ● Snubber and electronic ballast circuits
● High current and high pulse operations ● Timing and sample and hold circuits

Tolerance ±5% Operating temperature -55°C to +100°C

**1000 Volt d.c.**

| | Dimensions L | ∅ | Lead Length | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 0.1µF | 34 | 15.5 | 40 | MKP1845410104 | 141-3935 |
| 0.22µF | 44 | 18 | 40 | MKP1845422104 | 141-3936 |

**1000 Volt d.c.** — Price Each

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.1µF | 141-3935● | | | | | |
| 0.22µF | 141-3936● | | | | | |

**2000 Volt d.c.**

| | Dimensions L | ∅ | Lead Length | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 2200pF | 29 | 6.5 | 40 | MKP1845222204 | 141-3938 |
| 4700pF | 29 | 8 | 40 | MKP1845247204 | 141-3939 |
| 0.1µF | 44 | 21 | 40 | MKP1845410204 | 141-3943 |

493822

**2000 Volt d.c.** — Price Each

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 2200pF | 141-3938● | | | | | |
| 4700pF | 141-3939● | | | | | |
| 0.1µF | 141-3943● | | | | | |

# Film - Polystyrene

## FSC Series – 160 Volt d.c. (40 Volt a.c.)



Lead dia 0.4 for C ≤330pF 0.6 for C >330pF

● Low cost polystyrene axial capacitors ● Small size high performance

Operating temperature -40°C to +85°C
Insulation resistance MΩ
Temperature coefficient N 150±50ppm/°C
Climate category 40/85/56
Tolerance 1pF for C ≤33p, 2.5% for C >33pF
Power factor @ 1kHz 0.0005

| | Dimensions L | Dia. | Order Code | | Dimensions L | Dia. | Order Code |
|---|---|---|---|---|---|---|---|
| 10pF | 8 | 4 | 951-9955 | 68pF | 8 | 4 | 952-0007 |
| 15pF | 8 | 4 | 951-9963 | 100pF | 8 | 4 | 952-0015 |
| 22pF | 8 | 4 | 951-9971 | 120pF | 8 | 4 | 952-0171 |
| 33pF | 8 | 4 | 951-9980 | 150pF | 8 | 4 | 952-0023 |
| 47pF | 8 | 4 | 951-9998 | 220pF | 8 | 4 | 952-0031 |
| 56pF | 8 | 4 | 952-0082 | 330pF | 8 | 4 | 952-0040 |
| 470pF | 12 | 5 | 952-0058 | 2700pF | 10 | 8 | 952-0120 |
| 680pF | 12 | 5 | 952-0066 | 3300pF | 10 | 8 | 952-0139 |
| 1000pF | 12 | 5 | 952-0074 | 4700pF | 15 | 9.5 | 952-0147 |
| 1200pF | 10 | 8 | 952-0090 | 6800pF | 15 | 9.5 | 952-0155 |
| 1500pF | 10 | 8 | 952-0104 | 0.01µF | 20 | 15 | 952-0163 |
| 2200pF | 10 | 8 | 952-0112 | | | | |

208628

Price Each

| | Order Code | 1+ | 50+ | 100+ | 1K+ |
|---|---|---|---|---|---|
| 10pF | 951-9955● | | | | |
| 15pF | 951-9963● | | | | |
| 22pF | 951-9971● | | | | |
| 33pF | 951-9980● | | | | |
| 47pF | 951-9998● | | | | |
| 56pF | 952-0082● | | | | |
| 68pF | 952-0007● | | | | |
| 100pF | 952-0015● | | | | |
| 120pF | 952-0171● | | | | |
| 150pF | 952-0023● | | | | |
| 220pF | 952-0031● | | | | |
| 330pF | 952-0040● | | | | |
| 470pF | 952-0058● | | | | |
| 680pF | 952-0066● | | | | |
| 1000pF | 952-0074● | | | | |
| 1200pF | 952-0090● | | | | |
| 1500pF | 952-0104● | | | | |
| 2200pF | 952-0112● | | | | |
| 2700pF | 952-0120● | | | | |
| 3300pF | 952-0139● | | | | |
| 4700pF | 952-0147● | | | | |
| 6800pF | 952-0155● | | | | |
| 0.01µF | 952-0163● | | | | |

## FSC/EX Series



Lead dia.=0.8

● High performance low cost axial polystyrene ● Close tolerance, ±1%

Operating temperature -40°C to +70°C
Insulation resistance MΩ
Temperature coefficient -110 ±60ppm/°C
Tolerance ±1%
Power factor @ 1kHz 0.0005

**63 Volt d.c. (25 Volt a.c.)**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0.01µF | 17 | 6.5 | 952-0414 | 0.022µF | 17 | 7 | 952-0430 |
| 0.015µF | 17 | 7 | 952-0422 | 0.033µF | 17 | 8 | 952-0449 |

**160 Volt d.c. (40 Volt a.c.)**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1200pF | 12.5 | 5.5 | 952-0457 | 3900pF | 17 | 6 | 952-0554 |
| 1500pF | 12.5 | 5.5 | 952-0465 | 4700pF | 17 | 6 | 952-0562 |
| 1800pF | 12.5 | 5.5 | 952-0473 | 5100pF | 17 | 6 | 952-0570 |
| 2000pF | 12.5 | 5.5 | 952-0481 | 5600pF | 17 | 6 | 952-0589 |
| 2200pF | 12.5 | 5.5 | 952-0490 | 6800pF | 17 | 6 | 952-0600 |
| 2700pF | 12.5 | 5.5 | 952-0511 | 7500pF | 17 | 7 | 952-0619 |
| 3000pF | 12.9 | 6 | 952-0520 | 8200pF | 17 | 6 | 952-0627 |
| 3300pF | 12.9 | 6 | 952-0538 | | | | |

**250 Volt d.c. (125 Volt a.c.)**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 820pF | 12.9 | 5.5 | 952-0635 | 1000pF | 12.9 | 5.5 | 952-0651 |

**630 Volt d.c. (250 Volt a.c.)**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 100pF | 12.5 | 6 | 952-0660 | 300pF | 12.9 | 6 | 952-0740 |
| 120pF | 12.5 | 6 | 952-0678 | 330pF | 12.9 | 6 | 952-0759 |
| 150pF | 12.5 | 6 | 952-0686 | 390pF | 12.9 | 5.5 | 952-0775 |
| 180pF | 12.5 | 6 | 952-0694 | 470pF | 12.9 | 5.5 | 952-0791 |
| 200pF | 12.5 | 6 | 952-0708 | 510pF | 12.9 | 5.5 | 952-0805 |
| 220pF | 12.9 | 6 | 952-0716 | 560pF | 12.9 | 5.5 | 952-0813 |
| 270pF | 12.9 | 6 | 952-0732 | 680pF | 12.9 | 6 | 952-0821 |

208557

Price Each

| | Order Code | 1+ | 100+ | 1K+ | 3K+ |
|---|---|---|---|---|---|
| **63 Volt d.c.** | | | | | |
| 0.01µF | 952-0414● | | | | |
| 0.015µF | 952-0422● | | | | |
| 0.022µF | 952-0430● | | | | |
| 0.033µF | 952-0449● | | | | |
| **160 Volt d.c.** | | | | | |
| 1200pF | 952-0457● | | | | |
| 1500pF | 952-0465● | | | | |
| 1800pF | 952-0473● | | | | |
| 2000pF | 952-0481● | | | | |
| 2200pF | 952-0490● | | | | |
| 2700pF | 952-0511● | | | | |
| 3000pF | 952-0520● | | | | |
| 3300pF | 952-0538● | | | | |
| 3900pF | 952-0554● | | | | |
| 4700pF | 952-0562● | | | | |

# Film - Polystyrene - continued

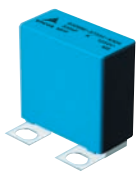
## FSC/EX Series - continued

| | Order Code | Price Each 1+ | 100+ | 1K+ | 3K+ |
|---|---|---|---|---|---|
| **160 Volt d.c.** | | | | | |
| 5100pF | **952-0570** | | | | |
| 5600pF | **952-0589** | | | | |
| 6800pF | **952-0600** | | | | |
| 7500pF | **952-0619** | | | | |
| 8200pF | **952-0627** | | | | |
| **250 Volt d.c.** | | | | | |
| 820pF | **952-0635** | | | | |
| 1000pF | **952-0651** | | | | |
| **630 Volt d.c.** | | | | | |
| 100pF | **952-0660** | | | | |
| 120pF | **952-0678** | | | | |
| 150pF | **952-0686** | | | | |
| 180pF | **952-0694** | | | | |
| 200pF | **952-0708** | | | | |
| 220pF | **952-0716** | | | | |
| 270pF | **952-0732** | | | | |
| 300pF | **952-0740** | | | | |
| 330pF | **952-0759** | | | | |
| 390pF | **952-0775** | | | | |
| 470pF | **952-0791** | | | | |
| 510pF | **952-0805** | | | | |
| 560pF | **952-0813** | | | | |
| 680pF | **952-0821** | | | | |

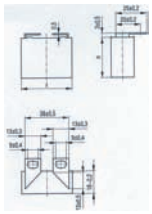
# Film - Snubbers

## B32656/32686 Series

EPCOS



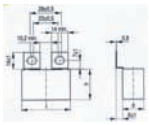
Case style 1



Case style 1



Case style 2



Case style 2

- High performance metallised polypropylene film pulse capacitors
- High pulse strength
- Designed for snubbering power semiconductors
- For direct mounting to IGBT modules

Operating temperature -55°C to +100°C Tolerance ±10%
Climatic category 55/100/56

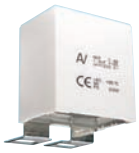
| Capacitance | Pulse Rating V/µs | Dimensions H | W | D | Case Style | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **1000 Volt d.c. (500 Volt a.c.)** | | | | | | | |
| 0.68µF | 90 | 28.5 | 42 | 16 | 1 | B32656S684K564 | 120-0820 |
| 1µF | 90 | 26.5 | 42 | 31 | 2 | B32656S105K561 | 120-0818 |
| 1.5µF | 90 | 26.5 | 42 | 31 | 2 | B32656S155K561 | 120-0819 |
| **1250 Volt d.c. (500 Volt a.c.)** | | | | | | | |
| 0.22µF | 140 | 25 | 42 | 14 | 1 | B32656S7224K564 | 120-0822 |
| 1µF | 140 | 37 | 42 | 28 | 2 | B32656S7105K561 | 120-0821 |
| **1600 Volt d.c. (450 Volt a.c.)** | | | | | | | |
| 0.1µF | 3500 | 32.5 | 41.5 | 18 | 1 | B32686S1104K564 | 120-0824 |
| **2000 Volt d.c. (500 Volt a.c.)** | | | | | | | |
| 0.1µF | 4500 | 39.5 | 41.5 | 20 | 1 | B32686S2104K561 | 120-0825 |

333319

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ |
|---|---|---|---|---|---|
| **1000 Volt d.c. (500 Volt a.c.)** | | | | | |
| 0.68µF | **120-0820** | | | | |
| 1µF | **120-0818** | | | | |
| 1.5µF | **120-0819** | | | | |
| **1250 Volt d.c. (500 Volt a.c.)** | | | | | |
| 0.22µF | **120-0822** | | | | |
| 1µF | **120-0821** | | | | |
| **1600 Volt d.c. (450 Volt a.c.)** | | | | | |
| 0.1µF | **120-0824** | | | | |
| **2000 Volt d.c. (500 Volt a.c.)** | | | | | |
| 0.1µF | **120-0825** | | | | |

## Snubber MKP C4B Series

KEMET CHARGED.



Operating temperature -40°C to +85°C
Tolerance ± 5%

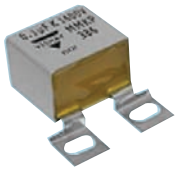
| | Dimensions H | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| **1000V** | | | | | |
| 1µF | 20 | 41.5 | 40 | C4BSNBX4100ZBFJ | 171-6036 |
| **1200V** | | | | | |
| 1µF | 28 | 42.5 | 37 | C4BSPBX4100ZAJJ | 171-6038 |
| **1600V** | | | | | |
| 0.47µF | 20 | 41.5 | 40 | C4BSTBX3470ZAFJ | 171-6039 |

539491

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ |
|---|---|---|---|---|---|
| **1000V** | | | | | |
| 1µF | **171-6036** | | | | |
| **1200V** | | | | | |
| 1µF | **171-6038** | | | | |
| **1600V** | | | | | |
| 0.47µF | **171-6039** | | | | |

## Snubber MMKP 386 Series

VISHAY.



- AC and pulse double metallized polypropylene film capacitors
- Low inductive construction
- Low loss dielectric

Operating temperature -55°C to +85°C
Tolerance ±10%
Screwhole pitch 27.5mm

| | Dimensions H | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| **630 Volt d.c. (220 Volt a.c.)** | | | | | |
| 3.3µF | 46 | 44 | 30 | BFC238620335 | 128-9272 |
| **850 Volt d.c. (300 Volt a.c.)** | | | | | |
| 1.5µF | 38 | 44 | 22 | BFC238600155 | 141-3901 |
| 2.7µF | 46 | 44 | 30 | BFC238600275 | 128-9274 |
| **1000 Volt d.c. (350 Volt a.c.)** | | | | | |
| 1.5µF | 46 | 44 | 30 | BFC238630155 | 128-9280 |
| **1250 Volt d.c. (425 Volt a.c.)** | | | | | |
| 0.47µF | 38 | 44 | 22 | BFC238680474 | 128-9281 |
| **1600 Volt d.c. (550 Volt a.c.)** | | | | | |
| 0.47µF | 46 | 44 | 30 | BFC238650474 | 128-9292 |
| **2000 Volt d.c. (700 Volt a.c.)** | | | | | |
| 0.22µF | 38 | 44 | 22 | BFC238660224 | 141-3912 |
| 0.47µF | 46 | 44 | 30 | BFC238660474 | 128-9295 |
| **2500 Volt d.c. (900 Volt a.c.)** | | | | | |
| 0.1µF | 38 | 44 | 22 | BFC238670104 | 128-9296 |
| 0.27µF | 46 | 44 | 30 | BFC238670274 | 128-9297 |

451790

| | Order Code | Price Each 1+ | 15+ | 30+ | 60+ |
|---|---|---|---|---|---|
| **630 Volt d.c. (220 Volt a.c.)** | | | | | |
| 3.3µF | **128-9272** | | | | |
| **850 Volt d.c. (300 Volt a.c.)** | | | | | |
| 1.5µF | **141-3901** | | | | |
| 2.7µF | **128-9274** | | | | |
| **1000 Volt d.c. (350 Volt a.c.)** | | | | | |
| 1.5µF | **128-9280** | | | | |
| **1250 Volt d.c. (425 Volt a.c.)** | | | | | |
| 0.47µF | **128-9281** | | | | |
| **1600 Volt d.c. (550 Volt a.c.)** | | | | | |
| 0.47µF | **128-9292** | | | | |
| **2000 Volt d.c. (700 Volt a.c.)** | | | | | |
| 0.22µF | **141-3912** | | | | |
| 0.47µF | **128-9295** | | | | |
| **2500 Volt d.c. (900 Volt a.c.)** | | | | | |
| µF0.1 | **128-9296** | | | | |
| 0.27µF | **128-9297** | | | | |

# Film - Motor Run

## C27.4 Faston Series

ARCOTRONICS GROUP A KEMET Company



Voltage rating 470V
Operating temperature -25°C to +100°C


RoHS ● Compliant ▲ Non-compliant

The capacitor is used in series to the start-winding of the single-phase electric motor, allowing its starting and increasing the torque during work. Main application fields: air-fans, pumps, circulators, and low power electric motors.

603801

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ |
|---|---|---|---|---|---|
| 1µF | 178-9692 | | | | |
| 2µF | 178-9693 | | | | |
| 3µF | 178-9694 | | | | |
| 4µF | 178-9695 | | | | |
| 5µF | 178-9696 | | | | |
| 10µF | 178-9699 | | | | |
| 12µF | 178-9700 | | | | |
| 15µF | 178-9701 | | | | |
| 18µF | 178-9702 | | | | |
| 20µF | 178-9704 | | | | |
| 25µF | 178-9705 | | | | |
| 30µF | 178-9706 | | | | |
| 40µF | 178-9707 | | | | |

## C27.4 Leaded Series

ARCOTRONICS GROUP A KEMET Company



The capacitor is used in series to the start-winding of the single-phase electric motor, allowing its starting and increasing the torque during work. Main application fields: air-fans, pumps, circulators, and low power electric motors.

Voltage rating 470V
Operating temperature -25°C to +100°C

603746

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ |
|---|---|---|---|---|---|
| 2µF | 178-9686 | | | | |
| 3µF | 178-9687 | | | | |
| 4µF | 178-9688 | | | | |
| 5µF | 178-9689 | | | | |
| 10µF | 178-9690 | | | | |
| 12µF | 178-9691 | | | | |

## C87.8 Faston Series

ARCOTRONICS GROUP A KEMET Company



Voltage rating 470V
Operating temperature -25°C to +85°C

The capacitor is used in series to the start-winding of the single-phase electric motor, allowing its starting and increasing the torque during work. Main application fields: low power electric motors, compressors. The choice of the capacitor depends on expected life length and the mechanical connection of the user.

603803

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ |
|---|---|---|---|---|---|
| 4µF | 178-9708 | | | | |
| 15µF | 178-9710 | | | | |
| 20µF | 178-9711 | | | | |

## MRP440 Series – Plastic Case

LCR Components



- Stud mounting motor run capacitors
- Self-healing metallised polypropylene
- Flame retardant to **UL94V-0**

Voltage rating 440V ac 50/60Hz Tolerance ±10%
Operating temperature -25°C to +85°C Power factor ≤0.001

Stud thread = M8 x 12,
Tabs = double 6.35

| | Dimensions H | Dia. | Order code | | Dimensions H | Dia. | Order code | | Dimensions H | Dia. | Order code |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1µF | 55 | 30 | 119-0550 | 5µF | 75 | 30 | 119-0554 | 20µF | 98 | 45 | 119-0558 |
| 2µF | 55 | 30 | 119-0551 | 8µF | 75 | 35 | 119-0555 | 25µF | 98 | 50 | 119-0559 |
| 3µF | 55 | 30 | 119-0552 | 10µF | 98 | 35 | 119-0557 | 30µF | 98 | 50 | 119-0560 |

208583

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|
| 1µF | 119-0550 | | | | | |
| 2µF | 119-0551 | | | | | |
| 3µF | 119-0552 | | | | | |
| 5µF | 119-0554 | | | | | |
| 8µF | 119-0555 | | | | | |
| 10µF | 119-0557 | | | | | |
| 20µF | 119-0558 | | | | | |
| 25µF | 119-0559 | | | | | |
| 30µF | 119-0560 | | | | | |

## MRP440 Series – Leaded Plastic Case

LCR Components



- Stud mounting motor run capacitors
- Self-healing metallised polypropylene
- Flame retardant to **UL94V-0**

Voltage rating 440V ac 50/60Hz Tolerance ±10%
Operating temperature -25°C to +85°C Power factor ≤0.001

Stud thread = M8 x 12

| | Dimensions H | Dia. | Order code | | | | |
|---|---|---|---|---|---|---|---|
| 1.5µF | 55 | 30 | 119-0561 | 5µF | 75 | 30 | 119-0564 |
| 2µF | 55 | 30 | 119-0562 | 6µF | 75 | 35 | 119-0565 |
| 3µF | 55 | 40 | 119-0563 | 8µF | 75 | 35 | 119-0566 |
| | | | | 10µF | 98 | 35 | 119-0567 |
| | | | | 20µF | 98 | 45 | 119-0569 |

208584

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|
| 1.5µF | 119-0561 | | | | | |
| 2µF | 119-0562 | | | | | |
| 3µF | 119-0563 | | | | | |
| 5µF | 119-0564 | | | | | |
| 6µF | 119-0565 | | | | | |
| 8µF | 119-0566 | | | | | |
| 10µF | 119-0567 | | | | | |
| 20µF | 119-0569 | | | | | |

## MR Series – 440 Volt a.c. (Polypropylene)

LCR Components



- Stud mounting motor run capacitors
- Self-healing metallised polypropylene film
- Hermetically sealed aluminium can
- Manufactured to **BS EN 60252**

Stud thread=M8, Tabs=double 6.35

Operating temperature -25°C to +85°C Tolerance ±10%
Insulation resistance secs (MΩ x µF) Power factor 0.001
Climatic category 40/85/21 Proof voltage 660VR for 1 min

| | Dimensions H | Dia. | Order code | | Dimensions | | |
|---|---|---|---|---|---|---|---|
| 1µF | 60 | 35 | 119-0537 | 4µF | 60 | 35 | 119-0540 |
| 2µF | 60 | 35 | 119-0538 | 5µF | 60 | 35 | 119-0541 |
| 3µF | 60 | 30 | 119-0539 | 10µF | 75 | 45 | 119-0542 |
| | | | | 20µF | 98 | 45 | 119-0545 |

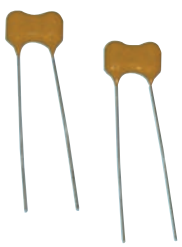
208634

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|
| 1µF | 119-0537 | | | | |
| 2µF | 119-0538 | | | | |
| 3µF | 119-0539 | | | | |
| 4µF | 119-0540 | | | | |
| 5µF | 119-0541 | | | | |
| 10µF | 119-0542 | | | | |
| 20µF | 119-0545 | | | | |

# Silver Mica

## Standard Dipped Mica Capacitors

CDE CORNELL DUBILIER



| | | |
|---|---|---|
| Tolerance | ±0.5pF | ≤ 47pF (except 10 pF = 5%) |
| | ±1% | ≥56pF |
| Temp. coefficient (ppm/°C) | ± 200ppm/°C | 2.2 - 18pF |
| | -20 to +100ppm/°C | 22 - 82pF |
| | -70 to +70ppm/°C | ≥100pF |
| Capacitance drift | ±0.5% + 0.1pF | 2.2 - 18pF |
| | ±0.1% + 0.1pF | 22 - 82pF |
| | ±0.05% + 0.1pF | ≥100pF |
| Operating temp. | -55°C to +125°C | |
| Rated voltage | 500Vdc | |

- High temperature - up to +150°C
- 100,000 V/µs dV/dt pulse capability minimum

Stability and mica go hand-in-hand when you need to count on stable capacitance over a wide temperature range. CDE's standard dipped silvered mica capacitors are the first choice fortiming and close tolerance applications.

| Capacitance | Dimensions H | W | D | Lead Dia | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 4.7pF | 9.1 | 11.4 | 4.3 | 0.6 | 5.9 | CD15CD(4.7)D03F | 126-4866 |
| 6.8pF | 9.1 | 11.4 | 4.3 | 0.6 | 5.9 | CD15CD(6.8)D03F | 126-4867 |
| 10pF | 9.1 | 11.4 | 4.3 | 0.6 | 5.9 | CD15CD100J03F | 126-4868 |
| 15pF | 9.1 | 11.4 | 4.3 | 0.6 | 5.9 | CD15CD150D03F | 126-4869 |
| 18pF | 9.1 | 11.4 | 4.3 | 0.6 | 5.9 | CD15CD180D03F | 126-4870 |
| 22pF | 9.1 | 11.4 | 4.3 | 0.6 | 5.9 | CD15ED220D03F | 126-4871 |
| 27pF | 9.1 | 11.4 | 4.3 | 0.6 | 5.9 | CD15ED270D03F | 126-4872 |
| 33pF | 9.1 | 11.4 | 4.3 | 0.6 | 5.9 | CD15ED330D03F | 126-4873 |
| 39pF | 9.1 | 11.4 | 4.3 | 0.6 | 5.9 | CD15ED390D03F | 126-4875 |
| 47pF | 9.1 | 11.4 | 4.3 | 0.6 | 5.9 | CD15ED470D03F | 126-4876 |
| 56pF | 9.1 | 11.4 | 4.3 | 0.6 | 5.9 | CD15ED560F03F | 126-4877 |
| 68pF | 9.1 | 11.4 | 4.6 | 0.6 | 5.9 | CD15ED680F03F | 126-4878 |
| 100pF | 9.1 | 11.7 | 4.6 | 0.6 | 5.9 | CD15FD101F03F | 126-4880 |
| 120pF | 9.4 | 11.7 | 4.6 | 0.6 | 5.9 | CD15FD121F03F | 126-4881 |
| 150pF | 9.4 | 11.7 | 4.8 | 0.6 | 5.9 | CD15FD151F03F | 126-4882 |
| 180pF | 9.4 | 11.7 | 4.8 | 0.6 | 5.9 | CD15FD181F03F | 126-4883 |
| 220pF | 9.7 | 11.7 | 5.1 | 0.6 | 5.9 | CD15FD221F03F | 126-4884 |
| 270pF | 9.9 | 11.9 | 5.3 | 0.6 | 5.9 | CD15FD271F03F | 126-4885 |

# Silver Mica - continued

## Standard Dipped Mica Capacitors - continued

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 330pF | 9.9 | 11.9 | 5.3 | 0.6 | 5.9 | CD15FD331FO3F | 126-4887 |
| 390pF | 9.9 | 11.9 | 5.3 | 0.6 | 5.9 | CD15FD391FO3F | 126-4888 |
| 470pF | 10.2 | 11.9 | 5.6 | 0.6 | 5.9 | CD15FD471FO3F | 126-4889 |
| 560pF | 13 | 16.5 | 5.3 | 0.8 | 8.7 | CD19FD561FO3F | 126-4892 |
| 680pF | 13 | 16.5 | 5.3 | 0.8 | 8.7 | CD19FD681FO3F | 126-4893 |
| 820pF | 13 | 16.5 | 5.3 | 0.8 | 8.7 | CD19FD821FO3F | 126-4894 |
| 1000pF | 13.2 | 16.5 | 5.6 | 0.8 | 8.7 | CD19FD102FO3F | 126-4890 |
| 1500pF | 13.2 | 16.8 | 5.8 | 0.8 | 8.7 | CD19FD152FO3F | 126-4895 |
| 1800pF | 13.5 | 17 | 6.1 | 0.8 | 8.7 | CD19FD182FO3F | 126-4896 |
| 2200pF | 13.5 | 17 | 6.4 | 0.8 | 8.7 | CD19FD222FO3F | 126-4897 |
| 2700pF | 13.7 | 17.3 | 6.9 | 0.8 | 8.7 | CD19FD272FO3F | 126-4899 |
| 3600pF | 14.2 | 17.3 | 7.6 | 0.8 | 8.7 | CD19FD362FO3F | 126-4900 |
| 4700pF | 14.7 | 17.8 | 8.9 | 0.8 | 8.7 | CD19FD472FO3F | 126-4901 |
| 6800pF | 22.4 | 19.8 | 7.6 | 1 | 11.1 | CD30FD682FO3F | 126-4902 |
| 8200pF | 22.4 | 20.1 | 8.1 | 1 | 11.1 | CD30FD822FO3F | 126-4903 |
| 0.01µF | 22.6 | 20.3 | 8.6 | 1 | 11.1 | CD30FD103FO3F | 126-4905 |
| 0.022µF | 23.6 | 21.1 | 11.7 | 1 | 11.1 | CD30FD223FO3F | 126-4906 |

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| Capacitance | Order Code | Price Each 1+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|
| 4.7pF | 126-4866 | | | | |
| 6.8pF | 126-4867 | | | | |
| 10pF | 126-4868 | | | | |
| 15pF | 126-4869 | | | | |
| 18pF | 126-4870 | | | | |
| 22pF | 126-4871 | | | | |
| 27pF | 126-4872 | | | | |
| 33pF | 126-4873 | | | | |
| 39pF | 126-4875 | | | | |
| 47pF | 126-4876 | | | | |
| 56pF | 126-4877 | | | | |
| 68pF | 126-4878 | | | | |
| 100pF | 126-4880 | | | | |
| 120pF | 126-4881 | | | | |
| 150pF | 126-4882 | | | | |
| 180pF | 126-4883 | | | | |
| 220pF | 126-4884 | | | | |
| 270pF | 126-4885 | | | | |
| 330pF | 126-4887 | | | | |
| 390pF | 126-4888 | | | | |
| 470pF | 126-4889 | | | | |
| 560pF | 126-4892 | | | | |
| 680pF | 126-4893 | | | | |
| 820pF | 126-4894 | | | | |
| 1000pF | 126-4890 | | | | |
| 1500pF | 126-4895 | | | | |
| 1800pF | 126-4896 | | | | |
| 2200pF | 126-4897 | | | | |
| 2700pF | 126-4899 | | | | |
| 3600pF | 126-4900 | | | | |
| 4700pF | 126-4901 | | | | |
| 6800pF | 126-4902 | | | | |
| 8200pF | 126-4903 | | | | |
| 0.01µF | 126-4905 | | | | |
| 0.022µF | 126-4906 | | | | |

**Capacitance Conversion Table**

| | | | | |
|---|---|---|---|---|
| 0.000001µF | = | 0.001nF | = | 1pF |
| 0.00001µF | = | 0.01nF | = | 10pF |
| 0.0001µF | = | 0.1nF | = | 100pF |
| 0.001µF | = | 1nF | = | 1000pF |
| 0.01µF | = | 10nF | = | 10000pF |
| 0.1µF | = | 100nF | = | 100000pF |
| 1µF | = | 1000nF | = | 1000000pF |
| 10µF | = | 10000nF | = | 10000000pF |
| 100µF | = | 100000nF | = | 100000000pF |

# Suppression - X & Y Capacitors

## Suppression Capacitors

EPCOS

- **Class X:** Suitable for use in situations where failure of the capacitor would not lead to danger of electric shock. X capacitors are designed for connection directly across the mains supply between current carrying conductors. Two sub classes exist, X2 is for general applications and meet a 2.5KV peak pulse voltage test. Class X1 have enhanced characteristics for heavier duty applications and meet a 4KV peak pulse voltage test. These kinds of peak voltage can be caused by lightning in overhead cables, switching surges in neighbouring equipment or in the device in which the capacitor is being used to suppress interferences.
- **Class Y:** Suitable for use in situations where failure of the capacitor could result in a dangerous electric shock. Y capacitors are designed for connection directly between a current carrying conductor and earth. Two sub classes also exist for Y capacitors, subjected to the same voltage tests as the X class.

213819

## Class X1 Metallised Paper

EVOX RIFA A KEMET Company

**300V ac - PME 271E Series 110°C**



- Metallised paper construction gives excellent stability and reliability in continuous operation applications
- Highest possible safety due to excellent flammability characteristics
- Encapsulation material self-extinguishing to **UL94V-0**
- Good self-healing properties ensures long working life even if subjected to over-voltages
- Approvals include **EN132400, SEMKO, DEMKO, NEMKO, VDE & SEV**
- **UL** recognised

| | | | |
|---|---|---|---|
| Tolerance | ≤0.1µF±20% >0.1µF±10% | Operating temperature | -40°C to +100°C |
| | | Voltage rating | 300V ac, 630V dc |
| Insulation resistance (at 500Vdc after 60s@+23°C) | 12000MΩ | Climatic category | 40/110/5640/100/56 |
| | | Nominal lead length | 30 |

| | Dimensions H | W | D | Lead Pitch | Lead Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.01µF | 10.5 | 18.5 | 5.2 | 15.2 | 0.8 | PME271E510M | 971-7323 |
| 0.047µF | 14.3 | 18.5 | 8.5 | 15.2 | 0.8 | PME271E547M | 971-7331 |
| 0.1µF | 16.5 | 24 | 11.3 | 20.3 | 0.8 | PME271E610M | 971-7340 |
| 0.22µF | 19 | 30.5 | 12.1 | 25.4 | 1 | PME271E622K | 971-7358 |

204094

| | Order Code | Price Each 1+ | 50+ | 100+ | 250+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| 0.01µF | 971-7323 | | | | | | |
| 0.047µF | 971-7331 | | | | | | |
| 0.1µF | 971-7340 | | | | | | |
| 0.22µF | 971-7358 | | | | | | |

## ECQUG Series

Panasonic

**Class X1 - Metallised Polyester Film Capacitors**



NEW

- Class X1 metallised polyster supression capacitors

| | |
|---|---|
| Operating temperature | -40°C to +100°C |
| Capacitance tolerance | ± 20% |
| Voltage Rating | 300VAC |

| Capacitance (µF) | Dimensions in mm H | W | D | Lead Pitch | Lead Dia | Mftrs List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.01 | 11.5 | 15 | 5 | 12.5 | 0.6 | ECQU3A103MG | 185-4808 |
| 0.015 | 11.5 | 15 | 5 | 12.5 | 0.6 | ECQU3A153MG | 185-4809 |
| 0.022 | 11.5 | 15 | 5 | 12.5 | 0.6 | ECQU3A223MG | 185-4810 |
| 0.033 | 13 | 15 | 6 | 12.5 | 0.6 | ECQU3A333MG | 185-4812 |
| 0.047 | 13 | 15 | 6 | 12.5 | 0.6 | ECQU3A473MG | 185-4813 |
| 0.068 | 15 | 15 | 8 | 12.5 | 0.6 | ECQU3A683MG | 185-4814 |
| 0.1 | 15 | 15 | 8 | 12.5 | 0.6 | ECQU3A104MG | 185-4815 |
| 0.15 | 16.5 | 18 | 8 | 15 | 0.8 | ECQU3A154MG | 185-4816 |
| 0.22 | 17.5 | 18 | 9 | 15 | 0.8 | ECQU3A224MG | 185-4817 |
| 0.33 | 18.5 | 26 | 9 | 22.5 | 0.8 | ECQU3A334MG | 185-4818 |
| 0.47 | 20 | 26 | 10.5 | 22.5 | 0.8 | ECQU3A474MG | 185-4819 |
| 0.68 | 22 | 26 | 12.5 | 22.5 | 0.8 | ECQU3A684MG | 185-4820 |
| 1 | 25.5 | 27 | 16.5 | 22.5 | 0.8 | ECQU3A105MG | 185-4821 |

618787

| Capacitance (µF) | Mftrs. List No. | Order Code | Price Each 5+ | + | + | + |
|---|---|---|---|---|---|---|
| 0.01 | ECQU3A103MG | 185-4808 | | | | |
| 0.015 | ECQU3A153MG | 185-4809 | | | | |
| 0.022 | ECQU3A223MG | 185-4810 | | | | |
| 0.033 | ECQU3A333MG | 185-4812 | | | | |
| 0.047 | ECQU3A473MG | 185-4813 | | | | |
| 0.068 | ECQU3A683MG | 185-4814 | | | | |
| 0.1 | ECQU3A104MG | 185-4815 | | | | |
| 0.15 | ECQU3A154MG | 185-4816 | | | | |
| 0.22 | ECQU3A224MG | 185-4817 | | | | |
| 0.33 | ECQU3A334MG | 185-4818 | | | | |
| 0.47 | ECQU3A474MG | 185-4819 | | | | |
| 0.68 | ECQU3A684MG | 185-4820 | | | | |
| 1 | ECQU3A105MG | 185-4821 | | | | |

## X1, Polypropylene

EPCOS

**305 V ac, B3291* Series**




- X1 class for interference suppression
- Dielectric: polypropylene (MKP)
- Very small dimensions
- Plastic case (UL 94 V-0)

| | |
|---|---|
| Tolerance | ± 20% |
| Max. operating temperature: | 110 °C |
| Voltage rating | 330VAC |

| | H | W | D | ∅ Lead mm | Mftrs List No. | Order Code |
|---|---|---|---|---|---|---|
| **Pitch 10mm** | | | | | | |
| 0.033µF | 12 | 13 | 6 | 0.6 | B32911A3333M | 178-1907 |
| **Pitch 15mm** | | | | | | |
| 0.022µF | 10.5 | 18 | 5 | 0.8 | B32912A3223M | 178-1908 |
| 0.15µF | 12.5 | 18 | 7 | 0.8 | B32912B3154M | 178-1909 |


RoHS Compliant Non-compliant

| | H | W | D | ∅ Lead mm | Mftrs List No. | Order Code |
|---|---|---|---|---|---|---|
| **Pitch 15mm** | | | | | | |
| 0.33µF | 17.5 | 18 | 9 | 0.8 | B32912B3334M | 178-1910 |
| **Pitch 22.5mm** | | | | | | |
| 0.33µF | 16.5 | 26.5 | 8.5 | 0.8 | B32913A3334M | 178-1912 |
| 0.47µF | 18.5 | 26.5 | 10.5 | 0.8 | B32913A3474M | 178-1913 |
| **Pitch 27.5mm** | | | | | | |
| 1µF | 23 | 31.5 | 13.5 | 0.8 | B32914A3105M | 178-1914 |
| 2.2µF | 30 | 31.5 | 19 | 0.8 | B32914A3225M | 178-1915 |
| **Pitch 37.5mm** | | | | | | |
| 3.3µF | 32.5 | 41.5 | 18 | 1 | B32916A3335M | 178-1916 |
| 6.8µF | 42.5 | 41.5 | 28 | 1 | B32916A3685M | 178-1917 |

600551

Order Multiple=1 — Price Each

| | Order Code | 5+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|
| **Pitch 10 mm** | | | | | |
| 0.033µF | **178-1907** | | | | |
| **Pitch 15 mm** | | | | | |
| 0.022µF | **178-1908** | | | | |
| 0.15µF | **178-1909** | | | | |
| 0.33µF | **178-1910** | | | | |
| **Pitch 22.5 mm** | | | | | |
| 0.33µF | **178-1912** | | | | |
| 0.47µF | **178-1913** | | | | |
| **Pitch 27.5 mm** | | | | | |
| 1µF | **178-1914** | | | | |
| | | 1+ | 50+ | 100+ | 180+ |
| 2.2µF | **178-1915** | | | | |
| **Pitch 37.5 mm** | | | | | |
| 3.3µF | **178-1916** | | | | |
| 6.8µF | **178-1917** | | | | |

## Class X1 Metallised Polypropylene MKP 3381 x1 Series

**440V ac**



- Class X1 metallised polypropylene suppression capacitors
- Meets requirements of **IEC384-14 2nd Edition**
- Approved to **EN132400**
- **UL** recognised
- Suitable for use in UPS power supplies and 3-phase applications

Lead length = 3.5

**N.B.** For ease of selection, capacitance value is listed in both **nF** and **µF**

Operating temperature -55°C to + 105°C
Capacitance tolerance ±20%
Insulation resistance (C<0.33µF) ≤MΩ
RC (C>0.33µF) ≤5000s

Pulse rise time 250V/µs 15mm pitch; 150V/µs 22.5mm pitch; 100V/µs 27.5mm pitch

| nF | µF | Dimensions H | W | D | Lead Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 0.01 | 0.00001 | 11 | 17.5 | 5 | 0.6 | 15 | BFC233810103 | 116-6427 |
| 0.022 | 0.000022 | 11 | 17.5 | 5 | 0.6 | 15 | BFC233810223 | 116-6428 |
| 0.033 | 0.000033 | 12 | 17.5 | 6 | 0.6 | 15 | BFC233810333 | 116-6429 |
| 0.047 | 0.000047 | 13.5 | 17.5 | 7 | 0.8 | 15 | BFC233810473 | 116-6430 |
| 0.068 | 0.000068 | 15 | 17.5 | 8.5 | 0.8 | 15 | BFC233810683 | 116-6431 |
| 0.1 | 0.0001 | 16.5 | 17.5 | 10 | 0.8 | 15 | BFC233810104 | 116-6432 |
| 0.15 | 0.00015 | 18 | 26 | 8.5 | 0.8 | 22.5 | BFC233810154 | 116-6433 |
| 0.22 | 0.00022 | 19.5 | 26 | 10 | 10 | 22.5 | BFC233810224 | 116-6434 |
| 0.33 | 0.00033 | 23 | 31 | 13 | 0.8 | 27.5 | BFC233810334 | 116-6435 |
| 0.47 | 0.00047 | 25 | 31 | 15 | 0.8 | 27.5 | BFC233810474 | 116-6436 |
| 0.68 | 0.00068 | 28 | 31 | 18 | 0.8 | 27.5 | BFC233810684 | 116-6437 |
| 1 | 0.001 | 31 | 31 | 21 | 0.8 | 27.5 | BFC233810105 | 116-6439 |

227201

Order Multiple=5 — Price Each

| µF | Order Code | 5+ | + | + | + | + | + |
|---|---|---|---|---|---|---|---|
| 0.01 | **116-6427** | | | | | | |
| 0.022 | **116-6428** | | | | | | |
| 0.033 | **116-6429** | | | | | | |
| 0.047 | **116-6430** | | | | | | |
| 0.068 | **116-6431** | | | | | | |
| 0.1 | **116-6432** | | | | | | |
| 0.15 | **116-6433** | | | | | | |
| 0.22 | **116-6434** | | | | | | |
| 0.33 | **116-6435** | | | | | | |
| 0.47 | **116-6436** | | | | | | |
| 0.68 | **116-6437** | | | | | | |
| 1 | **116-6439** | | | | | | |




**TROUBLESHOOTING TIPS**

Chat online to one of our technical engineers at **farnell.com**


## Class X2 Metallised Paper

**275V ac PME271M Series + 110°C**



- Self-healing metallised paper Class X2 suppression capacitors
- Self-extinguishing encapsulated material flame retardant to **UL94V-0**
- Safety approvals for world wide use
- Approvals include **SEMKO, DEMKO, NEMKO, EI, VDE, SEV, CSA, IMQ, OVE and EN132400**
- **UL** recognised

Tolerance ≤0.1µF±20%; >0.1µF±10%
Dissipation factor ≤1.3% @ 1kHz
Insulation resistance @ 500Vdc after 60s
≤0.33µF ≥12,000 MΩ<0.33µF 4000MΩ

Operating temperature -40° to 110[Degree] C
Voltage rating 275V ac
Climatic category 40/110/56
Nominal lead length 30

| | Dimensions H | W | D | Lead Pitch | Lead Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.033µF | 12.5 | 18.5 | 6 | 15.2 | 0.8 | PME271M533M | 971-7439 |
| 0.047µF | 13.5 | 18.5 | 6 | 15.2 | 0.8 | PME271M547M | 971-7447 |
| 0.068µF | 13.5 | 18.5 | 7.8 | 15.2 | 0.8 | PME271M568M | 971-7455 |
| 0.1µF | 14 | 24 | 7.6 | 20.3 | 0.8 | PME271M610M | 971-7463 |
| 0.15µF | 15 | 24 | 9 | 20.3 | 0.8 | PME271M615K | 971-7471 |
| 0.22µF | 16.5 | 24 | 11.3 | 20.3 | 0.8 | PME271M622K | 971-7480 |
| 0.33µF | 19 | 30.5 | 12.1 | 25.4 | 1 | PME271M633K | 971-7498 |
| 0.47µF | 22 | 30.5 | 15.3 | 25.4 | 1 | PME271M647K | 971-7501 |

204101

| | Order Code | 1+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|
| 0.033µF | **971-7439** | | | | |
| 0.047µF | **971-7447** | | | | |
| 0.068µF | **971-7455** | | | | |
| 0.1µF | **971-7463** | | | | |
| 0.15µF | **971-7471** | | | | |
| 0.22µF | **971-7480** | | | | |
| 0.33µF | **971-7498** | | | | |
| 0.47µF | **971-7501** | | | | |

## Class X2 Metallised Paper

**250V ac MPX2 Series**

NEW



- Excellent self-healing as well as high voltage strength
- Operational life > 300000 hours
- Failure rate < 1 fit (@ 50% of rated voltage and 40°C)
- Flame retardant case, **UL94V-0**
- Approvals **VDE 087455, UL E100438** and **CSA LR 93312-1**

Operating temperature -40°C to +110°C
Capacitance tolerance ± 10%
Voltage rating 275V
Lead length 6 mm

| Capacitance | Dimensions (mm) L | W | D | Lead Pitch | Lead dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.1 µF | 19 | 10 | 18 | 15 mm | 0.8 mm | MPX21W3100FG00KSSD | 100-6059 |
| 0.47 µF | 33 | 13 | 25 | 27.5 mm | 0.8 mm | MP3 0.47UF +/-20% 250V | 100-6062 |

634636

Price Each

| Capacitance | Order Code | 1+ | + | + | + | + |
|---|---|---|---|---|---|---|
| 0.1 µF | **100-6059** | | | | | |
| 0.47 µF | **100-6062** | | | | | |

## Class X1 and Y1 Ceramic – KX Series

**250V ac**



- Leaded ceramic safety capacitors
- Meet requirements of **IEC384-14 2nd Edition 1993 class X1, Y1**
- Approved to **CSA, BSI, SEMKO, SEV, VDE, FIMKO, NEMKO, DEMKO** and **IMQ**
- **UL** recognised

Voltage rating 250V ac
Test voltage 4000V rms
Operating temperature -25°C to +125°C; -25°C to + 85°C **(UL,CSA)**

| Capacitance | Tolerance | Dimensions Body Dia. | Thickness | Lead Pitch | Lead Length | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 100pF | ±10% | 9 | 10 | 10 | 25 | DE1B3KX101KA5B | 353-1910 |
| 150pF | ±10% | 9 | 10 | 10 | 25 | DE1B3KX151KA5B | 353-1922 |
| 220pF | ±10% | 9 | 10 | 10 | 25 | DE1B3KX221KA5B | 353-1934 |
| 330pF | ±10% | 9 | 10 | 10 | 25 | DE1B3KX331KA5B | 353-1946 |
| 470pF | ±10% | 9 | 10 | 10 | 25 | DE1B3KX471KA5B | 353-1958 |
| 680pF | ±10% | 10 | 10 | 10 | 25 | DE1B3KX681KA5B | 353-1960 |
| 1000pF | ±20% | 9 | 10 | 10 | 25 | DE1E3KX102MA5B | 353-1971 |
| 1500pF | ±20% | 11 | 10 | 10 | 25 | DE1E3KX152MA5B | 353-1983 |
| 2200pF | ±20% | 12 | 10 | 10 | 25 | DE1E3KX222MA5B | 353-1995 |
| 3300pF | ±20% | 14 | 10 | 10 | 25 | DE1E3KX332MA5B | 353-2008 |
| 4700pF | ±20% | 16 | 10 | 10 | 25 | DE1E3KX472MA5B | 353-2021 |

# Suppression - X & Y Capacitors - continued

## Class X1 and Y1 Ceramic – KX Series - continued

**250V ac - continued**

227198

**Order Multiple=5**

| | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 100pF | **353-1910** RL | | | | | |
| 150pF | **353-1922** RL | | | | | |
| 220pF | **353-1934** RL | | | | | |
| 330pF | **353-1946** RL | | | | | |
| 470pF | **353-1958** RL | | | | | |
| 680pF | **353-1960** RL | | | | | |
| 1000pF | **353-1971** RL | | | | | |
| 1500pF | **353-1983** RL | | | | | |
| 2200pF | **353-1995** RL | | | | | |
| 3300pF | **353-2008** RL | | | | | |
| 4700pF | **353-2021** RL | | | | | |

## Class X1 and Y2 Ceramic – KH Series

muRata

**250V ac**



- Leaded ceramic safety capacitors
- Meet requirements of **IEC384-14 2nd Edition 1993 class X1, Y2**
- Approved to **CSA, BSI, SEMKO, SEV, VDE, FIMKO, NEMKO, DEMKO** and **NSW (SAA)**
- **UL** recognised

Voltage rating 250V ac — Operating temperature -25°C to +125°C
Test voltage 2600V rms — -25°C to + 85°C **(UL, CSA)**

| Capacitance | Tolerence | Dimensions Body Dia. | Thickness | Lead Pitch | Lead Length | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 100pF | ±10% | 8 | 8 | 7.5 | 25 | DE2B3KH101KA3B | 952-6978 |
| 150pF | ±10% | 8 | 8 | 7.5 | 25 | DE2B3KH151KA3B | 952-6986 |
| 220pF | ±10% | 8 | 8 | 7.5 | 25 | DE2B3KH221KA3B | 952-6994 |
| 470pF | ±10% | 8 | 8 | 7.5 | 25 | DE2B3KH471KA3B | 952-7001 |
| 1000pF | ±20% | 8 | 8 | 7.5 | 25 | DE2E3KH102MA3B | 952-7010 |
| 1500pF | ±20% | 8 | 8 | 7.5 | 25 | DE2E3KH152MA3B | 952-7028 |
| 2200pF | ±20% | 8 | 8 | 7.5 | 25 | DE2E3KH222MA3B | 952-7036 |
| 3300pF | ±20% | 10 | 8 | 7.5 | 25 | DE2E3KH332MA3B | 952-7044 |
| 4700pF | ±20% | 13 | 8 | 7.5 | 25 | DE2E3KH472MA3B | 952-7052 |
| 0.01µF | ±20% | 16 | 8 | 7.5 | 25 | DE2F3KH103MA3B | 952-7060 |

227197

**Order Multiple=5**

| | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 100pF | **952-6978** RL | | | | | |
| 150pF | **952-6986** RL | | | | | |
| 220pF | **952-6994** RL | | | | | |
| 470pF | **952-7001** RL | | | | | |
| 1000pF | **952-7010** RL | | | | | |
| 1500pF | **952-7028** RL | | | | | |
| 2200pF | **952-7036** RL | | | | | |
| 3300pF | **952-7044** RL | | | | | |
| 4700pF | **952-7052** RL | | | | | |
| 0.01µF | **952-7060** RL | | | | | |

## X2Y® Series

Phicomp YAGEO

**SMD Ceramic EMI Filters**



X2Y® products are comprised of two identical Y-capacitors and one X-capacitor, integrated into a 4- terminal device, which is available in standard MLCC sizes. Thanks to the unique multilayer construction the device provides noise cancellation within the device, reducing ESL from nanohenry to picohenry levels.
Using the unique balance between the Y-caps and the shielded multilayer structure the X2Y® products offer superior filtering and decoupling.

Dielectric X7R — Operating Temperature -55°C to +125°C
Tolerance ± 20%

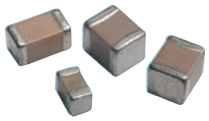
528765

| | Order Code | Price Each 1+ | 25+ | 100+ | 500+ |
|---|---|---|---|---|---|
| **25 Volt d.c.** | | | | | |
| 0.022µF | **168-8521** | | | | |
| **50 Volt d.c.** | | | | | |
| 0.01µF | **168-8520** | | | | |
| **100 Volt d.c.** | | | | | |
| 1000pF | **177-9286** | | | | |
| 2200pF | **168-8519** | | | | |
| **0805 Case Size** | | | | | |
| **16 Volt d.c.** | | | | | |
| 0.1µF | **168-8525** | | | | |
| **25 Volt d.c.** | | | | | |
| 0.022µF | **168-8524** | | | | |
| **100 Volt d.c.** | | | | | |
| 0.01µF | **177-9287** | | | | |
| **1206 Case Size** | | | | | |
| **10 Volt d.c.** | | | | | |
| 0.47µF | **177-9288** | | | | |
| **50 Volt d.c.** | | | | | |
| 0.1µF | **168-8526** | | | | |
| **1210 Case Size** | | | | | |
| **16 Volt d.c.** | | | | | |
| 1µF | **177-9289** | | | | |
| **50 Volt d.c.** | | | | | |
| 0.22µF | **168-8527** | | | | |

## Class X1 and Y2 Ceramic – Surface Mount

NEW

**250V ac**



- Surface mount ceramic safety capacitors for AC voltage surge and lightning protection
- 502R30 – certified as Y2 by **TUV Rheinland** and **UL**
- 502S47 – certified as X1/Y2 by **TUV Rheinland** and **UL**
- Certification Standards: **EN 60384-14:2005** and **UL 60950-01**

Voltage rating 250V ac — Operating temperature -55°C to +125°C
Withstanding Voltage 1500 V

| Capacitance pF | nF | Dielectric Characteristic | Capacitance Tolerance | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| **Class Y2, Case Size 2211** | | | | | |
| 33 | 0.033 | C0G / NP0 | ± 5% | 502R30N330JV3E-****-SC | 188-6112 |
| 100 | 0.1 | C0G / NP0 | ± 10% | 502R30N101KV3E-****-SC | 188-6114 |
| 470 | 0.47 | X7R | ± 10% | 502R30W471KV3E-****-SC | 188-6115 |
| 680 | 0.68 | X7R | ± 10% | 502R30W681KV3E-****-SC | 188-6116 |
| 1000 | 1 | X7R | ± 10% | 502R30W102KV3E-****-SC | 188-6117 |
| 2200 | 2.2 | X7R | ± 10% | 502R30W222KV3E-****-SC | 188-6118 |
| **Class X1/Y2, Case Size 2220** | | | | | |
| 2200 | 2.2 | X7R | ± 10% | 502S47W222KV3E-****-SC | 188-6119 |
| 4700 | 4.7 | X7R | ± 10% | 502S47W472KV3E-****-SC | 188-6120 |
| **Design Kits** | | | | | |
| **Class X1/Y2** 200 Pieces of 10pF to 2200pF 1808 - 2220 Size Ceramic Chip Capacitors | | | | S-SY2 | 188-6121 |
| **Class X2/Y3** 240 Pieces of 10pF to 1500pF 1808 Size Ceramic Chip Capacitors | | | | S-SY3 | 188-6122 |

628961

| pF | Order Code | Price Each 5+ | 50+ | 250+ | 1K+ | 2K+ |
|---|---|---|---|---|---|---|
| **Class Y2** | | | | | | |
| 33 | **188-6112** | | | | | |
| 100 | **188-6114** | | | | | |
| 470 | **188-6115** | | | | | |
| 680 | **188-6116** | | | | | |
| 1000 | **188-6117** | | | | | |
| 2200 | **188-6118** | | | | | |
| **Class X1/Y2** | | | | | | |
| 2200 | **188-6119** | | | | | |
| 4700 | **188-6120** | | | | | |
| **Design Kits** | | | | | | |
| Class X1/Y2 | **188-6121** | | | | | |
| Class X2/Y3 | **188-6122** | | | | | |

## PHE840M Series

EVOX RIFA A KEMET Company



- Metallized polypropylene
- Suitable for use as electromagnetic interference suppressor in all X2 and across-the-line applications

Operating temperature -55°C to +105°C
Tolerance ± 20%
Voltage rating 275V

| Capacitance | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 0.047µF | 10.5 | 18 | 5.5 | 15 | PHE840MB5470MB04R17 | 157-2154 |
| 0.1µF | 12.5 | 18 | 5.5 | 15 | PHE840MB6100MB05R17 | 157-2159 |
| 0.22µF | 14.5 | 26 | 6.5 | 22.5 | PHE840MD6220MD13R06L2 | 157-2153 |
| 0.47µF | 16 | 26 | 8 | 22.5 | PHE840MY6470MD14R06L2 | 157-2160 |
| 1µF | 23 | 26 | 13.5 | 22.5 | PHE840MD7100MD20R06L2 | 157-2156 |
| 2.2µF | 24 | 41 | 13 | 37.5 | PHE840MR7220MR05R06L2 | 157-2157 |
| 4.7µF | 36 | 41 | 19 | 37.5 | PHE840MR7470MR03R06L2 | 157-2158 |

506976

| | Order Code | Price Each 5+ | 75+ | 250+ | 500+ | 1K+ | 2K+ |
|---|---|---|---|---|---|---|---|
| 0.047µF | 157-2154 | | | | | | |
| 0.1µF | 157-2159 | | | | | | |
| 0.22µF | 157-2153 | | | | | | |
| 0.47µF | 157-2160 | | | | | | |
| 1µF | 157-2156 | | | | | | |
| 2.2µF | 157-2157 | | | | | | |
| 4.7µF | 157-2158 | | | | | | |

## Class X2 – Metallised Polyester ECQU Series

Panasonic

**250V ac**



- Class X2 metallised polyester suppression capacitors
- Meets requirements of **IEC384-14 2nd Edition 1993 class X2**
- Approved to **UL1414** and **EN132400**
- **UL** recognised

Lead length = 20

| | | | |
|---|---|---|---|
| Operating temperature | -40°C to +100°C | Insulation resistance | |
| | -40°C to +85°C **(UL, CSA)** | C<0.33µF | 15000MΩ |
| Capacitance tolerance | ±10% / ±20% | C>0.33µF | 5000MΩ |
| | | Climatic Category | 40/100/21 |

| Capacitance | Dimensions H | W | D | Lead Pitch | Lead Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **+10% Tolerance** | | | | | | | |
| 0.01µF | 11.5 | 15 | 5 | 12.5 | 0.6 | ECQU2A103KLA | 167-3302 |
| 0.015µF | 11.5 | 15 | 5 | 12.5 | 0.6 | ECQU2A153KLA | 167-3303 |
| 0.022µF | 11.5 | 15 | 5 | 12.5 | 0.6 | ECQU2A223KLA | 167-3304 |
| 0.047µF | 13 | 15 | 6 | 12.5 | 0.6 | ECQU2A473KLA | 167-3306 |
| 0.068µF | 11.5 | 17.5 | 4.5 | 15 | 0.6 | ECQU2A683KLA | 167-3307 |
| 0.1µF | 12 | 17.5 | 5.5 | 15 | 0.6 | ECQU2A104KLA | 167-3308 |
| 0.22µF | 16 | 17.5 | 8 | 15 | 0.6 | ECQU2A224KLA | 167-3311 |
| 0.33µF | 17.5 | 17.5 | 9.5 | 15 | 0.8 | ECQU2A334KLA | 167-3313 |
| 0.47µF | 17.5 | 25.5 | 8.5 | 22.5 | 0.8 | ECQU2A474KLA | 167-3314 |
| 0.56µF | 19.5 | 25.5 | 10.5 | 22.5 | 0.8 | ECQU2A564KLA | 167-3315 |
| 0.68µF | 19.5 | 25.5 | 10.5 | 22.5 | 0.8 | ECQU2A684KLA | 167-3316 |
| 1µF | 22 | 25.5 | 12 | 22.5 | 0.8 | ECQU2A105KLA | 167-3317 |
| **+20% Tolerance** | | | | | | | |
| 0.01µF | 11.5 | 15 | 5 | 12.5 | 0.6 | ECQU2A103ML | 119-8290 |
| 0.022µF | 11.5 | 15 | 5 | 12.5 | 0.6 | ECQU2A223ML | 119-8291 |
| 0.047 | 13 | 15 | 6 | 12.5 | 0.6 | ECQU2A473ML | 119-8292 |
| 0.1µF | 12.1 | 17.5 | 5 | 15 | 0.6 | ECQU2A104ML | 119-8295 |
| 0.15µF | 14.5 | 17.5 | 6.5 | 15 | 0.6 | ECQU2A154ML | 119-8296 |
| 0.22µF | 17.5 | 17.5 | 8 | 15 | 0.6 | ECQU2A224ML | 119-8297 |
| 0.47µF | 17.5 | 25.5 | 8.5 | 22.5 | 0.8 | ECQU2A474ML | 119-8299 |
| 0.68µF | 19.5 | 25.5 | 10.5 | 22.5 | 0.8 | ECQU2A684ML | 119-8301 |
| 1µF | 22 | 25.5 | 12 | 22.5 | 0.8 | ECQU2A105ML | 119-8302 |

227204

| | Order Code | Price Each 5+ | + | + | + | + |
|---|---|---|---|---|---|---|
| **10% Tolerance** | | | | | | |
| 0.01µF | 167-3302 | | | | | |
| 0.015µF | 167-3303 | | | | | |
| 0.022µF | 167-3304 | | | | | |
| 0.047µF | 167-3306 | | | | | |
| 0.068µF | 167-3307 | | | | | |
| 0.1µF | 167-3308 | | | | | |
| 0.22µF | 167-3311 | | | | | |
| 0.33µF | 167-3313 | | | | | |
| 0.47µF | 167-3314 | | | | | |
| 0.56µF | 167-3315 | | | | | |
| 0.68µF | 167-3316 | | | | | |
| 1µF | 167-3317 | | | | | |
| **20% Tolerance** | | | | | | |
| 0.01µF | 119-8290 | | | | | |
| 0.022µF | 119-8291 | | | | | |
| 0.047 | 119-8292 | | | | | |
| 0.1µF | 119-8295 | | | | | |
| 0.15µF | 119-8296 | | | | | |
| 0.22µF | 119-8297 | | | | | |
| 0.47µF | 119-8299 | | | | | |
| 0.68µF | 119-8301 | | | | | |
| 1µF | 119-8302 | | | | | |

| | | 1+ | 3+ |
|---|---|---|---|
| **Design Kit** | 167-3319 | | |

## Compact X2, Polypropylene

EPCOS

**305 V ac, B3292* Series**



- EMI suppression capacitors
- Very small case sizes
- Self-healing properties
- Plastic cases, flame retardant to **UL94V-0**
- **CSA** approved, **UL** recognised

| | |
|---|---|
| Tolerance | ±20% |
| Operating temperature | -40°C to +110°C |
| Voltage rating | 305V ac |

| | H | W | D | ∅ Lead mm | Mftrs List No. | Order Code |
|---|---|---|---|---|---|---|
| **Pitch 10mm** | | | | | | |
| 0.01µF | 9 | 13 | 4 | 0.6 | B32921C3103M | 120-0827 |
| 0.022µF | 9 | 13 | 4 | 0.6 | B32921C3223M | 160-9503 |
| 0.033µF | 9 | 13 | 4 | 0.6 | B32921C3333M | 160-9504 |
| 0.047µF | 11 | 13 | 5 | 0.6 | B32921C3473M | 111-2839 |
| 0.068µF | 12 | 13 | 6 | 0.6 | B32921C3683M | 178-1890 |
| **Pitch 15mm** | | | | | | |
| 0.033µF | 10.5 | 18 | 5 | 0.8 | B32922C3333M | 160-9507 |
| 0.1µF | 10.5 | 18 | 5 | 0.8 | B32922C3104M | 111-2840 |
| 0.15µF | 12 | 18 | 6 | 0.8 | B32922C3154M | 111-2841 |
| 0.22µF | 12.5 | 18 | 7 | 0.8 | B32922C3224M | 111-2842 |
| 0.33µF | 14 | 18 | 8 | 0.8 | B32922C3334M | 111-2844 |
| 0.47µF | 17.5 | 18 | 9 | 0.8 | B32922C3474M | 178-1891 |
| 0.68µF | 18.5 | 18 | 11 | 0.8 | B32922C3684M | 178-1892 |
| **Pitch 22.5mm** | | | | | | |
| 0.15µF | 15 | 26.5 | 6 | 0.8 | B32923C3154M | 160-9510 |
| 0.22µF | 15 | 26.5 | 6 | 0.8 | B32923C3224M | 160-9511 |
| 0.33µF | 28.5 | 41.5 | 16 | 0.8 | B32923C3334M | 120-0831 |
| 0.47µF | 16.5 | 26.5 | 8.5 | 0.8 | B32923C3474M | 111-2845 |
| 0.68µF | 16.5 | 26.5 | 10.5 | 0.8 | B32923C3684M | 111-2846 |
| 1µF | 20.5 | 26.5 | 11 | 0.8 | B32923C3105M | 178-1894 |
| 1.5µF | 22 | 26.5 | 12 | 0.8 | B32923C3155M | 178-1895 |
| 2.2µF | 22 | 26.5 | 12 | 0.8 | B32923E3225M | 178-1896 |
| **Pitch 27.5mm** | | | | | | |
| 1µF | 19 | 31.5 | 11 | 0.8 | B32924C3105M | 111-2847 |
| 1.5µF | 21.5 | 31.5 | 12.5 | 0.8 | B32924C3155M | 111-2848 |
| 2.2µF | 21 | 31.5 | 11 | 0.8 | B32924E3225M | 178-1897 |
| 2.2µF | 24.5 | 31.5 | 14 | 0.8 | B32924C3225M | 111-2849 |
| 3.3µF | 24.5 | 31.5 | 14 | 0.8 | B32924E3335M | 178-1898 |
| 4.7µF | 27.5 | 31.5 | 18 | 0.8 | B32924E3475M | 178-1899 |
| **Pitch 37.5mm** | | | | | | |
| 6.8µF | 32.5 | 42 | 18 | 1 | B32926E3685M | 178-1901 |
| 10µF | 39.5 | 42 | 20 | 1 | B32926E3106M | 178-1902 |
| 15µF | 42 | 37 | 28 | 1 | B32926E3156M | 178-1903 |
| 20µF | 42 | 42.5 | 28 | 1 | B32926E3206M | 178-1904 |
| **Pitch 52.5mm** | | | | | | |
| 30µF | 45 | 57.5 | 30 | 1.2 | B32928E3306M | 178-1905 |
| 45µF | 50 | 57.5 | 35 | 1.2 | B32928E3456M | 178-1906 |

423678

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|
| **Pitch 10 mm** | | | | | |
| 0.01µF | 120-0827 | | | | |
| 0.022µF | 160-9503 | | | | |
| 0.033µF | 160-9504 | | | | |
| 0.047µF | 111-2839 | | | | |
| 0.068µF | 178-1890 | | | | |
| **Pitch 15 mm** | | | | | |
| 0.033µF | 160-9507 | | | | |
| 0.1µF | 111-2840 | | | | |
| 0.15µF | 111-2841 | | | | |
| 0.22µF | 111-2842 | | | | |
| 0.33µF | 111-2844 | | | | |
| 0.47µF | 178-1891 | | | | |
| 0.68µF | 178-1892 | | | | |
| **Pitch 22.5 mm** | | | | | |
| 0.15µF | 160-9510 | | | | |
| 0.22µF | 160-9511 | | | | |
| 0.33µF | 120-0831 | | | | |
| 0.47µF | 111-2845 | | | | |
| 0.68µF | 111-2846 | | | | |
| 1µF | 178-1894 | | | | |
| 1.5µF | 178-1895 | | | | |
| 2.2µF | 178-1896 | | | | |
| **Pitch 27.5 mm** | | | | | |
| 1µF | 111-2847 | | | | |
| 1.5µF | 111-2848 | | | | |
| 2.2µF | 178-1897 | | | | |
| 2.2µF | 111-2849 | | | | |
| 3.3µF | 178-1898 | | | | |
| 4.7µF | 178-1899 | | | | |
| **Pitch 37.5 mm** | | | | | |
| 6.8µF | 178-1901 | | | | |
| 10µF | 178-1902 | | | | |
| 15µF | 178-1903 | | | | |
| 20µF | 178-1904 | | | | |
| **Pitch 52.5 mm** | | | | | |
| 30µF | 178-1905 | | | | |
| 45µF | 178-1906 | | | | |


**IMPROVED BACK ORDER DELIVERY**

Receive email updates with the exact status, due date and despatch information of all your back order items **farnell.com**

# Suppression - X & Y Capacitors - continued

## R46 Series

ARCOTRONICS GROUP
A KEMET Company



- X2 CLASS (IEC 60384-14) - MKP Series
- Metallized polypropylene film capacitor
- Self-healing properties
- Typical applications: interference suppression and across-the-line applications
- Suitable for use in situations where failure of the capacitor would not lead to danger of electric shock

| | |
|---|---|
| Voltage Rating | 275VAC |
| Tolerance | ± 10% |
| Lead Length | 25mm |

**Lead Pitch: 10mm**

| | Dimensions H | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 0.01µF | 9 | 13 | 4 | R46KF210050N0K | 167-9293 |
| 0.015µF | 9 | 13 | 4 | R46KF215050N0K | 167-9294 |
| 0.022µF | 9 | 13 | 4 | R46KF222050N0K | 167-9295 |
| 0.033µF | 11 | 13 | 5 | R46KF233050M1K | 167-9297 |
| 0.047µF | 11 | 13 | 5 | R46KF247050N0K | 167-9298 |
| 0.068µF | 12 | 13 | 6 | R46KF268050M1K | 167-9299 |
| 0.1µF | 12 | 13 | 6 | R46KF310050P0K | 167-9300 |

| | Order Code | Price Each 10+ | 25+ | 50+ | 100+ |
|---|---|---|---|---|---|
| 0.01µF | 167-9293● | | | | |
| 0.015µF | 167-9294● | | | | |
| 0.022µF | 167-9295● | | | | |
| 0.033µF | 167-9297● | | | | |
| 0.047µF | 167-9298● | | | | |
| 0.068µF | 167-9299● | | | | |
| 0.1µF | 167-9300● | | | | |

**Lead Pitch: 15mm**

| | Dimensions H | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 0.015µF | 11 | 18 | 5 | R46KI21505001K | 167-9303 |
| 0.022µF | 11 | 18 | 5 | R46KI22205001K | 167-9304 |
| 0.033µF | 11 | 18 | 5 | R46KI23305001K | 167-9305 |
| 0.047µF | 11 | 18 | 5 | R46KI24705001K | 167-9306 |
| 0.068µF | 11 | 18 | 5 | R46KI26805001K | 167-9307 |
| 0.1µF | 11 | 18 | 5 | R46KI310050M1K | 167-9308 |
| 0.15µF | 12 | 18 | 6 | R46KI315050M2K | 167-9309 |
| 0.22µF | 14 | 18 | 8 | R46KI322050M2K | 167-9310 |
| 0.47µF | 19 | 18 | 11 | R46KI347050M1K | 167-9312 |

| | Order Code | Price Each 10+ | 25+ | 50+ | 100+ |
|---|---|---|---|---|---|
| 0.015µF | 167-9303● | | | | |
| 0.022µF | 167-9304● | | | | |
| 0.033µF | 167-9305● | | | | |
| 0.047µF | 167-9306● | | | | |
| 0.068µF | 167-9307● | | | | |
| 0.1µF | 167-9308● | | | | |
| 0.15µF | 167-9309● | | | | |
| 0.22µF | 167-9310● | | | | |
| 0.47µF | 167-9312● | | | | |

**Lead Pitch: 22.5mm**

| | Dimensions H | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 0.22µF | 15 | 27 | 6 | R46KN322050M1K | 167-9315 |
| 0.33µF | 15 | 27 | 6 | R46KN333050N0K | 167-9316 |
| 0.47µF | 16 | 27 | 7 | R46KN347050N0K | 167-9317 |
| 0.68µF | 19 | 27 | 10 | R46KN368050M2K | 167-9318 |
| 1µF | 20 | 27 | 11 | R46KN410050N1K | 167-9319 |

| | Order Code | Price Each 5+ | 10+ | 25+ | 50+ |
|---|---|---|---|---|---|
| 0.22µF | 167-9315● | | | | |
| 0.33µF | 167-9316● | | | | |
| 0.47µF | 167-9317● | | | | |
| 0.68µF | 167-9318● | | | | |
| 1µF | 167-9319● | | | | |

**Lead Pitch: 27.5mm**

| | Dimensions H | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 0.68µF | 17 | 32 | 9 | R46KR368050M1K | 167-9320 |
| 1µF | 20 | 32 | 11 | R46KR410050M1K | 167-9321 |
| 1.5µF | 22 | 32 | 13 | R46KR415050M1K | 167-9322 |
| 2.2µF | 25 | 32 | 13 | R46KR422050M2K | 167-9323 |
| 3.3µF | 33 | 32 | 18 | R46KR433050M2K | 167-9324 |
| 4.7µF | 33 | 32 | 18 | R46KR447050M2K | 167-9325 |

| | Order Code | Price Each 5+ | 10+ | 25+ | 50+ |
|---|---|---|---|---|---|
| 0.68µF | 167-9320● | | | | |
| 1µF | 167-9321● | | | | |
| 1.5µF | 167-9322● | | | | |
| 2.2µF | 167-9323● | | | | |
| 3.3µF | 167-9324● | | | | |
| 4.7µF | 167-9325● | | | | |

**Lead Pitch: 37.5mm**

| | Dimensions H | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 5.6µF | 40 | 42 | 20 | R46KW456050M1K | 167-9328 |
| 6.8µF | 40 | 42 | 20 | R46KW468050M2K | 167-9329 |
| 10µF | 45 | 42 | 30 | R46KW510050M1K | 167-9330 |

527587

| | Order Code | Price Each 5+ | 10+ | 25+ | 50+ |
|---|---|---|---|---|---|
| 5.6µF | 167-9328● | | | | |
| 6.8µF | 167-9329● | | | | |
| 10µF | 167-9330● | | | | |

## Class X2 Metallised Polypropylene
## MKP 338 2 X2 Series

BC COMPONENTS

**275V ac**



| | | |
|---|---|---|
| Operating temperature | -55°C to 105°C | |
| Tolerance | ±20% | |
| Insulation resistance | C <0.33µF | >15000MΩ |
| RC for C | >0.33µF | >5000s |
| Pulse rise time | X2 | 100V/µs100µs |

- Approved to **SEV, VDE, FI, N, D, S, IMQ, OVE** and **CSA**
- **UL** recognised
- Meets the requirements of **IEC 60384-14 2nd Edition** and **EN 132400**

**N.B.** For ease of selection, capacitance value is listed in both **nf** and **µf**

| | Dimensions H | W | D | Lead Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 1000pF | 9 | 10 | 4 | 0.5 | 7.5 | BFC233820102 | 121-5444 |
| 1500pF | 9 | 10 | 4 | 0.5 | 7.5 | BFC233820152 | 121-5448 |
| 2200pF | 9 | 10 | 4 | 0.5 | 7.5 | BFC233820222 | 121-5454 |
| 3300pF | 9 | 10 | 4 | 0.5 | 7.5 | BFC233820332 | 121-5458 |
| 4700pF | 9 | 10 | 4 | 0.5 | 7.5 | BFC233820472 | 121-5463 |
| 6800pF | 9 | 10 | 4 | 0.5 | 7.5 | BFC233820682 | 121-5466 |
| 0.01µF | 9 | 10 | 4 | 0.5 | 7.5 | BFC233820103 | 121-5445 |
| 0.015µF | 9 | 10 | 4 | 0.5 | 7.5 | BFC233820153 | 121-5451 |
| 0.022µF | 9 | 10 | 4 | 0.5 | 7.5 | BFC233820223 | 121-5455 |
| 0.033µF | 10.5 | 10 | 5 | 0.5 | 7.5 | BFC233820333 | 121-5459 |
| 0.047µF | 11.5 | 10 | 6 | 0.5 | 7.5 | BFC233820473 | 121-5464 |
| 0.068µF | 12 | 12.5 | 6 | 0.6 | 10 | BFC233820683 | 121-5467 |
| 0.1µF | 12 | 12.5 | 6 | 0.6 | 10 | BFC233820104 | 121-5446 |
| 0.15µF | 13.5 | 17.5 | 7 | 0.8 | 15 | BFC233820154 | 121-5452 |
| 0.22µF | 15 | 17.5 | 8.5 | 0.8 | 15 | BFC233820224 | 121-5456 |
| 0.33µF | 16.5 | 17.5 | 10 | 0.8 | 15 | BFC233820334 | 121-5460 |
| 0.47µF | 18 | 26 | 8.5 | 0.8 | 22.5 | BFC233820474 | 121-5465 |
| 0.68µF | 19.5 | 26 | 10 | 0.8 | 22.5 | BFC233820684 | 121-5468 |
| 1µF | 22 | 26 | 12 | 0.8 | 22.5 | BFC233820105 | 121-5447 |
| 1.5µF | 25 | 31 | 15 | 0.8 | 27.5 | BFC233820155 | 121-5453 |
| 2.2µF | 28 | 31 | 18 | 0.8 | 27.5 | BFC233820225 | 121-5457 |
| 3.3µF | 31 | 31 | 21 | 0.8 | 27.5 | BFC233820335 | 121-5461 |

204180

**Order Multiple=5**

| | Order Code | Price Each 5+ | + | + | + |
|---|---|---|---|---|---|
| 1000pF | 121-5444● | | | | |
| 1500pF | 121-5448● | | | | |
| 2200pF | 121-5454● | | | | |
| 3300pF | 121-5458● | | | | |
| 4700pF | 121-5463● | | | | |
| 6800pF | 121-5466● | | | | |
| 0.01µF | 121-5445● | | | | |
| 0.015µF | 121-5451● | | | | |
| 0.022µF | 121-5455● | | | | |
| 0.033µF | 121-5459● | | | | |
| 0.047µF | 121-5464● | | | | |
| 0.068µF | 121-5467● | | | | |
| 0.1µF | 121-5446● | | | | |
| 0.15µF | 121-5452● | | | | |
| 0.22µF | 121-5456● | | | | |
| 0.33µF | 121-5460● | | | | |
| 0.47µF | 121-5465● | | | | |
| 0.68µF | 121-5468● | | | | |
| 1µF | 121-5447● | | | | |
| 1.5µF | 121-5453● | | | | |
| 2.2µF | 121-5457● | | | | |
| 3.3µF | 121-5461● | | | | |

## MKP 339 X2 Series

VISHAY

**275V ac**



- Polypropylene film capacitors
- For X2 electromagnetic interference suppression in across the line applications (50/60 Hz) with a maximum mains voltage of 275 Vac
- Epoxy resin sealed, flame retardant plastic case
- **UL** recognised

| | | | |
|---|---|---|---|
| Voltage rating | 310V ac | Operating temperature | -55°C to +105°C |

| Capacitance | Tolerance | Dimensions H | W | D | Lead Pitch | Lead Length | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 0.1µF | ±20% | 12 | 12.5 | 6 | 10 | 5 | BFC233922104 | 141-3837 |
| 0.1µF | ±20% | 11 | 17.5 | 5 | 15 | 5 | BFC233923104 | 141-3838 |
| 0.22µF | ±20% | 13.5 | 17.5 | 7 | 15 | 5 | BFC233922224 | 141-3839 |
| 0.33µF | ±20% | 15 | 17.5 | 8.5 | 15 | 5 | BFC233922334 | 141-3840 |
| 0.47µF | ±20% | 16.5 | 17.5 | 10 | 15 | 5 | BFC233922474 | 141-3841 |
| 1µF | ±20% | 19.5 | 26 | 10 | 22.5 | 5 | BFC233922105 | 141-3842 |
| 2.2µF | ±20% | 25 | 31 | 15 | 27.5 | 5 | BFC233922225 | 141-3844 |

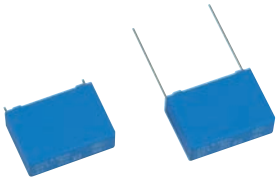
493435


RoHS ● Compliant ▲ Non-compliant

| | Order Code | Price Each 1+ | + | + | + | + |
|---|---|---|---|---|---|---|
| 0.1µF | 141-3837 | | | | | |
| 0.1µF | 141-3838 | | | | | |
| 0.22µF | 141-3839 | | | | | |
| 0.33µF | 141-3840 | | | | | |
| 0.47µF | 141-3841 | | | | | |
| 1µF | 141-3842 | | | | | |
| 2.2µF | 141-3844 | | | | | |

## Class X2 - Metallised Polypropylene MKP 338-4 X2 Series

**300V ac**



- Class X2 metallised polypropylene suppression capacitors
- Approved to **ENEC** and **CSA-C22.2 No 8**
- **UL** recognised
- Meets the requirements of **IEC 60384-14 2nd edition** and **EN 132400**

| | | | |
|---|---|---|---|
| Voltage rating (ac) | 300 V | Climatic category | 55/105/56/B |
| Voltage rating (dc) | 630 V | Operating temperature | -55°C to +105°C |
| Tolerance | ±20% | | |

| Capacitance | Dimensions mm H | W | D | Lead Dimensions Pitch | Dia. | Length | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 0.01µF | 11 | 17.5 | 5 | 15 | 0.6 | 5 | BFC233840103 | 116-6441 |
| 0.015µF | 11 | 17.5 | 5 | 15 | 0.6 | 5 | BFC233840153 | 116-6442 |
| 0.022µF | 11 | 17.5 | 5 | 15 | 0.6 | 5 | BFC233840223 | 116-6443 |
| 0.022µF | 11 | 17.5 | 5 | 15 | 0.6 | 25 | BFC233841223 | 116-6460 |
| 0.033µF | 11 | 17.5 | 5 | 15 | 0.6 | 5 | BFC233840333 | 116-6444 |
| 0.047µF | 11 | 17.5 | 5 | 15 | 0.6 | 5 | BFC233840473 | 116-6445 |
| 0.068µF | 11 | 17.5 | 5 | 15 | 0.6 | 5 | BFC233840683 | 116-6446 |
| 0.1µF | 12 | 17.5 | 6 | 15 | 0.6 | 5 | BFC233840104 | 116-6447 |
| 0.22µF | 15 | 17.5 | 8.5 | 15 | 0.8 | 5 | BFC233840224 | 116-6448 |
| 0.33µF | 16.5 | 17.5 | 10 | 15 | 0.8 | 5 | BFC233840334 | 116-6449 |
| 0.47µF | 18 | 26 | 8.5 | 22.5 | 0.8 | 5 | BFC233840474 | 116-6450 |
| 0.68µF | 19.5 | 26 | 10 | 22.5 | 0.8 | 5 | BFC233840684 | 116-6452 |
| 1µF | 22 | 26 | 12 | 22.5 | 0.8 | 5 | BFC233840105 | 116-6453 |
| 1.5µF | 25 | 31 | 15 | 27.5 | 0.8 | 5 | BFC233840155 | 116-6454 |
| 2.2µF | 28 | 31 | 18 | 27.5 | 0.8 | 5 | BFC233840225 | 116-6455 |
| 3.3µF | 31 | 31 | 21 | 27.5 | 0.8 | 5 | BFC233840335 | 116-6456 |
| 4.7µF | 35 | 42 | 18 | 37.5 | 1.0 | 5 | BFC233840475 | 116-6457 |
| 6.8µF | 21.5 | 38.5 | 43 | 37.5 | 1 | 5 | BFC233840685 | 141-3854 |
| 10µF | 38 | 59.5 | 21 | 55 | 1.0 | 5 | BFC233840106 | 116-6458 |
| 10µF | 30 | 46 | 44 | 37.5 | 1 | 5 | BFC233848159 | 141-3856 |
| 0.01µF | 11 | 17.5 | 5 | 15 | 0.6 | 25 | BFC233841103 | 116-6459 |
| 0.022µF | 11 | 17.5 | 5 | 15 | 0.6 | 25 | BFC233841223 | 116-6460 |
| 0.047µF | 11 | 17.5 | 5 | 15 | 0.6 | 25 | BFC233841473 | 116-6461 |
| 0.068µF | 11 | 17.5 | 5 | 15 | 0.6 | 25 | BFC233841683 | 116-6462 |
| 0.1µF | 12 | 17.5 | 6 | 15 | 0.6 | 25 | BFC233841104 | 116-6464 |
| 0.15µF | 13.5 | 17.5 | 7 | 15 | 0.8 | 25 | BFC233841154 | 116-6465 |
| 0.22µF | 15 | 17.5 | 8.5 | 15 | 0.8 | 25 | BFC233841224 | 116-6466 |
| 0.33µF | 16.5 | 17.5 | 10 | 15 | 0.8 | 25 | BFC233841334 | 116-6467 |
| 0.47µF | 18 | 26 | 8.5 | 22.5 | 0.8 | 25 | BFC233841474 | 116-6468 |
| 0.68µF | 19.5 | 26 | 10 | 22.5 | 0.8 | 25 | BFC233841684 | 116-6469 |
| 1µF | 22 | 26 | 12 | 22.5 | 0.8 | 25 | BFC233841105 | 116-6470 |
| 1.5µF | 25 | 31 | 15 | 27.5 | 0.8 | 25 | BFC233841155 | 116-6471 |
| 2.2µF | 28 | 31 | 18 | 27.5 | 0.8 | 25 | BFC233841225 | 116-6472 |
| 3.3µF | 31 | 31 | 21 | 27.5 | 0.8 | 25 | BFC233841335 | 116-6473 |
| 4.7µF | 35 | 42 | 18 | 37.5 | 1.0 | 25 | BFC233841475 | 116-6474 |
| 6.8µF | 38 | 42 | 21 | 37.5 | 0.6 | 25 | BFC233841685 | 116-6476 |
| 10µF | 38 | 59.5 | 21 | 55 | 1.0 | 25 | BFC233841106 | 116-6477 |

233739

**Order Multiple=5**

| | Order Code | Price Each 5+ | 50+ | 100+ | 250+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| 0.01µF | 116-6441 | | | | | | |
| 0.015µF | 116-6442 | | | | | | |
| 0.022µF | 116-6443 | | | | | | |
| 0.022µF | 116-6460 | | | | | | |
| 0.033µF | 116-6444 | | | | | | |
| 0.047µF | 116-6445 | | | | | | |
| 0.068µF | 116-6446 | | | | | | |
| 0.1µF | 116-6447 | | | | | | |
| 0.22µF | 116-6448 | | | | | | |
| 0.33µF | 116-6449 | | | | | | |
| 0.47µF | 116-6450 | | | | | | |
| 0.68µF | 116-6452 | | | | | | |
| 1µF | 116-6453 | | | | | | |
| 1.5µF | 116-6454 | | | | | | |
| 2.2µF | 116-6455 | | | | | | |
| 3.3µF | 116-6456 | | | | | | |
| 4.7µF | 116-6457 | | | | | | |
| 6.8µF | 141-3854 | | | | | | |
| 10µF | 116-6458 | | | | | | |
| 10µF | 141-3856 | | | | | | |
| 0.01µF | 116-6459 | | | | | | |
| 0.022µF | 116-6460 | | | | | | |
| 0.047µF | 116-6461 | | | | | | |
| 0.068µF | 116-6462 | | | | | | |
| 0.1µF | 116-6464 | | | | | | |
| 0.15µF | 116-6465 | | | | | | |

**Order Multiple=5**

| | Order Code | Price Each 5+ | 50+ | 100+ | 250+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| 0.22µF | 116-6466 | | | | | | |
| 0.33µF | 116-6467 | | | | | | |
| 0.47µF | 116-6468 | | | | | | |
| 0.68µF | 116-6469 | | | | | | |
| 1µF | 116-6470 | | | | | | |
| 1.5µF | 116-6471 | | | | | | |
| 2.2µF | 116-6472 | | | | | | |
| 3.3µF | 116-6473 | | | | | | |
| 4.7µF | 116-6474 | | | | | | |
| 6.8µF | 116-6476 | | | | | | |
| 10µF | 116-6477 | | | | | | |

## F1772-2000 Class X2 — Polyester film

**310V ac**



- Provided with 30mm leads to give extra flexibility in design and insertion
- Approved to **IEC384-14**

| | |
|---|---|
| Tolerance | ±10% |
| Operating temperature | -40°C to °C110°C ≤0.1µF<br>-40°C to 110°C >0.1µF |

| | Dimensions H | W | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 0.01µF | 10.5 | 18 | 5.5 | 15 | F1772310203O | 116-6889 |
| 0.022µF | 10.5 | 18 | 5.5 | 15 | F1772322203O | 116-6891 |
| 0.047µF | 12.5 | 18 | 6.5 | 15 | F1772347203O | 116-6892 |
| 0.1µF | 14.5 | 18 | 8.5 | 15 | F1772410203O | 116-6893 |
| 0.22µF | 16.5 | 26.5 | 8.5 | 22.5 | F1772422203O | 116-6894 |
| 0.47µF | 20.5 | 31.5 | 11.5 | 27.5 | F1772447203O | 116-6895 |
| 1µF | 24.5 | 31.5 | 11.5 | 27.5 | F1772-510-2030 | 116-6896 |

204057

**Order Multiple=5**

| | Order Code | Price Each 5+ | 50+ | 100+ | 1K+ | 3K+ |
|---|---|---|---|---|---|---|
| 0.01µF | 116-6889 | | | | | |
| 0.022µF | 116-6891 | | | | | |
| 0.047µF | 116-6892 | | | | | |
| 0.1µF | 116-6893 | | | | | |
| 0.22µF | 116-6894 | | | | | |
| 0.47µF | 116-6895 | | | | | |
| 1µF | 116-6896 | | | | | |

## Class X1, Y2 and X2 Ceramic GC, GB and GF Series – Surface Mount

**250V ac**



Supplied on 12mm blister tape
Reel = 1k pcs, 500pcs, GB

- Surface mount ceramic safety capacitors for AC line use
- GC – recognised as X1, Y2 by **IEC384-14 2nd edition** and as line bypass by **UL1414**
- Approved to **VDE, BS1, SEV** and **SEMKO**
- GB – recognised as X2 by **IEC384-14 2nd edition**
- Approved to **VDE, SEV** and **SEMKO**
- GF – available for equipment based on IEC/EN60950 and UL1950. Besides, the GA352/355 types are available for equipment based on IEC/EN60065, UL1492, and UL6500

| | | | |
|---|---|---|---|
| Voltage rating | 250V ac | | 1075V rms,60s (GB) |
| Test voltage | 1500V rms,60s (GC) | Operating temperature | -55°C to +125°C |

| Capacitance | Dimensions L | W | T | e min. | g min | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **GC Series (Class X1, Y2)** | | | | | | | |
| 100pF | 5.7 | 5 | 2 | 0.3 | 4.0 | GA355DR7GC101KY02L | 952-7583 |
| 220pF | 5.7 | 5 | 2 | 0.3 | 4.0 | GA355DR7GC221KY02L | 952-7621 |
| 470pF | 5.7 | 5 | 2 | 0.3 | 4.0 | GA355DR7GC471KY02L | 952-7656 |
| 1000pF | 5.7 | 5 | 2 | 0.3 | 4.0 | GA355DR7GC102KY02L | 952-7591 |
| 1500pF | 5.7 | 5 | 2 | 0.3 | 4.0 | GA355DR7GC152KY02L | 952-7613 |
| 2200pF | 5.7 | 5 | 2 | 0.3 | 4.0 | GA355DR7GC222KY02L | 952-7630 |
| 3300pF | 5.7 | 5 | 2 | 0.3 | 4.0 | GA355DR7GC332KY02L | 952-7648 |
| 4700pF | 5.7 | 5 | 2 | 0.3 | 4.0 | GA355DR7GC472KY02L | 952-7664 |
| **GB Series (Class X2)** | | | | | | | |
| 0.01µF | 5.7 | 5 | 2 | 0.3 | 4.0 | GA355DR7GB103KY02L | 952-7559 |
| 0.022µF | 5.7 | 5 | 2 | 0.3 | 4.0 | GA355DR7GB223KY02L | 952-7575 |
| 0.033µF | 5.7 | 5 | 2.7 | 0.3 | 4.0 | GA355XR7GB333KY06L | 952-7680 |
| **GF Series (Class X1, Y2) Only for Modem** | | | | | | | |
| 10pF | 2 | 4.5 | 2 | 0.3 | 2.5 | GA342D1XGF100JY02L | 181-2591 |
| 33pF | 2 | 4.5 | 2 | 0.3 | 2.5 | GA342A1XGF330JW31L | 181-2593 |
| 100pF | 2 | 4.5 | 2 | 0.3 | 2.5 | GA342QR7GF101KW01L | 181-2594 |
| 150pF | 2 | 4.5 | 2 | 0.3 | 2.5 | GA342QR7GF151KW01L | 181-2595 |
| 220pF | 2 | 4.5 | 2 | 0.3 | 2.5 | GA342DR7GF221KW02L | 181-2596 |
| 680pF | 2 | 4.5 | 2 | 0.3 | 2.5 | GA342QR7GF681KW01L | 181-2598 |
| 1000pF | 2 | 4.5 | 2 | 0.3 | 2.5 | GA342DR7GF102KW02L | 181-2600 |
| **GF Series (Class X1, Y2)** | | | | | | | |
| 470pF | 2.8 | 5.7 | 1.5 | 0.3 | 4 | GA352QR7GF471KW01L | 181-2597 |
| 680pF | 2.8 | 5.7 | 1.5 | 0.3 | 4 | GA352QR7GF681KW01L | 181-2599 |
| 1000pF | 2.8 | 5.7 | 1.5 | 0.3 | 4 | GA352QR7GF102KW01L | 181-2601 |
| 1500pF | 2.8 | 5.7 | 1.5 | 0.3 | 4 | GA352QR7GF152KW01L | 181-2602 |

# Suppression - X & Y Capacitors - continued

## Class X1, Y2 and X2 Ceramic
## GC, GB and GF Series – Surface Mount - continued

**250V ac - continued**

**GF Series (Class X1, Y2)**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1800pF | 5 | 5.7 | 1.5 | 0.3 | 4 | GA355QR7GF182KW01L | 181-2603 |
| 2200pF | 5 | 5.7 | 1.5 | 0.3 | 4 | GA355QR7GF222KW01L | 181-2604 |
| 3300pF | 5 | 5.7 | 1.5 | 0.3 | 4 | GA355QR7GF332KW01L | 181-2605 |
| 4700pF | 5 | 5.7 | 1.5 | 0.3 | 4 | GA355DR7GF472KW01L | 181-2606 |

227193

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **GC Series (Class X1, Y2)** | | | | | | |
| 100pF | **952-7583** RL | | | | | |
| 220pF | **952-7621** RL | | | | | |
| 470pF | **952-7656** RL | | | | | |
| 1000pF | **952-7591** RL | | | | | |
| 1500pF | **952-7613** RL | | | | | |
| 2200pF | **952-7630** RL | | | | | |
| 3300pF | **952-7648** RL | | | | | |
| 4700pF | **952-7664** RL | | | | | |
| **GB Series (Class X2)** | | | | | | |
| 0.01µF | **952-7559** RL | | | | | |
| 0.022µF | **952-7575** RL | | | | | |
| 0.033µF | **952-7680** RL | | | | | |
| **GF Series (Class X1, Y2) Only for Modem** | | | | | | |
| 10pF | **181-2591** | | | | | |
| 33pF | **181-2593** | | | | | |
| 100pF | **181-2594** | | | | | |
| 150pF | **181-2595** | | | | | |
| 220pF | **181-2596** | | | | | |
| 680pF | **181-2598** | | | | | |
| 1000pF | **181-2600** | | | | | |
| **GF Series (Class X1, Y2)** | | | | | | |
| 470pF | **181-2597** | | | | | |
| 680pF | **181-2599** | | | | | |
| 1000pF | **181-2601** | | | | | |
| 1500pF | **181-2602** | | | | | |
| **GF Series (Class X1, Y2)** | | | | | | |
| 1800pF | **181-2603** | | | | | |
| 2200pF | **181-2604** | | | | | |
| 3300pF | **181-2605** | | | | | |
| 4700pF | **181-2606** | | | | | |

## Class X1,X2 and Y2 Metallised Polypropylene
## MKP 336 2 X2 Series

**275V ac (X1, X2), 250V ac (Y2)**



- Approved to **VDE, SEV, SEMKO, DEMKO, SETI, IMQ, OVE** and **CSA**
- **UL** recognised
- Meets the latest requirements of **IEC384-14**

| | | |
|---|---|---|
| Operating temperature | -55°C to 100°C | |
| Tolerance | ±20% | |
| Insulation resistance | C<.33uF | 15000MΩ |
| | C5 >.33uF | 5000 sec (MΩ x uF) |
| Pulse rise time | X1, Y1 | 200Vµs |
| | X2 | 100Vµs |

| | Dimensions H | W | D | Lead Pitch | Lead Diameter | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **Class X1** | | | | | | | |
| 0.022µF | 11 | 17.5 | 5 | 15 | 0.6 | BFC233610223 | 116-6513 |
| 0.047µF | 13.5 | 17.5 | 7 | 15 | 0.8 | BFC233610473 | 116-6514 |
| 0.068µF | 15 | 17.5 | 8.5 | 15 | 0.8 | BFC233610683 | 116-6536 |
| 0.1µF | 16.5 | 17.5 | 10 | 15 | 0.8 | BFC233610104 | 116-6515 |
| 0.15µF | 18 | 26 | 8.5 | 22.5 | 0.8 | BFC233610154 | 116-6537 |
| 0.22µF | 19.5 | 26 | 10 | 22.5 | 0.8 | BFC233610224 | 116-6516 |
| 0.33µF | 23 | 31 | 13 | 27.5 | 0.8 | BFC233610334 | 116-6538 |
| 0.47µF | 25 | 31 | 15 | 27.5 | 0.8 | BFC233610474 | 116-6518 |
| 1µF | 31 | 31 | 21 | 27.5 | 0.8 | BFC233610105 | 116-6519 |
| **Class X2** | | | | | | | |
| 0.01µF | 11 | 12.5 | 5 | 10 | 0.6 | BFC233620103 | 116-6520 |
| 0.015µF | 11 | 12.5 | 5 | 10 | 0.6 | BFC233620153 | 116-6539 |
| 0.022µF | 11 | 12.5 | 5 | 10 | 0.6 | BFC233620223 | 116-6521 |
| 0.033µF | 12 | 12.5 | 6 | 10 | 0.6 | BFC233620333 | 116-6540 |
| 0.047µF | 11 | 17.5 | 5 | 15 | 0.6 | BFC233620473 | 116-6522 |
| 0.068µF | 11 | 17.5 | 5 | 15 | 0.6 | BFC233620683 | 116-6541 |
| 0.1µF | 12 | 17.5 | 6 | 15 | 0.6 | BFC233620104 | 116-6523 |
| 0.15µF | 15 | 17.5 | 8.5 | 15 | 0.8 | BFC233620154 | 116-6543 |
| 0.22µF | 16.5 | 17.5 | 10 | 15 | 0.8 | BFC233620224 | 116-6524 |
| 0.33µF | 18 | 26 | 8.5 | 22.5 | 0.8 | BFC233620334 | 116-6544 |
| 0.47µF | 16.5 | 26 | 7 | 22.5 | 0.8 | BFC233620474 | 116-6525 |
| 0.68µF | 21 | 31 | 11 | 27.5 | 0.8 | BFC233620684 | 116-6545 |
| 1µF | 23 | 31 | 13 | 27.5 | 0.8 | BFC233620105 | 116-6526 |
| **Class Y2** | | | | | | | |
| 1000pF | 10 | 12.5 | 4 | 10 | 0.6 | BFC233660102 | 116-6527 |
| 1500pF | 10 | 12.5 | 4 | 10 | 0.6 | BFC233660152 | 116-6546 |
| 2200pF | 10 | 12.5 | 4 | 10 | 0.6 | BFC233660222 | 116-6528 |
| 3300pF | 11 | 12.5 | 5 | 10 | 0.6 | BFC233660332 | 116-6547 |
| **Class Y2** | | | | | | | |
| 4700pF | 12 | 12.5 | 6 | 10 | 0.6 | BFC233660472 | 116-6531 |
| 6800pF | 12 | 12.5 | 6 | 10 | 0.6 | BFC233660682 | 116-6548 |
| 0.01µF | 11 | 17.5 | 5 | 15 | 0.6 | BFC233660103 | 116-6532 |
| 0.022µF | 13.5 | 17.5 | 7 | 15 | 0.8 | BFC233660223 | 116-6533 |
| 0.047µF | 16.5 | 17.5 | 10 | 15 | 0.8 | BFC233660473 | 116-6534 |

204000

| | Order Code | Price Each 5+ | 100+ | 1K+ | 3K+ |
|---|---|---|---|---|---|
| **Order Multiple=5** | | | | | |
| **Class X1** | | | | | |
| 0.022µF | **116-6513** | | | | |
| 0.047µF | **116-6514** | | | | |
| 0.068µF | **116-6536** | | | | |
| 0.1µF | **116-6515** | | | | |
| 0.15µF | **116-6537** | | | | |
| 0.22µF | **116-6516** | | | | |
| 0.33µF | **116-6538** | | | | |
| 0.47µF | **116-6518** | | | | |
| 1µF | **116-6519** | | | | |
| **Class X2** | | | | | |
| 0.01µF | **116-6520** | | | | |
| 0.015µF | **116-6539** | | | | |
| 0.022µF | **116-6521** | | | | |
| 0.033µF | **116-6540** | | | | |
| 0.047µF | **116-6522** | | | | |
| 0.068µF | **116-6541** | | | | |
| 0.1µF | **116-6523** | | | | |
| 0.15µF | **116-6543** | | | | |
| 0.22µF | **116-6524** | | | | |
| 0.33µF | **116-6544** | | | | |
| 0.47µF | **116-6525** | | | | |
| 0.68µF | **116-6545** | | | | |
| 1µF | **116-6526** | | | | |
| **Class Y2** | | | | | |
| 1000pF | **116-6527** | | | | |
| 1500pF | **116-6546** | | | | |
| 2200pF | **116-6528** | | | | |
| 3300pF | **116-6547** | | | | |
| 4700pF | **116-6531** | | | | |
| 6800pF | **116-6548** | | | | |
| 0.01µF | **116-6532** | | | | |
| 0.022µF | **116-6533** | | | | |
| 0.047µF | **116-6534** | | | | |

## Class Y Ceramic - WYO & WKO Series

**250V ac & 300V ac**



- Approved to **CSA** and **EN132400**
- **UL** recognised

| | |
|---|---|
| Operating temperature | -40°C to +85°C |
| Tolerance | ± 20% |
| Insulation resistance | |
| Test voltage | WYO 1800V ac for 2s |
| | WKO 2500V ac for 2s |
| Power factor | 0.025 |

Lead dia. (WY)=0.6 mm
Lead dia. (WKO)=0.8 mm

| **250V ac** Capacitance | Dimensions (mm) Body dia. | Thickness | Lead Pitch | Lead Length | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 2200 pF | 9 | 4.5 | 5 | 30 | WYO222MCMBF0KR | 116-6661 |
| **300V ac** | | | | | | |
| 1000 pF | 10 | 5 | 7.5 | 30 | WKO102MCPCJ0KR | 116-6663 |
| 4700 pF | 14.5 | 5 | 12.5 | 30 | WKO472MCPEJ0KR | 116-6664 |

627795

| | Capacitance | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **Order Multiple=5** | | | | | | | |
| **250V ac** | | | | | | | |
| | 2200 pF | **116-6661** | | | | | |
| **300V ac** | | | | | | | |
| | 1000 pF | **116-6663** | | | | | |
| | 4700 pF | **116-6664** | | | | | |

## Class Y1 and Y2 — Polypropylene

**250V ac**




- Polypropylene range of Class Y capacitors
- Epoxy case flame retardant to **UL94V-0**
- Tolerance ±20%
- Climatic category 40/085/21 (B81123 Series) 40/100/21 (B81122 and B81121 Series)
- Approved to **CSA** and **VDE**
- **UL** recognised

| | Dimensions H | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| **Class Y1 250V ac Test voltage 4800dc, 2s** | | | | | |
| **Pitch 15mm** | | | | | |
| 1000pF | 10.5 | 18 | 5 | B81123C1102M | 975-1475 |
| 1500pF | 11 | 18 | 6 | B81123C1152M | 975-1483 |
| 2200pF | 12.5 | 18 | 7 | B81123C1222M | 975-1491 |
| 3300pF | 14.5 | 18 | 8 | B81123C1332M | 975-1505 |
| 4700pF | 17.5 | 18 | 9 | B81123C1472M | 975-1513 |
| **Pitch 22.5mm** | | | | | |
| 5600pF | 16 | 26.5 | 7 | B81123C1562M | 975-1521 |
| 0.01µF | 18.5 | 26.5 | 10.5 | B81123C1103M | 975-1548 |

204162

| | Mftrs List No | Order Code | Price Each 1+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| **Class Y1 250V ac Tested to 4800Vdc** | | | | | | |
| **Pitch 15mm** | | | | | | |
| 1000pF | B81123C1102M | **975-1475** | | | | |
| 1500pF | B81123C1152M | **975-1483** | | | | |
| 2200pF | B81123C1222M | **975-1491** | | | | |
| 3300pF | B81123C1332M | **975-1505** | | | | |
| 4700pF | B81123C1472M | **975-1513** | | | | |
| **Pitch 22.5mm** | | | | | | |
| 5600pF | B81123C1562M | **975-1521** | | | | |
| 0.01µF | B81123C1103M | **975-1548** | | | | |

## Class Y2 — Polypropylene

**300V ac**

EPCOS




- Polypropylene range of Class Y2 capacitors for interference suppression
- Epoxy case flame retardant to **UL94V-0**
- Very small dimensions
- Good self-healing properties
- High voltage capability

| | Dimensions H | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| **Pitch 10mm** | | | | | |
| 1000pF | 9 | 13 | 4 | B32021A3102M | 160-9513 |
| 1500pF | 9 | 13 | 4 | B32021A3152M | 160-9514 |
| 2200pF | 9 | 13 | 4 | B32021A3222M | 160-9515 |
| 3300pF | 9 | 13 | 4 | B32021A3332M | 160-9516 |
| 4700pF | 11 | 13 | 5 | B32021A3472M | 160-9517 |
| 6800pF | 11 | 13 | 5 | B32021A3682K | 160-9521 |
| **Pitch 15mm** | | | | | |
| 0.01µF | 10.5 | 18 | 5 | B32022A3103M | 160-9522 |
| 0.015µF | 11 | 18 | 6 | B32022A3153M | 160-9523 |
| 0.022µF | 12 | 18 | 6 | B32022A3223M | 160-9524 |
| 0.033µF | 14 | 18 | 8 | B32022A3333M | 160-9525 |
| **Pitch 22.5mm** | | | | | |
| 0.047µF | 15 | 26.5 | 6 | B32023A3473M | 160-9526 |
| 0.068µF | 16 | 26.5 | 7 | B32023A3683M | 160-9528 |
| 0.1µF | 16.5 | 26.5 | 8.5 | B32023A3104M | 160-9529 |
| **Pitch 27.5mm** | | | | | |
| 0.22µF | 19 | 31.5 | 11 | B32024A3224M | 160-9532 |
| 0.33µF | 23 | 31.5 | 13.5 | B32024A3334M | 160-9533 |

527288

| | Mftrs List No | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **Pitch 10mm** | | | | | | | |
| 1000pF | B32021A3102M | **160-9513** | | | | | |
| 1500pF | B32021A3152M | **160-9514** | | | | | |
| 2200pF | B32021A3222M | **160-9515** | | | | | |
| 3300pF | B32021A3332M | **160-9516** | | | | | |
| 4700pF | B32021A3472M | **160-9517** | | | | | |
| 6800pF | B32021A3682K | **160-9521** | | | | | |
| **Pitch 15mm** | | | | | | | |
| 0.01µF | B32022A3103M | **160-9522** | | | | | |
| 0.015µF | B32022A3153M | **160-9523** | | | | | |
| 0.022µF | B32022A3223M | **160-9524** | | | | | |
| 0.033µF | B32022A3333M | **160-9525** | | | | | |
| **Pitch 22.5mm** | | | | | | | |
| 0.047µF | B32023A3473M | **160-9526** | | | | | |
| 0.068µF | B32023A3683M | **160-9528** | | | | | |
| 0.1µF | B32023A3104M | **160-9529** | | | | | |
| **Pitch 27.5mm** | | | | | | | |
| 0.22µF | B32024A3224M | **160-9532** | | | | | |
| 0.33µF | B32024A3334M | **160-9533** | | | | | |

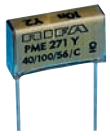

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## Class Y2 Metallised Paper

**250V ac PME271Y Series + 110°C**

EVOX RIFA
A KEMET Company




- Excellent self-healing properties gives long life even when subjected to over-voltages
- Encapsulation material self-extinguishing and flame retardant to **UL94V-0**
- Safety approvals for worldwide use including **SEMKO, NEMKO, DEMKO, FI, VDE, SEV, OVE, IMQ, CSA** and **EN132400**

| | | | |
|---|---|---|---|
| Tolerance | >0.1µF ±10%<br>≤0.1µF ±20% | Operating temperature | -40°C to +110°C |
| | | Voltage rating | 250V ac |
| Dissipation factor | ≤1.3% @ 1kHz | | 1000V dc |
| Insulation resistance | C ≤0.33µF ≥12,000 MΩ<br>C >0.33µF ≥4,000 MΩ | Climatic category | 40/110/56 |
| | | Nominal lead length | 30 |

| | Dimensions H | W | D | Lead Pitch | Lead Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 1000pF | 7.5 | 13.5 | 3.9 | 10.2 | 0.6 | PME271Y410M | 971-7510 |
| 2200pF | 7.5 | 13.5 | 3.9 | 10.2 | 0.6 | PME271Y422M | 971-7536 |
| 3300pF | 8.2 | 13.5 | 4.1 | 10.2 | 0.6 | PME271Y433M | 971-7544 |
| 4700pF | 10.5 | 13.5 | 5.1 | 10.2 | 0.6 | PME271Y447M | 971-7552 |
| 0.01µF | 10.5 | 18.5 | 5.2 | 15.2 | 0.8 | PME271Y510M | 971-7560 |
| 0.022µF | 13 | 19 | 7.3 | 15.2 | 0.8 | PME271Y522M | 971-7579 |
| 0.033µF | 14 | 24 | 7.6 | 20.3 | 0.8 | PME271Y533M | 971-7587 |
| 0.047µF | 15 | 24 | 9 | 20.3 | 0.8 | PME271Y547M | 971-7595 |

204103

| **Order Multiple=5** | Order Code | Price Each 5+ | 50+ | 100+ | 250+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| 1000pF | **971-7510** | | | | | | |
| 2200pF | **971-7536** | | | | | | |
| 3300pF | **971-7544** | | | | | | |
| 4700pF | **971-7552** | | | | | | |
| 0.01µF | **971-7560** | | | | | | |
| 0.022µF | **971-7579** | | | | | | |
| 0.033µF | **971-7587** | | | | | | |
| 0.047µF | **971-7595** | | | | | | |

## Class Y2 Metallised Paper

**250V ac MPY2 Series**

NEW

WIMA



Lead length=16 mm
Lead dia.=0.7 mm
Lead pitch=10 mm

- Excellent self-healing as well as high voltage strength
- Operational life > 300000 hours
- Failure rate < 1 fit (@ 50% of rated voltage and 40°C)
- Flame retardant case, **UL94V-0**
- Approvals **VDE 087455, UL E100438** and **CSA LR 93312-1**
- Used in RFI applications

| | | | |
|---|---|---|---|
| Operating temperature | -40°C to +110°C | Voltage rating | 250 V ac |
| Capacitance tolerance | ± 10% | Insulation resistance | |

| Capacitance | Dimensions (mm) L | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 1000 pF | 13.5 | 4 | 8.5 | MPY20W1100FA00KSSD | 100-6063 |
| 2200 pF | 13.5 | 4 | 8.5 | MPY20W1220FA00KSSD | 100-6065 |
| 4700 pF | 13.5 | 5 | 10 | MPY20W1470FB00KSSD | 100-6064 |

634570

| Capacitance | Order Code | Price Each 1+ | + | + | + | + |
|---|---|---|---|---|---|---|
| 1000 pF | **100-6063** | | | | | |
| 2200 pF | **100-6065** | | | | | |
| 4700 pF | **100-6064** | | | | | |

## Class Y2 - Metallised Polypropylene MKP 338 6 Y2 Series

**300V ac**

AUTOMOTIVE GRADE

BC COMPONENTS



- Class Y2 metallised polypropylene suppression capacitors
- Designed to meet the requirements of **IEC 60384-14 2nd edition** and **EN 132400**

| | |
|---|---|
| Voltage rating (ac) | 300 V |
| Voltage rating (dc) | 1000 V |
| Tolerance | ±20% |
| Climatic category | 55/105/56/B |
| Operating temperature | -55°C to +105°C |

| | Dimensions mm H | W | D | Lead Dimensions Pitch | Dia. | Length | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 1000pF | 9 | 10 | 4 | 7.5 | 0.5 | 3.5 | BFC233860102 | 116-6478 |
| 2200pF | 9 | 10 | 4 | 7.5 | 0.5 | 3.5 | BFC233860222 | 116-6482 |
| 2700pF | 9 | 10 | 4 | 7.5 | 0.5 | 3.5 | BFC233860272 | 116-6483 |
| 3300pF | 10.5 | 10 | 5 | 7.5 | 0.5 | 3.5 | BFC233860332 | 116-6484 |
| 3900pF | 10.5 | 10 | 5 | 7.5 | 0.5 | 3.5 | BFC233860392 | 116-6485 |
| 4700pF | 11.5 | 10 | 6 | 7.5 | 0.5 | 3.5 | BFC233860472 | 116-6486 |
| 0.01µF | 11 | 17.5 | 5 | 15 | 0.6 | 3.5 | BFC233860103 | 116-6491 |
| 0.01µF | 6 | 12 | 12.5 | 10 | 0.6 | 3.5 | BFC233868105 | 141-3866 |
| 0.015µF | 12 | 17.5 | 6 | 15 | 0.6 | 3.5 | BFC233860153 | 116-6493 |
| 0.022µF | 13.5 | 17.5 | 7 | 15 | 0.8 | 3.5 | BFC233860223 | 116-6495 |
| 0.033µF | 15 | 17.5 | 8.5 | 15 | 0.8 | 3.5 | BFC233860333 | 116-6497 |
| 0.039µF | 15 | 17.5 | 8.5 | 15 | 0.8 | 3.5 | BFC233860393 | 116-6498 |
| 0.047µF | 16.5 | 17.5 | 10 | 15 | 0.8 | 3.5 | BFC233860473 | 116-6500 |
| 0.056µF | 16.5 | 17.5 | 10 | 15 | 0.8 | 3.5 | BFC233860563 | 116-6501 |
| 0.068µF | 18 | 26 | 8.5 | 22.5 | 0.8 | 3.5 | BFC233860683 | 116-6502 |
| 0.1µF | 19.5 | 26 | 10 | 22.5 | 0.8 | 3.5 | BFC233860104 | 116-6503 |

# Suppression - X & Y Capacitors - continued

## Class Y2 - Metallised Polypropylene MKP 338 6 Y2 Series - continued

**300V ac - continued**

| | Dimensions mm H | W | D | Lead Dimensions Pitch | Dia. | Length | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 0.12µF | 22 | 26 | 12 | 22.5 | 0.8 | 3.5 | BFC233860124 | 116-6504 |
| 0.15µF | 22 | 26 | 12 | 22.5 | 0.8 | 3.5 | BFC233860154 | 116-6506 |
| 0.22µF | 23 | 31 | 13 | 27.5 | 0.8 | 3.5 | BFC233860224 | 116-6508 |
| 0.27µF | 25 | 31 | 15 | 27.5 | 0.8 | 3.5 | BFC233860274 | 116-6509 |
| 0.47µF | 28 | 31 | 18 | 27.5 | 0.8 | 3.5 | BFC233860474 | 116-6511 |

233756

**Order Multiple=5**

| | Order Code | Price Each 5+ | + | + | + | + | + |
|---|---|---|---|---|---|---|---|
| 1000pF | **116-6478** | | | | | | |
| 2200pF | **116-6482** | | | | | | |
| 2700pF | **116-6483** | | | | | | |
| 3300pF | **116-6484** | | | | | | |
| 3900pF | **116-6485** | | | | | | |
| 4700pF | **116-6486** | | | | | | |
| 0.01µF | **116-6491** | | | | | | |
| 0.01µF | **141-3866** | | | | | | |
| 0.015µF | **116-6493** | | | | | | |
| 0.022µF | **116-6495** | | | | | | |
| 0.033µF | **116-6497** | | | | | | |
| 0.039µF | **116-6498** | | | | | | |
| 0.047µF | **116-6500** | | | | | | |
| 0.056µF | **116-6501** | | | | | | |
| 0.068µF | **116-6502** | | | | | | |
| 0.1µF | **116-6503** | | | | | | |
| 0.12µF | **116-6504** | | | | | | |
| 0.15µF | **116-6506** | | | | | | |
| 0.22µF | **116-6508** | | | | | | |
| 0.27µF | **116-6509** | | | | | | |
| 0.47µF | **116-6511** | | | | | | |

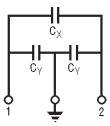
# Suppression - Delta Network

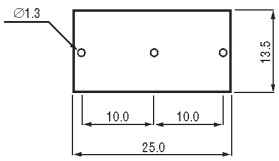
## Class X2 Plus 2 x Y2 Delta Formation

**275V ac PZB300 Series + 100°C**

EVOX RIFA A KEMET Company






- Metallised paper suppression capacitors
- One Class X2 and two Class Y2 capacitors arranged in a delta formation
- Excellent self-healing properties
- Approved to **SEMKO, NEMKO, DEMKO, FI, VDE, SEV, OVE, IMQ, CSA** & **EN132400**
- **UL** recognised

| | | | |
|---|---|---|---|
| Tolerance | ±20% | Voltage rating | 275V ac |
| Dissipation factor | ≤1.3% @ 1kHz | Temperature range | -40°C to +100°C |
| Insulation resistance (500Vdc after 60s | ≥ 12000 MΩ @ +23°C) | Climatic category | 40/100/4640/100/46 |
| | | Min. lead length | 30 |

| CX µF | CF nF | Dimensions H | W | D | Lead Pitch | Lead Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 0.1 | 2 x 2.2 | 16 | 24 | 12.5 | 20 | 0.8 | PZB300MC11 | 971-7609 |
| 0.1 | 2 x 4.7 | 16 | 24 | 12.5 | 20 | 0.8 | PZB300MC13 | 971-7617 |
| 0.15 | 2 x 4.7 | 16 | 24 | 12.5 | 20 | 0.8 | PZB300MC23R30 | 167-8911 |

204093

| Order Code | Price Each 1+ | 50+ | 100+ | 250+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **971-7609** | | | | | | |
| **971-7617** | | | | | | |
| **167-8911** | | | | | | |

# Suppression - RC Network

## Class X2 with Resistor

**250V ac PMR209 Series + 85°C**

EVOX RIFA A KEMET Company



- Metallised paper X2 capacitor with integral series resistor
- Applications include contact protection, suppression of contacts and transient suppression in AC and DC circuits
- Long life when exposed to overvoltages due to excellent self-healing properties
- Approvals include **SEMKO, DEMKO, NEMKO, VDE, SEV, FI** & **EN132400**
- **UL** recognised

| | | | |
|---|---|---|---|
| Capacitance tolerance | ±20% | Resistor tolerance | ±30% |
| Voltage rating 630V dc | 250V ac 630V ac | Peak pulse voltage | 1000V |
| | | Power rating | 0.5W (case +85°C) |
| Insulation resistance @ 500V dc, +23°C after 60s | | | C≤0.33µF >MΩ C>0.33µF >MΩ |
| Nominal lead length | 30mm | | |

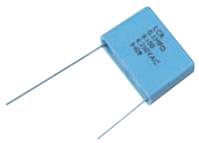
| | Ω | Dimensions H | W | D | Lead Pitch | Lead Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 0.22µF | 47 | 16.5 | 24 | 11.3 | 20.3 | 0.8 | PMR209MC6220M047 | 971-7285 |
| 0.047µF | 47 | 13 | 19 | 7.3 | 15.2 | 0.8 | PMR209MB5470M047 | 971-7307 |
| 0.1µF | 47 | 14 | 24 | 7.6 | 20.3 | 0.8 | PMR209MC6100M047 | 971-7315 |
| 0.47µF | 47 | 22 | 30.5 | 15.3 | 25.4 | 1 | PMR209ME6470M047 | 971-7382 |
| 0.22µF | 22 | 16.5 | 24 | 11.3 | 20.3 | 0.8 | PMR209MC6220M022 | 971-7366 |
| 0.1µF | 22 | 14 | 24 | 7.6 | 20.3 | 0.8 | PMR209MC6100M022 | 971-7404 |
| 0.22µF | 100 | 16.5 | 24 | 11.3 | 20.3 | 0.8 | PMR209MC6220M100 | 971-7293 |
| 0.047µF | 100 | 13 | 19 | 7.3 | 15.2 | 0.8 | PMR209MB5470M100 | 971-7374 |
| 0.47µF | 100 | 22 | 30.5 | 15.3 | 25.4 | 1 | PMR209ME6470M100 | 971-7390 |
| 0.1µF | 100 | 14 | 24 | 7.6 | 20.3 | 0.8 | PMR209MC6100M100 | 971-7412 |
| 0.1µF | 470 | 16.5 | 24 | 11.3 | 20.3 | 0.8 | PMR209MC6100M470 | 971-7420 |

204095

| Value | Order Code | Price Each 1+ | 50+ | 100+ | 250+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| 0.22µF | **971-7285** | | | | | | |
| 0.047µF | **971-7307** | | | | | | |
| 0.1µF | **971-7315** | | | | | | |
| 0.47µF | **971-7382** | | | | | | |
| 0.22µF | **971-7366** | | | | | | |
| 0.1µF | **971-7404** | | | | | | |
| 0.22µF | **971-7293** | | | | | | |
| 0.047µF | **971-7374** | | | | | | |
| 0.47µF | **971-7390** | | | | | | |
| 0.1µF | **971-7412** | | | | | | |
| 0.1µF | **971-7420** | | | | | | |

## RC Network – PCB Mounting

LCR Components



- PCB mounting contact arc suppressor which will suppress interference across switch and relay contacts when switching reactive loads.

H=19, W=25, D=8
Lead pitch=22.5, Lead dia.=0.8, Lead length=20

| | | | |
|---|---|---|---|
| Power rating | 0.5W @ 250V ac | Construction | C=0.1µF class x ±10% |
| Operating temperature | -55°C to +100°C | | R=100Ω ±10% |

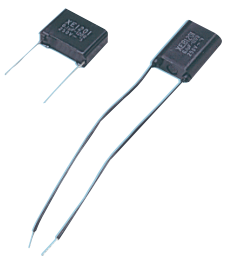
204007

| Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|
| **952-0996** | | | | | |

## RC Network – PCB Mounting and Flying Leads

ROXBURGH EMC

PCB mounting
H=17.5
W=23.5
D=8.5
Lead pitch=20
Lead dia.=0.8
Lead length=15.



Flying leads
H=23
W=19
D=8.5
Lead pitch=15
Lead dia.=20 AWG
Lead length=100.

- RC Networks consisting of a capacitor in series with a high quality metal film resistor
- PCB mounting style or with flying leads
- Applications include suppression when switching reactive loads and as a snubber network in SCR and triac protection. Approved to **VDE**, **SEMKO**, **DEMKO**, **NEMKO** and **CSA**.
- **UL** recognised

| | | | |
|---|---|---|---|
| Power rating | 0.5W @ 250V ac | Mftrs. List No. | XE1201 = 118-764930% |
| Operating temperature | -40°C to +85°C | | XEB1201 = 118-7659 |
| Construction | C=0.1µF class X ±20% R=120Ω ±30% | | |

204237

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| PCB Mounting | **118-7649** | | | | | |
| Flying Leads | **118-7659** | | | | | |

**TROUBLESHOOTING TIPS**
Chat online to one of our technical engineers at **farnell.com**


RoHS Compliant Non-compliant

## Spark Quenchers - Chassis Mounting



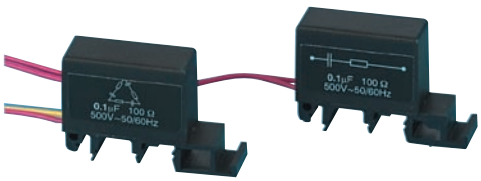
- Single and three phase suppressors designed to reduce arcing when switching inductive loads
- May also be used to reduce dv/dt across thyristors and other solid state devices

| Mftrs. List No. | Single Phase FP012 | Three Phase FP012 |
|---|---|---|
| Capacitance | 0.33µF | 0.33µF x 3 |
| Capacitive Tolerance | ±10% | ±10% |
| Resistors | 33ohm ± 30%, 6W | 33ohm ± 30%, 6W x 3 |
| Operating voltage | 500V RMS (max) | 500V RMS (max) |
| Supply frequency | 50/60Hz | 50/60Hz |
| Operating temperature | -40°C to +70°C | -40°C to +70°C |
| Insulation resistance | 500V | 500V |

233810

| | Mftrs. List No. | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|---|
| Single Phase | FP012 | **952-0864** | | | | | |
| Three Phase | FP013 | **952-0872** | | | | | |

## Spark Quenchers - DIN Rail Mounting



- Single and three phase suppressors designed to reduce arcing when switching inductive loads
- May also be used to reduce dv/dt across thyristors and other solid state devices

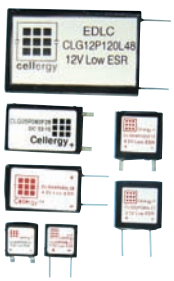
| Mftrs. List No. | Single Phase FP005 | Three Phase FP006 |
|---|---|---|
| Capacitance | 0.1µF | 0.1µF x 3 |
| Capacitive Tolerance | ±10% | ±10% |
| Resistors | 100ohm ±5%, 4W | 100ohm ±5%, 4W x 3 |
| Operating voltage | 500V RMS (max) | 500V RMS (max) |
| Supply frequency | 50/60Hz | 50/60Hz |
| Operating temperature | -40°C to +70°C | -40°C to +70°C |
| Insulation resistance | 500V | 500V |

233764

| | Mftrs. List No. | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|---|
| Single Phase | FP005 | **952-0848** | | | | | |
| Three Phase | FP006 | **952-0856** | | | | | |

# Super Capacitors

## Super Capacitors




- Extending secondary battery operation - Reducing voltage drop at low temperatures (-40°C).
- Backup or current booster for mechanical applications such as a DC motor.
- Extending the battery lifetime of digital cameras.
- Rechargeable backup power source for microprocessors, static RAM's and DAT.
- Pulse Management for GSM, GPRS, 3G, HSUPA, Active RFI, Bluetooth, ZigBee etc
- Excellent in cold Environments down to -40°c where batteries struggle to operate
- **Not suitable for re-flow soldering**

Developed to Extend Battery life up to 300% by reducing Pulse stress.
Cellergy's Super Capacitor technology extends battery lifetimes - by connecting a primary battery in parallel to Cellergy's capacitor, the designer can reduce the voltage drop during a high current pulse.

| | Voltage (V) | Dimensions | Mftrs.List No. | Order Code |
|---|---|---|---|---|
| **Radial** | | | | |
| 10000µF | 4.2 | 12mm x 12.5mm | CLC04P010L12 | 210-2471 |
| 12000µF | 3.5 | 12mm x 12.5mm | CLG03P012L12 | 184-5258 |
| 20000µF | 4.2 | 17mm x 17.5mm | CLG04P020L17 | 184-5260 |
| 25000µF | 3.5 | 12mm x 12.5mm | CLG03P025L12 | 184-5259 |
| 30000µF | 5.5 | 17mm x 17.5mm | CLG05P030L17 | 184-5262 |
| 40000µF | 4.2 | 17mm x 17.5mm | CLG04P040L17 | 184-5261 |
| 40000µF | 5.5 | 28mm x 17.5mm | CLG05P040L28 | 184-5266 |
| 50000µF | 4.2 | 28mm x 17.5mm | CLG04P050L28 | 184-5265 |
| 50000µF | 3.5 | 17mm x 17.5mm | CLG03P050L17 | 210-2467 |
| 70000µF | 6.3 | 28mm x 17.5mm | CLG06P070L28 | 184-5268 |
| 80000µF | 5.5 | 28mm x 17.5mm | CLG05P080L28 | 184-5267 |
| 0.1F | 4.2 | 28mm x 17.5mm | CLG04P100L28 | 210-2465 |
| 0.12F | 3.5 | 28mm x 17.5mm | CLG03P120L28 | 184-5264 |
| 0.24F | 3.5 | 28mm x 17.5mm | CLK03P240L28 | 210-2473 |
| **SMD** | | | | |
| 10000µF | 4.2 | 12mm x 12.5mm | CLC04P010F12 | 210-2472 |
| 12000µF | 3.5 | 12mm x 12.5mm | CLG03P012F12 | 184-5269 |
| 20000µF | 4.2 | 17mm x 17.5mm | CLG04P020F17 | 184-5271 |
| 25000µF | 3.5 | 12mm x 12.5mm | CLG03P025F12 | 184-5270 |
| 30000µF | 5.5 | 17mm x 17.5mm | CLG05P030F17 | 184-5273 |
| 40000µF | 4.2 | 17mm x 17.5mm | CLG04P040F17 | 184-5272 |
| 40000µF | 5.5 | 28mm x 17.5mm | CLG05P040F28 | 184-5277 |
| 50000µF | 4.2 | 28mm x 17.5mm | CLG04P050F28 | 184-5276 |
| 50000µF | 3.5 | 17mm x 17.5mm | CLG03P050F17 | 210-2469 |
| 70000µF | 6.3 | 28mm x 17.5mm | CLG06P070F28 | 184-5279 |
| 80000µF | 5.5 | 28mm x 17.5mm | CLG05P080F28 | 184-5278 |
| 0.1F | 4.2 | 28mm x 17.5mm | CLG04P100F28 | 210-2466 |
| 0.12F | 3.5 | 28mm x 17.5mm | CLG03P120F28 | 184-5274 |
| 0.24F | 3.5 | 28mm x 17.5mm | CLK03P240F28 | 210-2474 |

618523

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| **Radial** | | | | | | |
| 10000µF | **210-2471** | | | | | |
| 12000µF | **184-5258** | | | | | |
| 20000µF | **184-5260** | | | | | |
| 25000µF | **184-5259** | | | | | |
| 30000µF | **184-5262** | | | | | |
| 40000µF | **184-5261** | | | | | |
| 40000µF | **184-5266** | | | | | |
| 50000µF | **184-5265** | | | | | |
| 50000µF | **210-2467** | | | | | |
| 70000µF | **184-5268** | | | | | |
| 80000µF | **184-5267** | | | | | |
| 0.1F | **210-2465** | | | | | |
| 0.12F | **184-5264** | | | | | |
| 0.24F | **210-2473** | | | | | |
| **SMD** | | | | | | |
| 10000µF | **210-2472** | | | | | |
| 12000µF | **184-5269** | | | | | |
| 20000µF | **184-5271** | | | | | |
| 25000µF | **184-5270** | | | | | |
| 30000µF | **184-5273** | | | | | |
| 40000µF | **184-5272** | | | | | |
| 40000µF | **184-5277** | | | | | |
| 50000µF | **184-5276** | | | | | |
| 50000µF | **210-2469** | | | | | |
| 70000µF | **184-5279** | | | | | |
| 80000µF | **184-5278** | | | | | |
| 0.1F | **210-2466** | | | | | |
| 0.12F | **184-5274** | | | | | |
| 0.24F | **210-2474** | | | | | |

# Aluminium Electrolytic - SMD - Multicomp

High capacitance per unit volume dielectric available in a wide range of styles. Characteristics of ranges can be selected to suit a wide range of general purpose to high performance applications. Care should be taken during connection as all units are polarity sensitive unless stated otherwise.

208422

**Note:** Dimensions do not include insulating sleeve unless stated.

## SL Series 85°C — Surface Mount



- Miniature surface mount aluminium electrolytic
- Designed for high density population
- Supplied on tape carrier for automatic placement

| | |
|---|---|
| Operating Temperature | -40°C to +85°C |
| Tolerance | ±20% |

| Case Size | ∅D | L | P | Case Size | ∅D | L | P |
|---|---|---|---|---|---|---|---|
| B | 4 | 5.2 | 1 | G | 6.3 | 7.7 | 2.2 |
| D | 5 | 5.2 | 1.4 | H | 8 | 10.5 | 3.2 |
| E | 6.3 | 5.2 | 2.2 | J | 10 | 10.3 | 4.8 |
| F | 6.3 | 7.7 | 2.2 | | | | |

| | Ripple (mA) @ 120Hz, 85°C | Packaging | Mftrs. List No. | Order Code |
|---|---|---|---|---|
| **4 Volt d.c.** | | | | |
| 33µF | 25 | B | MCESL4V336M4X5.2 | 187-0564 |
| 47µF | 33 | B | MCESL4V476M4X5.2 | 187-0565 |
| 56µF | 42 | D | MCESL4V566M5X5.2 | 187-0566 |
| 68µF | 45 | D | MCESL4V686M5X5.2 | 187-0568 |
| 100µF | 55 | D | MCESL4V107M5X5.2 | 187-0569 |
| 150µF | 74 | E | MCESL4V157M6.3X5.2 | 187-0570 |
| 220µF | 82 | E | MCESL4V227M6.3X5.2 | 187-0571 |
| 330µF | 102 | F | MCESL4V337M6.3X7.7 | 187-0572 |
| 470µF | 150 | G | MCESL4V477M6.3X7.7 | 187-0573 |
| **6.3 Volt d.c.** | | | | |
| 33µF | 37 | D | MCESL6V3336M5X5.2 | 187-0574 |
| 47µF | 45 | D | MCESL6V3476M5X5.2 | 187-0575 |
| 56µF | 54 | D | MCESL6V3566M5X5.2 | 187-0576 |
| 68µF | 62 | E | MCESL6V3686M6.3X5.2 | 187-0577 |
| 100µF | 70 | E | MCESL6V3107M6.3X5.2 | 926-5660 |
| 150µF | 78 | E | MCESL6V3157M6.3X5.2 | 187-0578 |

# Aluminium Electrolytic - SMD - Multicomp - continued

## SL Series 85°C — Surface Mount - continued

| | Ripple (mA) @ 120Hz, 85°C | Packaging | Mftrs. List No. | Order Code |
|---|---|---|---|---|
| **6.3 Volt d.c.** | | | | |
| 220µF | 95 | F | MCESL6V3227M6.3X5.4 | 187-0581 |
| 330µF | 150 | G | MCESL6V3337M6.3X7.7 | 187-0582 |
| 470µF | 270 | H | MCESL6V3477M8X10.5 | 187-0583 |
| 680µF | 320 | H | MCESL6V3687M8X10.5 | 187-0584 |
| 1000µF | 330 | H | MCESL6V3108M8X10.5 | 187-0585 |
| 1500µF | 450 | J | MCESL6V3158M10X10.5 | 187-0586 |
| **10 Volt d.c.** | | | | |
| 22µF | 33 | D | MCESL10V226M5X5.2 | 187-0587 |
| 33µF | 41 | D | MCESL10V336M5X5.2 | 187-0588 |
| 47µF | 52 | E | MCESL10V476M6.3X5.2 | 187-0589 |
| 56µF | 58 | E | MCESL10V566M6.3X5.2 | 187-0590 |
| 68µF | 72 | E | MCESL10V686M6.3X5.2 | 187-0591 |
| 100µF | 76 | E | MCESL10V107M6.3X5.2 | 187-0593 |
| 150µF | 88 | F | MCESL10V157M6.3X5.4 | 187-0594 |
| 220µF | 150 | G | MCESL10V227M6.3X7.7 | 926-5678 |
| 330µF | 250 | H | MCESL10V337M8X10.5 | 187-0595 |
| 470µF | 300 | H | MCESL10V477M8X10.5 | 187-0596 |
| 680µF | 380 | J | MCESL10V687M10X10.5 | 187-0597 |
| 1000µF | 450 | J | MCESL10V108M10X10.5 | 187-0598 |
| **16 Volt d.c.** | | | | |
| 10µF | 25 | B | MCESL16V106M4X5.2 | 926-5686 |
| 22µF | 25 | D | MCESL16V226M5X5.2 | 187-0599 |
| 33µF | 49 | E | MCESL16V336M6.3X5.2 | 187-0600 |
| 47µF | 58 | E | MCESL16V476M6.3X5.2 | 926-5694 |
| 56µF | 74 | E | MCESL16V566M6.3X5.2 | 187-0601 |
| 68µF | 80 | E | MCESL16V686M6.3X5.2 | 187-0602 |
| 100µF | 86 | E | MCESL16V107M6.3X5.2 | 187-0603 |
| 150µF | 135 | G | MCESL16V157M6.3X7.7 | 187-0604 |
| 220µF | 150 | G | MCESL16V227M6.3X7.7 | 187-0605 |
| 330µF | 280 | H | MCESL16V337M8X10.5 | 187-0606 |
| 470µF | 330 | H | MCESL16V477M8X10.5 | 187-0607 |
| 680µF | 390 | J | MCESL16V687M10X10.5 | 187-0608 |
| **25 Volt d.c.** | | | | |
| 10µF | 27 | D | MCESL25V106M5X5.2 | 187-0611 |
| 22µF | 42 | E | MCESL25V226M6.3X5.2 | 187-0612 |
| 33µF | 52 | E | MCESL25V336M5X5.2 | 187-0613 |
| 47µF | 68 | F | MCESL25V476M6.3X5.4 | 187-0614 |
| 56µF | 82 | F | MCESL25V566M6.3X5.4 | 187-0615 |
| 68µF | 94 | F | MCESL25V686M6.3X5.4 | 187-0616 |
| 100µF | 130 | G | MCESL25V107M6.3X7.7 | 926-5708 |
| 150µF | 200 | H | MCESL25V157M8X10.5 | 187-0617 |
| 220µF | 250 | H | MCESL25V227M8X10.5 | 187-0618 |
| 330µF | 310 | H | MCESL25V337M8X10.5 | 187-0619 |
| 470µF | 430 | J | MCESL25V477M10X10.5 | 187-0620 |
| **35 Volt d.c.** | | | | |
| 4.7µF | 18 | B | MCESL35V475M4X5.2 | 926-5716 |
| 10µF | 29 | D | MCESL35V106M5X5.2 | 187-0621 |
| 22µF | 46 | E | MCESL35V226M6.3X5.2 | 926-5724 |
| 33µF | 60 | F | MCESL35V336M6.3X5.4 | 187-0623 |
| 47µF | 70 | F | MCESL35V476M6.3X5.4 | 187-0624 |
| 56µF | 80 | G | MCESL35V566M6.3X7.7 | 187-0625 |
| 68µF | 110 | G | MCESL35V686M6.3X7.7 | 187-0626 |
| 100µF | 120 | G | MCESL35V107M6.3X7.7 | 187-0627 |
| 150µF | 220 | H | MCESL35V157M8X10.5 | 187-0628 |
| 220µF | 270 | H | MCESL35V227M8X10.5 | 187-0629 |
| 330µF | 340 | J | MCESL35V337M10X10.5 | 187-0630 |
| **50 Volt d.c.** | | | | |
| 1µF | 8.4 | B | MCESL50V105M4X5.2 | 926-5732 |
| 2.2µF | 13 | B | MCESL50V225M4X5.2 | 187-0631 |
| 3.3µF | 17 | B | MCESL50V335M4X5.2 | 187-0632 |
| 4.7µF | 20 | D | MCESL50V475M5X5.2 | 926-5740 |
| 10µF | 33 | E | MCESL50V106M6.3X5.2 | 926-5759 |
| 22µF | 45 | F | MCESL50V226M6.3X5.4 | 187-0633 |
| 33µF | 65 | G | MCESL50V336M6.3X7.7 | 187-0635 |
| 47µF | 90 | G | MCESL50V476M6.3X7.7 | 926-5767 |
| 56µF | 110 | G | MCESL50V566M6.3X7.7 | 187-0636 |
| 68µF | 170 | H | MCESL50V686M8X10.5 | 187-0637 |
| 100µF | 200 | H | MCESL50V107M8X10.5 | 926-5775 |
| 150µF | 240 | J | MCESL50V157M10X10.5 | 187-0638 |
| 220µF | 320 | J | MCESL50V227M10X10.5 | 187-0639 |
| **63 Volt d.c.** | | | | |
| 1µF | 10 | B | MCESL63V105M4X5.2 | 187-0640 |
| 2.2µF | 15 | B | MCESL63V225M4X5.2 | 187-0641 |
| 3.3µF | 20 | D | MCESL63V335M5X5.2 | 187-0642 |
| 4.7µF | 23 | D | MCESL63V475M5X5.2 | 187-0643 |
| 10µF | 34 | E | MCESL63V106M6.3X5.2 | 187-0644 |
| 22µF | 70 | G | MCESL63V226M6.3X7.7 | 187-0645 |
| 33µF | 160 | H | MCESL63V336M8X10.5 | 187-0647 |
| 47µF | 170 | H | MCESL63V476M8X10.5 | 187-0648 |
| 56µF | 200 | H | MCESL63V566M8X10.5 | 187-0649 |
| 68µF | 230 | J | MCESL63V686M10X10.5 | 187-0650 |
| 100µF | 280 | J | MCESL63V107M10X10.5 | 187-0651 |
| **100 Volt d.c.** | | | | |
| 1µF | 10 | C | MCESL100V105M4X5.4 | 187-0652 |
| 2.2µF | 20 | F | MCESL100V225M6.3X5.4 | 187-0653 |
| 3.3µF | 28 | F | MCESL100V335M6.3X5.4 | 187-0654 |
| 4.7µF | 35 | F | MCESL100V475M6.3X5.4 | 187-0655 |
| 10µF | 50 | G | MCESL100V106M6.3X7.7 | 187-0656 |
| 22µF | 120 | H | MCESL100V226M8X10.5 | 187-0657 |
| 33µF | 190 | J | MCESL100V336M10X10.5 | 187-0659 |

311916

| Order Multiple=10 | | Price Each | | | | |
|---|---|---|---|---|---|---|
| | Order Code | 10+ | 50+ | 100+ | 250+ | 500+ |
| **4 Volt d.c** | | | | | | |
| 33µF | NEW 187-0564 | | | | | |
| 47µF | NEW 187-0565 | | | | | |
| 56µF | NEW 187-0566 | | | | | |
| 68µF | NEW 187-0568 | | | | | |
| 100µF | NEW 187-0569 | | | | | |
| 150µF | NEW 187-0570 | | | | | |
| 220µF | NEW 187-0571 | | | | | |
| 330µF | NEW 187-0572 | | | | | |
| 470µF | NEW 187-0573 | | | | | |
| **6.3 Volt d.c** | | | | | | |
| 33µF | NEW 187-0574 | | | | | |
| 47µF | NEW 187-0575 | | | | | |
| 56µF | NEW 187-0576 | | | | | |
| 68µF | NEW 187-0577 | | | | | |
| 100µF | SMC 926-5660 | | | | | |
| 150µF | NEW 187-0578 | | | | | |
| 220µF | NEW 187-0581 | | | | | |
| 330µF | NEW 187-0582 | | | | | |
| 470µF | NEW 187-0583 | | | | | |
| 680µF | NEW 187-0584 | | | | | |
| 1000µF | NEW 187-0585 | | | | | |
| 1500µF | NEW 187-0586 | | | | | |
| **10 Volt d.c** | | | | | | |
| 22µF | NEW 187-0587 | | | | | |
| 33µF | NEW 187-0588 | | | | | |
| 47µF | NEW 187-0589 | | | | | |
| 56µF | NEW 187-0590 | | | | | |
| 68µF | NEW 187-0591 | | | | | |
| 100µF | NEW 187-0593 | | | | | |
| 150µF | NEW 187-0594 | | | | | |
| 220µF | SMC 926-5678 | | | | | |
| 330µF | NEW 187-0595 | | | | | |
| 470µF | NEW 187-0596 | | | | | |
| 680µF | NEW 187-0597 | | | | | |
| 1000µF | NEW 187-0598 | | | | | |
| **16 Volt d.c** | | | | | | |
| 10µF | SMC 926-5686 | | | | | |
| 22µF | NEW 187-0599 | | | | | |
| 33µF | NEW 187-0600 | | | | | |
| 47µF | SMC 926-5694 | | | | | |
| 56µF | NEW 187-0601 | | | | | |
| 68µF | NEW 187-0602 | | | | | |
| 100µF | NEW 187-0603 | | | | | |
| 150µF | NEW 187-0604 | | | | | |
| 220µF | NEW 187-0605 | | | | | |
| 330µF | NEW 187-0606 | | | | | |
| 470µF | NEW 187-0607 | | | | | |
| 680µF | NEW 187-0608 | | | | | |
| **25 Volt d.c** | | | | | | |
| 10µF | NEW 187-0611 | | | | | |
| 22µF | NEW 187-0612 | | | | | |
| 33µF | NEW 187-0613 | | | | | |
| 47µF | NEW 187-0614 | | | | | |
| 56µF | NEW 187-0615 | | | | | |
| 68µF | NEW 187-0616 | | | | | |
| 100µF | SMC 926-5708 | | | | | |
| 150µF | NEW 187-0617 | | | | | |
| 220µF | NEW 187-0618 | | | | | |
| 330µF | NEW 187-0619 | | | | | |
| 470µF | NEW 187-0620 | | | | | |
| **35 Volt d.c** | | | | | | |
| 4.7µF | SMC 926-5716 | | | | | |
| 10µF | NEW 187-0621 | | | | | |
| 22µF | SMC 926-5724 | | | | | |
| 33µF | NEW 187-0623 | | | | | |
| 47µF | NEW 187-0624 | | | | | |
| 56µF | NEW 187-0625 | | | | | |
| 6868 | NEW 187-0626 | | | | | |
| 100µF | NEW 187-0627 | | | | | |
| 150µF | NEW 187-0628 | | | | | |
| 220µF | NEW 187-0629 | | | | | |
| 330µF | NEW 187-0630 | | | | | |
| **50 Volt d.c** | | | | | | |
| 1µF | SMC 926-5732 | | | | | |
| 2.2µF | NEW 187-0631 | | | | | |
| 3.3µF | NEW 187-0632 | | | | | |
| 4.7µF | SMC 926-5740 | | | | | |
| 10µF | SMC 926-5759 | | | | | |
| 22µF | NEW 187-0633 | | | | | |
| 33µF | NEW 187-0635 | | | | | |


RoHS ● Compliant ▲ Non-compliant

| Order Multiple=10 | | Price Each | | | | |
|---|---|---|---|---|---|---|
| | Order Code | 10+ | 50+ | 100+ | 250+ | 500+ |
| **50 Volt d.c** | | | | | | |
| 47µF | SMD 926-5767 | | | | | |
| 56µF | NEW 187-0636 | | | | | |
| 68µF | NEW 187-0637 | | | | | |
| 100µF | SMD 926-5775 | | | | | |
| 150µF | NEW 187-0638 | | | | | |
| 220µF | NEW 187-0639 | | | | | |
| **63 Volt d.c** | | | | | | |
| 1µF | NEW 187-0640 | | | | | |
| 2.2µF | NEW 187-0641 | | | | | |
| 3.3µF | NEW 187-0642 | | | | | |
| 4.7µF | NEW 187-0643 | | | | | |
| 10µF | NEW 187-0644 | | | | | |
| 22µF | NEW 187-0645 | | | | | |
| 33µF | NEW 187-0647 | | | | | |
| 47µF | NEW 187-0648 | | | | | |
| 56µF | NEW 187-0649 | | | | | |
| 68µF | NEW 187-0650 | | | | | |
| 100µF | NEW 187-0651 | | | | | |
| **100 Volt d.c** | | | | | | |
| 1µF | NEW 187-0652 | | | | | |
| 2.2µF | NEW 187-0653 | | | | | |
| 3.3µF | NEW 187-0654 | | | | | |
| 4.7µF | NEW 187-0655 | | | | | |
| 10µF | NEW 187-0656 | | | | | |
| 22µF | NEW 187-0657 | | | | | |
| 33µF | NEW 187-0659 | | | | | |

## EL Series 105°C — Surface Mount

multicomp



- Miniature surface mount aluminium electrolytic
- High temperature - 105°C
- Designed for high density population
- Supplied on tape carrier for automatic placement

SMD

| | |
|---|---|
| Operating Temperature | -40°C to +105°C |
| Tolerance | ±20% |

| Case Size | ∅D | L | P | Case Size | ∅D | L | P | Case Size | ∅D | L | P |
|---|---|---|---|---|---|---|---|---|---|---|---|
| B | 4 | 5.2 | 1 | E | 6.3 | 5.2 | 2.2 | H | 8 | 10.5 | 3.2 |
| D | 5 | 5.2 | 1.4 | | 6.3 | 7.7 | 2.2 | J | 10 | 10.5 | 4.6 |

| | Ripple (mA) @ 120Hz, 105°C | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|
| **6.3 Volt d.c.** | | | | |
| 22µF | 20 | B | MCEEL6V3226M4X5.2 | 187-0661 |
| 33µF | 28 | D | MCEEL6V3336M5X5.2 | 187-0662 |
| 47µF | 34 | D | MCEEL6V3476M5X5.2 | 187-0663 |
| 100µF | 66 | E | MCEEL6V3107M6.3X5.2 | 926-5538 |
| 220µF | 105 | G | MCEEL6V3227M6.3X7.7 | 187-0664 |
| 330µF | 195 | H | MCEEL6V3337M8X10.5 | 187-0665 |
| 470µF | 210 | H | MCEEL6V3477M8X10.5 | 187-0666 |
| 1000µF | 300 | J | MCEEL6V3108M10X10.5 | 187-0667 |
| **10 Volt d.c.** | | | | |
| 22µF | 25 | D | MCEEL10V226M5X5.2 | 187-0668 |
| 33µF | 33 | D | MCEEL10V336M5X5.2 | 187-0669 |
| 47µF | 41 | E | MCEEL10V476M6.3X5.2 | 187-0670 |
| 100µF | 60 | E | MCEEL10V107M6.3X5.2 | 187-0672 |
| 220µF | 175 | H | MCEEL10V227M8X10.5 | 926-5546 |
| 330µF | 195 | H | MCEEL10V337M8X10.5 | 187-0673 |
| 470µF | 210 | H | MCEEL10V477M8X10.5 | 187-0674 |
| **16 Volt d.c.** | | | | |
| 10µF | 16 | B | MCEEL16V106M4X5.2 | 926-5554 |
| 22µF | 28 | D | MCEEL16V226M5X5.2 | 187-0675 |
| 33µF | 39 | E | MCEEL16V336M6.3X5.2 | 187-0676 |
| 47µF | 54 | E | MCEEL16V476M6.3X5.2 | 926-5562 |
| 100µF | 95 | G | MCEEL16V107M6.3X7.7 | 187-0677 |
| 220µF | 175 | H | MCEEL16V227M8X10.5 | 187-0678 |
| 330µF | 210 | H | MCEEL16V337M8X10.5 | 187-0679 |
| 470µF | 290 | J | MCEEL16V477M10X10.5 | 187-0680 |
| **25 Volt d.c.** | | | | |
| 4.7µF | 12 | B | MCEEL25V475M4X5.2 | 187-0681 |
| 10µF | 22 | D | MCEEL25V106M5X5.2 | 187-0682 |
| 22µF | 38 | E | MCEEL25V226M6.3X5.2 | 187-0684 |
| 33µF | 52 | E | MCEEL25V336M6.3X5.2 | 187-0685 |
| 47µF | 91 | E | MCEEL25V476M6.3X7.7 | 187-0686 |
| 100µF | 150 | H | MCEEL25V107M8X10.5 | 926-5570 |
| 220µF | 195 | H | MCEEL25V227M8X10.5 | 187-0687 |
| 330µF | 290 | J | MCEEL25V337M10X10.5 | 187-0688 |
| **35 Volt d.c.** | | | | |
| 4.7µF | 14 | B | MCEEL35V475M4X5.2 | 926-5589 |
| 10µF | 24 | D | MCEEL35V106M5X5.2 | 187-0689 |
| 22µF | 40 | E | MCEEL35V226M6.3X5.2 | 926-5597 |
| 33µF | 77 | G | MCEEL35V336M6.3X7.7 | 187-0690 |
| 47µF | 150 | H | MCEEL35V476M8X10.5 | 187-0691 |
| 100µF | 160 | H | MCEEL35V107M8X10.5 | 187-0692 |
| 220µF | 290 | J | MCEEL35V227M10X10.5 | 187-0693 |
| **50 Volt d.c.** | | | | |
| 1µF | 7 | B | MCEEL50V105M4X5.2 | 926-5619 |
| 2.2µF | 11 | B | MCEEL50V225M4X5.2 | 187-0694 |
| 3.3µF | 13 | B | MCEEL50V335M4X5.2 | 187-0696 |
| 4.7µF | 19 | D | MCEEL50V475M5X5.2 | 926-5627 |
| **50 Volt d.c.** | | | | |
| 10µF | 32 | E | MCEEL50V106M6.3X5.2 | 926-5635 |
| 22µF | 60 | G | MCEEL50V226M6.3X7.7 | 187-0697 |
| 33µF | 140 | H | MCEEL50V336M8X10.5 | 187-0698 |
| 47µF | 150 | H | MCEEL50V476M8X10.5 | 926-5643 |
| 100µF | 220 | J | MCEEL50V107M10X10.5 | 926-5651 |

311925

| Order Multiple=10 | | Price Each | | | | |
|---|---|---|---|---|---|---|
| | Order Code | 10+ | 50+ | 100+ | 250+ | 500+ |
| **6.3 Volt d.c** | | | | | | |
| 22µF | NEW 187-0661 | | | | | |
| 33µF | NEW 187-0662 | | | | | |
| 47µF | NEW 187-0663 | | | | | |
| 100µF | SMD 926-5538 | | | | | |
| 220µF | NEW 187-0664 | | | | | |
| 330µF | NEW 187-0665 | | | | | |
| 470µF | NEW 187-0666 | | | | | |
| 1000µF | NEW 187-0667 | | | | | |
| **10 Volt d.c** | | | | | | |
| 22µF | NEW 187-0668 | | | | | |
| 33µF | NEW 187-0669 | | | | | |
| 47µF | NEW 187-0670 | | | | | |
| 100µF | NEW 187-0672 | | | | | |
| 220µF | SMD 926-5546 | | | | | |
| 330µF | NEW 187-0673 | | | | | |
| 470µF | NEW 187-0674 | | | | | |
| **16 Volt d.c** | | | | | | |
| 10µF | SMD 926-5554 | | | | | |
| 22µF | NEW 187-0675 | | | | | |
| 33µF | NEW 187-0676 | | | | | |
| 47µF | SMD 926-5562 | | | | | |
| 100µF | NEW 187-0677 | | | | | |
| 220µF | NEW 187-0678 | | | | | |
| 330µF | NEW 187-0679 | | | | | |
| 470µF | NEW 187-0680 | | | | | |
| **25 Volt d.c** | | | | | | |
| 4.7µF | NEW 187-0681 | | | | | |
| 10µF | NEW 187-0682 | | | | | |
| 22µF | NEW 187-0684 | | | | | |
| 33µF | NEW 187-0685 | | | | | |
| 47µF | NEW 187-0686 | | | | | |
| 100µF | SMD 926-5570 | | | | | |
| 220µF | NEW 187-0687 | | | | | |
| 330µF | NEW 187-0688 | | | | | |
| **35 Volt d.c** | | | | | | |
| 4.7µF | SMD 926-5589 | | | | | |
| 10µF | NEW 187-0689 | | | | | |
| 22µF | SMD 926-5597 | | | | | |
| 33µF | NEW 187-0690 | | | | | |
| 47µF | NEW 187-0691 | | | | | |
| 100µF | NEW 187-0692 | | | | | |
| 220µF | NEW 187-0693 | | | | | |
| **50 Volt d.c** | | | | | | |
| 1µF | SMD 926-5619 | | | | | |
| 2.2µF | NEW 187-0694 | | | | | |
| 3.3µF | NEW 187-0696 | | | | | |
| 4.7µF | SMD 926-5627 | | | | | |
| 10µF | SMD 926-5635 | | | | | |
| 22µF | NEW 187-0697 | | | | | |
| 33µF | NEW 187-0698 | | | | | |
| 47µF | SMD 926-5643 | | | | | |
| 100µF | SMD 926-5651 | | | | | |

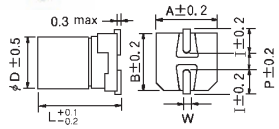
## Aluminium Electrolytic - SMD - Panasonic

### VS/HB Series – Surface Mount

Panasonic



SMD




Supplied on 12mm or 16mm embossed tape

- Surface mount aluminium electrolytic capacitors
- Small case size
- 85°C and 105°C
- AECQ-200 Automotive Approved

**VS Series** – General Purpose – 85°C

# Aluminium Electrolytic - SMD - Panasonic - continued

## VS/HB Series – Surface Mount - continued

| Case Size | ∅D | L | A | B | I | W | P | Tape Size |
|---|---|---|---|---|---|---|---|---|
| A | 3 | 5.4 | 3.3 | 3.3 | 1.5 | 0.55 | 0.6 | 12mm |
| B | 4 | 5.4 | 4.3 | 4.3 | 1.8 | 0.65 | 1 | 12mm |
| C | 5 | 5.4 | 5.3 | 5.3 | 2.2 | 0.65 | 1.5 | 12mm |
| D | 6.3 | 5.4 | 6.6 | 6.6 | 2.6 | 0.65 | 2.2 | 16mm |

Operating temperature -40°C to +85°C  DC leakage current ≤0.01CV or 3μA, whichever is greater

Tolerance ±20%  Operating life 2000hrs @ 85°C

| | Ripple Current mA @ 120Hz 85°C | Power Factor @ 120Hz | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| **6.3 Volt d.c.** | | | | | |
| 22μF | 29 | 0.26 | B | EEE0JA220SR | 969-6881 |
| 47μF | 46 | 0.26 | C | EEE0JA470SR | 969-6890 |
| 100μF | 71 | 0.26 | D | EEE0JA101SP | 969-6903 |
| **10 Volt d.c.** | | | | | |
| 33μF | 43 | 0.2 | C | EEE1AA330SR | 969-6911 |
| **16 Volt d.c.** | | | | | |
| 10μF | 28 | 0.16 | B | EEE1CA100SR | 969-6920 |
| 22μF | 39 | 0.16 | C | EEE1CA220SR | 969-6938 |
| 47μF | 70 | 0.16 | D | EEE1CA470SP | 969-6946 |
| **25 Volt d.c.** | | | | | |
| 4.7μF | 22 | 0.14 | B | EEE1EA4R7SR | 969-6954 |
| 10μF | 28 | 0.14 | C | EEE1EA100SR | 969-6962 |
| 22μF | 55 | 0.14 | D | EEE1EA220SP | 969-6970 |
| 33μF | 65 | 0.14 | D | EEE1EA330SP | 969-6989 |
| **35 Volt d.c.** | | | | | |
| 3.3μF | 10 | 0.12 | A | EEE1VS3R3SR | 969-6997 |
| 4.7μF | 22 | 0.12 | B | EEE1VA4R7SR | 969-7004 |
| 10μF | 30 | 0.12 | C | EEE1VA100SR | 969-7012 |
| 22μF | 60 | 0.12 | D | EEE1VA220SP | 969-7020 |
| **50 Volt d.c.** | | | | | |
| 0.1μF | 1 | 0.12 | B | EEE1HA0R1SR | 969-7039 |
| 0.22μF | 2 | 0.12 | B | EEE1HAR22SR | 969-7047 |
| 0.47μF | 5 | 0.12 | B | EEE1HAR47SR | 969-7055 |
| 1μF | 10 | 0.12 | B | EEE1HA010SR | 969-7063 |
| 2.2μF | 16 | 0.12 | B | EEE1HA2R2SR | 969-7071 |
| 3.3μF | 16 | 0.12 | B | EEE1HA3R3SR | 969-7080 |
| 4.7μF | 23 | 0.12 | C | EEE1HA4R7SR | 969-7098 |
| 10μF | 35 | 0.12 | D | EEE1HA100SP | 969-7110 |

**Order Multiple=10**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 3K+ |
|---|---|---|---|---|---|
| **6.3 Volt d.c.** | | | | | |
| 22μF | SMD 969-6881 ● | | | | |
| 47μF | SMD 969-6890 ● | | | | |
| 100μF | SMD 969-6903 ● | | | | |
| **10 Volt d.c.** | | | | | |
| 33μF | SMD 969-6911 ● | | | | |
| **16 Volt d.c.** | | | | | |
| 10μF | SMD 969-6920 ● | | | | |
| 22μF | SMD 969-6938 ● | | | | |
| 47μF | SMD 969-6946 ● | | | | |
| **25 Volt d.c.** | | | | | |
| 4.7μF | SMD 969-6954 ● | | | | |
| 10μF | SMD 969-6962 ● | | | | |
| 22μF | SMD 969-6970 ● | | | | |
| 33μF | SMD 969-6989 ● | | | | |
| **35 Volt d.c.** | | | | | |
| 3.3μF | SMD 969-6997 ● | | | | |
| 4.7μF | SMD 969-7004 ● | | | | |
| 10μF | SMD 969-7012 ● | | | | |
| 22μF | SMD 969-7020 ● | | | | |
| **50 Volt d.c.** | | | | | |
| 0.1μF | SMD 969-7039 ● | | | | |
| 0.22μF | SMD 969-7047 ● | | | | |
| 0.47μF | SMD 969-7055 ● | | | | |
| 1μF | SMD 969-7063 ● | | | | |
| 2.2μF | SMD 969-7071 ● | | | | |
| 3.3μF | SMD 969-7080 ● | | | | |
| 4.7μF | SMD 969-7098 ● | | | | |
| 10μF | SMD 969-7110 ● | | | | |

## HB Series – High Temperature – 105°C

| Case Size | ∅D | L | A | B | I | W | P | Tape Size |
|---|---|---|---|---|---|---|---|---|
| B | 4 | 5.8 | 4.3 | 4.3 | 1.8 | 0.65 | 1 | 12mm |
| C | 5 | 5.8 | 5.3 | 5.3 | 2.2 | 0.65 | 1.5 | 12mm |
| D | 6.3 | 5.8 | 6.6 | 6.6 | 2.6 | 0.65 | 1.8 | 16mm |

Operating temperature -40°C to +105°C  DC leakage current ≤0.01CV or 3μA, whichever is greater

Tolerance ±20%  Operating life 2000hrs @ 105°C

| | Ripple Current mA @ 120Hz 85°C | Power Factor @ 120Hz | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| **6.3 Volt d.c.** | | | | | |
| 22μF | 26 | 0.3 | B | EEEHB0J220R | 969-6750 |
| 47μF | 46 | 0.3 | C | EEEHB0J470R | 969-6768 |
| 100μF | 71 | 0.3 | D | EEEHB0J101P | 969-6776 |
| **10 Volt d.c.** | | | | | |
| 33μF | 43 | 0.22 | C | EEEHB1A330R | 969-6784 |
| **16 Volt d.c.** | | | | | |
| 10μF | 28 | 0.16 | B | EEEHB1C100R | 969-6792 |
| 22μF | 39 | 0.16 | C | EEEHB1C220P | 969-6806 |
| 47μF | 70 | 0.16 | D | EEEHB1C470P | 969-6814 |
| **25 Volt d.c.** | | | | | |
| 4.7μF | 22 | 0.14 | B | EEEHB1E4R7R | 969-6822 |
| 220μF | 190 | 0.14 | G | EEEHB1E221P | 969-6830 |
| **35 Volt d.c.** | | | | | |
| 10μF | 28 | 0.12 | C | EEEHB1V100R | 969-6849 |
| **50 Volt d.c.** | | | | | |
| 1μF | 10 | 0.12 | B | EEEHB1H1R0R | 969-6857 |
| 2.2μF | 16 | 0.12 | B | EEEHB1H2R2R | 969-6865 |
| 10μF | 35 | 0.12 | D | EEEHB1H100P | 969-6873 |

208463

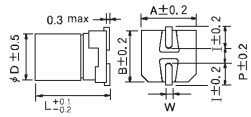
**Order Multiple=10**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 3K+ |
|---|---|---|---|---|---|
| **6.3 Volt d.c.** | | | | | |
| 22μF | SMD 969-6750 ● | | | | |
| 47μF | SMD 969-6768 ● | | | | |
| 100μF | SMD 969-6776 ● | | | | |
| **10 Volt d.c.** | | | | | |
| 33μF | SMD 969-6784 ● | | | | |
| **16 Volt d.c.** | | | | | |
| 10μF | SMD 969-6792 ● | | | | |
| 22μF | SMD 969-6806 ● | | | | |
| 47μF | SMD 969-6814 ● | | | | |
| **25 Volt d.c.** | | | | | |
| 4.7μF | SMD 969-6822 ● | | | | |
| 220μF | SMD 969-6830 ● | | | | |
| **35 Volt d.c.** | | | | | |
| 10μF | SMD 969-6849 ● | | | | |
| **50 Volt d.c.** | | | | | |
| 1μF | SMD 969-6857 ● | | | | |
| 2.2μF | SMD 969-6865 ● | | | | |
| 10μF | SMD 969-6873 ● | | | | |

## FC Series 105°C - Surface Mount

Panasonic




SMD

- High temperature surface mount aluminium electrolytic
- High ripple current capability
- Low impedance
- AECQ-200 Automotive Approved

| Case Size | ∅D | L | A | I | W | P | Tape Size |
|---|---|---|---|---|---|---|---|
| B | 4 | 5.4 | 4.3 | 1.8 | 0.65 | 1 | 12mm |
| C | 5 | 5.4 | 5.3 | 2.2 | 0.65 | 1.5 | 12mm |
| D | 6.3 | 5.4 | 6.6 | 2.6 | 0.65 | 1.8 | 16mm |
| E | 8 | 6.2 | 8.3 | 3.4 | 0.65 | 2.2 | 16mm |
| F | 8 | 10.2 | 8.3 | 3.4 | 0.9 | 3.1 | 16mm |
| G | 10 | 10.2 | 10.3 | 3.5 | 0.9 | 4.6 | 16mm |

Operating Temperature -40°C to +105°C  DC leakage current ≤0.01CV or 3A whichever is greater

Tolerance ±20%

**6.3 Volt d.c.**

| | Ripple (mA) 100Hz @ 105°C | Impedance (Ω) 100KHz @ 20°C | Power Factor @ 120Hz | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 47μF | 80 | 1.8 | 0.26 | C | EEEFC0J470R | 969-4323 |
| 100μF | 115 | 1 | 0.26 | D | EEEFC0J101P | 969-4331 |
| 220μF | 150 | 0.6 | 0.26 | E | EEEFC0J221P | 969-4340 |
| 330μF | 180 | 0.5 | 0.26 | F | EEEFC0J331P | 969-4358 |

**Order Multiple=10**

**6.3 Volt d.c.**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 3K+ |
|---|---|---|---|---|---|
| 47μF | SMD 969-4323 ● | | | | |
| 100μF | SMD 969-4331 ● | | | | |
| 220μF | SMD 969-4340 ● | | | | |
| 330μF | SMD 969-4358 ● | | | | |

**10 Volt d.c.**

| | Ripple (mA) 100Hz @ 105°C | Impedance (Ω) 100KHz @ 20°C | Power Factor @ 120Hz | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 100μF | 100 | 0.4 | 0.19 | E | EEEFC1A101P | 969-3467 |
| 470μF | 220 | 0.4 | 0.19 | G | EEEFC1A471P | 969-3483 |

**Order Multiple=10**

**10 Volt d.c.**

| | Order Code | Price Each 10+ | 100+ | 1K+ | 3K+ |
|---|---|---|---|---|---|
| 100μF | SMD 969-3467 ● | | | | |
| 470μF | SMD 969-3483 ● | | | | |


RoHS ● Compliant ▲ Non-compliant

**16 Volt d.c.**

| | Ripple (mA) 100Hz @ 105°C | Impedance (Ω) 100KHz @ 20°C | Power Factor @ 120Hz | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 10µF | 50 | 3 | 0.16 | B | EEEFC1C100R | 969-3491 |
| 22µF | 80 | 1.8 | 0.16 | C | EEEFC1C220R | 969-4366 |
| 47µF | 115 | 1 | 0.16 | D | EEEFC1C470P | 969-4382 |
| 68µF | 150 | 0.6 | 0.16 | E | EEEFC1C680P | 969-4390 |
| 100µF | 150 | 0.6 | 0.16 | E | EEEFC1C101P | 969-4404 |
| 220µF | 220 | 0.4 | 0.16 | G | EEEFC1C221P | 969-4412 |
| 330µF | 220 | 0.4 | 0.16 | G | EEEFC1C331P | 969-4420 |

**Order Multiple=10**

**16 Volt d.c.** — **Price Each**

| | Order Code | 10+ | 100+ | 1K+ | 3K+ |
|---|---|---|---|---|---|
| 10µF | SMD 969-3491 ● | | | | |
| 22µF | SMD 969-4366 ● | | | | |
| 47µF | SMD 969-4382 ● | | | | |
| 68µF | SMD 969-4390 ● | | | | |
| 100µF | SMD 969-4404 ● | | | | |
| 220µF | SMD 969-4412 ● | | | | |
| 330µF | SMD 969-4420 ● | | | | |

**25 Volt d.c.**

| | Ripple (mA) 100Hz @ 105°C | Impedance (Ω) 100KHz @ 20°C | Power Factor @ 120Hz | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 22µF | 115 | 1 | 0.14 | D | EEEFC1E220P | 969-3505 |
| 33µF | 115 | 1 | 0.14 | D | EEEFC1E330P | 969-3513 |
| 47µF | 150 | 0.6 | 0.14 | E | EEEFC1E470P | 969-3521 |
| 68µF | 180 | 0.5 | 0.14 | F | EEEFC1E680P | 969-3530 |

**Order Multiple=10**

**25 Volt d.c.** — **Price Each**

| | Order Code | 10+ | 100+ | 1K+ | 3K+ |
|---|---|---|---|---|---|
| 22µF | SMD 969-3505 ● | | | | |
| 33µF | SMD 969-3513 ● | | | | |
| 47µF | SMD 969-3521 ● | | | | |
| 68µF | SMD 969-3530 ● | | | | |

**35 Volt d.c.**

| | Ripple (mA) 100Hz @ 105°C | Impedance (Ω) 100KHz @ 20°C | Power Factor @ 120Hz | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 2.2µF | 50 | 3 | 0.12 | B | EEEFC1V2R2R | 969-4439 |
| 3.3µF | 50 | 3 | 0.12 | B | EEEFC1V3R3R | 969-4447 |
| 4.7µF | 50 | 3 | 0.12 | B | EEEFC1V4R7R | 969-4455 |
| 6.8µF | 80 | 1.8 | 0.12 | C | EEEFC1V6R8R | 969-4463 |
| 10µF | 80 | 1.8 | 0.12 | C | EEEFC1V100R | 969-4471 |
| 22µF | 115 | 1 | 0.12 | D | EEEFC1V220P | 969-4480 |
| 33µF | 150 | 0.6 | 0.12 | E | EEEFC1V330P | 969-4498 |
| 47µF | 150 | 0.6 | 0.12 | E | EEEFC1V470P | 969-4501 |
| 100µF | 220 | 0.4 | 0.12 | G | EEEFC1V101P | 969-4510 |

208594

**Order Multiple=10**

**35 Volt d.c.** — **Price Each**

| | Order Code | 10+ | 100+ | 1K+ | 3K+ |
|---|---|---|---|---|---|
| 2.2µF | SMD 969-4439 ● | | | | |
| 3.3µF | SMD 969-4447 ● | | | | |
| 4.7µF | SMD 969-4455 ● | | | | |
| 6.8µF | SMD 969-4463 ● | | | | |
| 10µF | SMD 969-4471 ● | | | | |
| 22µF | SMD 969-4480 ● | | | | |
| 33µF | SMD 969-4498 ● | | | | |
| 47µF | SMD 969-4501 ● | | | | |
| 100µF | SMD 969-4510 ● | | | | |

## FCA Series

Panasonic ideas for life

### High Temperature Lead Free Reflow

- Specifically designed to survive severe lead free reflow soldering conditions
- Development of existing FC series
- AECQ-200 Automotive Approved

| Diameter | Peak temp. | Time at peak -5K | Time > 217°C |
|---|---|---|---|
| ≥ 6.3 mm | 260°C | 5 sec | 45 sec |
| 8 - 10mm | 245°C | 10 sec | 45 sec |

SMD

**6.3 Volt d.c.**

| | Ripple (mA) 100Hz @ 105°C | Impedance (Ω) 100KHz @ 20°C | Power Factor @ 120Hz | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 22µF | 60 | 3 | 0.26 | B | EEEFC0J220AR | 124-4337 |
| 100µF | 140 | 1 | 0.26 | D | EEEFC0J101AP | 124-4339 |
| 330µF | 450 | 0.3 | 0.26 | F | EEEFC0J331AP | 124-4341 |
| 1000µF | 670 | 0.15 | 0.26 | G | EEEFC0J102AP | 124-4342 |

**Order Multiple=10**

**6.3 Volt d.c.** — **Price Each**

| | Order Code | 10+ | 100+ | 500+ | 1K+ | 3K+ |
|---|---|---|---|---|---|---|
| 22µF | SMD 124-4337 ● | | | | | |
| 100µF | SMD 124-4339 ● | | | | | |
| 330µF | SMD 124-4341 ● | | | | | |
| 1000µF | SMD 124-4342 ● | | | | | |

**10 Volt d.c.**

| | Ripple (mA) 100Hz @ 105°C | Impedance (Ω) 100KHz @ 20°C | Power Factor @ 120Hz | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 100µF | 230 | 0.4 | 0.19 | E | EEEFC1A101AP | 124-4345 |
| 220µF | 450 | 0.3 | 0.19 | F | EEEFC1A221AP | 124-4347 |
| 470µF | 670 | 0.15 | 0.19 | G | EEEFC1A471AP | 124-4348 |
| 1000µF | 670 | 0.15 | 0.19 | G | EEEFC1A102AP | 124-4349 |

**Order Multiple=10**

**10 Volt d.c.** — **Price Each**

| | Order Code | 10+ | 100+ | 500+ | 1K+ | 3K+ |
|---|---|---|---|---|---|---|
| 100µF | SMD 124-4345 ● | | | | | |
| 220µF | SMD 124-4347 ● | | | | | |
| 470µF | SMD 124-4348 ● | | | | | |
| 1000µF | SMD 124-4349 ● | | | | | |

**16 Volt d.c.**

| | Ripple (mA) 100Hz @ 105°C | Impedance (Ω) 100KHz @ 20°C | Power Factor @ 120Hz | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 10µF | 60 | 3 | 0.16 | B | EEEFC1C100AR | 124-4350 |
| 22µF | 95 | 1.8 | 0.16 | C | EEEFC1C220AR | 124-4351 |
| 47µF | 140 | 1 | 0.16 | D | EEEFC1C470AP | 124-4352 |
| 100µF | 230 | 0.4 | 0.16 | E | EEEFC1C101AP | 124-4353 |
| 220µF | 670 | 0.15 | 0.16 | G | EEEFC1C221AP | 124-4354 |
| 470µF | 670 | 0.15 | 0.16 | G | EEEFC1C471AP | 124-4356 |

**Order Multiple=10**

**16 Volt d.c.** — **Price Each**

| | Order Code | 10+ | 100+ | 500+ | 1K+ | 3K+ |
|---|---|---|---|---|---|---|
| 10µF | SMD 124-4350 ● | | | | | |
| 22µF | SMD 124-4351 ● | | | | | |
| 47µF | SMD 124-4352 ● | | | | | |
| 100µF | SMD 124-4353 ● | | | | | |
| 220µF | SMD 124-4354 ● | | | | | |
| 470µF | SMD 124-4356 ● | | | | | |

**25 Volt d.c.**

| | Ripple (mA) 100Hz @ 105°C | Impedance (Ω) 100KHz @ 20°C | Power Factor @ 120Hz | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 100µF | 450 | 0.3 | 0.14 | F | EEEFC1E101AP | 124-4362 |
| 220µF | 670 | 0.15 | 0.14 | G | EEEFC1E221AP | 124-4363 |
| 330µF | 670 | 0.15 | 0.14 | G | EEEFC1E331AP | 124-4364 |
| 470µF | 670 | 0.15 | 0.14 | G | EEEFC1E471AP | 124-4366 |

**Order Multiple=10**

**25 Volt d.c.** — **Price Each**

| | Order Code | 10+ | 100+ | 500+ | 1K+ | 3K+ |
|---|---|---|---|---|---|---|
| 100µF | SMD 124-4362 ● | | | | | |
| 220µF | SMD 124-4363 ● | | | | | |
| 330µF | SMD 124-4364 ● | | | | | |
| 470µF | SMD 124-4366 ● | | | | | |

**35 Volt d.c.**

| | Ripple (mA) 100Hz @ 105°C | Impedance (Ω) 100KHz @ 20°C | Power Factor @ 120Hz | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 1µF | 60 | 3 | 0.12 | B | EEEFC1V1R0AR | 124-4367 |
| 4.7µF | 60 | 3 | 0.12 | B | EEEFC1V4R7AR | 124-4370 |
| 47µF | 230 | 0.4 | 0.12 | E | EEEFC1V470AP | 124-4376 |
| 100µF | 670 | 0.15 | 0.12 | G | EEEFC1V101AP | 124-4377 |
| 220µF | 670 | 0.15 | 0.12 | G | EEEFC1V221AP | 124-4378 |
| 330µF | 670 | 0.15 | 0.12 | G | EEEFC1V331AP | 124-4379 |

444564

**Order Multiple=10**

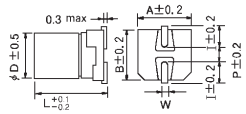
**35 Volt d.c.** — **Price Each**

| | Order Code | 10+ | 100+ | 500+ | 1K+ | 3K+ |
|---|---|---|---|---|---|---|
| 1µF | SMD 124-4367 ● | | | | | |
| 4.7µF | SMD 124-4370 ● | | | | | |
| 47µF | SMD 124-4376 ● | | | | | |
| 100µF | SMD 124-4377 ● | | | | | |
| 220µF | SMD 124-4378 ● | | | | | |
| 330µF | SMD 124-4379 ● | | | | | |

## FK Series 105°C - Surface Mount

Panasonic




SMD

- High performance surface mount aluminium electrolytic
- Temperature range -55°C to +105°C
- High ripple current capability
- Miniature version of FC series
- AECQ-200 Automotive Approved

| | | | |
|---|---|---|---|
| Operating Temperature | -55°C to +105°C | DC leakage current | ≤0.01CV or 3A whichever is greater |
| Tolerance | ±20% | | |

**6.3 Volt d.c.**

| | Ripple (mA) 100kHz @ 105°C | Impedance @ 100Hz (Ω) | Height (mm) | Diameter (mm) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 22µF | 90 | 1.35 | 5.8 | 4 | EEEFK0J220R | 185-0083 |
| 47µF | 160 | 0.7 | 5.8 | 5 | EEEFK0J470R | 185-0084 |
| 100µF | 160 | 0.7 | 5.8 | 5 | EEEFK0J101UR | 185-0085 |
| 220µF | 240 | 0.36 | 5.8 | 6.3 | EEEFK0J221P | 185-0086 |
| 330µF | 280 | 0.34 | 7.7 | 6.3 | EEEFK0J331XP | 185-0087 |
| 330µF | 300 | 0.26 | 6.2 | 8 | EEEFK0J331P | 185-0089 |
| 470µF | 600 | 0.16 | 10.2 | 8 | EEEFK0J471P | 185-0091 |
| 1000µF | 600 | 0.16 | 10.2 | 8 | EEEFK0J102P | 185-0092 |
| 1500µF | 850 | 0.08 | 10.2 | 10 | EEEFK0J152P | 185-0093 |

# Aluminium Electrolytic - SMD - Panasonic - continued

## FK Series 105°C - Surface Mount - continued

**6.3 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|
| 22µF | NEW 185-0083 | | | | |
| 47µF | NEW 185-0084 | | | | |
| 100µF | NEW 185-0085 | | | | |
| 220µF | NEW 185-0086 | | | | |
| 330µF | NEW 185-0087 | | | | |
| 330µF | NEW 185-0089 | | | | |
| 470µF | NEW 185-0091 | | | | |
| 1000µF | NEW 185-0092 | | | | |
| 1500µF | NEW 185-0093 | | | | |

**10 Volt d.c.**

| | Ripple (mA) 100kHz @ 105°C | Impedance @ 100Hz (Ω) | Height (mm) | Diameter (mm) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 22µF | 90 | 1.35 | 5.8 | 4 | EEEFK1A220R | 185-0094 |
| 33µF | 160 | 0.7 | 5.8 | 5 | EEEFK1A330R | 185-0095 |
| 150µF | 240 | 0.36 | 5.8 | 6.3 | EEEFK1A151P | 185-0096 |
| 220µF | 280 | 0.34 | 7.7 | 6.3 | EEEFK1A221XP | 185-0097 |
| 220µF | 300 | 0.26 | 6.2 | 8 | EEEFK1A221P | 969-5605 |
| 330µF | 600 | 0.16 | 10.2 | 8 | EEEFK1A331P | 969-5613 |
| 470µF | 600 | 0.16 | 10.2 | 8 | EEEFK1A471P | 969-5621 |
| 680µF | 600 | 0.16 | 10.2 | 8 | EEEFK1A681P | 185-0098 |
| 1000µF | 850 | 0.08 | 10.2 | 10 | EEEFK1A102P | 969-5630 |

**10 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|
| 22µF | NEW 185-0094 | | | | |
| 33µF | NEW 185-0095 | | | | |
| 150µF | NEW 185-0096 | | | | |
| 220µF | SMD 969-5605 | | | | |
| 220µF | NEW 185-0097 | | | | |
| 330µF | SMD 969-5613 | | | | |
| 470µF | SMD 969-5621 | | | | |
| 680µF | NEW 185-0098 | | | | |
| 1000µF | SMD 969-5630 | | | | |

**16 Volt d.c.**

| | Ripple (mA) 100kHz @ 105°C | Impedance @ 100Hz (Ω) | Height (mm) | Diameter (mm) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 10µF | 90 | 1.35 | 5.8 | 4 | EEEFK1C100R | 969-5648 |
| 22µF | 90 | 1.35 | 5.4 | 4 | EEEFK1C220UR | 969-5656 |
| 22µF | 160 | 0.7 | 5.8 | 5 | EEEFK1C220R | 185-0099 |
| 47µF | 160 | 0.7 | 5.8 | 5 | EEEFK1C470UR | 969-5664 |
| 47µF | 240 | 0.36 | 5.8 | 6.3 | EEEFK1C470P | 185-0100 |
| 68µF | 240 | 0.36 | 5.8 | 6.3 | EEEFK1C680P | 185-0101 |
| 100µF | 240 | 0.36 | 5.8 | 6.3 | EEEFK1C101P | 969-5672 |
| 150µF | 280 | 0.34 | 7.7 | 6.3 | EEEFK1C151XP | 185-0102 |
| 220µF | 300 | 0.26 | 6.2 | 8 | EEEFK1C221P | 969-5680 |
| 220µF | 280 | 0.34 | 7.7 | 6.3 | EEEFK1C221XP | 185-0103 |
| 330µF | 600 | 0.16 | 10.2 | 8 | EEEFK1C331P | 969-5699 |
| 330µF | 600 | 0.16 | 10.2 | 8 | EEEFK1C331GP | 185-0104 |
| 470µF | 600 | 0.16 | 10.2 | 8 | EEEFK1C471P | 969-5710 |
| 680µF | 850 | 0.08 | 10.2 | 10 | EEEFK1C681P | 185-0105 |

**16 Volt d.c.**

| | Order Code | Price Each 1+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|
| 10µF | SMD 969-5648 | | | | |
| 22µF | SMD 969-5656 | | | | |
| 22µF | NEW 185-0099 | | | | |
| 47µF | SMD 969-5664 | | | | |
| 47µF | NEW 185-0100 | | | | |
| 68µF | NEW 185-0101 | | | | |
| 100µF | SMD 969-5672 | | | | |
| 150µF | NEW 185-0102 | | | | |
| 220µF | SMD 969-5680 | | | | |
| 220µF | NEW 185-0103 | | | | |
| 330µF | SMD 969-5699 | | | | |
| 330µF | NEW 185-0104 | | | | |
| 470µF | SMD 969-5710 | | | | |
| 680µF | NEW 185-0105 | | | | |

**25 Volt d.c.**

| | Ripple (mA) 100kHz @ 105°C | Impedance @ 100Hz (Ω) | Height (mm) | Diameter (mm) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 10µF | 90 | 1.35 | 5.4 | 4 | EEEFK1E100R | 969-5729 |
| 22µF | 160 | 0.7 | 5.4 | 5 | EEEFK1E220R | 969-5737 |
| 33µF | 160 | 0.7 | 5.4 | 5 | EEEFK1E330UR | 969-5745 |
| 33µF | 240 | 0.36 | 5.8 | 6.3 | EEEFK1E330P | 185-0107 |
| 47µF | 240 | 0.36 | 5.4 | 6.3 | EEEFK1E470P | 969-5753 |
| 68µF | 240 | 0.36 | 5.8 | 6.3 | EEEFK1E680P | 185-0108 |
| 100µF | 300 | 0.26 | 6.2 | 8 | EEEFK1E101P | 969-5770 |
| 100µF | 280 | 0.34 | 7.7 | 6.3 | EEEFK1E101XP | 185-0109 |
| 150µF | 600 | 0.16 | 10.2 | 8 | EEEFK1E151P | 185-0111 |
| 220µF | 600 | 0.16 | 10.2 | 8 | EEEFK1E221P | 969-5788 |
| 330µF | 600 | 0.16 | 10.2 | 8 | EEEFK1E331P | 969-5796 |
| 470µF | 850 | 0.08 | 10.2 | 10 | EEEFK1E471P | 969-5800 |

**25 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|
| 10µF | SMD 969-5729 | | | | |
| 22µF | SMD 969-5737 | | | | |
| 33µF | SMD 969-5745 | | | | |
| 33µF | NEW 185-0107 | | | | |
| 47µF | SMD 969-5753 | | | | |
| 68µF | NEW 185-0108 | | | | |
| 100µF | SMD 969-5770 | | | | |
| 100µF | NEW 185-0109 | | | | |
| 150µF | NEW 185-0111 | | | | |
| 220µF | SMD 969-5788 | | | | |
| 330µF | SMD 969-5796 | | | | |
| 470µF | SMD 969-5800 | | | | |

**35 Volt d.c.**

| | Ripple (mA) 100kHz @ 105°C | Impedance @ 100Hz (Ω) | Height (mm) | Diameter (mm) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 4.7µF | 90 | 1.35 | 5.4 | 4 | EEEFK1V4R7R | 969-5818 |
| 10µF | 90 | 1.35 | 5.4 | 4 | EEEFK1V100UR | 969-5826 |
| 10µF | 160 | 0.7 | 5.8 | 5 | EEEFK1V100R | 185-0112 |
| 22µF | 160 | 0.7 | 5.4 | 5 | EEEFK1V220R | 969-5834 |
| 33µF | 240 | 0.36 | 5.4 | 6.3 | EEEFK1V330P | 969-5842 |
| 47µF | 240 | 0.36 | 5.4 | 6.3 | EEEFK1V470P | 969-5850 |
| 100µF | 600 | 0.16 | 10.2 | 8 | EEEFK1V101P | 969-5869 |
| 100µF | 600 | 0.16 | 10.2 | 8 | EEEFK1V101GP | 185-0110 |
| 100µF | 280 | 0.34 | 7.7 | 6.3 | EEEFK1V101XP | 185-0114 |
| 220µF | 600 | 0.16 | 10.2 | 8 | EEEFK1V221P | 969-5877 |
| 330µF | 850 | 0.08 | 10.2 | 10 | EEEFK1V331P | 969-5885 |
| 150µF | 600 | 0.16 | 10.2 | 8 | EEEFK1V151P | 185-0115 |
| 330µF | 850 | 0.08 | 10.2 | 10 | EEEFK1V331GP | 185-0116 |
| 68µF | 280 | 0.34 | 7.7 | 6.3 | EEEFK1V680XP | 185-0113 |

**35 Volt d.c.**

| | Order Code | Price Each 1+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|
| 4.7µF | SMD 969-5818 | | | | |
| 10µF | SMD 969-5826 | | | | |
| 10µF | NEW 185-0112 | | | | |
| 22µF | SMD 969-5834 | | | | |
| 33µF | SMD 969-5842 | | | | |
| 47µF | SMD 969-5850 | | | | |
| 68µF | NEW 185-0113 | | | | |
| 100µF | SMD 969-5869 | | | | |
| 100µF | NEW 185-0110 | | | | |
| 100µF | NEW 185-0114 | | | | |
| 150µF | NEW 185-0115 | | | | |
| 220µF | SMD 969-5877 | | | | |
| 330µF | SMD 969-5885 | | | | |
| 330µF | NEW 185-0116 | | | | |

**50 Volt d.c.**

| | Ripple (mA) 100kHz @ 105°C | Impedance @ 100Hz (Ω) | Height (mm) | Diameter (mm) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 4.7µF | 60 | 2.9 | 5.4 | 4 | EEEFK1H4R7R | 969-5893 |
| 10µF | 165 | 1.52 | 5.4 | 6.3 | EEEFK1H100UR | 969-5907 |
| 10µF | 165 | 0.88 | 5.8 | 6.3 | EEEFK1H100P | 185-0117 |
| 33µF | 195 | 0.68 | 7.7 | 6.3 | EEEFK1H330XP | 185-0119 |
| 22µF | 165 | 0.88 | 5.4 | 6.3 | EEEFK1H220P | 969-5915 |
| 33µF | 195 | 0.68 | 6.2 | 8 | EEEFK1H330P | 969-5923 |
| 47µF | 195 | 0.68 | 6.2 | 8 | EEEFK1H470P | 969-5931 |
| 47µF | 195 | 0.68 | 7.7 | 6.3 | EEEFK1H470XP | 185-0121 |
| 100µF | 350 | 0.34 | 10.2 | 8 | EEEFK1H101P | 969-5958 |
| 100µF | 350 | 0.34 | 10.2 | 8 | EEEFK1H101GP | 185-0122 |
| 150µF | 670 | 0.18 | 10.2 | 10 | EEEFK1H151P | 185-0123 |
| 220µF | 670 | 0.18 | 10.2 | 10 | EEEFK1H221P | 969-5966 |
| 220µF | 670 | 0.18 | 10.2 | 10 | EEEFK1H221GP | 185-0124 |
| 330µF | 900 | 0.12 | 13.5 | 12.5 | EEVFK1H331Q | 969-5974 |
| 1000µF | 1610 | 0.073 | 19 | 16 | EEVFK1H102M | 969-5982 |

**50 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|
| 4.7µF | SMD 969-5893 | | | | |
| 10µF | SMD 969-5907 | | | | |
| 10µF | NEW 185-0117 | | | | |
| 22µF | SMD 969-5915 | | | | |
| 33µF | SMD 969-5923 | | | | |
| 33µF | NEW 185-0119 | | | | |
| 47µF | SMD 969-5931 | | | | |
| 47µF | NEW 185-0121 | | | | |
| 100µF | SMD 969-5958 | | | | |
| 100µF | NEW 185-0122 | | | | |
| 150µF | NEW 185-0123 | | | | |
| 220µF | SMD 969-5966 | | | | |
| 220µF | NEW 185-0124 | | | | |
| 330µF | SMD 969-5974 | | | | |
| 1000µF | SMD 969-5982 | | | | |

**63 Volt d.c.**

| | Ripple (mA) 100kHz @ 105°C | Impedance @ 100Hz (Ω) | Height (mm) | Diameter (mm) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 4.7µF | 40 | 3 | 5.8 | 5 | EEEFK1J4R7R | 969-5990 |
| 10µF | 80 | 1.5 | 5.4 | 6.3 | EEEFK1J100P | 969-6008 |
| 22µF | 120 | 1.2 | 6.2 | 8 | EEEFK1J220P | 969-6016 |
| 22µF | 120 | 1.2 | 7.7 | 6.3 | EEEFK1J220XP | 185-0125 |
| 33µF | 250 | 0.65 | 10.2 | 8 | EEEFK1J330P | 969-6024 |
| 47µF | 250 | 0.65 | 10.2 | 8 | EEEFK1J470P | 969-6032 |

**63 Volt d.c.**

| | Ripple (mA) | Impedance | Height | Diameter | | Order |
|---|---|---|---|---|---|---|
| 68µF | 250 | 0.65 | 10.2 | 8 | EEEFK1J680UP | 185-0126 |
| 100µF | 400 | 0.35 | 10.2 | 10 | EEEFK1J101P | 969-6040 |
| 220µF | 800 | 0.16 | 13.5 | 12.5 | EEVFK1J221Q | 969-6059 |
| 470µF | 1410 | 0.082 | 16.5 | 16 | EEVFK1J471M | 969-6067 |
| 680µF | 1690 | 0.08 | 16.5 | 18 | EEVFK1J681M | 969-6075 |

**63 Volt d.c.** — **Price Each**

| | Order Code | 1+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|
| 4.7µF | SMD 969-5990 | | | | |
| 10µF | SMD 969-6008 | | | | |
| 22µF | SMD 969-6016 | | | | |
| 22µF | NEW 185-0125 | | | | |
| 33µF | SMD 969-6024 | | | | |
| 47µF | SMD 969-6032 | | | | |
| 68µF | NEW 185-0126 | | | | |
| 100µF | SMD 969-6040 | | | | |
| 220µF | SMD 969-6059 | | | | |
| 470µF | SMD 969-6067 | | | | |
| 680µF | SMD 969-6075 | | | | |

**80 Volt d.c.**

| | Ripple (mA) 100kHz @ 105°C | Impedance @ 100Hz (Ω) | Height (mm) | Diameter (mm) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 4.7µF | 40 | 3 | 5.8 | 6.3 | EEEFK1K4R7P | 185-0127 |
| 10µF | 130 | 2.4 | 6.2 | 8 | EEEFK1K100P | 969-6083 |
| 10µF | 60 | 2.4 | 7.7 | 6.3 | EEEFK1K100XP | 185-0128 |
| 22µF | 130 | 1.3 | 10.2 | 8 | EEEFK1K220P | 969-6091 |
| 47µF | 200 | 0.7 | 10.2 | 10 | EEEFK1K470P | 969-6105 |
| 100µF | 500 | 0.32 | 13.5 | 12.5 | EEVFK1K101Q | 969-6113 |
| 150µF | 500 | 0.32 | 13.5 | 12.5 | EEVFK1K151Q | 969-6121 |
| 470µF | 917 | 0.153 | 16.5 | 18 | EEVFK1K471M | 969-6130 |

**80 Volt d.c.** — **Price Each**

| | Order Code | 1+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|
| 4.7µF | NEW 185-0127 | | | | |
| 10µF | SMD 969-6083 | | | | |
| 10µF | NEW 185-0128 | | | | |
| 22µF | SMD 969-6091 | | | | |
| 47µF | SMD 969-6105 | | | | |
| 100µF | SMD 969-6113 | | | | |
| 150µF | SMD 969-6121 | | | | |
| 470µF | SMD 969-6130 | | | | |

**100 Volt d.c.**

| | Ripple (mA) 100kHz @ 105°C | Impedance @ 100Hz (Ω) | Height (mm) | Diameter (mm) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 22µF | 130 | 1.3 | 10.2 | 8 | EEEFK2A220P | 185-0129 |
| 33µF | 200 | 0.7 | 10.2 | 10 | EEEFK2A330P | 185-0130 |
| 47µF | 500 | 0.32 | 13.5 | 12.5 | EEVFK2A470Q | 969-6148 |
| 68µF | 500 | 0.32 | 13.5 | 12.5 | EEVFK2A680Q | 969-6156 |
| 150µF | 793 | 0.17 | 16.5 | 16 | EEVFK2A151M | 969-6164 |

234315

**100 Volt d.c.** — **Price Each**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 22µF | NEW 185-0129 | | | | | |
| 33µF | NEW 185-0130 | | | | | |
| 47µF | SMD 969-6148 | | | | | |
| 68µF | SMD 969-6156 | | | | | |
| 150µF | SMD 969-6164 | | | | | |

## FKA Series

**High Temperature Lead Free Reflow**

SMD

Panasonic ideas for life

- Specifically designed to survive severe lead free reflow soldering conditions
- Development of existing FK series
- AECQ-200 Automotive Approved

| Diameter | Peak temp. | Time at peak -5K | Time > 217°C |
|---|---|---|---|
| ≥ 6.3 mm | 260°C | 5 sec | 45 sec |
| 8 - 10mm | 245°C | 10 sec | 45 sec |

**6.3 Volt d.c.**

| | Ripple (mA) 100kHz @ 105°C | Impedance @ 100 kHz (Ω) | Height (mm) | Diameter (mm) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 22µF | 90 | 1.35 | 5.8 | 4 | EEEFK0J220AR | 124-4386 |
| 100µF | 160 | 0.7 | 5.8 | 5 | EEEFKJ101UAR | 124-4388 |
| 100µF | 240 | 0.36 | 5.8 | 6.3 | EEEFK0J101AP | 124-4389 |
| 220µF | 240 | 0.36 | 5.8 | 6.3 | EEEFK0J221AP | 124-4390 |
| 330µF | 300 | 0.26 | 6.2 | 8 | EEEFK0J331AP | 124-4391 |
| 470µF | 600 | 0.16 | 10.2 | 8 | EEEFK0J471AP | 124-4392 |
| 1000µF | 600 | 0.16 | 10.2 | 8 | EEEFK0J102AP | 124-4393 |
| 1500µF | 850 | 0.08 | 10.2 | 10 | EEEFK0J152AP | 124-4394 |

**6.3 Volt d.c.** — **Price Each**

| | Order Code | 1+ | 100+ | 500+ | 1K+ | 3K+ |
|---|---|---|---|---|---|---|
| 22µF | SMD 124-4386 | | | | | |
| 100µF | SMD 124-4388 | | | | | |
| 100µF | SMD 124-4389 | | | | | |
| 220µF | SMD 124-4390 | | | | | |
| 330µF | SMD 124-4391 | | | | | |
| 470µF | SMD 124-4392 | | | | | |
| 1000µF | SMD 124-4393 | | | | | |
| 1500µF | SMD 124-4394 | | | | | |

**10 Volt d.c.**

| | Ripple (mA) 100kHz @ 105°C | Impedance @ 100 kHz (Ω) | Height (mm) | Diameter (mm) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 22µF | 90 | 1.35 | 5.8 | 4 | EEEFK1A220AR | 124-4396 |
| 470µF | 600 | 0.16 | 10.2 | 8 | EEEFK1A471AP | 124-4400 |
| 1000µF | 850 | 0.08 | 10.2 | 10 | EEEFK1A102AP | 124-4402 |

**10 Volt d.c.** — **Price Each**

| | Order Code | 1+ | 100+ | 500+ | 1K+ | 3K+ |
|---|---|---|---|---|---|---|
| 22µF | SMD 124-4396 | | | | | |
| 470µF | SMD 124-4400 | | | | | |
| 1000µF | SMD 124-4402 | | | | | |

**16 Volt d.c.**

| | Ripple (mA) 100kHz @ 105°C | Impedance @ 100 kHz (Ω) | Height (mm) | Diameter (mm) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 10µF | 90 | 1.35 | 5.8 | 4 | EEEFK1C100AR | 124-4403 |
| 47µF | 240 | 0.36 | 5.8 | 6.3 | EEEFK1C470AP | 124-4405 |
| 100µF | 240 | 0.36 | 5.8 | 6.3 | EEEFK1C101AP | 124-4406 |
| 330µF | 600 | 0.16 | 10.2 | 8 | EEEFK1C331AP | 124-4408 |
| 470µF | 600 | 0.16 | 10.2 | 8 | EEEFK1C471AP | 124-4409 |
| 680µF | 850 | 0.08 | 10.2 | 10 | EEEFK1C681AP | 185-0132 |
| 3300µF | 1800 | 0.035 | 16.5 | 16 | EEEFK1C332AM | 185-0133 |

**16 Volt d.c.** — **Price Each**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10µF | SMD 124-4403 | | | | | |
| 47µF | SMD 124-4405 | | | | | |
| 100µF | SMD 124-4406 | | | | | |
| 330µF | SMD 124-4408 | | | | | |
| 470µF | SMD 124-4409 | | | | | |
| 680µF | NEW 185-0132 | | | | | |
| 3300µF | NEW 185-0133 | | | | | |

**25 Volt d.c.**

| | Ripple (mA) 100kHz @ 105°C | Impedance @ 100 kHz (Ω) | Height (mm) | Diameter (mm) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 10µF | 90 | 1.35 | 5.8 | 4 | EEEFK1E100AR | 124-4410 |
| 22µF | 160 | 0.7 | 5.8 | 5 | EEEFK1E220AR | 124-4411 |
| 33µF | 240 | 0.36 | 5.8 | 6.3 | EEEFK1E330AP | 124-4412 |
| 47µF | 240 | 0.36 | 5.8 | 6.3 | EEEFK1E470AP | 124-4414 |
| 100µF | 280 | 0.34 | 7.7 | 6.3 | EEEFKE101XAP | 124-4415 |
| 100µF | 300 | 0.26 | 6.2 | 8 | EEEFK1E101AP | 124-4416 |
| 220µF | 600 | 0.16 | 10.2 | 8 | EEEFK1E221AP | 124-4417 |
| 330µF | 600 | 0.16 | 10.2 | 8 | EEEFK1E331AP | 124-4418 |
| 470µF | 850 | 0.08 | 10.2 | 10 | EEEFK1E471AP | 124-4419 |

**25 Volt d.c.** — **Price Each**

| | Order Code | 1+ | 100+ | 500+ | 1K+ | 3K+ |
|---|---|---|---|---|---|---|
| 10µF | SMD 124-4410 | | | | | |
| 22µF | SMD 124-4411 | | | | | |
| 33µF | SMD 124-4412 | | | | | |
| 47µF | SMD 124-4414 | | | | | |
| 100µF | SMD 124-4415 | | | | | |
| 100µF | SMD 124-4416 | | | | | |
| 220µF | SMD 124-4417 | | | | | |
| 330µF | SMD 124-4418 | | | | | |
| 470µF | SMD 124-4419 | | | | | |

**35 Volt d.c.**

| | Ripple (mA) 100kHz @ 105°C | Impedance @ 100 kHz (Ω) | Height (mm) | Diameter (mm) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 10µF | 90 | 1.35 | 5.8 | 4 | EEEFKV100UAR | 124-4420 |
| 10µF | 160 | 0.7 | 5.8 | 5 | EEEFK1V100AR | 124-4421 |
| 22µF | 160 | 0.7 | 5.8 | 5 | EEEFK1V220AR | 124-4422 |
| 33µF | 240 | 0.36 | 5.8 | 6.3 | EEEFK1V330AP | 124-4423 |
| 47µF | 240 | 0.36 | 5.8 | 6.3 | EEEFK1V470AP | 124-4424 |
| 100µF | 600 | 0.16 | 10.2 | 8 | EEEFK1V101AP | 124-4426 |
| 220µF | 600 | 0.16 | 10.2 | 8 | EEEFK1V221AP | 124-4427 |
| 330µF | 850 | 0.08 | 10.2 | 10 | EEEFK1V331AP | 124-4428 |
| 470µF | 1100 | 0.06 | 13.5 | 12.5 | EEEFK1V471AQ | 185-0134 |
| 680µF | 1100 | 0.06 | 13.5 | 12.5 | EEEFK1V681AQ | 185-0135 |

**35 Volt d.c.** — **Price Each**

| | Order Code | 1+ | 100+ | 500+ | 1K+ | 3K+ |
|---|---|---|---|---|---|---|
| 10µF | SMD 124-4420 | | | | | |
| 10µF | SMD 124-4421 | | | | | |
| 22µF | SMD 124-4422 | | | | | |
| 33µF | SMD 124-4423 | | | | | |
| 47µF | SMD 124-4424 | | | | | |
| 100µF | SMD 124-4426 | | | | | |
| 220µF | SMD 124-4427 | | | | | |
| 330µF | SMD 124-4428 | | | | | |
| 470µF | 185-0134 | | | | | |
| 680µF | 185-0135 | | | | | |

**50 Volt d.c.**

| | Ripple (mA) 100kHz @ 105°C | Impedance @ 100 kHz (Ω) | Height (mm) | Diameter (mm) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 1000µF | 1610 | 0.073 | 16.5 | 16 | EEEFK1H102AM | 185-0136 |

444565

**50 Volt d.c.** — **Price Each**

| | Order Code | 1+ | 100+ | 500+ | 1K+ | 3K+ |
|---|---|---|---|---|---|---|
| 1000µF | NEW 185-0136 | | | | | |

# Aluminium Electrolytic - SMD - Panasonic - continued

## FT Series

Panasonic




- Endurance: 2000 hrs at 105°C
- Miniaturised, Low ESR
- AECQ-200 Automotive Approved

NEW

| | |
|---|---|
| Operating Temperature Range | -55°C to +105°C |
| Tolerance | ± 20% |
| DC leakage current | ≤0.01CV or 3A whichever is greater |

**25 Volt d.c.**

| | Ripple (mA) 100kHz @ 105°C | ESR (Ω) | Height (mm) | Diameter (mm) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 100µF | 160 | 0.85 | 5.8 | 4 | EEEFT0J101AR | 206-5951 |
| 220µF | 240 | 0.36 | 5.8 | 5 | EEEFT0J221AR | 206-5953 |
| 330µF | 300 | 0.26 | 5.8 | 6.3 | EEEFT0J331AP | 206-5954 |
| 470µF | 600 | 0.16 | 7.7 | 6.3 | EEEFTJ471XAP | 206-5955 |
| 680µF | 600 | 0.16 | 7.7 | 6.3 | EEEFTJ681XAP | 206-5956 |
| 1500µF | 850 | 0.08 | 10.2 | 8 | EEEFT0J152AP | 206-5957 |
| 2200µF | 1190 | 0.06 | 10.2 | 10 | EEEFT0J222AP | 206-5958 |

**6.3 Volt d.c.** — Price Each

| | Order Code | 1+ | 50+ | 100+ | 500+ | 100+ |
|---|---|---|---|---|---|---|
| 100µF | 206-5951 | | | | | |
| 220µF | 206-5953 | | | | | |
| 330µF | 206-5954 | | | | | |
| 470µF | 206-5955 | | | | | |
| 680µF | 206-5956 | | | | | |
| 1500µF | 206-5957 | | | | | |
| 2200µF | 206-5958 | | | | | |

**35 Volt d.c.**

| | Ripple (mA) 100kHz @ 105°C | ESR (Ω) | Height (mm) | Diameter (mm) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 68µF | 160 | 0.85 | 5.8 | 4 | EEEFT1A680AR | 206-5959 |
| 150µF | 240 | 0.36 | 5.8 | 5 | EEEFT1A151AR | 206-5960 |
| 220µF | 300 | 0.26 | 5.8 | 6.3 | EEEFT1A221AP | 206-5961 |
| 330µF | 600 | 0.16 | 7.7 | 6.3 | EEEFTA331XAP | 206-5962 |
| 470µF | 600 | 0.16 | 7.7 | 6.3 | EEEFTA471XAP | 206-5963 |
| 1000µF | 850 | 0.08 | 10.2 | 8 | EEEFT1A102AP | 206-5965 |
| 1500µF | 1190 | 0.06 | 10.2 | 10 | EEEFT1A152AP | 206-5966 |

**35 Volt d.c.** — Price Each

| | Order Code | 1+ | 50+ | 100+ | 500+ | 100+ |
|---|---|---|---|---|---|---|
| 68µF | 206-5959 | | | | | |
| 150µF | 206-5960 | | | | | |
| 220µF | 206-5961 | | | | | |
| 330µF | 206-5962 | | | | | |
| 470µF | 206-5963 | | | | | |
| 1000µF | 206-5965 | | | | | |
| 1500µF | 206-5966 | | | | | |

**16 Volt d.c.**

| | Ripple (mA) 100kHz @ 105°C | ESR (Ω) | Height (mm) | Diameter (mm) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 47µF | 160 | 0.85 | 5.8 | 4 | EEEFT1C470AR | 206-5967 |
| 68µF | 240 | 0.36 | 5.8 | 5 | EEEFT1C680AR | 206-5968 |
| 100µF | 240 | 0.36 | 5.8 | 5 | EEEFT1C101AR | 206-5969 |
| 150µF | 300 | 0.26 | 5.8 | 6.3 | EEEFT1C151AP | 206-5970 |
| 220µF | 300 | 0.26 | 5.8 | 6.3 | EEEFT1C221AP | 206-5971 |
| 330µF | 600 | 0.16 | 7.7 | 6.3 | EEEFTC331XAP | 206-5972 |
| 680µF | 850 | 0.08 | 10.2 | 8 | EEEFT1C681AP | 206-5973 |
| 1000µF | 1190 | 0.06 | 10.2 | 10 | EEEFT1C102AP | 206-5974 |

**16 Volt d.c.** — Price Each

| | Order Code | 1+ | 50+ | 100+ | 500+ | 100+ |
|---|---|---|---|---|---|---|
| 47µF | 206-5967 | | | | | |
| 68µF | 206-5968 | | | | | |
| 100µF | 206-5969 | | | | | |
| 150µF | 206-5970 | | | | | |
| 220µF | 206-5971 | | | | | |
| 330µF | 206-5972 | | | | | |
| 680µF | 206-5973 | | | | | |
| 1000µF | 206-5974 | | | | | |

**25 Volt d.c.**

| | Ripple (mA) 100kHz @ 105°C | ESR (Ω) | Height (mm) | Diameter (mm) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 22µF | 160 | 0.85 | 5.8 | 4 | EEEFT1E220AR | 186-8402 |
| 33µF | 160 | 0.85 | 5.8 | 4 | EEEFT1E330AR | 186-8403 |
| 47µF | 240 | 0.36 | 5.8 | 5 | EEEFT1E470AR | 186-8404 |
| 68µF | 240 | 0.36 | 5.8 | 5 | EEEFT1E680AR | 186-8405 |
| 100µF | 300 | 0.26 | 5.8 | 6.3 | EEEFT1E101AP | 186-8406 |
| 150µF | 600 | 0.16 | 7.7 | 6.3 | EEEFTE151XAP | 186-8407 |
| 220µF | 600 | 0.16 | 7.7 | 6.3 | EEEFTE221XAP | 186-8409 |
| 470µF | 850 | 0.08 | 10.2 | 8 | EEEFT1E471AP | 186-8411 |
| 820µF | 1190 | 0.06 | 10.2 | 10 | EEEFT1E821AP | 186-8412 |

**25 Volt d.c.** — Price Each

| | Order Code | 1+ | 50+ | 100+ | 500+ | 100+ |
|---|---|---|---|---|---|---|
| 22µF | 186-8402 | | | | | |
| 33µF | 186-8403 | | | | | |
| 47µF | 186-8404 | | | | | |
| 68µF | 186-8405 | | | | | |
| 100µF | 186-8406 | | | | | |
| 150µF | 186-8407 | | | | | |
| 220µF | 186-8409 | | | | | |
| 470µF | 186-8411 | | | | | |
| 820µF | 186-8412 | | | | | |

**35 Volt d.c.**

| | Ripple (mA) 100kHz @ 105°C | ESR (Ω) | Height (mm) | Diameter (mm) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 22µF | 160 | 0.85 | 5.8 | 4 | EEEFT1V220AR | 186-8413 |
| 33µF | 240 | 0.36 | 5.8 | 5 | EEEFT1V330AR | 186-8414 |
| 47µF | 240 | 0.36 | 5.8 | 5 | EEEFT1V470AR | 186-8415 |
| 68µF | 300 | 0.26 | 5.8 | 6.3 | EEEFT1V680AP | 186-8416 |
| 100µF | 300 | 0.26 | 5.8 | 6.3 | EEEFT1V101AP | 186-8417 |
| 150µF | 600 | 0.16 | 7.7 | 6.3 | EEEFTV151XAP | 186-8418 |
| 330µF | 850 | 0.08 | 10.2 | 8 | EEEFT1V331AP | 186-8419 |
| 560µF | 1190 | 0.06 | 10.2 | 10 | EEEFT1V561AP | 186-8420 |

**35 Volt d.c.** — Price Each

| | Order Code | 1+ | 50+ | 100+ | 500+ | 100+ |
|---|---|---|---|---|---|---|
| 22µF | 186-8413 | | | | | |
| 33µF | 186-8414 | | | | | |
| 47µF | 186-8415 | | | | | |
| 68µF | 186-8416 | | | | | |
| 100µF | 186-8417 | | | | | |
| 150µF | 186-8418 | | | | | |
| 330µF | 186-8419 | | | | | |
| 560µF | 186-8420 | | | | | |

**50 Volt d.c.**

| | Ripple (mA) 100kHz @ 105°C | ESR (Ω) | Height (mm) | Diameter (mm) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 10µF | 85 | 2.3 | 5.8 | 4 | EEEFTH100UAR | 186-8422 |
| 10µF | 165 | 0.88 | 5.8 | 5 | EEEFT1H100AR | 186-8423 |
| 22µF | 165 | 0.88 | 5.8 | 5 | EEEFT1H220AR | 186-8424 |
| 47µF | 195 | 0.68 | 5.8 | 6.3 | EEEFT1H470AP | 186-8425 |
| 100µF | 350 | 0.34 | 7.7 | 6.3 | EEEFTH101XAP | 186-8426 |
| 220µF | 670 | 0.18 | 10.2 | 8 | EEEFT1H221AP | 186-8427 |
| 330µF | 900 | 0.12 | 10.2 | 10 | EEEFT1H331AP | 186-8428 |

624228

**50 Volt d.c.** — Price Each

| | Order Code | 1+ | 50+ | 100+ | 500+ | 100+ |
|---|---|---|---|---|---|---|
| 10µF | 186-8422 | | | | | |
| 10µF | 186-8423 | | | | | |
| 22µF | 186-8424 | | | | | |
| 47µF | 186-8425 | | | | | |
| 100µF | 186-8426 | | | | | |
| 220µF | 186-8427 | | | | | |
| 330µF | 186-8428 | | | | | |

## FP Series 105°C - Surface Mount

Panasonic

SMD




- High performance surface mount aluminium electrolytic
- Suitable for high temperature lead free reflow soldering
- Endurance: 2000 h at +105°C
- Low ESR (30 % to 50 % less than FK series)
- AECQ-200 Automotive Approved

| | |
|---|---|
| Operating Temperature | -55°C to +105°C |
| Tolerance | ± 20% |
| DC leakage current | ≤0.01CV or 3µA (whichever is greater) after two minutes |

| Case Size | ∅D | L | Case Size | ∅D | L | Case Size | ∅D | L | Case Size | ∅D | L |
|---|---|---|---|---|---|---|---|---|---|---|---|
| B | 4 | 5.8 | D | 6.3 | 5.8 | E | 8 | 6.2 | G | 10 | 10.2 |
| C | 5 | 5.8 | D8 | 6.3 | 7.7 | F | 8 | 10.2 | | | |

**6.3 Volt d.c.**

| | Ripple (mA) 100Hz @ 105°C | ESR (Ω) @ 100kHz | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 22µF | 160 | 0.85 | B | EEEFP0J220AR | 153-9447 |
| 47 | 160 | 0.85 | B | EEEFPJ470UAR | 153-9448 |
| 47 | 240 | 0.36 | C | EEEFP0J470AR | 153-9451 |
| 100 | 240 | 0.36 | C | EEEFPJ101UAR | 153-9452 |
| 100 | 300 | 0.26 | D | EEEFP0J101AP | 153-9453 |
| 220 | 300 | 0.26 | D | EEEFP0J221AP | 153-9454 |
| 330 | 600 | 0.16 | D8 | EEEFPJ331XAP | 153-9455 |
| 330 | 500 | 0.18 | E | EEEFP0J331AP | 153-9456 |
| 470 | 850 | 0.08 | F | EEEFP0J471AP | 153-9457 |
| 1000 | 850 | 0.08 | F | EEEFP0J102AP | 153-9502 |
| 1500 | 1190 | 0.06 | G | EEEFP0J152AP | 153-9505 |
| 1800 | 850 | 0.08 | G | EEEFPJ182UAP | 153-9517 |

**6.3 Volt d.c.** — Price Each

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 22µF | SMD 153-9447 | | | | | |
| 47µF | SMD 153-9448 | | | | | |
| 47µF | SMD 153-9451 | | | | | |
| 100µF | SMD 153-9452 | | | | | |
| 100µF | SMD 153-9453 | | | | | |


RoHS ● Compliant ▲ Non-compliant

**6.3 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 220µF | SMD 153-9454 | | | | | |
| 330µF | SMD 153-9455 | | | | | |
| 330µF | SMD 153-9456 | | | | | |
| 470µF | SMD 153-9457 | | | | | |
| 1000µF | SMD 153-9502 | | | | | |
| 1500µF | SMD 153-9505 | | | | | |
| 1800µF | SMD 153-9517 | | | | | |

**10 Volt d.c.**

| | Ripple (mA) 100Hz @ 105°C | ESR (Ω) @ 100kHz | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 22µF | 160 | 0.85 | B | EEEFP1A220AR | 153-9459 |
| 33µF | 240 | 0.36 | C | EEEFP1A330AR | 153-9461 |
| 150µF | 300 | 0.26 | D | EEEFP1A151AP | 153-9463 |
| 220µF | 600 | 0.16 | D8 | EEEFPA221XAP | 153-9464 |
| 220µF | 500 | 0.18 | E | EEEFP1A221AP | 153-9465 |
| 330µF | 850 | 0.08 | F | EEEFP1A331AP | 153-9466 |
| 470µF | 850 | 0.08 | F | EEEFP1A471AP | 153-9467 |
| 680µF | 850 | 0.08 | F | EEEFP1A681AP | 153-9506 |
| 1000µF | 1190 | 0.06 | G | EEEFP1A102AP | 153-9507 |
| 1200µF | 850 | 0.08 | G | EEEFPA122UAP | 153-9518 |

**10 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 22µF | SMD 153-9459 | | | | | |
| 33µF | SMD 153-9461 | | | | | |
| 150µF | SMD 153-9463 | | | | | |
| 220µF | SMD 153-9464 | | | | | |
| 220µF | SMD 153-9465 | | | | | |
| 330µF | SMD 153-9466 | | | | | |
| 470µF | SMD 153-9467 | | | | | |
| 680µF | SMD 153-9506 | | | | | |
| 1000µF | SMD 153-9507 | | | | | |
| 1200µF | SMD 153-9518 | | | | | |

**16 Volt d.c.**

| | Ripple (mA) 100Hz @ 105°C | ESR (Ω) @ 100kHz | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 10µF | 160 | 0.85 | B | EEEFP1C100AR | 153-9468 |
| 22µF | 160 | 0.85 | B | EEEFPC220UAR | 153-9470 |
| 22µF | 240 | 0.36 | C | EEEFP1C220AR | 153-9471 |
| 47µF | 240 | 0.36 | C | EEEFPC470UAR | 153-9472 |
| 47µF | 300 | 0.26 | D | EEEFP1C470AP | 153-9473 |
| 100µF | 300 | 0.26 | D | EEEFP1C101AP | 153-9476 |
| 150µF | 600 | 0.16 | D8 | EEEFPC151XAP | 153-9478 |
| 220µF | 600 | 0.16 | D8 | EEEFPC221XAP | 153-9479 |
| 220µF | 500 | 0.18 | E | EEEFP1C221AP | 153-9480 |
| 330µF | 850 | 0.08 | F | EEEFP1C331AP | 175-1938 |
| 470µF | 850 | 0.08 | F | EEEFP1C471AP | 153-9508 |
| 680µF | 1190 | 0.06 | G | EEEFP1C681AP | 153-9509 |
| 820µF | 850 | 0.08 | G | EEEFPC821UAP | 153-9519 |

**16 Volt d.c.**

| | Order Code | Price Each 10+ | 100+ | 500+ | 1K+ | 3K+ |
|---|---|---|---|---|---|---|
| 10µF | SMD 153-9468 | | | | | |
| 22µF | SMD 153-9470 | | | | | |
| 22µF | SMD 153-9471 | | | | | |
| 47µF | SMD 153-9472 | | | | | |
| 47µF | SMD 153-9473 | | | | | |
| 100µF | SMD 153-9476 | | | | | |
| 150µF | SMD 153-9478 | | | | | |
| 220µF | SMD 153-9479 | | | | | |
| 220µF | SMD 153-9480 | | | | | |
| 330µF | SMD 175-1938 | | | | | |
| 470µF | SMD 153-9508 | | | | | |
| 680µF | SMD 153-9509 | | | | | |
| 820µF | SMD 153-9519 | | | | | |

**25 Volt d.c.**

| | Ripple (mA) 100Hz @ 105°C | ESR (Ω) @ 100kHz | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 10µF | 160 | 0.85 | B | EEEFP1E100AR | 153-9481 |
| 22µF | 240 | 0.36 | C | EEEFP1E220AR | 153-9482 |
| 33µF | 240 | 0.36 | C | EEEFPE330UAR | 153-9483 |
| 33µF | 300 | 0.26 | D | EEEFP1E330AP | 153-9484 |
| 47µF | 300 | 0.26 | D | EEEFP1E470AP | 153-9485 |
| 68µF | 300 | 0.26 | D | EEEFP1E680AP | 153-9487 |
| 100µF | 600 | 0.16 | D8 | EEEFPE101XAP | 153-9488 |
| 100µF | 500 | 0.18 | E | EEEFP1E101AP | 153-9489 |
| 150µF | 850 | 0.08 | F | EEEFP1E151AP | 153-9490 |
| 220µF | 850 | 0.08 | F | EEEFP1E221AP | 153-9491 |
| 330µF | 850 | 0.08 | F | EEEFP1E331AP | 153-9510 |
| 470µF | 1190 | 0.06 | G | EEEFP1E471AP | 153-9511 |
| 560µF | 850 | 0.08 | G | EEEFPE561UAP | 153-9520 |

**25 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10µF | SMD 153-9481 | | | | | |
| 22µF | SMD 153-9482 | | | | | |
| 33µF | SMD 153-9483 | | | | | |
| 33µF | SMD 153-9484 | | | | | |
| 47µF | SMD 153-9485 | | | | | |
| 68µF | SMD 153-9487 | | | | | |
| 100µF | SMD 153-9488 | | | | | |
| 100µF | SMD 153-9489 | | | | | |

**25 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 150µF | SMD 153-9490 | | | | | |
| 220µF | SMD 153-9491 | | | | | |
| 330µF | SMD 153-9510 | | | | | |
| 470µF | SMD 153-9511 | | | | | |
| 560µF | SMD 153-9520 | | | | | |

**35 Volt d.c.**

| | Ripple (mA) 100Hz @ 105°C | ESR (Ω) @ 100kHz | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 10µF | 160 | 0.85 | B | EEEFPV100UAR | 153-9492 |
| 22µF | 240 | 0.36 | C | EEEFP1V220AR | 153-9494 |
| 33µF | 300 | 0.26 | D | EEEFP1V330AP | 153-9495 |
| 47µF | 300 | 0.26 | D | EEEFP1V470AP | 153-9499 |
| 68µF | 600 | 0.16 | D8 | EEEFPV680XAP | 153-9500 |
| 100µF | 600 | 0.16 | D8 | EEEFPV101XAP | 153-9501 |
| 100µF | 850 | 0.08 | F | EEEFP1V101AP | 153-9512 |
| 150µF | 850 | 0.08 | F | EEEFP1V151AP | 153-9513 |
| 220µF | 850 | 0.08 | F | EEEFP1V221AP | 153-9514 |
| 330µF | 1190 | 0.06 | G | EEEFP1V331AP | 153-9515 |
| 390µF | 850 | 0.08 | G | EEEFPV391UAP | 153-9521 |

**35 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10µF | SMD 153-9492 | | | | | |
| 22µF | SMD 153-9494 | | | | | |
| 33µF | SMD 153-9495 | | | | | |
| 47µF | SMD 153-9499 | | | | | |
| 68µF | SMD 153-9500 | | | | | |
| 100µF | SMD 153-9501 | | | | | |
| 100µF | SMD 153-9512 | | | | | |
| 150µF | SMD 153-9513 | | | | | |
| 220µF | SMD 153-9514 | | | | | |
| 330µF | SMD 153-9515 | | | | | |
| 390µF | SMD 153-9521 | | | | | |

**50 Volt d.c**

| | Ripple (mA) 100Hz @ 105°C | ESR (Ω) @ 100kHz | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 100µF | 670 | 0.18 | F | EEEFP1H101AP | 171-4769 |
| 220µF | 900 | 0.12 | G | EEEFP1H221AP | 171-4770 |

526946

**50 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|
| 100µF | SMD 171-4769 | | | | |
| 220µF | SMD 171-4770 | | | | |

## HC Series

Panasonic



- Life time: 3000 h to 5000 h at 105 °C
- AECQ-200 Automotive Approved

| | |
|---|---|
| Operating temperature | -40°C to +115°C |
| Tolerance | ± 20% |
| Dielectric Type | |

| | Ripple (mA) | Dia mm | Height mm | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| **6.3 Volt** | | | | | |
| 22µF | 26 | 4 | 5.8 | EEEHC0J220R | 171-4683 |
| 47µF | 46 | 5 | 5.8 | EEEHC0J470R | 171-4684 |
| 100µF | 71 | 6.3 | 5.8 | EEEHC0J101P | 171-4686 |
| 220µF | 101 | 6.3 | 7.7 | EEEHC0J221XP | 171-4687 |
| 330µF | 230 | 8 | 10.2 | EEEHC0J331P | 171-4688 |
| 1000µF | 313 | 10 | 10.2 | EEEHC0J102P | 171-4689 |
| **10 Volt** | | | | | |
| 33µF | 43 | 5 | 5.8 | EEEHC1A330R | 171-4690 |
| 220µF | 160 | 8 | 10.2 | EEEHC1A221P | 171-4691 |
| **16 Volt** | | | | | |
| 10µF | 28 | 4 | 5.8 | EEEHC1C100R | 171-4692 |
| 22µF | 39 | 5 | 5.8 | EEEHC1C220R | 171-4693 |
| 47µF | 70 | 6.3 | 5.8 | EEEHC1C470P | 171-4694 |
| 100µF | 81 | 6.3 | 7.7 | EEEHC1C101XP | 171-4695 |
| 470µF | 340 | 10 | 10.2 | EEEHC1C471P | 171-4696 |
| **25 Volt** | | | | | |
| 33µF | 65 | 6.3 | 5.8 | EEEHC1E330P | 171-4698 |
| 47µF | 65 | 6.3 | 7.7 | EEEHC1E470XP | 171-4699 |
| 100µF | 130 | 8 | 10.2 | EEEHC1E101P | 171-4700 |
| 330µF | 238 | 10 | 10.2 | EEEHC1E331P | 171-4701 |
| **35 Volt** | | | | | |
| 10µF | 28 | 5 | 5.8 | EEEHC1V100R | 171-4704 |
| 22µF | 55 | 6.3 | 5.8 | EEEHC1V220P | 171-4705 |
| 220µF | 220 | 10 | 10.2 | EEEHC1V221P | 171-4707 |
| **50 Volt** | | | | | |
| 0.1µF | 1 | 4 | 5.8 | EEEHC1HR10R | 171-4708 |
| 0.33µF | 3.2 | 4 | 5.8 | EEEHC1HR33R | 171-4710 |
| 0.47µF | 5 | 4 | 5.8 | EEEHC1HR47R | 171-4711 |
| 1µF | 10 | 4 | 5.8 | EEEHC1H1R0R | 171-4712 |
| 2.2µF | 16 | 4 | 5.8 | EEEHC1H2R2R | 171-4713 |
| 3.3µF | 16 | 4 | 5.8 | EEEHC1H3R3R | 171-4714 |
| 4.7µF | 23 | 5 | 5.8 | EEEHC1H4R7R | 171-4716 |
| 10µF | 35 | 6.3 | 5.8 | EEEHC1H100P | 171-4717 |
| 22µF | 49 | 6.3 | 7.7 | EEEHC1H220XP | 171-4718 |
| 33µF | 91 | 8 | 10.2 | EEEHC1H330P | 171-4719 |
| 47µF | 100 | 8 | 10.2 | EEEHC1H470P | 171-4720 |
| 100µF | 160 | 10 | 10.2 | EEEHC1H101P | 171-4721 |

# Aluminium Electrolytic - SMD - Panasonic - continued

## HC Series - continued

537282

Order Multiple=10

| | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 2K+ |
|---|---|---|---|---|---|---|
| **6.3 Volt** | | | | | | |
| 22µF | SMD 171-4683● | | | | | |
| 47µF | SMD 171-4684● | | | | | |
| 100µF | SMD 171-4686● | | | | | |
| 220µF | SMD 171-4687● | | | | | |
| 330µF | SMD 171-4688● | | | | | |
| 1000µF | SMD 171-4689● | | | | | |
| **10 Volt** | | | | | | |
| 33µF | SMD 171-4690● | | | | | |
| 220µF | SMD 171-4691● | | | | | |
| **16 Volt** | | | | | | |
| 10µF | SMD 171-4692● | | | | | |
| 22µF | SMD 171-4693● | | | | | |
| 47µF | SMD 171-4694● | | | | | |
| 100µF | SMD 171-4695● | | | | | |
| 470µF | SMD 171-4696● | | | | | |
| **25 Volt** | | | | | | |
| 33µF | SMD 171-4698● | | | | | |
| 47µF | SMD 171-4699● | | | | | |
| 100µF | SMD 171-4700● | | | | | |
| 330µF | SMD 171-4701● | | | | | |
| **35 Volt** | | | | | | |
| 10µF | SMD 171-4704● | | | | | |
| 22µF | SMD 171-4705● | | | | | |
| 220µF | SMD 171-4707● | | | | | |
| **50 Volt** | | | | | | |
| 0.1µF | SMD 171-4708● | | | | | |
| 0.33µF | SMD 171-4710● | | | | | |
| 0.47µF | SMD 171-4711● | | | | | |
| 1µF | SMD 171-4712● | | | | | |
| 2.2µF | SMD 171-4713● | | | | | |
| 3.3µF | SMD 171-4714● | | | | | |
| 4.7µF | SMD 171-4716● | | | | | |
| 10µF | SMD 171-4717● | | | | | |
| 22µF | SMD 171-4718● | | | | | |
| 33µF | SMD 171-4719● | | | | | |
| 47µF | SMD 171-4720● | | | | | |
| 100µF | SMD 171-4721● | | | | | |

## HD Series

Panasonic




- Endurance: 105 °C 5000 h
- AECQ-200 Automotive Approved

Operating temperature -40°C to +105°C
Tolerance ± 20%
Dielectric Type

| | Ripple (mA) | Dia mm | Height mm | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| **6.3 Volt** | | | | | |
| 330µF | 230 | 8 | 10.2 | EEEHD0J331AP | 171-4722 |
| **10 Volt** | | | | | |
| 100µF | 62 | 8 | 6.2 | EEEHD1A101AP | 171-4724 |
| 220µF | 160 | 8 | 10.2 | EEEHD1A221AP | 171-4725 |
| **16 Volt** | | | | | |
| 330µF | 238 | 10 | 10.2 | EEEHD1A331AP | 171-4726 |
| 330µF | 238 | 10 | 10.2 | EEEHD1A331AP | 171-4726 |
| 47µF | 70 | 6.3 | 5.8 | EEEHD1C470AP | 171-4730 |
| 100µF | 130 | 8 | 10.2 | EEEHD1C101AP | 171-4731 |
| 470µF | 340 | 10 | 10.2 | EEEHD1C471AP | 171-4733 |
| **25 Volt** | | | | | |
| 4.7µF | 17 | 4 | 5.8 | EEEHD1E4R7AR | 171-4734 |
| 10µF | 28 | 5 | 5.8 | EEEHD1E100AR | 171-4735 |
| 22µF | 55 | 6.3 | 5.8 | EEEHD1E220AP | 171-4736 |
| 33µF | 55 | 6.3 | 5.8 | EEEHD1E330AP | 171-4737 |
| 47µF | 56 | 8 | 6.2 | EEEHD1E470AP | 171-4738 |
| 100µF | 130 | 8 | 10.2 | EEEHD1E101AP | 171-4741 |
| 330µF | 238 | 10 | 10.2 | EEEHD1E331AP | 171-4742 |
| **35 Volt** | | | | | |
| 10µF | 28 | 5 | 5.8 | EEEHD1V100AR | 171-4744 |
| 22µF | 55 | 6.3 | 5.8 | EEEHD1V220AP | 171-4745 |
| 33µF | 53 | 8 | 6.2 | EEEHD1V330AP | 171-4746 |
| 47µF | 79 | 8 | 10.2 | EEEHD1V470AP | 171-4747 |
| 100µF | 101 | 10 | 10.2 | EEEHD1V101AP | 171-4748 |
| 220µF | 220 | 10 | 10.2 | EEEHD1V221AP | 171-4749 |
| **50 Volt** | | | | | |
| 0.47µF | 5 | 4 | 5.8 | EEEHD1HR47R | 171-4750 |
| 1µF | 7 | 4 | 5.8 | EEEHD1H1R0R | 171-4751 |
| 2.2µF | 12 | 4 | 5.8 | EEEHD1H2R2R | 171-4753 |
| **50 Volt** | | | | | |
| 4.7µF | 21 | 5 | 5.8 | EEEHD1H4R7R | 171-4755 |
| 10µF | 33 | 6.3 | 5.8 | EEEHD1H100P | 171-4756 |
| 22µF | 50 | 8 | 6.2 | EEEHD1H220P | 171-4757 |
| 33µF | 74 | 8 | 10.2 | EEEHD1H330P | 171-4758 |
| 47µF | 94 | 10 | 10.2 | EEEHD1H470P | 171-4759 |
| 100µF | 94 | 10 | 10.2 | EEEHD1H101P | 171-4760 |
| **63 Volt** | | | | | |
| 10µF | 45 | 8 | 6.2 | EEEHD1J100P | 171-4761 |
| 22µF | 65 | 8 | 10.2 | EEEHD1J220P | 171-4762 |
| 33µF | 80 | 10 | 10.2 | EEEHD1J330P | 171-4763 |
| **100 Volt** | | | | | |
| 3.3µF | 30 | 8 | 6.2 | EEEHD2A3R3P | 171-4765 |
| 4.7µF | 50 | 8 | 10.2 | EEEHD2A4R7P | 171-4766 |
| 10µF | 55 | 8 | 10.2 | EEEHD2A100P | 171-4767 |
| 22µF | 70 | 10 | 10.2 | EEEHD2A220P | 171-4768 |

537283

Order Multiple=10

| | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 2K+ |
|---|---|---|---|---|---|---|
| **6.3 Volt** | | | | | | |
| 22µF | SMD 171-4683● | | | | | |
| **10 Volt** | | | | | | |
| 100µF | SMD 171-4724● | | | | | |
| 220µF | SMD 171-4725● | | | | | |
| **16 Volt** | | | | | | |
| 10µF | SMD 171-4728● | | | | | |
| 22µF | SMD 171-4729● | | | | | |
| 47µF | SMD 171-4730● | | | | | |
| 100µF | SMD 171-4731● | | | | | |
| 470µF | SMD 171-4733● | | | | | |
| **25 Volt** | | | | | | |
| 4.7µF | SMD 171-4734● | | | | | |
| 10µF | SMD 171-4735● | | | | | |
| 22µF | SMD 171-4736● | | | | | |
| 33µF | SMD 171-4737● | | | | | |
| 47µF | SMD 171-4738● | | | | | |
| 100µF | SMD 171-4741● | | | | | |
| 330µF | SMD 171-4742● | | | | | |
| **35 Volt** | | | | | | |
| 10µF | SMD 171-4744● | | | | | |
| 22µF | SMD 171-4745● | | | | | |
| 33µF | SMD 171-4746● | | | | | |
| 47µF | SMD 171-4747● | | | | | |
| 100µF | SMD 171-4748● | | | | | |
| 220µF | SMD 171-4749● | | | | | |
| **50 Volt** | | | | | | |
| 0.47µF | SMD 171-4750● | | | | | |
| 1µF | SMD 171-4751● | | | | | |
| 2.2µF | SMD 171-4753● | | | | | |
| 4.7µF | SMD 171-4755● | | | | | |
| 10µF | SMD 171-4756● | | | | | |
| 22µF | SMD 171-4757● | | | | | |
| 33µF | SMD 171-4758● | | | | | |
| 47µF | SMD 171-4759● | | | | | |
| 100µF | SMD 171-4760● | | | | | |
| **63 Volt** | | | | | | |
| 10µF | SMD 171-4761● | | | | | |
| 22µF | SMD 171-4762● | | | | | |
| 33µF | SMD 171-4763● | | | | | |
| **100 Volt** | | | | | | |
| 3.3µF | SMD 171-4765● | | | | | |
| 4.7µF | SMD 171-4766● | | | | | |
| 10µF | SMD 171-4767● | | | | | |
| 22µF | SMD 171-4768● | | | | | |

## TP Series

Panasonic




- Lower ESR at Low temperature after endurance
- AECQ-200 Automotive Approved

Operating Temperature -40°C to +125°C
Tolerance ± 20%
DC leakage current I ≤0.01CV (µA) After 2 minutes

| Case Size | ∅D (mm) | L (mm) | Case Size | ∅D (mm) | L (mm) |
|---|---|---|---|---|---|
| D8 | 6.3 | 10.2 | G | 10 | 10.2 |
| F | 8 | 10.2 | | | |

**10 Volt d.c.**

| | Ripple (mA) 100Hz @ 125°C | Impedance (Ω) @ 100kHz, +20 °C | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 220µF | 270 | 0.2 | F | EEETP1A221AP | 175-1949 |
| 330µF | 270 | 0.2 | F | EEETPA331UAP | 175-1953 |
| 330µF | 500 | 0.15 | G | EEETP1A331AP | 175-1950 |


RoHS ● Compliant ▲ Non-compliant

**Order Multiple=5**

**10 Volt d.c.**

| | Order Code | Price Each 5+ | 50+ | 100+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| 220µF | SMD 175-1949 ● | | | | | |
| 330µF | SMD 175-1953 ● | | | | | |
| 330µF | SMD 175-1950 ● | | | | | |

**16 Volt d.c.**

| | Ripple (mA) 100Hz @ 125°C | Impedance (Ω) @ 100kHz, +20 °C | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 100µF | 270 | 0.2 | F | EEETP1C101AP | 175-1951 |
| 100µF | 197 | 0.45 | D8 | EEETPC101XAP | 175-1954 |
| 220µF | 270 | 0.2 | F | EEETP1C221AP | 175-1945 |
| 330µF | 500 | 0.15 | G | EEETP1C331AP | 175-1946 |
| 470µF | 500 | 0.15 | G | EEETP1C471AP | 175-1947 |

**Order Multiple=5**

**16 Volt d.c.**

| | Order Code | Price Each 5+ | 50+ | 100+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| 100µF | SMD 175-1951 ● | | | | | |
| 100µF | SMD 175-1954 ● | | | | | |
| 220µF | SMD 175-1945 ● | | | | | |
| 330µF | SMD 175-1946 ● | | | | | |
| 470µF | SMD 175-1947 ● | | | | | |

**25 Volt d.c.**

| | Ripple (mA) 100Hz @ 125°C | Impedance (Ω) @ 100kHz, +20 °C | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 100µF | 270 | 0.2 | F | EEETP1E101AP | 175-1941 |
| 220µF | 500 | 0.15 | G | EEETP1E221AP | 175-1942 |
| 330µF | 500 | 0.15 | G | EEETP1E331AP | 175-1944 |

**Order Multiple=5**

**25 Volt d.c.**

| | Order Code | Price Each 5+ | 50+ | 100+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| 100µF | SMD 175-1941 ● | | | | | |
| 220µF | SMD 175-1942 ● | | | | | |
| 330µF | SMD 175-1944 ● | | | | | |

**35 Volt d.c.**

| | Ripple (mA) 100Hz @ 125°C | Impedance (Ω) @ 100kHz, +20 °C | Case Size | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 47µF | 270 | 0.2 | F | EEETP1V470AP | 175-1952 |
| 47µF | 197 | 0.45 | D8 | EEETPV470XAP | 175-1956 |
| 100µF | 270 | 0.2 | F | EEETP1V101AP | 175-1939 |
| 220µF | 500 | 0.15 | G | EEETP1V221AP | 175-1940 |

544805

**Order Multiple=5**

**35 Volt d.c.**

| | Order Code | Price Each 5+ | 50+ | 100+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| 47µF | SMD 175-1952 ● | | | | | |
| 47µF | SMD 175-1956 ● | | | | | |
| 100µF | SMD 175-1939 ● | | | | | |
| 220µF | SMD 175-1940 ● | | | | | |

## Aluminium Electrolytic - SMD - Rubycon

### THV Series

Rubycon





- Load Life: 125°C 2000 to 3000 hours.
- low ESR

NEW

Tolerance ± 20% Operating temperature -40°C to +105°C

**25 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 220µF | 300 | 10.5 | 8 | 25THV220M8X10.5 | 210-2433 |
| 100µF | 300 | 10.5 | 8 | 25THV100M8X10.5 | 210-2434 |
| 330µF | 500 | 10.5 | 10 | 25THV330M10X10.5 | 210-2435 |

**25 Volt d.c.**

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| 220µF | 210-2433 ● | | | | | |
| 100µF | 210-2434 ● | | | | | |
| 330µF | 210-2435 ● | | | | | |

**35 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 220µF | 500 | 10.5 | 10 | 35THV220M10X10.5 | 210-2436 |
| 100µF | 300 | 10.5 | 8 | 35THV100M8X10.5 | 210-2437 |

**35 Volt d.c.**

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| 220µF | 210-2436 ● | | | | | |
| 100µF | 210-2437 ● | | | | | |

**50 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 100µF | 350 | 10.5 | 10 | 50THV100M10X10.5 | 210-2438 |
| 47µF | 250 | 10.5 | 8 | 50THV47M8X10.5 | 210-2439 |

659162

**50 Volt d.c.**

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| 100µF | 210-2438 ● | | | | | |
| 47µF | 210-2439 ● | | | | | |

### TZV Series

Rubycon





- High performance surface mount electrolytic capacitor
- High temperature 105°C
- Suitable for lead free soldering
- Available for high density mounting
- Low Impedance

SMD

Operating Temperature -55°C to +105°C
Tolerance ±20%
DC leakage current =0.01CV or 3µA whichever is greater
Operating life @ 105°C 2000h

| | Ripple (mA) 100kHz @ 105°C | Impedance (Ω) 100kHz @ 20° | Dimensions Dia. | L | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| **6.3 Volt d.c.** | | | | | | |
| 220µF | 250 | 0.36 | | 6.1 | 6.3TZV220M6.3X6.1 | 128-1857 |
| 220µF | 300 | 0.34 | | 8 | 6.3TZV220M6.3X8 | 171-2589 |
| 330µF | 300 | 0.34 | | 8 | 6.3TZV330M6.3X8 | 171-2590 |
| 1000µF | 600 | 0.16 | | 10.5 | 6.3TZV1000M8X10.5 | 128-1856 |
| **10 Volt d.c.** | | | | | | |
| 220µF | 300 | 0.34 | | 8 | 10TZV220M6.3X8 | 171-2591 |
| 470µF | 600 | 0.16 | | 10.5 | 10TZV470M8X10.5 | 128-1858 |
| **16 Volt d.c.** | | | | | | |
| 100µF | 250 | 0.36 | | 6.1 | 16TZV100M6.3X6.1 | 128-1861 |
| 470µF | 600 | 0.16 | | 10.5 | 16TZV470M8X10.5 | 128-1862 |
| **25 Volt d.c.** | | | | | | |
| 33µF | 250 | 0.36 | | 6.1 | 25TZV33M6.3X6.1 | 171-2592 |
| 220µF | 600 | 0.16 | | 10.5 | 25TZV220M8X10.5 | 128-1863 |
| 470µF | 850 | 0.36 | | 10.5 | 25TZV470M10X10.5 | 171-2593 |
| **35 Volt d.c.** | | | | | | |
| 47µF | 250 | 0.36 | | 6.1 | 35TZV47M6.3X6.1 | 128-1865 |
| 100µF | 300 | 0.34 | | 8 | 35TZV100M6.3X8 | 171-2594 |
| 100µF | 600 | 0.16 | | 10.5 | 35TZV100M8X10.5 | 171-2595 |
| 330µF | 850 | 0.09 | | 10.5 | 35TZV330M10X10.5 | 128-1864 |

451918

**Price Each**

| | Order Code | 1+ | 50+ | 100+ | 150+ | 250+ |
|---|---|---|---|---|---|---|
| **6.3 Volt d.c** | | | | | | |
| 220µF | SMD 128-1857 ● | | | | | |
| 220µF | NEW SMD 171-2589 ● | | | | | |
| 330µF | NEW SMD 171-2590 ● | | | | | |
| 1000µF | SMD 128-1856 ● | | | | | |
| **10 Volt d.c** | | | | | | |
| 220µF | NEW SMD 171-2591 ● | | | | | |
| 470µF | SMD 128-1858 ● | | | | | |
| **16 Volt d.c** | | | | | | |
| 100µF | SMD 128-1861 ● | | | | | |
| 470µF | SMD 128-1862 ● | | | | | |
| **25 Volt d.c** | | | | | | |
| 33µF | NEW SMD 171-2592 ● | | | | | |
| 220µF | SMD 128-1863 ● | | | | | |
| 470µF | NEW SMD 171-2593 ● | | | | | |
| **35 Volt d.c** | | | | | | |
| 47µF | SMD 128-1865 ● | | | | | |
| 100µF | NEW SMD 171-2594 ● | | | | | |
| 100µF | NEW SMD 171-2595 ● | | | | | |
| 330µF | SMD 128-1864 ● | | | | | |

### TLV Series

Rubycon



- Load Life 105°C 5000Hrs.
- Low Impedance
- Large can-size SMD.

NEW

Operating Temperature -55°C to +105°C
Tolerance ± 20%

| µF | Ripple (mA) 100kHz @ 105°C | Dimensions Dia. | L | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| **16 Volt d.c.** | | | | | |
| 470 | 600 | 8 | 10.5 | 16TLV470M8X10.5 | 183-1293 |
| 1500 | 1100 | 12.5 | 13.5 | 16TLV1500M12.5X13.5 | 183-1294 |
| **25 Volt d.c.** | | | | | |
| 220 | 600 | 8 | 10.5 | 25TLV220M8X10.5 | 183-1295 |
| 330 | 600 | 8 | 10.5 | 25TLV330M8X10.5 | 183-1296 |
| 470 | 850 | 10 | 10.5 | 25TLV470M10X10.5 | 183-1297 |
| 1000 | 1100 | 12.5 | 13.5 | 25TLV1000M12.5X13.5 | 183-1298 |
| **35 Volt d.c.** | | | | | |
| 100 | 1800 | 10 | 10.5 | 35TVL100M10X10.5 | 183-1299 |
| 330 | 850 | 10 | 10.5 | 35TLV330M10X10.5 | 183-1300 |
| 470 | 1100 | 12.5 | 13.5 | 35TLV470M12.5X13.5 | 183-1301 |

# Aluminium Electrolytic - SMD - Rubycon - continued

## TLV Series - continued

612292

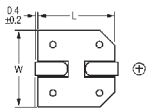
| µF | Order Code | Price Each 1+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|
| **16 Volt d.c** | | | | | |
| 470 | **183-1293** | | | | |
| 1500 | **183-1294** | | | | |
| **25 Volt d.c** | | | | | |
| 220 | **183-1295** | | | | |
| 330 | **183-1296** | | | | |
| 470 | **183-1297** | | | | |
| 1000 | **183-1298** | | | | |
| **35 Volt d.c** | | | | | |
| 100 | **183-1299** | | | | |
| 330 | **183-1300** | | | | |
| 470 | **183-1301** | | | | |

# Aluminium Electrolytic - SMD - Vishay

## 153 CRV Series – Surface Mount

**105 °C – Long Life**






- Surface mount aluminium electrolytic capacitors
- High temperature - 105°C
- Long life, high CV per volume

SMD

Supplied on tape and reel

| | Dimensions L | W | D | Ripple Current @ 105°C (mA) | ESR @ 100KHz (Ω) | Useful Life @ 105 °C (hrs) | Qty Per Reel | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|---|
| **6.3 Volt d.c** | | | | | | | | | |
| 22µF | 5.3 | 4 | 4 | 21 | 8 | 2000 | 2000 | MAL215373229E3 | 183-4233 |
| 47µF | 5.3 | 5 | 5 | 36 | 4 | 3000 | 1000 | MAL215373479E3 | 183-4234 |
| 100µF | 6.8 | 6.8 | 5.5 | 61 | 2 | 2000 | 1000 | MAL215373101E3 | 118-7011 |
| 330µF | 10 | 8 | 8 | 180 | 0.5 | 3000 | 500 | MAL215373331E3 | 183-4235 |
| 470µF | 10 | 10 | 10 | 320 | 0.3 | 3000 | 500 | MAL215373471E3 | 183-4236 |
| 680µF | 12 | 10 | 10 | 340 | 0.29 | 3000 | 250 | MAL215373681E3 | 183-4237 |
| 1000µF | 14 | 10 | 10 | 400 | 0.24 | 3000 | 250 | MAL215373102E3 | 183-4238 |
| **10 Volt d.c** | | | | | | | | | |
| 33µF | 5.3 | 5 | 5 | 31 | 4 | 2000 | 1000 | MAL215374339E3 | 183-4239 |
| 220µF | 8.6 | 8.6 | 10.5 | 180 | 0.5 | 3000 | 500 | MAL215374221E3 | 118-7013 |
| 330µF | 10 | 10 | 10 | 320 | 0.3 | 3000 | 500 | MAL215374331E3 | 183-4240 |
| 470µF | 12 | 10 | 10 | 330 | 0.29 | 3000 | 250 | MAL215374471E3 | 183-4242 |
| 680µF | 14 | 10 | 10 | 380 | 0.24 | 3000 | 250 | MAL215374681E3 | 183-4243 |
| **16 Volt d.c** | | | | | | | | | |
| 10µF | 4.5 | 4.5 | 5.5 | 16 | 8 | 2000 | 2000 | MAL215375109E3 | 118-7014 |
| 22µF | 5.3 | 5 | 5 | 28 | 4 | 2000 | 1000 | MAL215375229E3 | 183-4244 |
| 47µF | 6.8 | 6.8 | 5.5 | 47 | 2.2 | 2000 | 1000 | MAL215375479E3 | 118-7015 |
| 100µF | 6.5 | 8 | 8 | 110 | 1.2 | 3000 | 1000 | MAL215375101E3 | 183-4245 |
| 220µF | 10 | 10 | 10 | 320 | 0.3 | 3000 | 500 | MAL215375221E3 | 183-4246 |
| 330µF | 12 | 10 | 10 | 330 | 0.29 | 3000 | 250 | MAL215375331E3 | 183-4247 |
| 470µF | 14 | 10 | 10 | 370 | 0.25 | 3000 | 250 | MAL215375471E3 | 183-4248 |
| **25 Volt d.c** | | | | | | | | | |
| 33µF | 5.3 | 6.3 | 6.3 | 44 | 2.2 | 2000 | 1000 | MAL215376339E3 | 183-4249 |
| 47µF | 6.5 | 8 | 8 | 110 | 1.2 | 3000 | 1000 | MAL215376479E3 | 183-4250 |
| 100µF | 8.6 | 8.6 | 10.5 | 180 | 0.5 | 3000 | 500 | MAL215376101E3 | 118-7017 |
| 220µF | 12 | 10 | 10 | 270 | 0.29 | 3000 | 250 | MAL215376221E3 | 183-4251 |
| 330µF | 14 | 10 | 10 | 300 | 0.27 | 3000 | 250 | MAL215376331E3 | 183-4252 |
| **35 Volt d.c** | | | | | | | | | |
| 4.7µF | 4.5 | 4.5 | 5.5 | 14 | 8 | 2000 | 2000 | MAL215370478E3 | 118-7018 |
| 10µF | 5.3 | 5 | 5 | 23 | 4 | 2000 | 1000 | MAL215370109E3 | 183-4254 |
| 22µF | 6.8 | 6.8 | 5.5 | 50 | 2.2 | 2000 | 1000 | MAL215370229E3 | 118-7019 |
| 33µF | 6.5 | 8 | 8 | 110 | 1.2 | 3000 | 500 | MAL215370339E3 | 183-4255 |
| 220µF | 12 | 10 | 10 | 270 | 0.29 | 3000 | 250 | MAL215370221E3 | 183-4256 |
| **50 Volt d.c** | | | | | | | | | |
| 0.47µF | 5.3 | 4 | 4 | 5 | 12 | 2000 | 2000 | MAL215371477E3 | 183-4257 |
| 1µF | 4.5 | 4.5 | 5.5 | 7 | 12 | 2000 | 2000 | MAL215371108E3 | 118-7020 |
| 2.2µF | 5.3 | 4 | 4 | 10 | 12 | 2000 | 2000 | MAL215371228E3 | 183-4258 |
| 3.3µF | 5.3 | 4 | 4 | 12 | 12 | 2000 | 2000 | MAL215371338E3 | 183-4259 |
| 4.7µF | 5.5 | 5.5 | 5.5 | 17 | 6 | 2000 | 1000 | MAL215371478E3 | 118-7021 |
| 10µF | 6.8 | 6.8 | 5.5 | 26 | 3 | 2000 | 1000 | MAL215371109E3 | 118-7022 |
| 22µF | 6.5 | 8 | 8 | 110 | 1.2 | 3000 | 1000 | MAL215371229E3 | 183-4260 |
| 33µF | 10 | 8 | 8 | 180 | 0.5 | 3000 | 500 | MAL215371339E3 | 183-4261 |
| 47µF | 8.6 | 8.6 | 10.5 | 180 | 0.5 | 3000 | 500 | MAL215371479E3 | 118-7023 |
| 100µF | 10.6 | 10.6 | 10.5 | 320 | 0.3 | 3000 | 500 | MAL215371101E3 | 118-7024 |
| **63 Volt d.c** | | | | | | | | | |
| 47µF | 12 | 10 | 10 | 220 | 0.39 | 3000 | 250 | MAL215378479E3 | 183-4262 |
| 100µF | 14 | 10 | 10 | 240 | 0.34 | 3000 | 250 | MAL215378101E3 | 183-4263 |
| **100 Volt d.c** | | | | | | | | | |
| 10µF | 12 | 10 | 10 | 150 | 1.4 | 3000 | 250 | MAL215379109E3 | 183-4264 |
| 22µF | 12 | 10 | 10 | 150 | 1.4 | 3000 | 250 | MAL215379229E3 | 183-4266 |
| 33µF | 14 | 10 | 10 | 170 | 1.3 | 3000 | 250 | MAL215379339E3 | 183-4267 |

208542

**Order Multiple=5**

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ | 2K+ |
|---|---|---|---|---|---|---|---|
| **6.3 Volt d.c** | | | | | | | |
| 22µF | NEW **183-4233** | | | | | | |
| 47µF | NEW **183-4234** | | | | | | |
| 100µF | SMD **118-7011** | | | | | | |
| 330µF | NEW **183-4235** | | | | | | |
| 470µF | NEW **183-4236** | | | | | | |
| 680µF | NEW **183-4237** | | | | | | |
| 1000µF | NEW **183-4238** | | | | | | |
| **10 Volt d.c** | | | | | | | |
| 33µF | NEW **183-4239** | | | | | | |
| 220µF | SMD **118-7013** | | | | | | |
| 330µF | NEW **183-4240** | | | | | | |
| 470µF | NEW **183-4242** | | | | | | |
| 680µF | NEW **183-4243** | | | | | | |
| **16 Volt d.c** | | | | | | | |
| 10µF | SMD **118-7014** | | | | | | |
| 22µF | NEW **183-4244** | | | | | | |
| 47µF | SMD **118-7015** | | | | | | |
| 100µF | NEW **183-4245** | | | | | | |
| 220µF | NEW **183-4246** | | | | | | |
| 330µF | NEW **183-4247** | | | | | | |
| 470µF | NEW **183-4248** | | | | | | |
| **25 Volt d.c** | | | | | | | |
| 33µF | NEW **183-4249** | | | | | | |
| 47µF | NEW **183-4250** | | | | | | |
| 100µF | SMD **118-7017** | | | | | | |
| 220µF | NEW **183-4251** | | | | | | |
| 330µF | NEW **183-4252** | | | | | | |
| **35 Volt d.c** | | | | | | | |
| 4.7µF | SMD **118-7018** | | | | | | |
| 10µF | NEW **183-4254** | | | | | | |
| 22µF | SMD **118-7019** | | | | | | |
| 33µF | NEW **183-4255** | | | | | | |
| 220µF | NEW **183-4256** | | | | | | |
| **50 Volt d.c** | | | | | | | |
| 0.47µF | NEW **183-4257** | | | | | | |
| 1µF | SMD **118-7020** | | | | | | |
| 2.2µF | NEW **183-4258** | | | | | | |
| 3.3µF | NEW **183-4259** | | | | | | |
| 4.7µF | SMD **118-7021** | | | | | | |
| 10µF | SMD **118-7022** | | | | | | |
| 22µF | NEW **183-4260** | | | | | | |
| 33µF | NEW **183-4261** | | | | | | |
| 47µF | SMD **118-7023** | | | | | | |
| 100µF | SMD **118-7024** | | | | | | |
| **63 Volt d.c** | | | | | | | |
| 47µF | NEW **183-4262** | | | | | | |
| 100µF | NEW **183-4263** | | | | | | |
| **100 Volt d.c** | | | | | | | |
| 10µF | NEW **183-4264** | | | | | | |
| 22µF | NEW **183-4266** | | | | | | |
| 33µF | NEW **183-4267** | | | | | | |

## 140 CRH Series

NEW



- Polarised aluminum electrolytic capacitors, non-solid electrolyte, self healing
- SMD-version with base plate, lead (Pb)-free reflow solderable

AUTOMOTIVE GRADE

| | Dimensions (mm) H | W | D | Current @ 125°C (mA) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| **6.3 V** | | | | | | |
| 330µF | 10 | 8 | 8 | 180 | MAL214097303E3 | 183-4194 |
| 470µF | 10 | 10 | 10 | 300 | MAL214097301E3 | 183-4195 |
| 680µF | 14 | 10 | 10 | 430 | MAL214097302E3 | 183-4196 |
| **10 V** | | | | | | |
| 220µF | 10 | 8 | 8 | 180 | MAL214097403E3 | 183-4197 |
| 330µF | 10 | 10 | 10 | 300 | MAL214097401E3 | 183-4199 |
| 470µF | 14 | 10 | 10 | 430 | MAL214097402E3 | 183-4200 |
| 680µF | 13 | 12.5 | 12.5 | 750 | MAL214097411E3 | 183-4201 |
| 1000µF | 16 | 12.5 | 12.5 | 900 | MAL214097412E3 | 183-4202 |
| **16 V** | | | | | | |
| 150µF | 10 | 8 | 8 | 180 | MAL214097502E3 | 183-4203 |
| 330µF | 14 | 10 | 10 | 430 | MAL214097501E3 | 183-4205 |
| 470µF | 13 | 12.5 | 12.5 | 750 | MAL214097511E3 | 183-4206 |
| 680µF | 16 | 12.5 | 12.5 | 900 | MAL214097512E3 | 183-4207 |
| **25 V** | | | | | | |
| 100µF | 10 | 8 | 8 | 180 | MAL214097602E3 | 183-4208 |
| 220µF | 10 | 10 | 10 | 300 | MAL214097601E3 | 183-4209 |
| 330µF | 13 | 12.5 | 12.5 | 750 | MAL214097611E3 | 183-4210 |
| 470µF | 16 | 12.5 | 12.5 | 900 | MAL214097612E3 | 183-4211 |

| | Dimensions (mm) H | W | D | Current @ 125°C (mA) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| **35 V** | | | | | | |
| 68µF | 10 | 8 | 8 | 180 | MAL214097003E3 | 183-4212 |
| 100µF | 10 | 10 | 10 | 255 | MAL214097001E3 | 183-4213 |
| 150µF | 14 | 10 | 10 | 317 | MAL214097002E3 | 183-4214 |
| 220µF | 13 | 12.5 | 12.5 | 750 | MAL214097011E3 | 183-4215 |
| 330µF | 13 | 12.5 | 12.5 | 750 | MAL214097012E3 | 183-4217 |
| 470µF | 16 | 12.5 | 12.5 | 900 | MAL214097013E3 | 183-4218 |
| **50 V** | | | | | | |
| 47µF | 10 | 8 | 8 | 145 | MAL214097103E3 | 183-4219 |
| 68µF | 10 | 10 | 10 | 205 | MAL214097101E3 | 183-4220 |
| 100µF | 14 | 10 | 10 | 255 | MAL214097102E3 | 183-4221 |
| 220µF | 13 | 12.5 | 12.5 | 750 | MAL214097111E3 | 183-4222 |
| 330µF | 16 | 12.5 | 12.5 | 900 | MAL214097112E3 | 183-4223 |
| **63 V** | | | | | | |
| 10µF | 10 | 8 | 8 | 145 | MAL214097805E3 | 183-4224 |
| 22µF | 10 | 8 | 8 | 145 | MAL214097803E3 | 183-4225 |
| 33µF | 10 | 8 | 8 | 145 | MAL214097804E3 | 183-4226 |
| 47µF | 10 | 10 | 10 | 205 | MAL214097801E3 | 183-4227 |
| 68µF | 14 | 10 | 10 | 255 | MAL214097802E3 | 183-4229 |
| 100µF | 13 | 12.5 | 12.5 | 500 | MAL214097811E3 | 183-4231 |
| 220µF | 16 | 12.5 | 12.5 | 600 | MAL214097812E3 | 183-4232 |

612998

**Order Multiple=5**

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **6.3 V** | | | | | | |
| 330µF | **183-4194** | | | | | |
| 470µF | **183-4195** | | | | | |
| 680µF | **183-4196** | | | | | |
| **10 V** | | | | | | |
| 220µF | **183-4197** | | | | | |
| 330µF | **183-4199** | | | | | |
| 470µF | **183-4200** | | | | | |
| 680µF | **183-4201** | | | | | |
| 1000µF | **183-4202** | | | | | |
| **16 V** | | | | | | |
| 150µF | **183-4203** | | | | | |
| 330µF | **183-4205** | | | | | |
| 470µF | **183-4206** | | | | | |
| 680µF | **183-4207** | | | | | |
| **25 V** | | | | | | |
| 100µF | **183-4208** | | | | | |
| 220µF | **183-4209** | | | | | |
| 330µF | **183-4210** | | | | | |
| 470µF | **183-4211** | | | | | |
| **35 V** | | | | | | |
| 68µF | **183-4212** | | | | | |
| 100µF | **183-4213** | | | | | |
| 150µF | **183-4214** | | | | | |
| 220µF | **183-4215** | | | | | |
| 330µF | **183-4217** | | | | | |
| 470µF | **183-4218** | | | | | |
| **50 V** | | | | | | |
| 47µF | **183-4219** | | | | | |
| 68µF | **183-4220** | | | | | |
| 100µF | **183-4221** | | | | | |
| 220µF | **183-4222** | | | | | |
| 330µF | **183-4223** | | | | | |
| **63 V** | | | | | | |
| 10µF | **183-4224** | | | | | |
| 22µF | **183-4225** | | | | | |
| 33µF | **183-4226** | | | | | |
| 47µF | **183-4227** | | | | | |
| 68µF | **183-4229** | | | | | |
| 100µF | **183-4231** | | | | | |
| 220µF | **183-4232** | | | | | |

## Aluminium Electrolytic - Polymer - Murata

### Polymer Aluminium Electrolytic Capacitor

**Series : ECAS**



- High capacitance & low ESR
- Good temperature characteristic
- No need for voltage derating
- Resistance to short circuit
- For noise suppression, ripple absorption and decoupling

NEW

| Mftrs. List No. | Order Code | Capacitance µF | Voltage Rating VDC | ESR mΩ |
|---|---|---|---|---|
| **Capacitance Tolerance ± 20%** | | | | |
| ECASD40D157M009K00 | 184-6088 | 150 | 2 | 0.009 |
| ECASD40D227M009K00 | 184-6089 | 220 | 2 | 0.009 |
| ECASD60D337M007K00 | 184-6090 | 330 | 2 | 0.007 |
| ECASD60D477M006K00 | 184-6091 | 470 | 2 | 0.006 |
| ECASD40G157M016K00 | 184-6092 | 150 | 4 | 0.016 |
| ECASD60G187M012K00 | 184-6093 | 180 | 4 | 0.012 |
| ECASD60G227M010K00 | 184-6094 | 220 | 4 | 0.01 |
| ECASD90G337M008K00 | 184-6095 | 330 | 4 | 0.008 |
| ECASD60J157M010K00 | 184-6096 | 150 | 6.3 | 0.01 |
| ECASD90J227M010K00 | 184-6098 | 220 | 6.3 | 0.01 |
| ECASD91B107M012K00 | 184-6099 | 100 | 12.5 | 0.012 |

618467

| Mftrs.List No. | Order Code | Price Each 1+ | 50+ | 250+ | 1K+ |
|---|---|---|---|---|---|
| ECASD40D157M009K00 | **184-6088** | | | | |
| ECASD40D227M009K00 | **184-6089** | | | | |
| ECASD60D337M007K00 | **184-6090** | | | | |
| ECASD60D477M006K00 | **184-6091** | | | | |
| ECASD40G157M016K00 | **184-6092** | | | | |
| ECASD60G187M012K00 | **184-6093** | | | | |
| ECASD60G227M010K00 | **184-6094** | | | | |
| ECASD90G337M008K00 | **184-6095** | | | | |
| ECASD60J157M010K00 | **184-6096** | | | | |
| ECASD90J227M010K00 | **184-6098** | | | | |
| ECASD91B107M012K00 | **184-6099** | | | | |

## Aluminium Electrolytic - Polymer - Panasonic

### CX Series



- Low ESR
- Excellent Noise-absorbent characteristics

| | |
|---|---|
| Operating temperature | -40°C to +105°C |
| Tolerance | ± 20% |
| Ripple Current @ 100 kHz | 2.7 A |
| ESR @ 100 kHz | 0.015 ohm |

| Capacitance | Dimensions L | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| **2 Volt d.c.** | | | | | |
| 220µF | 1.9 | 7.3 | 4.3 | EEFCX0D221R | 175-1902 |
| 330µF | 1.9 | 7.3 | 4.3 | EEFCX0D331R | 175-1903 |
| 470µF | 1.9 | 7.3 | 4.3 | EEFCX0D471R | 175-1904 |
| **2.5 Volt d.c.** | | | | | |
| 220µF | 1.9 | 7.3 | 4.3 | EEFCX0E221R | 175-1905 |
| 330µF | 1.9 | 7.3 | 4.3 | EEFCX0E331R | 185-5084 |
| 390µF | 1.9 | 7.3 | 4.3 | EEFCX0E391R | 175-1907 |
| **4 Volt d.c.** | | | | | |
| 150µF | 1.9 | 7.3 | 4.3 | EEFCX0G151R | 175-1908 |
| 180µF | 1.9 | 7.3 | 4.3 | EEFCX0G181R | 175-1909 |
| 220µF | 1.9 | 7.3 | 4.3 | EEFCX0G221R | 175-1910 |
| **6.3 Volt d.c.** | | | | | |
| 100µF | 1.9 | 7.3 | 4.3 | EEFCX0J101R | 175-1911 |
| 150µF | 1.9 | 7.3 | 4.3 | EEFCX0J151R | 175-1912 |
| 150µF | 1.9 | 7.3 | 4.3 | EEFCX0J151XR | 185-5085 |

544682

| | Order Code | Price Each 1+ | 50+ | 250+ | 1K+ |
|---|---|---|---|---|---|
| **2 Volt d.c.** | | | | | |
| 220µF | SMD **175-1902** | | | | |
| 330µF | SMD **175-1903** | | | | |
| 470µF | SMD **175-1904** | | | | |
| **2.5 Volt d.c.** | | | | | |
| 220µF | SMD **175-1905** | | | | |
| 330µF | NEW **185-5084** | | | | |
| 390µF | SMD **175-1907** | | | | |
| **4 Volt d.c.** | | | | | |
| 150µF | SMD **175-1908** | | | | |
| 180µF | SMD **175-1909** | | | | |
| 220µF | SMD **175-1910** | | | | |
| **6.3 Volt d.c.** | | | | | |
| 100µF | SMD **175-1911** | | | | |
| 150µF | SMD **175-1912** | | | | |
| 150µF | NEW **185-5085** | | | | |

### SX Series



- Super Low-ESR
- Lower ESR and Higher Capacitance at the same case size as conventional products.
- Excellent Noise-absorbent Characteristics
- High Ripple Current

| | |
|---|---|
| Operating temperature | -40°C to +105°C |
| Tolerance | ± 20% |

| Capacitance | ESR @ 100 kHz Ω | Ripple Current (A) | Dimensions L | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **2 Volt d.c.** | | | | | | | |
| 220µF | 0.009 | 3 | 1.8 | 7.3 | 4.3 | EEFSX0D221ER | 185-5076 |
| 270µF | 0.009 | 3 | 1.9 | 7.3 | 4.3 | EEFSX0D271ER | 185-5077 |
| 330µF | 0.009 | 3 | 1.9 | 7.3 | 4.3 | EEFSX0D331ER | 175-1914 |
| 330µF | 0.006 | 3.5 | 1.9 | 7.3 | 4.3 | EEFSX0D331XE | 175-1916 |

# Aluminium Electrolytic - Polymer - Panasonic - continued

## SX Series - continued

| Capacitance | ESR @ 100 kHz Ω | Ripple Current (A) | Dimensions L | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **2 Volt d.c.** | | | | | | | |
| 330µF | 0.0045 | 3.5 | 1.9 | 7.3 | 4.3 | EEFSX0D331E4 | 175-1917 |
| 470µF | 0.009 | 3 | 1.9 | 7.3 | 4.3 | EEFSX0D471ER | 175-1919 |
| 470µF | 0.006 | 3.5 | 1.9 | 7.3 | 4.3 | EEFSX0D471XE | 175-1921 |
| 470µF | 0.0045 | 3.8 | 1.9 | 7.3 | 4.3 | EEFSX0D471E4 | 175-1922 |
| **2.5 Volt d.c.** | | | | | | | |
| 180µF | 0.009 | 3 | 1.9 | 7.3 | 4.3 | EEFSX0E181ER | 185-5078 |
| 220µF | 0.009 | 3 | 1.9 | 7.3 | 4.3 | EEFSX0E221ER | 175-1923 |
| 330µF | 0.009 | 3 | 1.9 | 7.3 | 4.3 | EEFSX0E331ER | 185-5079 |
| 330µF | 0.009 | 3.5 | 1.9 | 7.3 | 4.3 | EEFSX0E331XE | 185-5080 |
| 390µF | 0.006 | 3.5 | 1.9 | 7.3 | 4.3 | EEFSX0E391XE | 175-1925 |
| **4 Volt d.c.** | | | | | | | |
| 100µF | 0.009 | 3 | 1.9 | 7.3 | 4.3 | EEFSX0G101ER | 185-5081 |
| 150µF | 0.009 | 3 | 1.9 | 7.3 | 4.3 | EEFSX0G151ER | 175-1926 |
| 180µF | 0.009 | 3 | 1.9 | 7.3 | 4.3 | EEFSX0G181ER | 175-1927 |
| 220µF | 0.009 | 3 | 1.9 | 7.3 | 4.3 | EEFSX0G221ER | 175-1928 |
| **6.3 Volt d.c.** | | | | | | | |
| 56µF | 0.009 | 3 | 1.8 | 7.3 | 4.3 | EEFSL0J560R | 185-5082 |
| 120µF | 0.009 | 3.5 | 1.9 | 7.3 | 4.3 | EEFSX0J121E7 | 185-5083 |
| 150µF | 0.009 | 3 | 1.9 | 7.3 | 4.3 | EEFSX0J151ER | 175-1929 |

544684

| | Order Code | Price Each 1+ | 50+ | 250+ | 1K+ |
|---|---|---|---|---|---|
| **2 Volt d.c.** | | | | | |
| 220µF | NEW 185-5076 | | | | |
| 270µF | NEW 185-5077 | | | | |
| 330µF | SMD 175-1914 | | | | |
| 330µF | SMD 175-1916 | | | | |
| 330µF | SMD 175-1917 | | | | |
| 470µF | SMD 175-1919 | | | | |
| 470µF | SMD 175-1921 | | | | |
| 470µF | SMD 175-1922 | | | | |
| **2.5 Volt d.c.** | | | | | |
| 180µF | NEW 185-5078 | | | | |
| 220µF | SMD 175-1923 | | | | |
| 330µF | NEW 185-5079 | | | | |
| 330µF | NEW 185-5080 | | | | |
| 390µF | SMD 175-1925 | | | | |
| **4 Volt d.c.** | | | | | |
| 100µF | NEW 185-5081 | | | | |
| 150µF | SMD 175-1926 | | | | |
| 180µF | SMD 175-1927 | | | | |
| 220µF | SMD 175-1928 | | | | |
| **6.3 Volt d.c.** | | | | | |
| 56µF | NEW 185-5082 | | | | |
| 120µF | NEW 185-5083 | | | | |
| 150µF | SMD 175-1929 | | | | |

## GX Series

Panasonic

NEW

**SP-Cap/ Polymer Aluminum Capacitors**



- Super Low-ESR (3 mΩ)

| | |
|---|---|
| Operating Temperature | -40°C to +105°C |
| Tolerance | ± 20% |
| Voltage Rating | 2V |
| Ripple Current | 4.0A |
| ESR @ 100 kHz | 0.003ohm |

| Capacitance | Dimensions in mm L | W | D | Mftrs List No. | Order Code |
|---|---|---|---|---|---|
| 330µF | 1.9 | 7.3 | 4.3 | EEFGX0D331R | 185-5097 |
| 470µF | 1.9 | 7.3 | 4.3 | EEFGX0D471R | 185-5099 |

618770

| Capacitance | Mftrs. List No. | Order Code | Price Each 1+ | 50+ | 250+ | 1K+ |
|---|---|---|---|---|---|---|
| 330µF | EEFGX0D331R | 185-5097 | | | | |
| 470µF | EEFGX0D471R | 185-5099 | | | | |

## SP-AL Series – Speciality Polymer

Panasonic

**Surface Mount**



Supplied on 12mm tape

- Speciality polymer (polypyrole) surface mount electrolytic capacitors
- D and E tantalum style cases
- High ripple current due to reduced ESR
- High capacitance per unit volume
- Tantalum alternative for power supply smoothing circuits and noise suppression applications

SMD

| | |
|---|---|
| Operating temperature | -40°C to +105°C |
| Capacitance tolerance | ±20% |
| Ripple current measured at | 100kHz, +20°C to +105°C |
| ESR measured at | 100kHz, +20°C |

| Capacitance | Ripple Current (A) | ESR (mΩ) | Tantalum Style Case Size | Reel Qty. | Mftrs List No. | Order Code |
|---|---|---|---|---|---|---|
| **4 Volt d.c.** | | | | | | |
| 180µF | 3 | 0.012 | E | 2000 | EEFUE0G181R | 969-4676 |
| **6.3 Volt d.c.** | | | | | | |
| 10µF | 1 | 0.055 | D | 3500 | EEFCD0J100R | 969-4684 |
| 47µF | 1.6 | 0.018 | D | 3500 | EEFCD0J470R | 969-4714 |
| 100µF | 2 | 0.015 | D | 2000 | EEFUD0J101R | 969-4722 |
| 150µF | 3 | 0.012 | E | 2000 | EEFUE0J151R | 969-4730 |
| **8 Volt d.c.** | | | | | | |
| 33µF | 1.6 | 0.018 | D | 3500 | EEFCD0K330R | 969-4749 |
| 68µF | 1.8 | 0.015 | D | 2000 | EEFUD0K680R | 969-4757 |
| 100µF | 3 | 0.012 | E | 2000 | EEFUE0K101R | 969-4765 |
| **12.5 Volt d.c.** | | | | | | |
| 4.7µF | 1 | 0.075 | D | 3500 | EEFCD1B4R7R | 969-4773 |
| 22µF | 1.3 | 0.03 | D | 3500 | EEFCD1B220R | 969-4790 |
| **16 Volt d.c.** | | | | | | |
| 2.2µF | 1 | 0.1 | D | 3500 | EEFCD1C2R2R | 969-4803 |

227148

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **4 Volt d.c.** | | | | | | |
| 180µF | SMD 969-4676 | | | | | |
| **6.3 Volt d.c.** | | | | | | |
| 10µF | SMD 969-4684 | | | | | |
| 47µF | SMD 969-4714 | | | | | |
| 100µF | SMD 969-4722 | | | | | |
| 150µF | SMD 969-4730 | | | | | |
| **8 Volt d.c.** | | | | | | |
| 33µF | SMD 969-4749 | | | | | |
| 68µF | SMD 969-4757 | | | | | |
| 100µF | SMD 969-4765 | | | | | |
| **12.5 volt d.c.** | | | | | | |
| 4.7µF | SMD 969-4773 | | | | | |
| 22µF | SMD 969-4790 | | | | | |
| **16 Volt d.c.** | | | | | | |
| 2.2µF | SMD 969-4803 | | | | | |

## LX Series

Panasonic

NEW

**SP-Cap/ Polymer Aluminum Capacitors**





- Super Low-ESR (4.5 mΩ)

| | |
|---|---|
| Operating Temperature | -40°C to +105°C |
| Tolerance | ± 20% |
| Voltage Rating | 2V |

| Capacitance | Ripple Current (A) | ESR @ 100 kHz (Ω) | Dimensions in mm L | W | D | Mftrs List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 330µF | 3.5 | 0.006 | 1.9 | 7.3 | 4.3 | EEFLX0D331R | 185-5091 |
| 330µF | 3.8 | 0.045 | 1.9 | 7.3 | 4.3 | EEFLX0D331R4 | 185-5092 |
| 470µF | 3.5 | 0.006 | 1.9 | 7.3 | 4.3 | EEFLX0D471R | 185-5093 |
| 470µF | 3.8 | 0.045 | 1.9 | 7.3 | 4.3 | EEFLX0D471R4 | 185-5094 |
| 560µF | 3.5 | 0.006 | 1.9 | 7.3 | 4.3 | EEFLX0D561R | 185-5095 |
| 560µF | 3.8 | 0.045 | 1.9 | 7.3 | 4.3 | EEFLX0D561R4 | 185-5096 |

618744

| Capacitance | Mftrs. List No. | Order Code | Price Each 1+ | 50+ | 250+ | 1K+ |
|---|---|---|---|---|---|---|
| 330µF | EEFLX0D331R | 185-5091 | | | | |
| 330µF | EEFLX0D331R4 | 185-5092 | | | | |
| 470µF | EEFLX0D471R | 185-5093 | | | | |
| 470µF | EEFLX0D471R4 | 185-5094 | | | | |
| 560µF | EEFLX0D561R | 185-5095 | | | | |
| 560µF | EEFLX0D561R4 | 185-5096 | | | | |

## M Series

Panasonic

**SP-Cap/ Polymer Aluminum Capacitors**



- Low ESR SP-Cap
- Surface Mount Type

NEW

| | |
|---|---|
| Operating Temperature | -40°C to +105°C |
| Tolerance | ± 20% |

| Capacitance | Rated Voltage | Ripple Current | ESR @ 100 kHZ | Dimensions in mm L | W | D | Mftrs List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 120µF | 2V | 2.7A | 0.012 | 1.9 | 6.0 | 3.2 | EEFMC0D121R | 185-5087 |
| 100µF | 2.5V | 2.7A | 0.012 | 1.9 | 6.0 | 3.2 | EEFMC0E101R | 185-5088 |
| 82µF | 4V | 2.2A | 0.018 | 1.9 | 6.0 | 3.2 | EEFMC0G820R | 185-5089 |
| 47µF | 6.3V | 2.2A | 0.018 | 1.9 | 6.0 | 3.2 | EEFMC0J470R | 185-5090 |

618713

| Capacitance | Mftrs. List No. | Order Code | Price Each 1+ | 50+ | 250+ | 1K+ |
|---|---|---|---|---|---|---|
| 120µF | EEFMC0D121R | 185-5087 | | | | |
| 100µF | EEFMC0E101R | 185-5088 | | | | |
| 82µF | EEFMC0G820R | 185-5089 | | | | |
| 47µF | EEFMC0J470R | 185-5090 | | | | |

# Aluminium Electrolytic - Polymer - Rubycon

## PC-CON Series




- Conductive polymer aluminium solid electrolytic capacitors
- Low impedance and low ESR at high frequency
- High ripple current capability
- Excellent endurance characteristics
- Reflow soldering method available

| Capacitance | Ripple (mA) | ESR (mΩ) | Dimensions L | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **2 Volt d.c.** | | | | | | | |
| 330µF | 3500 | 0.009 | 7.3 | 4.3 | 2.7 | 2SW330M | 154-7028 |
| **4 Volt d.c.** | | | | | | | |
| 220µF | 3500 | 0.009 | 7.3 | 4.3 | 2.7 | 4SW220M | 154-7029 |
| **6.3 Volt d.c.** | | | | | | | |
| 10µF | 1900 | 0.05 | 7.3 | 4.3 | 1.4 | 6SL10M | 154-7022 |
| 47µF | 3000 | 0.013 | 7.3 | 4.3 | 1.9 | 6SXB47M | 154-7023 |
| 100µF | 3500 | 0.01 | 7.3 | 4.3 | 2.7 | 6SW100M | 128-1876 |

451927

| Order Code | 1+ | 25+ | 50+ | 100+ |
|---|---|---|---|---|
| **2 Volt d.c.** | | | | |
| 330µF SMD 154-7028 | | | | |
| **4 Volt d.c.** | | | | |
| 220µF SMD 154-7029 | | | | |
| **6.3 Volt d.c.** | | | | |
| 10µF SMD 154-7022 | | | | |
| 47µF SMD 154-7023 | | | | |
| 100µF SMD 128-1876 | | | | |

Price Each

# Aluminium Electrolytic - Solid Aluminium - Sanyo

## OS-CON Solid Electrolyte

The OS-CON is a solid aluminium capacitor with organic semiconductive electrolyte. Its principle advantages are its high frequency characteristics, very low ESR, high ripple current capabilities and long life.

208478

## SVP Series - Surface Mount



- Low ESR
- High temperature - 105°C
- Ripple current ratings guaranteed at 105°C
- No derating required on max. allowable ripple current
- Applications include miniaturised high frequency noise limiters and switching power supplies

Operating temperature -55°C to +105°C Tolerance ±20%

| | Ripple (mA) @ 100kHz, 105°C | ESR (mΩ) @ 100kHz to 300kHz | Body Dia. | L | W | H | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| **2.5 Volt d.c.** | | | | | | | | |
| 680 | 4080 | 0.016 | | 12 | 8.3 | 8.3 | 2.5SVP680M. | 431-0160 |
| 1500 | 5230 | 0.013 | | 12.7 | 10.3 | 10.3 | 2.5SVP1500M. | 431-0172 |
| **4 Volt d.c.** | | | | | | | | |
| 150µF | 1810 | 0.04 | 6.3 | 5.9 | 6.6 | 6.6 | 4SVP150MX | 918-8738 |
| 680µF | 3700 | 0.025 | 10 | 7.9 | 10.3 | 10.3 | 4SVP680M | 918-8762 |
| **6.3 Volt d.c.** | | | | | | | | |
| 22µF | 740 | 0.2 | 4 | 5.4 | 4.3 | 4.3 | 6SVP22M | 918-8789 |
| 100µF | 1810 | 0.04 | 6.3 | 5.9 | 6.6 | 6.6 | 6SVP100M | 918-8800 |
| 220µF | 2560 | 0.035 | 8 | 6.9 | 8.3 | 8.3 | 6SVP220MX | 918-8819 |
| 220µF | 3700 | 0.025 | 10 | 7.9 | 10.3 | 10.3 | 6SVP220M | 918-8827 |
| 330µF | 3700 | 0.025 | 10 | 7.9 | 10.3 | 10.3 | 6SVP330M | 918-8835 |
| 470µF | 3700 | 0.025 | 10 | 7.9 | 10.3 | 10.3 | 6SVP470MX | 918-8843 |
| 470µF | 4210 | 0.015 | 8 | 12.6 | 8.3 | 10.3 | 6SVP470M | 918-8851 |
| 820µF | 5440 | 0.012 | 10 | 12.6 | 10.3 | 10.3 | 6SVP820M | 918-8860 |
| **10 Volt d.c.** | | | | | | | | |
| 10µF | 700 | 0.22 | 4 | 5.4 | 4.3 | 4.3 | 10SVP10M | 918-8878 |
| 15µF | 740 | 0.2 | 4 | 5.4 | 4.3 | 4.3 | 10SVP15M | 918-8886 |
| 33µF | 100 | 0.07 | 5 | 5.9 | 5.3 | 5.3 | 10SVP33M | 918-8894 |
| 47µF | 1620 | 0.05 | 6.3 | 5.9 | 6.6 | 6.6 | 10SVP47M | 918-8908 |
| 56µF | 1700 | 0.045 | 6.3 | 5.9 | 6.6 | 6.6 | 10SVP56M | 918-8916 |
| 120µF | 2560 | 0.035 | 8 | 6.9 | 8.3 | 8.3 | 10SVP120M | 918-8924 |
| 150µF | 2560 | 0.035 | 8 | 6.9 | 8.3 | 8.3 | 10SVP150MX | 918-8932 |
| 150µF | 3020 | 0.03 | 10.3 | 7.9 | 10.3 | 10.3 | 10SVP150M | 918-8940 |
| 270µF | 3700 | 0.025 | 10.3 | 7.9 | 10.3 | 10.3 | 10SVP270M | 918-8959 |
| 330µF | 3700 | 0.025 | 10.3 | 7.9 | 10.3 | 10.3 | 10SVP330MX | 918-8967 |
| 330µF | 3950 | 0.017 | 8 | 12.6 | 8.3 | 10.3 | 10SVP330M | 918-8975 |
| 560µF | 5230 | 0.013 | 10 | 12.6 | 10.3 | 10.3 | 10SVP560M | 918-8983 |
| **16 Volt d.c.** | | | | | | | | |
| 3.3µF | 660 | 0.26 | 4 | 5.4 | 4.3 | 4.3 | 16SVP3.3M | 918-8991 |
| 15µF | 1060 | 0.12 | 5 | 5.9 | 5.3 | 5.3 | 16SVP15M | 918-9009 |
| 22µF | 1060 | 0.09 | 5 | 5.9 | 5.3 | 5.3 | 16SVP22M | 918-9017 |
| 39µF | 1620 | 0.05 | 6.3 | 5.9 | 6.6 | 6.6 | 16SVP39M | 918-9025 |
| 56µF | 1890 | 0.045 | 8 | 6.9 | 8.3 | 8.3 | 16SVP56M | 918-9033 |
| 82µF | 2120 | 0.04 | 8 | 6.9 | 8.3 | 8.3 | 16SVP82M | 918-9041 |
| 100µF | 2670 | 0.035 | 10 | 7.9 | 10.3 | 10.3 | 16SVP100M | 918-9050 |
| 180µF | 3020 | 0.03 | 10 | 7.9 | 10.3 | 10.3 | 16SVP180MX | 918-9068 |
| 180µF | 3640 | 0.02 | 8 | 12.6 | 8.3 | 10.3 | 16SVP180M | 918-9076 |
| 330µF | 4720 | 0.016 | 10 | 12.6 | 10.3 | 10.3 | 16SVP330M | 918-9084 |
| **20 Volt d.c.** | | | | | | | | |
| 10µF | 1020 | 0.12 | 5 | 5.9 | 5.3 | 5.3 | 20SVP10M | 918-9092 |
| 22µF | 1450 | 0.06 | 6.3 | 5.9 | 6.6 | 6.6 | 20SVP22M | 918-9106 |
| 27µF | 1450 | 0.06 | 6.3 | 5.9 | 6.6 | 6.6 | 20SVP27M | 918-9114 |
| 47µF | 1890 | 0.045 | 8 | 6.9 | 8.3 | 8.3 | 20SVP47M | 918-9130 |
| 68µF | 2400 | 0.04 | 10 | 7.9 | 10.3 | 10.3 | 20SVP68M | 918-9157 |
| 100µF | 3320 | 0.024 | 8 | 12.6 | 8.3 | 10.3 | 20SVP100M | 918-9165 |
| 150Capacitance | 4320 | 0.02 | 10 | 12.6 | 10.3 | 10.3 | 20SVP150M | 918-9173 |
| **25 Volt d.c.** | | | | | | | | |
| 10µF | 1500 | 0.06 | 8 | 6.9 | 8.3 | 8.3 | 25SVP10M | 918-9190 |
| 22µF | 2000 | 0.05 | 10 | 7.9 | 10.3 | 10.3 | 25SVP22M | 918-9203 |
| 33µF | 2980 | 0.03 | 8 | 12.6 | 8.3 | 10.3 | 25SVP33M | 918-9211 |
| 56µF | 3800 | 0.028 | 10 | 12.6 | 10.3 | 10.3 | 25SVP56M | 918-9220 |

249089

| Order Code | 1+ | 50+ | 100+ | 1K+ |
|---|---|---|---|---|
| **2.5 Volt d.c** | | | | |
| 680 SMD 431-0160 | | | | |
| 1500 SMD 431-0172 | | | | |
| **4 Volt d.c** | | | | |
| 150µF SMD 918-8738 | | | | |
| 680µF SMD 918-8762 | | | | |
| **6.3 Volt d.c** | | | | |
| 22µF SMD 918-8789 | | | | |
| 100µF SMD 918-8800 | | | | |
| 220µF SMD 918-8819 | | | | |
| 220µF SMD 918-8827 | | | | |
| 330µF SMD 918-8835 | | | | |
| 470µF SMD 918-8843 | | | | |
| 470µF SMD 918-8851 | | | | |
| 820µF SMD 918-8860 | | | | |
| **10 Volt d.c** | | | | |
| 10µF SMD 918-8878 | | | | |
| 15µF SMD 918-8886 | | | | |
| 33µF SMD 918-8894 | | | | |
| 47µF SMD 918-8908 | | | | |
| 56µF SMD 918-8916 | | | | |
| 120µF SMD 918-8924 | | | | |
| 150µF SMD 918-8932 | | | | |
| 150µF SMD 918-8940 | | | | |
| 270µF SMD 918-8959 | | | | |
| 330µF SMD 918-8967 | | | | |
| 330µF SMD 918-8975 | | | | |
| 560µF SMD 918-8983 | | | | |
| **16 Volt d.c** | | | | |
| 3.3µF SMD 918-8991 | | | | |
| 15µF SMD 918-9009 | | | | |
| 22µF SMD 918-9017 | | | | |
| 39µF SMD 918-9025 | | | | |
| 56µF SMD 918-9033 | | | | |
| 82µF SMD 918-9041 | | | | |
| 100µF SMD 918-9050 | | | | |
| 180µF SMD 918-9068 | | | | |
| 180µF SMD 918-9076 | | | | |
| 330µF SMD 918-9084 | | | | |
| **20 Volt d.c** | | | | |
| 10µF SMD 918-9092 | | | | |
| 22µF SMD 918-9106 | | | | |
| 27µF SMD 918-9114 | | | | |
| 47µF SMD 918-9130 | | | | |
| 68µF SMD 918-9157 | | | | |
| 100µF SMD 918-9165 | | | | |
| 150µF SMD 918-9173 | | | | |
| **25 Volt d.c** | | | | |
| 10µF SMD 918-9190 | | | | |
| 22µF SMD 918-9203 | | | | |
| 33µF SMD 918-9211 | | | | |
| 56µF SMD 918-9220 | | | | |

Price Each

## SC - SA Series



- General purpose radial leaded

Operating Temperature -55°C to +105°C
Tolerance ±20%

| | Dia | L | Lead Pitch | Lead Dia. | Ripple (mA) @ 10kHz +85°C | ESR (mΩ) @ 100kHz | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| **6.3 Volt d.c** | | | | | | | | |
| 150µF | 8 | 10.5 | 3.5 | 0.5 | 1720 | 0.043 | 6SA150M | 918-9688 |
| 330µF | 10 | 10.5 | 5 | 0.6 | 3500 | 0.025 | 6SA330M | 918-8657 |
| **10 Volt d.c** | | | | | | | | |
| 10µF | 5 | 6.8 | 2 | 0.45 | 385 | 0.2 | 10SC10M | 918-9483 |
| 22µF | 6.3 | 6.8 | 2.5 | 0.45 | 616 | 0.15 | 10SC22M | 918-9491 |
| 47µF | 6.3 | 9.8 | 2.5 | 0.5 | 994 | 0.125 | 10SC47M | 918-9505 |
| 68µF | 6.3 | 9.8 | 2.5 | 0.5 | 1140 | 0.09 | 10SA68M | 918-9513 |
| 220µF | 10 | 10.5 | 5 | 0.6 | 2090 | 0.045 | 10SA220M | 918-9521 |

# Aluminium Electrolytic - Solid Aluminium - Sanyo - continued

## SC - SA Series - continued

**6.3 Volt d.c**

| | Order Code | 1+ | 50+ | 100+ | 1K+ |
|---|---|---|---|---|---|
| 150µF | 918-9688 | | | | |
| 330µF | 918-8657 | | | | |

**10 Volt d.c**

| | Order Code | 1+ | 50+ | 100+ | 1K+ |
|---|---|---|---|---|---|
| 10µF | 918-9483 | | | | |
| 22µF | 918-9491 | | | | |
| 47µF | 918-9505 | | | | |
| 68µF | 918-9513 | | | | |
| 220µF | 918-9521 | | | | |

**16 Volt d.c**

| | Dia | L | Lead Pitch | Lead Dia. | Ripple (mA) @ 10kHz +85°C | ESR (mΩ) @ 100kHz | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 3.3µF | 4 | 6.8 | 2 | 0.45 | 242 | 0.35 | 16SC3R3M | 918-9530 |
| 6.8µF | 5 | 6.8 | 2 | 0.45 | 378 | 0.2 | 16SC6R8M | 918-9548 |
| 22µF | 6.3 | 9.8 | 2.5 | 0.5 | 889 | 0.125 | 16SC22M | 918-9564 |
| 33µF | 6.3 | 9.8 | 2.5 | 0.5 | 938 | 0.125 | 16SC33M | 918-9572 |
| 47µF | 6.3 | 9.8 | 2.5 | 0.6 | 1830 | 0.06 | 16SA47M | 918-8673 |
| 100µF | 8 | 10.5 | 3.5 | 0.5 | 1480 | 0.045 | 16SA100M | 918-9580 |
| 470µF | 12.5 | 22 | 5 | 0.8 | 3752 | 0.02 | 16SA470M | 918-9599 |

**16 Volt d.c**

| | Order Code | 1+ | 50+ | 100+ | 1K+ |
|---|---|---|---|---|---|
| 3.3µF | 918-9530 | | | | |
| 6.8µF | 918-9548 | | | | |
| 22µF | 918-9564 | | | | |
| 33µF | 918-9572 | | | | |
| 47µF | 918-8673 | | | | |
| 100µF | 918-9580 | | | | |
| 470µF | 918-9599 | | | | |

**20 Volt d.c**

| | Dia | L | Lead Pitch | Lead Dia. | Ripple (mA) @ 10kHz +85°C | ESR (mΩ) @ 100kHz | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 22µF | 6.3 | 6.8 | 2.5 | 0.45 | 730 | 0.07 | 20SA22M | 918-9602 |
| 33µF | 6.3 | 9.8 | 2.5 | 0.6 | 1710 | 0.07 | 20SA33M | 918-8681 |
| 68µF | 8 | 10.5 | 3.5 | 0.5 | 1390 | 0.045 | 20SA68M | 121-7620 |
| 100µF | 10 | 10.5 | 5 | 0.5 | 1770 | 0.03 | 20SA100M | 918-9610 |

**20 Volt d.c**

| | Order Code | 1+ | 50+ | 100+ | 1K+ |
|---|---|---|---|---|---|
| 22µF | 918-9602 | | | | |
| 33µF | 918-8681 | | | | |
| 68µF | 121-7620 | | | | |
| 100µF | 918-9610 | | | | |

**25 Volt d.c**

| | Dia | L | Lead Pitch | Lead Dia. | Ripple (mA) @ 10kHz +85°C | ESR (mΩ) @ 100kHz | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 4.7µF | 6.3 | 6.8 | 2.5 | 0.45 | 371 | 0.15 | 25SC4R7M | 918-9629 |
| 10µF | 6.3 | 6.8 | 2.5 | 0.45 | 1150 | 0.09 | 25SC10M | 918-8690 |
| 15µF | 6.3 | 9.8 | 2.5 | 0.5 | 784 | 0.125 | 25SC15M | 918-9645 |
| 22µF | 8 | 10.5 | 3.5 | 0.5 | 889 | 0.125 | 25SC22M | 918-9653 |
| 33µF | 10 | 10.5 | 5 | 0.5 | 1575 | 0.04 | 25SC33M | 918-9661 |
| 47µF | 10 | 10.5 | 5 | 0.5 | 1610 | 0.04 | 25SC47M | 918-9670 |

**25 Volt d.c**

| | Order Code | 1+ | 50+ | 100+ | 1K+ |
|---|---|---|---|---|---|
| 4.7µF | 918-9629 | | | | |
| 10µF | 918-8690 | | | | |
| 15µF | 918-9645 | | | | |
| 22µF | 918-9653 | | | | |
| 33µF | 918-9661 | | | | |
| 47µF | 918-9670 | | | | |

**30 Volt d.c**

| | Dia | L | Lead Pitch | Lead Dia. | Ripple (mA) @ 10kHz +85°C | ESR (mΩ) @ 100kHz | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 1µF | 4 | 6.8 | 2 | 0.45 | 430 | 0.35 | 30SC1M | 918-8703 |
| 10µF | 8 | 10.5 | 3.5 | 0.6 | 1380 | 0.11 | 30SC10M | 918-8711 |
| 22µF | 10 | 10.5 | 5 | 0.6 | 1830 | 0.08 | 30SC22M | 918-8720 |

208495

**30 Volt d.c**

| | Order Code | 1+ | 50+ | 100+ | 1K+ |
|---|---|---|---|---|---|
| 1µF | 918-8703 | | | | |
| 10µF | 918-8711 | | | | |
| 22µF | 918-8720 | | | | |

## SH Series



- Low ESR
- Ripple current ratings guaranteed at 105°C
- No derating required on max. allowable ripple current
- Long life - 5000 hrs

Operating temperature -55°C to +105°C Operating life @ 105°C 5000 hrs
Tolerance ±20%

| | Ripple (mA) @ 100kHz, 45°C | ESR (mΩ) @ 100kHz to 300kHz | H | Dia. | Lead Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| **6.3 Volt d.c.** | | | | | | | | |
| 47µF | 1430 | 0.06 | 6.8 | 6.3 | 0.45 | 2.5 | 6SH47M | 918-9238 |
| 150µF | 2780 | 0.03 | 10.5 | 8 | 0.6 | 3.5 | 6SH150M | 918-9246 |
| 330µF | 3500 | 0.025 | 10.5 | 10 | 0.6 | 5 | 6SH330M | 918-9254 |
| **10 Volt d.c.** | | | | | | | | |
| 10µF | 780 | 0.15 | 6.8 | 5 | 0.45 | 2 | 10SH10M | 918-9262 |
| 68µF | 2000 | 0.05 | 9.8 | 6.3 | 0.6 | 2.5 | 10SH68M | 918-9270 |
| 220µF | 3370 | 0.027 | 10.5 | 10 | 0.6 | 5 | 10SH220M | 918-9289 |
| **16 Volt d.c.** | | | | | | | | |
| 2.2µF | 450 | 0.28 | 6.8 | 4 | 0.45 | 2 | 16SH2.2M | 918-9297 |
| 4.7µF | 720 | 0.18 | 6.8 | 5 | 0.45 | 2 | 16SH4.7M | 918-9300 |
| 33µF | 1370 | 0.07 | 6.8 | 6.3 | 0.45 | 2.5 | 16SH33M | 918-9327 |
| 47µF | 1830 | 0.06 | 9.8 | 6.3 | 0.6 | 2.5 | 16SH47M | 918-9335 |
| 100µF | 2740 | 0.03 | 10.5 | 8 | 0.6 | 3.5 | 16SH100M | 918-9343 |
| 150µF | 3260 | 0.028 | 10.5 | 10 | 0.6 | 5 | 16SH150M | 918-9351 |
| **20 Volt d.c.** | | | | | | | | |
| 22µF | 1300 | 0.07 | 6.8 | 6.3 | 0.45 | 2.5 | 20SH22M | 918-9378 |
| 33µF | 1710 | 0.07 | 9.8 | 6.3 | 0.6 | 2.5 | 20SH33M | 918-9386 |
| 47µF | 2450 | 0.04 | 10.5 | 8 | 0.6 | 3.5 | 20SH47M | 918-9394 |
| 68µF | 2600 | 0.036 | 10.5 | 8 | 0.6 | 3.5 | 20SH68M | 918-9408 |
| 100µF | 3210 | 0.03 | 10.5 | 10 | 0.6 | 5 | 20SH100M | 918-9416 |
| **25 Volt d.c.** | | | | | | | | |
| 1µF | 430 | 0.35 | 6.8 | 4 | 0.45 | 2 | 25SH1M | 918-9424 |
| 1.5µF | 435 | 0.3 | 6.8 | 4 | 0.45 | 2 | 25SH1.5M | 918-9432 |
| 4.7µF | 1130 | 0.1 | 6.8 | 6.3 | 0.45 | 2.5 | 25SH4.7M | 918-9440 |
| 6.8µF | 1140 | 0.1 | 6.8 | 6.3 | 0.45 | 2.5 | 25SH6.8M | 918-9459 |
| 10µF | 1150 | 0.09 | 6.8 | 6.3 | 0.45 | 2.5 | 25SH10M | 918-9467 |
| 15µF | 1650 | 0.07 | 9.8 | 6.3 | 0.6 | 2.5 | 25SH15M | 918-9475 |

249131

**6.3 Volt d.c**

| | Order Code | 1+ | 50+ | 100+ | 1K+ |
|---|---|---|---|---|---|
| 47µF | 918-9238 | | | | |
| 150µF | 918-9246 | | | | |
| 330µF | 918-9254 | | | | |

**10 Volt d.c**

| | Order Code | 1+ | 50+ | 100+ | 1K+ |
|---|---|---|---|---|---|
| 10µF | 918-9262 | | | | |
| 68µF | 918-9270 | | | | |
| 220µF | 918-9289 | | | | |

**16 Volt d.c**

| | Order Code | 1+ | 50+ | 100+ | 1K+ |
|---|---|---|---|---|---|
| 2.2µF | 918-9297 | | | | |
| 4.7µF | 918-9300 | | | | |
| 33µF | 918-9327 | | | | |
| 47µF | 918-9335 | | | | |
| 100µF | 918-9343 | | | | |
| 150µF | 918-9351 | | | | |

**20 Volt d.c**

| | Order Code | 1+ | 50+ | 100+ | 1K+ |
|---|---|---|---|---|---|
| 22µF | 918-9378 | | | | |
| 33µF | 918-9386 | | | | |
| 47µF | 918-9394 | | | | |
| 68µF | 918-9408 | | | | |
| 100µF | 918-9416 | | | | |

**25 Volt d.c**

| | Order Code | 1+ | 50+ | 100+ | 1K+ |
|---|---|---|---|---|---|
| 1µF | 918-9424 | | | | |
| 1.5µF | 918-9432 | | | | |
| 4.7µF | 918-9440 | | | | |
| 6.8µF | 918-9459 | | | | |
| 10µF | 918-9467 | | | | |
| 15µF | 918-9475 | | | | |

## SP Series



- Low ESR
- Ripple current ratings guaranteed at 105°C
- No derating required on max. allowable ripple current
- For designing around MPUs for computer equipment and audio applications
- Adopted **OFC** (**O**xygen **F**ree **C**opper) wire for improved tone quality

Operating temperature -55°C to +105°C Tolerance ±20%

| | Ripple (mA) @ 100kHz, 45°C | ESR (mΩ) @ 100kHz to 300kHz | H | Dia. | Lead Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| **10 Volt d.c.** | | | | | | | | |
| 100µF | 2350 | 0.032 | 5 | 8 | 0.6 | 3.5 | 10SP100M | 121-7611 |
| 470µF | 4510 | 0.015 | 10.5 | 10 | 0.6 | 5 | 10SP470M | 121-7612 |
| **16 Volt d.c.** | | | | | | | | |
| 33µF | 1580 | 0.05 | 5 | 6.3 | 0.6 | 2.5 | 16SP33M | 121-7613 |
| **20 Volt d.c.** | | | | | | | | |
| 22µF | 1580 | 0.05 | 5 | 6.3 | 0.6 | 2.5 | 20SP22M | 121-7614 |
| 47µF | 2210 | 0.036 | 5 | 8 | 0.6 | 3.5 | 20SP47M | 121-7615 |
| **25 Volt d.c.** | | | | | | | | |
| 10µF | 1560 | 0.055 | 6.8 | 6.3 | 0.6 | 2.5 | 25SP10M | 121-7617 |
| 56µF | 3260 | 0.025 | 10.5 | 10 | 0.6 | 5 | 25SP56M | 121-7618 |

249111

| | Order Code | Price Each 1+ | 50+ | 100+ | 1K+ |
|---|---|---|---|---|---|
| **10 Volt d.c** | | | | | |
| 100µF | **121-7611** | | | | |
| 470µF | **121-7612** | | | | |
| **16 Volt d.c** | | | | | |
| 33µF | **121-7613** | | | | |
| **20 Volt d.c** | | | | | |
| 22µF | **121-7614** | | | | |
| 47µF | **121-7615** | | | | |
| **25 Volt d.c** | | | | | |
| 10µF | **121-7617** | | | | |
| 56µF | **121-7618** | | | | |

# Aluminium Electrolytic - Solid Aluminium - Vishay

## 128 SAL-RPM Series



- High performance
- Extremely long operating life
- Extended operating temperature

Lead pitch = 5.2
Lead dia = 0.6

| | | | |
|---|---|---|---|
| Operating temperature | -55°C to +125°C (6.3 to 25V)<br>-55°C to +85°C (40V) | DC leakage current | 0.025CV or 2µA whichever is > |
| Tolerance | ±20% | Operating life @ 40°C | >300,000 hrs |

| Volt d.c | | ESR (Ω) @ 100Hz 20°C | Impedance (Ω) @ 100kHz 20°C | Dimensions H | W | D | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 6.3 | 10µF | 20 | 3 | 9.5 | 7 | 3.5 | MAL212853109E3 | 116-6612 |
| 6.3 | 22µF | 9 | 1 | 9.5 | 7 | 4 | MAL212853229E3 | 116-6613 |
| 6.3 | 47µF | 4.8 | 0.5 | 9.5 | 8 | 5 | MAL212853479E3 | 116-6614 |
| 6.3 | 68µF | 3 | 0.5 | 9.5 | 8 | 6 | MAL212853689E3 | 116-6615 |
| 10 | 22µF | 9 | 1.7 | 9.5 | 7 | 5 | MAL212854229E3 | 116-6618 |
| 10 | 33µF | 6.1 | 0.5 | 9.5 | 8 | 5 | MAL212854339E3 | 116-6619 |
| 10 | 47µF | 4.3 | 0.5 | 9.5 | 8 | 6 | MAL212854479E3 | 116-6620 |
| 16 | 2.2µF | 91 | 5 | 9.5 | 7 | 3.5 | MAL212855228E3 | 116-6622 |
| 16 | 6.8µF | 30 | 1.5 | 9.5 | 7 | 4 | MAL212855688E3 | 116-6624 |
| 16 | 10µF | 20 | 1 | 9.5 | 7 | 5 | MAL212855109E3 | 116-6625 |
| 16 | 15µF | 14 | 0.7 | 9.5 | 8 | 5 | MAL212855159E3 | 116-6626 |
| 16 | 22µF | 9 | 0.7 | 9.5 | 8 | 6 | MAL212855229E3 | 116-6627 |
| 25 | 1µF | 200 | 15 | 9.5 | 7 | 3.5 | MAL212856108E3 | 116-6628 |
| 25 | 4.7µF | 43 | 5 | 9.5 | 8 | 5 | MAL212856478E3 | 116-6630 |
| 25 | 6.8 | 30 | 3 | 9.5 | 8 | 6 | MAL212856688E3 | 116-6631 |
| 25 | 10µF | 20 | 2 | 9.5 | 8 | 6 | MAL212856109E3 | 116-6632 |
| 40 | 0.47µF | 430 | 15 | 9.5 | 7 | 5 | MAL212837477E3 | 116-6596 |
| 40 | 1µF | 200 | 10 | 9.5 | 8 | 6 | MAL212857108E3 | 116-6634 |
| 40 | 2.2 | 91 | 4.2 | 9.5 | 8 | 6 | MAL212837228E3 | 116-6597 |

208503

**Order Multiple=5**

| Volt d.c. | | Order Code | Price Each 5+ | 100+ | 1K+ | 3K+ |
|---|---|---|---|---|---|---|
| 6.3 | 10µF | **116-6612** | | | | |
| 6.3 | 22µF | **116-6613** | | | | |
| 6.3 | 47µF | **116-6614** | | | | |
| 6.3 | 68µF | **116-6615** | | | | |
| 10 | 22µF | **116-6618** | | | | |
| 10 | 33µF | **116-6619** | | | | |
| 10 | 47µF | **116-6620** | | | | |
| 16 | 2.2µF | **116-6622** | | | | |
| 16 | 6.8µF | **116-6624** | | | | |
| 16 | 10µF | **116-6625** | | | | |
| 16 | 15µF | **116-6626** | | | | |
| 16 | 22µF | **116-6627** | | | | |
| 25 | 1µF | **116-6628** | | | | |
| 25 | 4.7µF | **116-6630** | | | | |
| 25 | 6.8 | **116-6631** | | | | |
| 25 | 10µF | **116-6632** | | | | |
| 40 | 0.47µF | **116-6596** | | | | |
| 40 | 1µF | **116-6634** | | | | |
| 40 | 2.2 | **116-6597** | | | | |

# Aluminium Electrolytic - Axial - Multicomp

## MC TEA Series



NEW

- 85°C, 2000 hours assured
- For general purpose applications

Operating temp. -40°C to +85°C Tolerance ± 20%

| 10 Volt d.c. | Ripple Current @ 120 Hz (mA) | Dimensions (mm) L | Dia. | Lead (mm) Dia | Order Code |
|---|---|---|---|---|---|
| 470µF | 390 | 16 | 8 | 0.6 | 183-2409 |
| 1000µF | 671 | 17 | 10 | 0.6 | 183-2410 |
| 2200µF | 1051 | 22 | 13 | 0.6 | 183-2411 |
| 4700µF | 1552 | 28 | 16 | 0.8 | 183-2412 |

**Order Multiple=10**

| 10 Volt dc | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 470µF | **183-2409** | | | | | |
| 1000µF | **183-2410** | | | | | |
| 2200µF | **183-2411** | | | | | |
| 4700µF | **183-2412** | | | | | |

| 16 Volt d.c. | Ripple Current @ 120 Hz (mA) | Dimensions (mm) L | Dia. | Lead (mm) Dia | Order Code |
|---|---|---|---|---|---|
| 22µF | 71 | 12 | 5 | 0.6 | 183-2413 |
| 100µF | 160 | 13 | 6.3 | 0.6 | 183-2415 |
| 220µF | 298 | 13 | 8 | 0.6 | 183-2416 |
| 470µF | 460 | 16 | 8 | 0.6 | 183-2417 |
| 1000µF | 775 | 21 | 10 | 0.6 | 183-2418 |
| 2200µF | 1125 | 24 | 13 | 0.6 | 183-2419 |
| 4700µF | 1650 | 16 | 33 | 0.8 | 183-2420 |

**Order Multiple=10**

| 16 Volt dc | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 22µF | **183-2413** | | | | | |
| 100µF | **183-2415** | | | | | |
| 220µF | **183-2416** | | | | | |
| 470µF | **183-2417** | | | | | |
| 1000µF | **183-2418** | | | | | |
| 2200µF | **183-2419** | | | | | |
| 4700µF | **183-2420** | | | | | |

| 25 Volt d.c. | Ripple Current @ 120 Hz (mA) | Dimensions (mm) L | Dia. | Lead (mm) Dia | Order Code |
|---|---|---|---|---|---|
| 10µF | 40 | 12 | 5 | 0.6 | 183-2421 |
| 22µF | 76 | 12 | 5 | 0.6 | 183-2422 |
| 47µF | 100 | 13 | 6.3 | 0.6 | 183-2423 |
| 100µF | 215 | 13 | 8 | 0.6 | 183-2424 |
| 220µF | 319 | 16 | 8 | 0.6 | 183-2425 |
| 470µF | 524 | 21 | 10 | 0.6 | 183-2427 |
| 1000µF | 873 | 13 | 22 | 0.8 | 183-2428 |
| 2200µF | 1344 | 28 | 16 | 0.8 | 183-2429 |
| 4700µF | 1881 | 36 | 18 | 0.8 | 183-2430 |

**Order Multiple=10**

| 25 Volt dc | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10µF | **183-2421** | | | | | |
| 22µF | **183-2422** | | | | | |
| 47µF | **183-2423** | | | | | |
| 100µF | **183-2424** | | | | | |
| 220µF | **183-2425** | | | | | |
| 470µF | **183-2427** | | | | | |
| 1000µF | **183-2428** | | | | | |
| 2200Capacitance | **183-2429** | | | | | |
| 4700µF | **183-2430** | | | | | |

| 35 Volt d.c. | Ripple Current @ 120 Hz (mA) | Dimensions (mm) L | Dia. | Lead (mm) Dia | Order Code |
|---|---|---|---|---|---|
| 22µF | 70 | 13 | 6.3 | 0.6 | 183-2431 |
| 100µF | 232 | 8 | 16 | 0.8 | 183-2432 |
| 220µF | 401 | 17 | 10 | 0.6 | 183-2433 |
| 470µF | 613 | 22 | 13 | 0.6 | 183-2434 |
| 1000µF | 955 | 27 | 13 | 0.6 | 183-2435 |
| 2200µF | 1421 | 33 | 16 | 0.8 | 183-2436 |
| µF4700 | 2280 | 43 | 22 | 0.8 | 183-2437 |

**Order Multiple=10**

| 35 Volt dc | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 22µF | **183-2431** | | | | | |
| 100µF | **183-2432** | | | | | |
| 220µF | **183-2433** | | | | | |
| 470µF | **183-2434** | | | | | |
| 1000µF | **183-2435** | | | | | |
| 2200µF | **183-2436** | | | | | |
| 4700µF | **183-2437** | | | | | |

| 63 Volt d.c. | Ripple Current @ 120 Hz (mA) | Dimensions (mm) L | Dia. | Lead (mm) Dia | Order Code |
|---|---|---|---|---|---|
| 22µF | 109 | 13 | 6.3 | 0.6 | 183-2439 |
| 47µF | 214 | 16 | 8 | 0.6 | 183-2441 |
| 100µF | 326 | 17 | 10 | 0.6 | 183-2442 |
| 220µF | 527 | 22 | 13 | 0.6 | 183-2443 |
| 470µF | 780 | 27 | 13 | 0.6 | 183-2444 |
| 1000µF | 1249 | 36 | 16 | 0.8 | 183-2445 |
| 2200µF | 1744 | 43 | 22 | 0.8 | 183-2446 |
| 4700µF | 2710 | 52 | 25 | 0.8 | 183-2447 |

# Aluminium Electrolytic - Axial - Multicomp - continued

## MC TEA Series - continued

**Order Multiple=10**

**63 Volt dc**

| | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 22µF | 183-2439 | | | | | |
| 47µF | 183-2441 | | | | | |
| 100µF | 183-2442 | | | | | |
| 220µF | 183-2443 | | | | | |
| 470µF | 183-2444 | | | | | |
| 1000µF | 183-2445 | | | | | |
| 2200µF | 183-2446 | | | | | |
| 4700µF | 183-2447 | | | | | |

| 100 Volt d.c. | Ripple Current @ 120 Hz (mA) | Dimensions (mm) L | Dia. | Lead (mm) Dia | Order Code |
|---|---|---|---|---|---|
| 2.2µF | 30 | 12 | 5 | 0.6 | 183-2448 |
| 4.7µF | 41 | 13 | 6.3 | 0.6 | 183-2449 |
| 22µF | 133 | 16 | 8 | 0.6 | 183-2450 |
| 47µF | 237 | 21 | 10 | 0.6 | 183-2452 |
| 100µF | 377 | 22 | 13 | 0.6 | 183-2453 |

**Order Multiple=10**

**100 Volt dc**

| | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 2.2µF | 183-2448 | | | | | |
| 4.7µF | 183-2449 | | | | | |
| 22µF | 183-2450 | | | | | |
| 47µF | 183-2452 | | | | | |
| 100µF | 183-2453 | | | | | |

| 250 Volt d.c. | Ripple Current @ 120 Hz (mA) | Dimensions (mm) L | Dia. | Lead (mm) Dia | Order Code |
|---|---|---|---|---|---|
| 4.7µF | 38 | 17 | 10 | 0.6 | 183-2454 |
| 10µF | 72 | 21 | 10 | 0.6 | 183-2455 |
| 22µF | 121 | 22 | 13 | 0.6 | 183-2456 |
| 100µF | 368 | 36 | 16 | 0.8 | 183-2457 |

**Order Multiple=10**

**250 Volt dc**

| | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 4.7µF | 183-2454 | | | | | |
| 10µF | 183-2455 | | | | | |
| 22µF | 183-2456 | | | | | |
| 100µF | 183-2457 | | | | | |

| 450 Volt d.c. | Ripple Current @ 120 Hz (mA) | Dimensions (mm) L | Dia. | Lead (mm) Dia | Order Code |
|---|---|---|---|---|---|
| 1µF | 15 | 16 | 8 | 0.6 | 183-2458 |
| 2.2µF | 23 | 21 | 10 | 0.6 | 183-2459 |
| 4.7µF | 46 | 26 | 10 | 0.6 | 183-2460 |
| 10µF | 82 | 27 | 13 | 0.6 | 183-2461 |
| 22µF | 143 | 36 | 16 | 0.8 | 183-2462 |
| 100µF | 448 | 52 | 25 | 0.8 | 183-2464 |

612083

**Order Multiple=10**

**450 Volt dc**

| | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1µF | 183-2458 | | | | | |
| 2.2µF | 183-2459 | | | | | |
| 4.7µF | 183-2460 | | | | | |
| 10µF | 183-2461 | | | | | |
| 22µF | 183-2462 | | | | | |
| 100µF | 183-2464 | | | | | |

## MC TG Series

multicomp

NEW



- 105°C, 1000 hours assured
- Excellent temperature performance
- Suitable to use for industrial equipment

Operating temp. -40°C to +105°C Tolerance ± 20%

| 10 Volt d.c. | Ripple Current @ 120 Hz (mA) | Dimensions (mm) L | Dia. | Lead (mm) Dia | Order Code |
|---|---|---|---|---|---|
| 220µF | 180 | 13 | 8 | 0.6 | 183-2465 |
| 1000µF | 486 | 17 | 10 | 0.6 | 183-2466 |
| 2200µF | 793 | 22 | 13 | 0.6 | 183-2467 |

**Order Multiple=10**

**10 Volt dc**

| | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 220µF | 183-2465 | | | | | |
| 1000µF | 183-2466 | | | | | |
| 2200µF | 183-2467 | | | | | |

| 16 Volt d.c. | Ripple Current @ 120 Hz (mA) | Dimensions (mm) L | Dia. | Lead (mm) Dia | Order Code |
|---|---|---|---|---|---|
| 100µF | 145 | 13 | 6.3 | 0.6 | 183-2468 |
| 220µF | 231 | 13 | 8 | 0.6 | 183-2469 |
| 470µF | 359 | 17 | 10 | 0.6 | 183-2470 |
| 1000µF | 569 | 21 | 10 | 0.6 | 183-2471 |
| 2200µF | 926 | 24 | 13 | 0.6 | 183-2472 |
| 4700µF | 1443 | 33 | 16 | 0.8 | 183-2473 |

**Order Multiple=10**

**16 Volt dc**

| | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 100µF | 183-2468 | | | | | |
| 220µF | 183-2469 | | | | | |
| 470µF | 183-2470 | | | | | |
| 1000µF | 183-2471 | | | | | |
| 2200µF | 183-2472 | | | | | |
| 4700µF | 183-2473 | | | | | |

| 25 Volt d.c. | Ripple Current @ 120 Hz (mA) | Dimensions (mm) L | Dia. | Lead (mm) Dia | Order Code |
|---|---|---|---|---|---|
| 10µF | 39 | 12 | 5 | 0.6 | 183-2474 |
| 22µF | 63 | 12 | 5 | 0.6 | 183-2476 |
| 47µF | 90 | 13 | 6.3 | 0.6 | 183-2477 |
| 100µF | 166 | 13 | 8 | 0.6 | 183-2478 |
| 220µF | 246 | 16 | 8 | 0.6 | 183-2479 |
| 470µF | 432 | 21 | 10 | 0.6 | 183-2480 |
| 1000µF | 662 | 22 | 13 | 0.6 | 183-2481 |
| 2200µF | 1024 | 28 | 16 | 0.8 | 183-2482 |
| 4700µF | 1638 | 36 | 18 | 0.8 | 183-2483 |

**Order Multiple=10**

**25 Volt dc**

| | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10µF | 183-2474 | | | | | |
| 22µF | 183-2476 | | | | | |
| 47µF | 183-2477 | | | | | |
| 100µF | 183-2478 | | | | | |
| 220µF | 183-2479 | | | | | |
| 470µF | 183-2480 | | | | | |
| 1000µF | 183-2481 | | | | | |
| 2200µF | 183-2482 | | | | | |
| 4700µF | 183-2483 | | | | | |

| 35 Volt d.c. | Ripple Current @ 120 Hz (mA) | Dimensions (mm) L | Dia. | Lead (mm) Dia | Order Code |
|---|---|---|---|---|---|
| 10µF | 44 | 12 | 5 | 0.6 | 183-2484 |
| 47µF | 114 | 13 | 6.3 | 0.6 | 183-2485 |
| 100µF | 180 | 16 | 8 | 0.6 | 183-2486 |
| 220µF | 305 | 17 | 10 | 0.6 | 183-2488 |
| 470µF | 490 | 22 | 13 | 0.6 | 183-2489 |
| 1000µF | 721 | 27 | 13 | 0.6 | 183-2490 |
| 2200µF | 1177 | 33 | 16 | 0.8 | 183-2491 |
| 4700µF | 1878 | 43 | 22 | 0.8 | 183-2492 |

**Order Multiple=10**

**35 Volt dc**

| | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10µF | 183-2484 | | | | | |
| 47µF | 183-2485 | | | | | |
| 100µF | 183-2486 | | | | | |
| 220µF | 183-2488 | | | | | |
| 470µF | 183-2489 | | | | | |
| 1000µF | 183-2490 | | | | | |
| 2200µF | 183-2491 | | | | | |
| 4700µF | 183-2492 | | | | | |

| 63 Volt d.c. | Ripple Current @ 120 Hz (mA) | Dimensions (mm) L | Dia. | Lead (mm) Dia | Order Code |
|---|---|---|---|---|---|
| 10µF | 55 | 13 | 6.3 | 0.6 | 183-2493 |
| 22µF | 90 | 13 | 6.3 | 0.6 | 183-2494 |
| 47µF | 162 | 16 | 8 | 0.6 | 183-2495 |
| 100µF | 248 | 17 | 10 | 0.6 | 183-2496 |
| 220µF | 420 | 22 | 13 | 0.6 | 183-2497 |
| 470µF | 632 | 27 | 13 | 0.6 | 183-2498 |
| 1000µF | 984 | 36 | 16 | 0.8 | 183-2500 |
| 2200µF | 1540 | 43 | 22 | 0.8 | 183-2501 |

**Order Multiple=10**

**63 Volt dc**

| | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10µF | 183-2493 | | | | | |
| 22µF | 183-2494 | | | | | |
| 47µF | 183-2495 | | | | | |
| 100µF | 183-2496 | | | | | |
| 220µF | 183-2497 | | | | | |
| 470µF | 183-2498 | | | | | |
| 1000µF | 183-2500 | | | | | |
| 2200µF | 183-2501 | | | | | |

| 100 Volt d.c. | Ripple Current @ 120 Hz (mA) | Dimensions (mm) L | Dia. | Lead (mm) Dia | Order Code |
|---|---|---|---|---|---|
| 1µF | 15 | 12 | 5 | 0.6 | 183-2502 |
| 2.2µF | 30 | 12 | 5 | 0.6 | 183-2503 |
| 4.7µF | 37 | 13 | 6.3 | 0.6 | 183-2504 |
| 10µF | 64 | 13 | 6.3 | 0.6 | 183-2506 |
| 22µF | 106 | 16 | 8 | 0.6 | 183-2507 |
| 47µF | 180 | 21 | 10 | 0.6 | 183-2508 |
| 100µF | 287 | 22 | 13 | 0.6 | 183-2509 |

612085

**Order Multiple=10**

| 100 Volt dc | | Price Each | | | | |
|---|---|---|---|---|---|---|
| | Order Code | 10+ | 50+ | 100+ | 500+ | 1K+ |
| 1µF | 183-2502 | | | | | |
| 2.2µF | 183-2503 | | | | | |
| 4.7µF | 183-2504 | | | | | |
| 10µF | 183-2506 | | | | | |
| 22µF | 183-2507 | | | | | |
| 47µF | 183-2508 | | | | | |
| 100µF | 183-2509 | | | | | |

# Aluminium Electrolytic - Axial - Vishay

## 021 ASM Series - Miniature Long Life



- Long life aluminium electrolytic
- High gain foil for smaller dimensions
- High CV per unit volume

Lead dia = 0.8 mm

| | | | |
|---|---|---|---|
| Operating temperature | -55°C to +85°C | Ripple current frequency @ 85°C | 100 Hz |
| Tolerance | ± 20% | Useful life @ 85°C | 2500 hrs (L10 to 25) |
| Climatic category **(IEC68)** | 55/085/56 | | 500 hrs (L30 to 40) |
| DC Leakage current | 0.006CV + 4µA | | |

| Capacitance | Ripple (mA) | ESR Ω | Dimensions (mm) L | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| **16 Volts d.c.** | | | | | | |
| 1000 µF | 530 | 0.26 | 30.5 | 10 | MAL202115102E3 | 116-5376 |
| 1000 µF | 530 | 0.26 | 30.5 | 10 | MAL202115102E3 | 116-5376 |
| 2200 µF | 880 | 0.15 | 30.5 | 12.5 | MAL202115222E3 | 116-5377 |
| 3300 µF | 1120 | 0.111 | 30.5 | 15 | MAL202115332E3 | 116-5378 |
| 4700 µF | 1380 | 0.087 | 30.5 | 18.5 | MAL202115472E3 | 116-5381 |
| 10000 µF | 2100 | 0.058 | 41.5 | 21 | MAL202115103E3 | 116-5382 |
| **25 Volts d.c.** | | | | | | |
| 47 µF | 80 | 4.8 | 10 | 4.5 | MAL202136479E3 | 116-5466 |
| 100 µF | 150 | 2.3 | 10 | 6 | MAL202136101E3 | 116-5467 |
| 220 µF | 250 | 1 | 18 | 6.5 | MAL202136221E3 | 116-5468 |
| 470 µF | 450 | 0.48 | 18 | 10 | MAL202136471E3 | 116-5469 |
| 680 µF | 480 | 0.323 | 30.5 | 10.5 | MAL202116681E3 | 116-5383 |
| 1000 µF | 480 | 0.22 | 30.5 | 12.5 | MAL202116102E3 | 116-5384 |
| 1500 µF | 780 | 0.179 | 30.5 | 13 | MAL202116152E3 | 116-5385 |
| 2200 µF | 1020 | 0.132 | 30.5 | 15.5 | MAL202116222E3 | 116-5386 |
| 3300 µF | 1240 | 0.099 | 30.5 | 18.5 | MAL202116332E3 | 116-5387 |
| 4700 µF | 1650 | 0.079 | 41.5 | 18 | MAL202116472E3 | 118-7040 |
| 6800 µF | 2000 | 0.064 | 41.5 | 21 | MAL202116682E3 | 116-5388 |
| **40 Volts d.c.** | | | | | | |
| 22 µF | 60 | 8 | 10 | 4.5 | MAL202137229E3 | 116-5470 |
| 47 µF | 110 | 3.8 | 10 | 6 | MAL202137479E3 | 116-5472 |
| 100 µF | 190 | 1.8 | 18 | 6.5 | MAL202137101E3 | 116-5473 |
| 220 µF | 440 | 0.8 | 18 | 10 | MAL202137221E3 | 116-5474 |
| 470 µF | 440 | 0.404 | 30.5 | 10 | MAL202117471E3 | 116-5389 |
| 680 µF | 580 | 0.279 | 30.5 | 12.5 | MAL202117681E3 | 116-5390 |
| 1000 µF | 730 | 0.19 | 30.5 | 13 | MAL202117102E3 | 116-5391 |
| 1500 µF | 815 | 0.159 | 30.5 | 15 | MAL202117152E3 | 116-5393 |
| 2200 µF | 1170 | 0.118 | 30.5 | 18 | MAL202117222E3 | 116-5394 |
| 3300 µF | 1500 | 0.09 | 41.5 | 18.5 | MAL202117332E3 | 116-5395 |
| 4700 µF | 1815 | 0.072 | | 21 | MAL202190063E3 | 118-7042 |
| **63 Volts d.c.** | | | | | | |
| 4.7 µF | 31 | 31 | 10 | 4.5 | MAL202138478E3 | 116-5475 |
| 10 µF | 31 | 13 | 10 | 4.5 | MAL202138109E3 | 116-5476 |
| 22 µF | 90 | 5.8 | 10 | 6 | MAL202138229E3 | 116-5477 |
| 47 µF | 150 | 2.7 | 18 | 6.5 | MAL202138479E3 | 116-5478 |
| 100 µF | 250 | 1.3 | 18 | 8 | MAL202138101E3 | 116-5479 |
| 220 µF | 350 | 0.614 | 30.5 | 10 | MAL202118221E3 | 116-5396 |
| 470 µF | 570 | 0.287 | 30.5 | 12.5 | MAL202118471E3 | 116-5397 |
| 680 µF | 770 | 0.199 | 30.5 | 15.5 | MAL202118681E3 | 116-5398 |
| 1000 µF | 1035 | 0.135 | 30.5 | 18.5 | MAL202118102E3 | 116-5399 |
| 2200 µF | 1740 | 0.099 | 41.5 | 21.5 | MAL202118222E3 | 116-5400 |
| **100 Volts d.c.** | | | | | | |
| 100 µF | 262 | 1.15 | 30.5 | 10 | MAL202119101E3 | 116-5401 |
| 220 µF | 560 | 0.61 | 30 | 12.5 | MAL202119221E3 | 116-5480 |
| 470 µF | 695 | 0.31 | 30.5 | 18.5 | 2222 021 19471 | 177-4407 |
| 1000 µF | 1161 | 0.16 | 41.5 | 21.5 | MAL202119102E3 | 116-5403 |

627860

| Capacitance | Order Code | Price Each 1+ | 100+ | 1K+ | 3K+ |
|---|---|---|---|---|---|
| **16 Volts d.c.** | | | | | |
| 1000 µF | 116-5376 | | | | |
| 1000 µF | 116-5376 | | | | |
| 2200 µF | 116-5377 | | | | |
| 3300 µF | 116-5378 | | | | |
| 4700 µF | 116-5381 | | | | |
| 10000 µF | 116-5382 | | | | |
| **25 Volts d.c.** | | | | | |
| 47 µF | 116-5466 | | | | |
| 100 µF | 116-5467 | | | | |
| 220 µF | 116-5468 | | | | |
| 470 µF | 116-5469 | | | | |

| Capacitance | Order Code | Price Each 1+ | 100+ | 1K+ | 3K+ |
|---|---|---|---|---|---|
| **25 Volts d.c.** | | | | | |
| 680 µF | 116-5383 | | | | |
| 1000 µF | 116-5384 | | | | |
| 1500 µF | 116-5385 | | | | |
| 2200 µF | 116-5386 | | | | |
| 3300 µF | 116-5387 | | | | |
| 4700 µF | 118-7040 | | | | |
| 6800 µF | 116-5388 | | | | |
| **40 Volts d.c.** | | | | | |
| 22 µF | 116-5470 | | | | |
| 47 µF | 116-5472 | | | | |
| 100 µF | 116-5473 | | | | |
| 220 µF | 116-5474 | | | | |
| 470 µF | 116-5389 | | | | |
| 680 µF | 116-5390 | | | | |
| 1000 µF | 116-5391 | | | | |
| 1500 µF | 116-5393 | | | | |
| 2200 µF | 116-5394 | | | | |
| 3300 µF | 116-5395 | | | | |
| 4700 µF | 118-7042 | | | | |
| **63 Volts d.c.** | | | | | |
| 4.7 µF | 116-5475 | | | | |
| 10 µF | 116-5476 | | | | |
| 22 µF | 116-5477 | | | | |
| 47 µF | 116-5478 | | | | |
| 100 µF | 116-5479 | | | | |
| 220 µF | 116-5396 | | | | |
| 470 µF | 116-5397 | | | | |
| 680 µF | 116-5398 | | | | |
| 1000 µF | 116-5399 | | | | |
| 2200 µF | 116-5400 | | | | |
| **100 Volts d.c.** | | | | | |
| 100 µF | 116-5401 | | | | |
| 220 µF | 116-5480 | | | | |
| 470 µF | 177-4407 | | | | |
| 1000 µF | 116-5403 | | | | |

## 030/031 AS Series



- General purpose axial leaded electrolytic capacitors

| | | | |
|---|---|---|---|
| Operating Temperature | -40°C to +85°C | Useful life @ 85°C | 3000 |
| Tolerance | 10% to +50% | DC leakage current | 0.006CV +4µA |
| Ripple Current Measured at | 100Hz @ 85°C | Climatic category **(IEC68)** | 55/085/56 |

| 6.3 Volt d.c. | Ripple (mA) | Dimensions L | Dia. | Lead Dia | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 150µF | 87 | 10.5 | 6.3 | 0.6 | MAL203033151E3 | 116-5404 |
| 470µF | 220 | 18.5 | 8.3 | 0.8 | MAL203133471E3 | 116-5405 |

**Order Multiple=5**

| 6.3 Volt dc | | Price Each | | | |
|---|---|---|---|---|---|
| | Order Code | 5+ | 100+ | 1K+ | 3K+ |
| 150µF | 116-5404 | | | | |
| 470µF | 116-5405 | | | | |

| 10 Volt d.c. | Ripple (mA) | Dimensions L | Dia. | Lead Dia | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 22µF | 42 | 10.5 | 5 | 0.6 | MAL203034229E3 | 116-5406 |
| 47µF | 53 | 10.5 | 5 | 0.6 | MAL203034479E3 | 116-5407 |
| 100µF | 87 | 10.5 | 6.3 | 0.6 | MAL203034101E3 | 116-5408 |
| 220µF | 150 | 11.5 | 8.5 | 0.6 | MAL203034221E3 | 116-5412 |
| 330µF | 220 | 18.5 | 8.5 | 0.8 | MAL203134331E3 | 116-5413 |

**Order Multiple=5**

| 10 Volt dc | | Price Each | | | |
|---|---|---|---|---|---|
| | Order Code | 5+ | 100+ | 1K+ | 3K+ |
| 22µF | 116-5406 | | | | |
| 47µF | 116-5407 | | | | |
| 100µF | 116-5408 | | | | |
| 220µF | 116-5412 | | | | |
| 330µF | 116-5413 | | | | |

| 16 Volt d.c. | Ripple (mA) | Dimensions L | Dia. | Lead Dia | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 15µF | 42 | 10.5 | 5 | 0.6 | MAL203035159E3 | 116-5414 |
| 33µF | 53 | 10.5 | 5 | 0.6 | MAL203035339E3 | 116-5415 |
| 68µF | 87 | 10.5 | 6.3 | 0.6 | MAL203035689E3 | 116-5416 |
| 150µF | 150 | 11.5 | 8.5 | 0.6 | MAL203035151E3 | 116-5417 |
| 220µF | 220 | 18.5 | 8.5 | 0.8 | MAL203135221E3 | 116-5418 |

# Aluminium Electrolytic - Axial - Vishay - continued

## 030/031 AS Series - continued

**Order Multiple=5**

**16 Volt dc**

| | Order Code | Price Each 5+ | 100+ | 1K+ | 3K+ |
|---|---|---|---|---|---|
| 15µF | 116-5414 | | | | |
| 33µF | 116-5415 | | | | |
| 68µF | 116-5416 | | | | |
| 150µF | 116-5417 | | | | |
| 220µF | 116-5418 | | | | |

| 25 Volt d.c. | Ripple (mA) | Dimensions L | Dia. | Lead Dia | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 10µF | 36 | 10.5 | 5 | 0.6 | MAL203036109E3 | 116-5419 |
| 22µF | 43 | 10.5 | 5 | 0.6 | MAL203036229E3 | 116-5420 |
| 47µF | 83 | 10.5 | 6.3 | 0.6 | MAL203036479E3 | 116-5421 |
| 100µF | 120 | 11.5 | 8.5 | 0.6 | MAL203036101E3 | 116-5423 |
| 150µF | 190 | 18.5 | 8.5 | 0.8 | MAL203136151E3 | 116-5424 |

**Order Multiple=5**

**25 Volt dc**

| | Order Code | Price Each 5+ | 100+ | 1K+ | 3K+ |
|---|---|---|---|---|---|
| 10µF | 116-5419 | | | | |
| 22µF | 116-5420 | | | | |
| 47µF | 116-5421 | | | | |
| 100µF | 116-5423 | | | | |
| 150µF | 116-5424 | | | | |

| 40 Volt d.c. | Ripple (mA) | Dimensions L | Dia. | Lead Dia | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 6.8µF | 36 | 10.5 | 5 | 0.6 | MAL203037688E3 | 116-5425 |
| 15µF | 43 | 10.5 | 5 | 0.6 | MAL203037159E3 | 116-5426 |
| 33µF | 83 | 10.5 | 6.3 | 0.6 | MAL203037339E3 | 116-5427 |
| 47µF | 120 | 11.5 | 8.5 | 0.6 | MAL203037479E3 | 116-5428 |
| 100µF | 190 | 18.5 | 8.5 | 0.8 | MAL203137101E3 | 116-5429 |

**Order Multiple=5**

**40 Volt dc**

| | Order Code | Price Each 5+ | 100+ | 1K+ | 3K+ |
|---|---|---|---|---|---|
| **6.8µF** | 116-5425 | | | | |
| **15µF** | 116-5426 | | | | |
| **33µF** | 116-5427 | | | | |
| **47µF** | 116-5428 | | | | |
| **100µF** | 116-5429 | | | | |

| 63 Volt d.c. | Ripple (mA) | Dimensions L | Dia. | Lead Dia | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 1µF | 12 | 10.5 | 5 | 0.6 | MAL203038108E3 | 116-5430 |
| 2.2µF | 21 | 10.5 | 5 | 0.6 | MAL203038228E3 | 116-5431 |
| 3.3µF | 25 | 10.5 | 5 | 0.6 | MAL203038338E3 | 116-5432 |
| 4.7µF | 31 | 10.5 | 5 | 0.6 | MAL203038478E3 | 116-5433 |
| 6.8µF | 35 | 10.5 | 5 | 0.6 | MAL203038688E3 | 116-5435 |
| 10µF | 51 | 10.5 | 6.3 | 0.6 | MAL203038109E3 | 116-5436 |
| 15µF | 61 | 10.5 | 6.3 | 0.6 | MAL203038159E3 | 116-5437 |
| 22µF | 90 | 11.5 | 8.5 | 0.6 | MAL203038229E3 | 116-5438 |
| 47µF | 120 | 18.5 | 8.5 | 0.8 | MAL203138479E3 | 116-5440 |

219640

**Order Multiple=5**

**63 Volt dc**

| | Order Code | Price Each 5+ | 100+ | 1K+ | 3K+ |
|---|---|---|---|---|---|
| 1µF | 116-5430 | | | | |
| 2.2µF | 116-5431 | | | | |
| 3.3µF | 116-5432 | | | | |
| 4.7µF | 116-5433 | | | | |
| 6.8µF | 116-5435 | | | | |
| 10µF | 116-5436 | | | | |
| 15µF | 116-5437 | | | | |
| 22µF | 116-5438 | | | | |
| 47µF | 116-5440 | | | | |

## 041 - 043 ASH Series - High Voltage



- High voltage
- Extended life

Lead Dia = 0.8

| | | | |
|---|---|---|---|
| Operating Temperature | -40°C to +85°C | Ripple current measured at | 100Hz @ 85°C |
| Tolerance | 10 to +50% | Useful life @ 85°C | ≥5000 hrs |
| Climatic category **(IEC 68)** | 40/085/56 | | |

| 160 Volt d.c. | Ripple (mA) | Impedance (Ω) | Dimensions L | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 22µF | 150 | 11 | 25 | 10 | MAL204121229E3 | 116-5631 |
| 47µF | 190 | 3.2 | 30 | 15 | MAL204211479E3 | 116-5632 |
| 100µF | 350 | 1.5 | 30 | 18 | MAL204211101E3 | 116-5633 |
| 220µF | 610 | 0.7 | 40 | 21 | MAL204311221E3 | 116-5634 |

**160 Volt dc**

| | Order Code | Price Each 1+ | 100+ | 1K+ | 3K+ |
|---|---|---|---|---|---|
| 22µF | 116-5631 | | | | |
| 47µF | 116-5632 | | | | |
| 100µF | 116-5633 | | | | |
| 220µF | 116-5634 | | | | |

| 250 Volt d.c. | Ripple (mA) | Impedance (Ω) | Dimensions L | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 2.2µF | 35 | 72 | 18 | 6.5 | MAL204133228E3 | 116-5635 |
| 10µF | 90 | 16 | 25 | 10 | MAL204133109E3 | 116-5636 |
| 22µF | 130 | 6.8 | 30 | 12.5 | MAL204213229E3 | 116-5637 |
| 47µF | 220 | 3.2 | 30 | 18 | MAL204213479E3 | 116-5638 |
| 100µF | 390 | 1.5 | 38 | 21 | MAL204313101E3 | 116-5639 |

**250 Volt dc**

| | Order Code | Price Each 1+ | 100+ | 1K+ | 3K+ |
|---|---|---|---|---|---|
| 2.2µF | 116-5635 | | | | |
| 10µF | 116-5636 | | | | |
| 22µF | 116-5637 | | | | |
| 47µF | 116-5638 | | | | |
| 100µF | 116-5639 | | | | |

| 350 Volt d.c. | Ripple (mA) | Impedance (Ω) | Dimensions L | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 4.7µF | 60 | 34 | 18 | 10 | MAL204135478E3 | 116-5640 |
| 10µF | 90 | 15 | 30 | 12.5 | MAL204225109E3 | 116-5642 |
| 22µF | 140 | 6.8 | 30 | 15 | MAL204215229E3 | 116-5643 |
| 47µF | 270 | 3.2 | 40 | 18 | MAL204315479E3 | 116-5644 |

**350 Volt dc**

| | Order Code | Price Each 1+ | 100+ | 1K+ | 3K+ |
|---|---|---|---|---|---|
| 4.7µF | 116-5640 | | | | |
| 10µF | 116-5642 | | | | |
| 22µF | 116-5643 | | | | |
| 47µF | 116-5644 | | | | |

| 385 Volt d.c. | Ripple (mA) | Impedance (Ω) | Dimensions L | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 1µF | 20 | 160 | 18 | 6.5 | MAL204138108E3 | 116-5645 |
| 2.2µF | 40 | 72 | 18 | 8 | MAL204138228E3 | 116-5646 |

**385 Volt dc**

| | Order Code | Price Each 1+ | 100+ | 1K+ | 3K+ |
|---|---|---|---|---|---|
| 1µF | 116-5645 | | | | |
| 2.2µF | 116-5646 | | | | |

| 400 Volt d.c. | Ripple (mA) | Impedance (Ω) | Dimensions L | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 10µF | 130 | 7.5 | 30 | 12.5 | MAL204226109E3 | 116-5648 |
| 22µF | 210 | 3.5 | 30 | 18 | MAL204216229E3 | 116-5649 |
| 47µF | 330 | 1.7 | 40 | 18 | MAL204316479E3 | 116-5650 |

**400 Volt dc**

| | Order Code | Price Each 1+ | + | + | + |
|---|---|---|---|---|---|
| 10µF | 116-5648 | | | | |
| 22µF | 116-5649 | | | | |
| 47µF | 116-5650 | | | | |

| 450 Volt d.c. | Ripple (mA) | Impedance (Ω) | Dimensions L | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 10µF | 90 | 10 | 30 | 12.5 | MAL204217109E3 | 116-5651 |
| 22µF | 140 | 4.1 | 30 | 15 | MAL204217229E3 | 116-5652 |
| 47µF | 250 | 2.1 | 40 | 18 | MAL204317479E3 | 116-5654 |

208471

**450 Volt dc**

| | Order Code | Price Each 1+ | 100+ | 1K+ | 3K+ |
|---|---|---|---|---|---|
| 10µF | 116-5651 | | | | |
| 22µF | 116-5652 | | | | |
| 47µF | 116-5654 | | | | |

## 118 Series — Axial High Temperature



- Polarised aluminum electrolytic capacitors, non-solid electrolyte
- Charge and discharge proof
- Extended temperature range: 125 °C (usable up to 150 °C)

| | | |
|---|---|---|
| Normal case sizes (∅ D x L in mm) | 6.5 x 18 to 10 x 25 | 10 x 30 to 21 x 38 |
| Tolerance | ± 20% | |
| Climatic category **(IEC 60068)** | 40/125/56 | 55/125/56 |
| Useful life @ 125°C | 4000 hours | 8000 hours |
| Ripple Current measured at | 100 Hz, 125 °C | |

| | Ripple (mA) | ESR max. (Ω) @ 100Hz | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| **6.3 V** | | | | | | |
| 1000µF | 251 | 0.79 | 18 | 10 | MAL211833102E3 | 169-5242 |
| 1500µF | 352 | 0.53 | 25 | 10 | MAL211890503E3 | 169-5243 |
| **10 V** | | | | | | |
| 220µF | 109 | 2.53 | 18 | 6.5 | MAL211834221E3 | 169-5244 |
| 330µF | 150 | 1.69 | 18 | 8 | MAL211834331E3 | 169-5245 |
| 470µF | 179 | 1.19 | 18 | 8 | MAL211834471E3 | 169-5246 |
| 1000µF | 343 | 0.56 | 25 | 10 | MAL211890505E3 | 169-5247 |
| 3300µF | 1070 | 0.19 | 30 | 15 | MAL211824332E3 | 169-5249 |
| 6800µF | 1730 | 0.1 | 38 | 18 | MAL211814682E3 | 169-5251 |
| **16 V** | | | | | | |
| 220µF | 145 | 1.81 | 18 | 8 | MAL211835221E3 | 169-5254 |


RoHS ● Compliant ▲ Non-compliant

| Capacitance | Ripple | ESR max. (Ω) | Dimensions | | Mftrs. | |
|---|---|---|---|---|---|---|
| **16 V** | | | | | | |
| 330µF | 204 | 1.21 | 18 | 10 | MAL211835331E3 | 169-5255 |
| 1000µF | 720 | 0.345 | 30 | 12.5 | MAL211890039E3 | 169-5258 |
| 4700µF | 1670 | 0.105 | 38 | 16 | MAL211815472E3 | 169-5261 |
| 6800µF | 1790 | 0.088 | 38 | 21 | MAL211815682E3 | 169-5262 |
| **25 V** | | | | | | |
| 100µF | 102 | 2.86 | 18 | 6.5 | MAL211836101E3 | 169-5263 |
| 330µF | 274 | 0.87 | 25 | 10 | MAL211836331E3 | 169-5266 |
| 680µF | 680 | 0.42 | 30 | 12.5 | MAL211826881E3 | 169-5268 |
| 3300µF | 1610 | 0.12 | 38 | 18 | MAL211816332E3 | 169-5272 |
| 4700µF | 1710 | 0.095 | 38 | 21 | MAL211816472E3 | 169-5273 |
| **40 V** | | | | | | |
| 47µF | 89.8 | 3.72 | 18 | 6.5 | MAL211837479E3 | 169-5274 |
| 100µF | 147 | 1.75 | 18 | 8 | MAL211837101E3 | 169-5275 |
| 150µF | 207 | 1.17 | 18 | 10 | MAL211837151E3 | 169-5276 |
| 220µF | 287 | 0.8 | 25 | 10 | MAL211890512E3 | 169-5278 |
| 330µF | 570 | 0.43 | 30 | 12.5 | MAL211827331E3 | 169-5279 |
| 470µF | 620 | 0.38 | 30 | 12.5 | MAL211827471E3 | 169-5280 |
| 680µF | 810 | 0.255 | 30 | 15 | MAL211827681E3 | 169-5281 |
| 1000µF | 1070 | 0.205 | 30 | 18 | MAL211817102E3 | 169-5282 |
| 1500µF | 1390 | 0.13 | 38 | 18 | MAL211817152E3 | 169-5283 |
| 2200µF | 1540 | 0.105 | 38 | 21 | MAL211817222E3 | 169-5284 |
| **63 V** | | | | | | |
| 2.2µF | 24.3 | 51 | 18 | 6.5 | MAL211838228E3 | 169-5286 |
| 10µF | 51.9 | 11 | 18 | 6.5 | MAL211838109E3 | 169-5288 |
| 22µF | 77 | 5.1 | 18 | 6.5 | MAL211838229E3 | 169-5291 |
| 47µF | 126 | 2.4 | 18 | 8 | MAL211838479E3 | 169-5292 |
| 100µF | 243 | 1.1 | 25 | 10 | MAL211890514E3 | 169-5293 |
| 220µF | 550 | 0.94 | 30 | 12.5 | MAL211828221E3 | 169-5295 |
| **100 V** | | | | | | |
| 4.7µF | 36 | 24 | 18 | 6.5 | MAL211839478E3 | 169-5300 |
| 10µF | 52 | 11 | 18 | 6.5 | MAL211839109E3 | 169-5301 |
| 68µF | 320 | 1.8 | 30 | 12.5 | MAL211829689E3 | 169-5305 |
| 330µF | 890 | 0.45 | 38 | 18 | MAL211819331E3 | 169-5309 |
| **200 V** | | | | | | |
| 4.7µF | 46 | 21 | 18 | 8 | MAL211890541E3 | 169-5312 |
| 10µF | 85 | 9.4 | 25 | 10 | MAL211890543E3 | 169-5313 |
| 22µF | 210 | 3.17 | 30 | 12.5 | MAL211890013E3 | 169-5315 |
| 33µF | 290 | 2.11 | 30 | 15 | MAL211890014E3 | 169-5316 |
| 68µF | 500 | 1.02 | 38 | 18 | MAL211892689E3 | 169-5318 |

530650

| Capacitance | | Price Each | | | |
|---|---|---|---|---|---|
| | Order Code | 1+ | 25+ | 100+ | 500+ |
| **6.3 V** | | | | | |
| 1000µF | **169-5242** | | | | |
| 1500µF | **169-5243** | | | | |
| **10 V** | | | | | |
| 220µF | **169-5244** | | | | |
| 330µF | **169-5245** | | | | |
| 470µF | **169-5246** | | | | |
| 1000µF | **169-5247** | | | | |
| 3300µF | **169-5249** | | | | |
| 6800µF | **169-5251** | | | | |
| **16 V** | | | | | |
| 220µF | **169-5254** | | | | |
| 330µF | **169-5255** | | | | |
| 1000µF | **169-5258** | | | | |
| 4700µF | **169-5261** | | | | |
| 6800µF | **169-5262** | | | | |
| **25 V** | | | | | |
| 100µF | **169-5263** | | | | |
| 330µF | **169-5266** | | | | |
| 680µF | **169-5268** | | | | |
| 3300µF | **169-5272** | | | | |
| 4700µF | **169-5273** | | | | |
| **40 V** | | | | | |
| 47µF | **169-5274** | | | | |
| 100µF | **169-5275** | | | | |
| 150µF | **169-5276** | | | | |
| 220µF | **169-5278** | | | | |
| 330µF | **169-5279** | | | | |
| 470µF | **169-5280** | | | | |
| 680µF | **169-5281** | | | | |
| 1000µF | **169-5282** | | | | |
| 1500µF | **169-5283** | | | | |
| 2200µF | **169-5284** | | | | |
| **63 V** | | | | | |
| 2.2µF | **169-5286** | | | | |
| 10µF | **169-5288** | | | | |
| 22µF | **169-5291** | | | | |
| 47µF | **169-5292** | | | | |
| 100µF | **169-5293** | | | | |
| 220µF | **169-5295** | | | | |
| **100 V** | | | | | |
| 4.7µF | **169-5300** | | | | |
| 10µF | **169-5301** | | | | |
| 68µF | **169-5305** | | | | |
| 330µF | **169-5309** | | | | |

| Capacitance | | Price Each | | | |
|---|---|---|---|---|---|
| | Order Code | 1+ | 25+ | 100+ | 500+ |
| **200 V** | | | | | |
| 4.7µF | **169-5312** | | | | |
| 10µF | **169-5313** | | | | |
| 22µF | **169-5315** | | | | |
| 33µF | **169-5316** | | | | |
| 68µF | **169-5318** | | | | |

## 120 ATC Series 5mm - Long Life 125°C



Lead dia.=0.8 Supplied loose.

- High temperature axial aluminium electrolytic capacitors
- Extra long useful life
- High ripple current capability
- Compact case size
- Useable up to 150°C
- Suitable for automotive applications

| | | | |
|---|---|---|---|
| Operating Temperature | -40°C to +125°C | DC Leakage current | 0.006CV + 20µA |
| Tolerance | ±20% | Useful life @ 125°C | 8000 hrs |
| Climatic category **(IEC 60068)** | 40/125/56 | Ripple Current measured at | 10kHz @ 125°C |

| | Ripple (mA) | ESR max. (mΩ) @ 100Hz | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| **16 Volt dc** | | | | | | |
| 1000µF | 2550 | 0.128 | 30 | 12.5 | MAL212015102E3 | 116-5546 |
| 2200µF | 2940 | 0.079 | 30 | 15 | MAL212015222E3 | 116-5547 |
| 4700µF | 4350 | 0.045 | 40 | 18 | MAL212015472E3 | 116-5548 |
| **25 Volt dc** | | | | | | |
| 470µF | 2100 | 0.187 | 30 | 10 | MAL212016471E3 | 116-5551 |
| 1000µF | 2600 | 0.107 | 30 | 12.5 | MAL212016102E3 | 116-5552 |
| 2200µF | 3310 | 0.071 | 30 | 18 | MAL212016222E3 | 116-5553 |
| **40 Volt dc** | | | | | | |
| 220µF | 1990 | 0.32 | 30 | 10 | MAL212017221E3 | 116-5555 |
| 470µF | 2550 | 0.169 | 30 | 12.5 | MAL212017471E3 | 116-5556 |
| 1000µF | 3150 | 0.099 | 30 | 18 | MAL212017102E3 | 116-5557 |
| 2200µF | 4170 | 0.056 | 40 | 21 | MAL212017222E3 | 116-5559 |
| **63 Volt dc** | | | | | | |
| 100µF | 1560 | 0.495 | 30 | 10 | MAL212018101E3 | 116-5560 |
| 220µF | 2150 | 0.249 | 30 | 12.5 | MAL212018221E3 | 116-5561 |
| 470µF | 2860 | 0.135 | 30 | 18 | MAL212018471E3 | 116-5563 |
| 1000µF | 3780 | 0.074 | 40 | 21 | MAL212018102E3 | 116-5564 |
| **100 Volt dc** | | | | | | |
| 47µF | 760 | 1.269 | 30 | 10 | MAL212019479E3 | 116-5565 |
| 100µF | 1140 | 0.648 | 30 | 12.5 | MAL212019101E3 | 116-5566 |
| 220µF | 1960 | 0.302 | 30 | 18 | MAL212019221E3 | 116-5567 |

219638

| | | Price Each | | | | |
|---|---|---|---|---|---|---|
| | Order Code | 1+ | 10+ | 50+ | 100+ | 500+ |
| **16 Volt dc** | | | | | | |
| 1000µF | **116-5546** | | | | | |
| 2200µF | **116-5547** | | | | | |
| 4700µF | **116-5548** | | | | | |
| **25 Volt dc** | | | | | | |
| 470µF | **116-5551** | | | | | |
| 1000µF | **116-5552** | | | | | |
| 2200µF | **116-5553** | | | | | |
| **40 Volt dc** | | | | | | |
| 220µF | **116-5555** | | | | | |
| 470µF | **116-5556** | | | | | |
| 1000µF | **116-5557** | | | | | |
| 2200µF | **116-5559** | | | | | |
| **63 Volt dc** | | | | | | |
| 100µF | **116-5560** | | | | | |
| 220µF | **116-5561** | | | | | |
| 470µF | **116-5563** | | | | | |
| 1000µF | **116-5564** | | | | | |
| **100 Volt dc** | | | | | | |
| 47µF | **116-5565** | | | | | |
| 100µF | **116-5566** | | | | | |
| 220µF | **116-5567** | | | | | |

# Aluminium Electrolytic - Hybrid - Panasonic

## Polymer Hybrid Type - ZA Series

**Type V**



- Surface mount type
- Low ESR and high ripple current

NEW

| | |
|---|---|
| Operating temperature | -55°C to +105°C |
| Endurance | 5000 hours @ 105°C |
| Tolerance | ± 20% |

# Aluminium Electrolytic - Hybrid - Panasonic - continued

## Polymer Hybrid Type - ZA Series - continued

**Type V - continued**

| Capacitance | Ripple current 100 kHz | ESR 100 kHz | Dimensions in mm Dia. | Length | Order Code |
|---|---|---|---|---|---|
| **25 Volt d.c** | | | | | |
| 33µF | 900mA | 0.08ohm | 5 | 5.8 | 209-5309 |
| 56µF | 1.3A | 0.08ohm | 6.3 | 5.8 | 190-7241 |
| 100µF | 2A | 0.03ohm | 6.3 | 7.7 | 209-5310 |
| 220µF | 2.3A | 0.027ohm | 8 | 10.2 | 209-5311 |
| 330µF | 2.5A | 0.02ohm | 10 | 10.2 | 209-5313 |
| **35 Volt d.c** | | | | | |
| 22µF | 900mA | 0.1ohm | 5 | 5.8 | 209-5314 |
| 27µF | 1.3A | 0.08ohm | 6.3 | 5.8 | 190-7242 |
| 68µF | 2A | 0.035ohm | 6.3 | 7.7 | 209-5315 |
| 150µF | 2.3A | 0.027ohm | 8 | 10.2 | 209-5316 |
| 270µF | 2.5A | 0.02ohm | 10 | 10.2 | 209-5317 |
| 47µF | 1.3A | 0.08ohm | 6.3 | 5.8 | 190-7243 |
| **50 Volt d.c** | | | | | |
| 10µF | 750mA | 0.12ohm | 5 | 5.8 | 209-5318 |
| 22µF | 1.1A | 0.1ohm | 6.3 | 5.8 | 190-7245 |
| 33µF | 1.6A | 0.04ohm | 6.3 | 7.7 | 209-5319 |
| 68µF | 1.8A | 0.03ohm | 8 | 10.2 | 209-5320 |
| 100µF | 2A | 0.028ohm | 10 | 10.2 | 209-5321 |
| **63 Volt d.c** | | | | | |
| 10µF | 1A | 0.12ohm | 6.3 | 5.8 | 209-5322 |
| 22µF | 1.5A | 0.08ohm | 6.3 | 7.7 | 209-5323 |
| 33µF | 1.6A | 0.04ohm | 8 | 10.2 | 209-5325 |
| 56µF | 1.8A | 0.03ohm | 10 | 10.2 | 209-5326 |

638885

| Capacitance | Mftrs. List No. | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **25 Volt d.c** | | | | | | | |
| 33µF | EEHZA1E330R | **209-5309** | | | | | |
| 56µF | EEHZA1E560P | **190-7241** | | | | | |
| 100µF | EEHZA1E101XP | **209-5310** | | | | | |
| 220µF | EEHZA1E221P | **209-5311** | | | | | |
| 330µF | EEHZA1E331P | **209-5313** | | | | | |
| **35 Volt d.c** | | | | | | | |
| 22µF | EEHZA1V220R | **209-5314** | | | | | |
| 27µF | EEHZA1V270P | **190-7242** | | | | | |
| 68µF | EEHZA1V680XP | **209-5315** | | | | | |
| 150µF | EEHZA1V151P | **209-5316** | | | | | |
| 270µF | EEHZA1V271P | **209-5317** | | | | | |
| 47µF | EEHZA1V470P | **190-7243** | | | | | |
| **50 Volt d.c** | | | | | | | |
| 10µF | EEHZA1H100R | **209-5318** | | | | | |
| 22µF | EEHZA1H220P | **190-7245** | | | | | |
| 33µF | EEHZA1H330XP | **209-5319** | | | | | |
| 68µF | EEHZA1H680P | **209-5320** | | | | | |
| 100µF | EEHZA1H101P | **209-5321** | | | | | |
| **63 Volt d.c** | | | | | | | |
| 10µF | EEHZA1J100P | **209-5322** | | | | | |
| 22µF | EEHZA1J220XP | **209-5323** | | | | | |
| 33µF | EEHZA1J330P | **209-5325** | | | | | |
| 56µF | EEHZA1J560P | **209-5326** | | | | | |

## Polymer Hybrid Type - ZA Series

Panasonic NEW

**Type V**



- Surface mount type
- Low ESR and high ripple current

| | |
|---|---|
| Operating temperature | -55°C to +125°C |
| Endurance | 4000 hours @ 125°C |
| Tolerance | ± 20% |

| Capacitance | Ripple current 100 kHz | ESR 100 kHz | Dimensions in mm Dia. | Length | Order Code |
|---|---|---|---|---|---|
| **25 Volt d.c** | | | | | |
| 33µF | 550mA | 0.08ohm | 5 | 5.8 | 209-5327 |
| 56µF | 900mA | 0.05ohm | 6.3 | 5.8 | 209-5328 |
| 100µF | 1.4A | 0.03ohm | 6.3 | 7.7 | 209-5329 |
| 220µF | 1.6A | 0.027ohm | 8 | 10.2 | 209-5330 |
| 330µF | 2A | 0.02ohm | 10 | 10.2 | 209-5332 |
| **35 Volt d.c** | | | | | |
| 22µF | 550mA | 0.1ohm | 5 | 5.8 | 209-5333 |
| 47µF | 900mA | 0.06ohm | 6.3 | 5.8 | 209-5334 |
| 68µF | 1.4A | 0.035ohm | 6.3 | 7.7 | 209-5335 |
| 150µF | 1.6A | 0.027ohm | 8 | 10.2 | 209-5337 |
| 270µF | 2A | 0.02ohm | 10 | 10.2 | 209-5338 |
| **50 Volt d.c** | | | | | |
| 10µF | 500mA | 0.12ohm | 5 | 5.8 | 209-5339 |
| 22µF | 750mA | 0.08ohm | 6.3 | 5.8 | 209-5340 |
| 33µF | 1.1A | 0.04ohm | 6.3 | 7.7 | 209-5341 |
| 68µF | 1.25A | 0.03ohm | 8 | 10.2 | 209-5342 |
| 100µF | 1.6A | 0.028ohm | 10 | 10.2 | 209-5343 |
| **63 Volt d.c** | | | | | |
| 10µF | 700mA | 0.12ohm | 6.3 | 5.8 | 209-5344 |
| 22µF | 900mA | 0.08ohm | 6.3 | 7.7 | 209-5345 |
| 33µF | 1.1A | 0.04ohm | 8 | 10.2 | 209-5346 |
| 56µF | 1.4A | 0.03ohm | 10 | 10.2 | 209-5347 |

656002

| Capacitance | Mftrs. List No. | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **25 Volt d.c** | | | | | | | |
| 33µF | EEHZC1E330R | **209-5327** | | | | | |
| 56µF | EEHZC1E560P | **209-5328** | | | | | |
| 100µF | EEHZC1E101XP | **209-5329** | | | | | |
| 220µF | EEHZC1E221P | **209-5330** | | | | | |
| 330µF | EEHZC1E331P | **209-5332** | | | | | |
| **35 Volt d.c** | | | | | | | |
| 22µF | EEHZC1V220R | **209-5333** | | | | | |
| 47µF | EEHZC1V470P | **209-5334** | | | | | |
| 68µF | EEHZC1V680XP | **209-5335** | | | | | |
| 150µF | EEHZC1V151P | **209-5337** | | | | | |
| 270µF | EEHZC1V271P | **209-5338** | | | | | |
| **50 Volt d.c** | | | | | | | |
| 10µF | EEHZC1H100R | **209-5339** | | | | | |
| 22µF | EEHZC1H220P | **209-5340** | | | | | |
| 33µF | EEHZC1H330XP | **209-5341** | | | | | |
| 68µF | EEHZC1H680P | **209-5342** | | | | | |
| 100µF | EEHZC1H101P | **209-5343** | | | | | |
| **63 Volt d.c** | | | | | | | |
| 10µF | EEHZC1J100P | **209-5344** | | | | | |
| 22µF | EEHZC1J220XP | **209-5345** | | | | | |
| 33µF | EEHZC1J330P | **209-5346** | | | | | |
| 56µF | EEHZC1J560P | **209-5347** | | | | | |

# Aluminium Electrolytic - Radial - Multicomp

## MCUMR Series 5mm– 85°C

multicomp



- Ultra miniature radial electrolytic capacitors
- 5mm profile for extra high density applications

| | | | |
|---|---|---|---|
| Operating temperature | -40°C to +85°C | DC leakage current | 0.01CV or 6.3µA |
| Tolerance @ 120Hz 20°C | ±20% | | whichever is greater |

| | Ripple (mA) @ 120Hz 85°C | Dimensions H | Dia. | Lead Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **6.3 Volt d.c.** | | | | | | | |
| 22µF | 28 | 5 | 4 | 0.45 | 1.5 | MCUMR6V3226M4X5 | 187-0927 |
| 33µF | 30 | 5 | 4 | 0.45 | 1.5 | MCUMR6V3336M4X5 | 187-0928 |
| 47µF | 35 | 5 | 4 | 0.45 | 1.5 | MCUMR6V3476M4X5 | 187-0929 |
| 100µF | 58 | 5 | 5 | 0.45 | 2 | MCUMR6V3107M5X5 | 945-2176 |
| 220µF | 100 | 5 | 6.3 | 0.45 | 2.5 | MCUMR6V3227M6.3X5 | 187-0930 |
| 22µF | 30 | 5 | 4 | 0.45 | 1.5 | MCUMR10V226M4X5 | 187-0931 |
| **10 Volts d.c.** | | | | | | | |
| 330µF | 170 | 5 | 8 | 0.5 | 3.5 | MCUMR6V3337M8X5 | 945-2184 |
| 33µF | 32 | 5 | 4 | 0.45 | 1.5 | MCUMR10V336M4X5 | 187-0933 |
| 47µF | 48 | 5 | 5 | 0.45 | 2 | MCUMR10V476M5X5 | 187-0934 |
| 100µF | 70 | 5 | 6.3 | 0.45 | 2.5 | MCUMR10V107M6.3X5 | 187-0935 |
| 220µF | 135 | 5 | 8 | 0.5 | 3.5 | MCUMR10V227M8X5 | 187-0936 |
| **16 Volt d.c.** | | | | | | | |
| 10µF | 23 | 5 | 4 | 0.45 | 1.5 | MCUMR16V106M4X5 | 945-2192 |
| 22µF | 32 | 5 | 4 | 0.45 | 1.5 | MCUMR16V226M4X5 | 945-2206 |
| 33µF | 40 | 5 | 5 | 0.45 | 2 | MCUMR16V336M5X5 | 187-0937 |
| 47µF | 58 | 5 | 6.3 | 0.45 | 2.5 | MCUMR16V476M6.3X5 | 945-2214 |
| 100µF | 78 | 5 | 6.3 | 0.45 | 2.5 | MCUMR16V107M6.3X5 | 945-2222 |
| 220µF | 140 | 5 | 8 | 0.5 | 3.5 | MCUMR16V227M8X5 | 187-0938 |
| **25 Volt d.c.** | | | | | | | |
| 4.7µF | 16 | 5 | 4 | 0.45 | 1.5 | MCUMR25V475M4X5 | 945-2230 |
| 10µF | 27 | 5 | 4 | 0.45 | 1.5 | MCUMR25V106M4X5 | 945-2249 |
| 22µF | 38 | 5 | 5 | 0.45 | 2 | MCUMR25V226M5X5 | 945-2257 |
| 33µF | 52 | 5 | 6.3 | 0.45 | 2.5 | MCUMR25V336M6.3X5 | 945-2265 |
| 47µF | 62 | 5 | 6.3 | 0.45 | 2.5 | MCUMR25V476M6.3X5 | 187-0939 |
| 100µF | 110 | 5 | 8 | 0.5 | 3.5 | MCUMR25V107M8X5 | 187-0940 |
| **35 Volt d.c.** | | | | | | | |
| 3.3µF | 15 | 5 | 4 | 0.45 | 1.5 | MCUMR35V335M4X5 | 187-0941 |
| 4.7µF | 18 | 5 | 4 | 0.45 | 1.5 | MCUMR35V475M4X5 | 945-2273 |
| 10µF | 29 | 5 | 5 | 0.45 | 2 | MCUMR35V106M5X5 | 945-2281 |
| 22µF | 46 | 5 | 6.3 | 0.45 | 2.5 | MCUMR35V226M6.3X5 | 945-2290 |
| 33µF | 46 | 5 | 8 | 0.5 | 3.5 | MCUMR35V336M8X5 | 187-0942 |
| 47µF | 62 | 5 | 8 | 0.5 | 3.5 | MCUMR35V476M8X5 | 187-0943 |
| **50 Volt d.c.** | | | | | | | |
| 0.1µF | 1 | 5 | 4 | 0.45 | 1.5 | MCUMR50V104M4X5 | 187-0945 |
| 0.22µF | 2 | 5 | 4 | 0.45 | 1.5 | MCUMR50V224M4X5 | 187-0946 |
| 0.33µF | 2.8 | 5 | 4 | 0.45 | 1.5 | MCUMR50V334M4X5 | 187-0947 |
| 0.47µF | 4 | 5 | 4 | 0.45 | 1.5 | MCUMR50V474M4X5 | 187-0948 |
| 1µF | 8.4 | 5 | 4 | 0.45 | 1.5 | MCUMR50V105M4X5 | 945-2303 |
| 2.2µF | 13 | 5 | 4 | 0.45 | 1.5 | MCUMR50V225M4X5 | 187-0949 |
| 3.3µF | 17 | 5 | 4 | 0.45 | 1.5 | MCUMR50V335M4X5 | 187-0950 |
| 4.7µF | 20 | 5 | 5 | 0.45 | 2 | MCUMR50V475M5X5 | 945-2320 |
| 10µF | 33 | 5 | 6.3 | 0.45 | 2.5 | MCUMR50V106M6.3X5 | 945-2338 |
| 22µF | 52 | 5 | 8 | 0.5 | 3.5 | MCUMR50V226M8X5 | 945-2346 |

208568


RoHS ● Compliant ▲ Non-compliant

| Order Multiple=10 | | Price Each | | | | |
|---|---|---|---|---|---|---|
| | Order Code | 10+ | 50+ | 100+ | 500+ | 1K+ |
| **6.3 Volt d.c.** | | | | | | |
| 22µF | NEW 187-0927 | | | | | |
| 33µF | NEW 187-0928 | | | | | |
| 47µF | NEW 187-0929 | | | | | |
| 100µF | 945-2176 | | | | | |
| 220µF | NEW 187-0930 | | | | | |
| 330µF | 945-2184 | | | | | |
| **10 Volt d.c.** | | | | | | |
| 22µF | NEW 187-0931 | | | | | |
| 33µF | NEW 187-0933 | | | | | |
| 47µF | NEW 187-0934 | | | | | |
| 100µF | NEW 187-0935 | | | | | |
| 220µF | NEW 187-0936 | | | | | |
| **16 Volt d.c.** | | | | | | |
| 10µF | 945-2192 | | | | | |
| 22µF | 945-2206 | | | | | |
| 33µF | NEW 187-0937 | | | | | |
| 47µF | 945-2214 | | | | | |
| 100µF | 945-2222 | | | | | |
| 220µF | NEW 187-0938 | | | | | |
| **25 Volt d.c.** | | | | | | |
| 4.7µF | 945-2230 | | | | | |
| 10µF | 945-2249 | | | | | |
| 22µF | 945-2257 | | | | | |
| 33µF | 945-2265 | | | | | |
| 47µF | NEW 187-0939 | | | | | |
| 100µF | NEW 187-0940 | | | | | |
| **35 Volt d.c.** | | | | | | |
| 3.3µF | NEW 187-0941 | | | | | |
| 4.7µF | 945-2273 | | | | | |
| 10µF | 945-2281 | | | | | |
| 22µF | 945-2290 | | | | | |
| 33µF | NEW 187-0942 | | | | | |
| 47µF | NEW 187-0943 | | | | | |
| **50 Volt d.c.** | | | | | | |
| 0.1µF | NEW 187-0945 | | | | | |
| 0.22µF | NEW 187-0946 | | | | | |
| 0.33µF | NEW 187-0947 | | | | | |
| 0.47µF | NEW 187-0948 | | | | | |
| 1µF | 945-2303 | | | | | |
| 2.2µF | NEW 187-0949 | | | | | |
| 3.3µF | NEW 187-0950 | | | | | |
| 4.7µF | 945-2320 | | | | | |
| 10µF | 945-2338 | | | | | |
| 22µF | 945-2346 | | | | | |

## MCMR Series 7mm – 85°C



- Ultra miniature radial electrolytic capacitors
- 7mm profile for high density applications

Operating temperature -40°C to +85°C
Tolerance @ 120Hz 20°C ±20%
DC leakage current 0.01CV or 3µA whichever is greater

| | Ripple (mA) @ 120Hz 85°C | Dimensions H | Dimensions Dia. | Lead Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **6.3 Volt d.c.** | | | | | | | |
| 47µF | 50 | 7 | 5 | 0.45 | 2 | MCMR6V3476M5X7 | 945-2559 |
| 100µF | 77 | 7 | 6.3 | 0.45 | 2.5 | MCMR6V3107M6.3X7 | 945-2567 |
| 220µF | 130 | 7 | 8 | 0.5 | 3.5 | MCMR6V3227M8X7 | 945-2575 |
| **10 Volt d.c.** | | | | | | | |
| 33µF | 40 | 7 | 4 | 0.45 | 1.5 | MCMR10V336M4X7 | 187-0951 |
| 47µF | 47 | 7 | 4 | 0.45 | 1.5 | MCMR10V476M4X7 | 945-2427 |
| 100µF | 90 | 7 | 5 | 0.45 | 2 | MCMR10V107M5X7 | 945-2435 |
| 220µF | 125 | 7 | 6.3 | 0.45 | 2.5 | MCMR10V227M6.3X7 | 945-2443 |
| 330µF | 155 | 7 | 8 | 0.5 | 3.5 | MCMR10V337M8X7 | 187-0952 |
| 470µF | 158 | 9 | 8 | 0.5 | 3.5 | MCMR10V477M8X9 | 187-0953 |
| **16 Volt d.c.** | | | | | | | |
| 22µF | 37 | 7 | 4 | 0.45 | 1.5 | MCMR16V226M4X7 | 945-2451 |
| 33µF | 42 | 7 | 5 | 0.45 | 2 | MCMR16V336M5X7 | 187-0954 |
| 47µF | 65 | 7 | 5 | 0.45 | 2 | MCMR16V476M5X7 | 945-2460 |
| 100µF | 92 | 7 | 6.3 | 0.4 | 2.5 | MCMR16V107M6.3X7 | 945-2478 |
| 220µF | 128 | 7 | 8 | 0.5 | 3.5 | MCMR16V227M8X7 | 187-0955 |
| 330µF | 158 | 7 | 8 | 0.5 | 3.5 | MCMR16V337M8X7 | 187-0957 |
| 470µF | 160 | 9 | 8 | 0.5 | 3.5 | MCMR16V477M8X9 | 187-0958 |
| **25 Volt d.c.** | | | | | | | |
| 10µF | 30 | 7 | 4 | 0.45 | 1.5 | MCMR25V106M4X7 | 945-2486 |
| 22µF | 45 | 7 | 5 | 0.45 | 2 | MCMR25V226M5X7 | 187-0959 |
| 33µF | 47 | 7 | 5 | 0.45 | 2 | MCMR25V336M5X7 | 187-0960 |
| 47µF | 65 | 7 | 6.3 | 0.45 | 2.5 | MCMR25V476M6.3X7 | 945-2494 |
| 100µF | 95 | 7 | 8 | 0.5 | 3.5 | MCMR25V107M8X7 | 187-0961 |
| **35 Volt d.c.** | | | | | | | |
| 10µF | 30 | 7 | 4 | 0.45 | 1.5 | MCMR35V106M4X7 | 945-2508 |
| 22µF | 47 | 7 | 5 | 0.45 | 2 | MCMR35V226M5X7 | 187-0962 |
| 33µF | 52 | 7 | 6.3 | 0.45 | 2.5 | MCMR35V336M6.3X7 | 187-0963 |
| 47µF | 68 | 7 | 6.3 | 0.45 | 2.5 | MCMR35V476M6.3X7 | 945-2516 |
| 100µF | 97 | 7 | 8 | 0.5 | 3.5 | MCMR35V107M8X7 | 187-0964 |
| **50 Volt d.c.** | | | | | | | |
| 0.1µF | 3 | 7 | 4 | 0.45 | 1.5 | MCMR50V104M4X7 | 187-0965 |
| 0.22µF | 3 | 7 | 4 | 0.45 | 1.5 | MCMR50V224M4X7 | 187-0966 |
| 0.33µF | 3 | 7 | 4 | 0.45 | 1.5 | MCMR50V334M4X7 | 187-0967 |
| 0.47µF | 5 | 7 | 4 | 0.45 | 1.5 | MCMR50V474M4X7 | 187-0969 |
| 1µF | 10 | 7 | 4 | 0.45 | 1.5 | MCMR50V105M4X7 | 187-0971 |
| 2.2µF | 19 | 7 | 4 | 0.45 | 1.5 | MCMR50V225M4X7 | 187-0972 |
| 3.3µF | 24 | 7 | 4 | 0.45 | 1.5 | MCMR50V335M4X7 | 187-0973 |
| 4.7µF | 30 | 7 | 4 | 0.45 | 1.5 | MCMR50V475M4X7 | 187-0974 |
| 10µF | 32 | 7 | 5 | 0.45 | 2 | MCMR50V106M5X7 | 187-0975 |
| 22µF | 50 | 7 | 5 | 0.45 | 2 | MCMR50V226M5X7 | 187-0976 |
| 33µF | 62 | 7 | 8 | 0.5 | 3.5 | MCMR50V336M8X7 | 187-0977 |
| 47µF | 68 | 7 | 8 | 0.5 | 3.5 | MCMR50V476M8X7 | 187-0978 |
| **63 Volt d.c.** | | | | | | | |
| 0.1µF | 4 | 7 | 4 | 0.45 | 1.5 | MCMR63V104M4X7 | 187-0979 |
| 0.22µF | 4 | 7 | 4 | 0.45 | 1.5 | MCMR63V224M4X7 | 187-0980 |
| 0.33µF | 4 | 7 | 4 | 0.45 | 1.5 | MCMR63V334M4X7 | 187-0982 |
| 0.47µF | 6 | 7 | 4 | 0.45 | 1.5 | MCMR63V474M4X7 | 187-0983 |
| 1µF | 13 | 7 | 4 | 0.45 | 1.5 | MCMR63V105M4X7 | 945-2524 |
| 2.2µF | 21 | 7 | 4 | 0.45 | 1.5 | MCMR63V225M4X7 | 945-2532 |
| 3.3µF | 26 | 7 | 4 | 0.45 | 1.5 | MCMR63V335M4X7 | 187-0984 |
| 4.7µF | 33 | 7 | 5 | 0.45 | 2 | MCMR63V475M5X7 | 187-0985 |
| 10µF | 35 | 7 | 6.3 | 0.45 | 2.5 | MCMR63V106M6.3X7 | 187-0986 |

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| Order Multiple=5 | | Price Each | | | | |
|---|---|---|---|---|---|---|
| | Order Code | 5+ | 25+ | 100+ | 500+ | 1K+ |
| **6.3 Volt d.c.** | | | | | | |
| 47µF | SMD 945-2559 | | | | | |
| 100µF | SMD 945-2567 | | | | | |
| 220µF | SMD 945-2575 | | | | | |
| **10 Volt d.c.** | | | | | | |
| 33µF | NEW 187-0951 | | | | | |
| 47µF | 945-2427 | | | | | |
| 100µF | 945-2435 | | | | | |
| 220µF | 945-2443 | | | | | |
| 330µF | NEW 187-0952 | | | | | |
| 470µF | NEW 187-0953 | | | | | |
| **16 Volt d.c.** | | | | | | |
| 22µF | 945-2451 | | | | | |
| 33µF | NEW 187-0954 | | | | | |
| 47µF | 945-2460 | | | | | |
| 100µF | 945-2478 | | | | | |
| 220µF | NEW 187-0955 | | | | | |
| 330µF | NEW 187-0957 | | | | | |
| 470µF | NEW 187-0958 | | | | | |
| **25 Volt d.c.** | | | | | | |
| 10µF | 945-2486 | | | | | |
| 22µF | NEW 187-0959 | | | | | |
| 33µF | NEW 187-0960 | | | | | |
| 47µF | 945-2494 | | | | | |
| 100µF | NEW 187-0961 | | | | | |
| **35 Volt d.c.** | | | | | | |
| 10µF | 945-2508 | | | | | |
| 22µF | NEW 187-0962 | | | | | |
| 33µF | NEW 187-0963 | | | | | |
| 47µF | 945-2516 | | | | | |
| 100µF | NEW 187-0964 | | | | | |
| **50 Volt d.c.** | | | | | | |
| 0.1µF | NEW 187-0965 | | | | | |
| 0.22µF | NEW 187-0966 | | | | | |
| 0.33µF | NEW 187-0967 | | | | | |
| 0.47µF | NEW 187-0969 | | | | | |
| 1µF | NEW 187-0971 | | | | | |
| 2.2µF | NEW 187-0972 | | | | | |
| 3.3µF | NEW 187-0973 | | | | | |
| 4.7µF | NEW 187-0974 | | | | | |
| 10µF | NEW 187-0975 | | | | | |
| 22µF | NEW 187-0976 | | | | | |
| 33µF | NEW 187-0977 | | | | | |
| 47µF | NEW 187-0978 | | | | | |
| **63 Volt d.c.** | | | | | | |
| 0.1µF | NEW 187-0979 | | | | | |
| 0.22µF | NEW 187-0980 | | | | | |
| 0.33µF | NEW 187-0982 | | | | | |
| 0.47µF | NEW 187-0983 | | | | | |
| 1µF | 945-2524 | | | | | |
| 2.2µF | 945-2532 | | | | | |
| 3.3µF | NEW 187-0984 | | | | | |
| 4.7µF | NEW 187-0985 | | | | | |
| 10µF | NEW 187-0986 | | | | | |

# Aluminium Electrolytic - Radial - Multicomp - continued

## MCUMHR Series 5mm – 105°C



- Ultra miniature radial electrolytic capacitors
- 5mm profile for extra high density applications

Operating temperature -40°C to +105°C DC leakage current 0.01CV or 6.3μA
Tolerance @ 120Hz 20°C ±20% whichever is greater

| | Ripple (mA) @ 120Hz 105°C | Dimensions H | Dia. | Lead Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **6.3 Volt d.c.** | | | | | | | |
| 100μF | 60 | 5 | 6.3 | 0.45 | 2.5 | MCUMHR6V3107M6.3X5 | 945-2354 |
| **16 Volt d.c.** | | | | | | | |
| 47μF | 50 | 5 | 6.3 | 0.45 | 2.5 | MCUMHR16V476M6.3X5 | 945-2362 |
| **35 Volt d.c.** | | | | | | | |
| 47μF | 50 | 5 | 6.3 | 0.45 | 2.5 | MCUMHR16V476M6.3X5 | 945-2362 |
| 10μF | 25 | 5 | 5 | 0.45 | 2 | MCUMHR35V106M5X5 | 945-2389 |
| 22μF | 42 | 5 | 6.3 | 0.45 | 2.5 | MCUMHR35V226M6.3X5 | 945-2397 |
| **50 Volt d.c.** | | | | | | | |
| 1μF | 6.2 | 5 | 4 | 0.45 | 1.5 | MCUMHR50V105M4X5 | 945-2400 |
| 2.2μF | 11 | 5 | 4 | 0.45 | 1.5 | MCUMHR50V225M4X5 | 945-2419 |

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**Order Multiple=5**

| | Order Code | 5+ | 25+ | Price Each 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **6.3 Volt d.c.** | | | | | | |
| 100μF | **945-2354** | | | | | |
| **16 Volt d.c.** | | | | | | |
| 47μF | **945-2362** | | | | | |
| **35 Volt d.c.** | | | | | | |
| 4.7μF | **945-2370** | | | | | |
| 10μF | **945-2389** | | | | | |
| 22μF | **945-2397** | | | | | |
| **50 Volt d.c.** | | | | | | |
| 1μF | **945-2400** | | | | | |
| 2.2μF | **945-2419** | | | | | |

## MCMHR Series 7mm – 105°C



- Ultra miniature radial electrolytic capacitors
- 7mm profile for high density applications

Operating temperature -40°C to +105°C DC leakage current 0.01CV or 3μA
Tolerance @ 120Hz 20°C ±20% whichever is greater

| | Ripple (mA) @ 120Hz 105°C | Dimensions H | Dia. | Lead Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **6.3 Volt d.c.** | | | | | | | |
| 22μF | 35 | 7 | 4 | 0.45 | 1.5 | MCMHR6V3226M4X7 | 187-0987 |
| 33μF | 41 | 7 | 5 | 0.45 | 2 | MCMHR6V3336M5X7 | 187-0988 |
| 47μF | 42 | 7 | 5 | 0.45 | 2 | MCMHR6V3476M5X7 | 187-0989 |
| 100μF | 70 | 7 | 6.3 | 0.45 | 2.5 | MCMHR6V3107M6.3X7 | 187-0990 |
| 220μF | 122 | 7 | 8 | 0.5 | 3.5 | MCMHR6V3227M8X7 | 187-0991 |
| 330μF | 150 | 7 | 8 | 0.5 | 3.5 | MCMHR6V3337M8X7 | 945-2583 |
| μF470 | 153 | 7 | 8 | 0.5 | 3.5 | MCMHR6V3477M8X7 | 187-0992 |
| **10 Volt d.c.** | | | | | | | |
| 22μF | 36 | 7 | 5 | 0.45 | 2 | MCMHR10V226M5X7 | 187-0994 |
| 33μF | 45 | 7 | 5 | 0.45 | 2 | MCMHR10V336M5X7 | 187-0995 |
| 47μF | 52 | 7 | 5 | 0.45 | 2 | MCMHR10V476M5X7 | 187-0996 |
| 100μF | 90 | 7 | 5 | 0.45 | 2 | MCMHR10V107M5X7 | 187-0997 |
| 220μF | 125 | 7 | 8 | 0.5 | 3.5 | MCMHR10V227M8X7 | 187-0998 |
| 330μF | 152 | 7 | 8 | 0.5 | 3.5 | MCMHR10V337M8X7 | 187-0999 |
| 470μF | 153 | 7 | 8 | 0.5 | 3.5 | MCMHR10V477M8X7 | 187-1000 |
| **16 Volt d.c.** | | | | | | | |
| 10μF | 30 | 7 | 4 | 0.45 | 1.5 | MCMHR16V106M4X7 | 945-2591 |
| 22μF | 38 | 7 | 5 | 0.45 | 2 | MCMHR16V226M5X7 | 945-2613 |
| 33μF | 48 | 7 | 6.3 | 0.45 | 2.5 | MCMHR16V336M6.3X7 | 945-2621 |
| 47μF | 60 | 7 | 6.3 | 0.45 | 2.5 | MCMHR16V476M6.3X7 | 945-2630 |
| 100μF | 92 | 7 | 6.3 | 0.45 | 2.5 | MCMHR16V107M6.3X7 | 945-2648 |
| 220μF | 130 | 7 | 8 | 0.5 | 3.5 | MCMHR16V227M8X7 | 187-1001 |
| 330μF | 153 | 7 | 8 | 0.5 | 3.5 | MCMHR16V337M8X7 | 187-1002 |
| **25 Volt d.c.** | | | | | | | |
| 4.7μF | 15 | 7 | 4 | 0.45 | 1.5 | MCMHR25V475M4X7 | 187-1003 |
| 10μF | 31 | 7 | 5 | 0.45 | 2 | MCMHR25V106M5X7 | 187-1004 |
| 22μF | 46 | 7 | 6.3 | 0.45 | 2.5 | MCMHR25V226M6.3X7 | 187-1005 |
| 33μF | 50 | 7 | 6.3 | 0.45 | 2.5 | MCMHR25V336M6.3X7 | 187-1007 |
| 47μF | 65 | 7 | 6.3 | 0.45 | 2.5 | MCMHR25V476M6.3X7 | 187-1008 |
| 100μF | 100 | 7 | 8 | 0.5 | 3.5 | MCMHR25V107M8X7 | 187-1009 |
| **35 Volt d.c.** | | | | | | | |
| 4.7μF | 20 | 7 | 4 | 0.45 | 1.5 | MCMHR35V475M4X7 | 187-1010 |
| 10μF | 31 | 7 | 5 | 0.45 | 2 | MCMHR35V106M5X7 | 945-2656 |
| 22μF | 48 | 7 | 6.3 | 0.45 | 2.5 | MCMHR35V226M6.3X7 | 945-2664 |
| 33μF | 52 | 7 | 6.3 | 0.45 | 2.5 | MCMHR35V336M6.3X7 | 945-2672 |
| 47μF | 70 | 7 | 8 | 0.5 | 3.5 | MCMHR35V476M8X7 | 945-2680 |
| **50 Volt d.c.** | | | | | | | |
| 0.1μF | 3 | 7 | 4 | 0.45 | 1.5 | MCMHR50V104M4X7 | 187-1011 |
| 0.22μF | 3 | 7 | 4 | 0.45 | 1.5 | MCMHR50V224M4X7 | 187-1012 |
| 0.33μF | 3 | 7 | 4 | 0.45 | 1.5 | MCMHR50V334M4X7 | 187-1013 |
| 0.47μF | 5 | 7 | 4 | 0.45 | 1.5 | MCMHR50V474M4X7 | 187-1014 |
| 1μF | 10 | 7 | 4 | 0.45 | 1.5 | MCMHR50V105M4X7 | 187-1015 |
| 2.2μF | 19 | 7 | 4 | 0.45 | 1.5 | MCMHR50V225M4X7 | 187-1016 |
| 3.3μF | 24 | 7 | 4 | 0.45 | 1.5 | MCMHR50V335M4X7 | 945-2699 |
| 4.7μF | 30 | 7 | 5 | 0.45 | 2 | MCMHR50V475M5X7 | 187-1017 |
| 10μF | 33 | 7 | 6.3 | 0.45 | 2.5 | MCMHR50V106M6.3X7 | 945-2702 |
| 22μF | 50 | 7 | 6.3 | 0.45 | 2.5 | MCMHR50V226M6.3X7 | 945-2710 |
| 33μF | 62 | 7 | 8 | 0.5 | 3.5 | MCMHR50V336M8X7 | 187-1019 |
| 47μF | 75 | 7 | 8 | 0.5 | 3.5 | MCMHR50V476M8X7 | 187-1021 |
| **63 Volt d.c.** | | | | | | | |
| 0.1μF | 4 | 7 | 4 | 0.45 | 1.5 | MCMHR63V104M4X7 | 945-2729 |
| 0.22μF | 4 | 7 | 4 | 0.45 | 1.5 | MCMHR63V224M4X7 | 187-1022 |
| 0.33μF | 4 | 7 | 4 | 0.45 | 1.5 | MCMHR63V334M4X7 | 187-1023 |
| 0.47μF | 6 | 7 | 4 | 0.45 | 1.5 | MCMHR63V474M4X7 | 187-1024 |
| 1μF | 13 | 7 | 4 | 0.45 | 1.5 | MCMHR63V105M4X7 | 945-2737 |
| 2.2μF | 21 | 7 | 4 | 0.45 | 1.5 | MCMHR63V225M4X7 | 187-1025 |
| 3.3μF | 26 | 7 | 4 | 0.45 | 1.5 | MCMHR63V335M4X7 | 187-1026 |
| 4.7μF | 33 | 7 | 5 | 0.45 | 2 | MCMHR63V475M5X7 | 945-2745 |
| 10μF | 35 | 7 | 6.3 | 0.45 | 2.5 | MCMHR63V106M6.3X7 | 187-1027 |

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**Order Multiple=10**

| | Order Code | 10+ | 50+ | Price Each 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **6.3 Volt d.c.** | | | | | | |
| 22μF | NEW SMD **187-0987** | | | | | |
| 33μF | NEW SMD **187-0988** | | | | | |
| 47μF | NEW SMD **187-0989** | | | | | |
| 100μF | NEW SMD **187-0990** | | | | | |
| 220μF | NEW SMD **187-0991** | | | | | |
| 330μF | SMD **945-2583** | | | | | |
| 470μF | NEW SMD **187-0992** | | | | | |
| **10 Volt d.c.** | | | | | | |
| 22μF | NEW SMD **187-0994** | | | | | |
| 33μF | NEW SMD **187-0995** | | | | | |
| 47μF | NEW SMD **187-0996** | | | | | |
| 100μF | NEW SMD **187-0997** | | | | | |
| 220μF | NEW SMD **187-0998** | | | | | |
| 330μF | NEW SMD **187-0999** | | | | | |
| 470μF | NEW SMD **187-1000** | | | | | |
| **16 Volt d.c.** | | | | | | |
| 10μF | SMD **945-2591** | | | | | |
| 22μF | SMD **945-2613** | | | | | |
| 33μF | SMD **945-2621** | | | | | |
| 47μF | SMD **945-2630** | | | | | |
| 100μF | **945-2648** | | | | | |
| 220μF | NEW SMD **187-1001** | | | | | |
| 330μF | NEW SMD **187-1002** | | | | | |
| **25 Volt d.c.** | | | | | | |
| 4.7μF | NEW SMD **187-1003** | | | | | |
| 10μF | NEW SMD **187-1004** | | | | | |
| 22μF | NEW SMD **187-1005** | | | | | |
| 33μF | NEW SMD **187-1007** | | | | | |
| 47μF | NEW SMD **187-1008** | | | | | |
| 100μF | SMD **187-1009** | | | | | |
| **35 Volt d.c.** | | | | | | |
| 4.7μF | NEW SMD **187-1010** | | | | | |
| 10μF | SMD **945-2656** | | | | | |
| 22μF | SMD **945-2664** | | | | | |
| 33μF | SMD **945-2672** | | | | | |
| 47μF | SMD **945-2680** | | | | | |
| **50 Volt d.c.** | | | | | | |
| 0.1μF | NEW SMD **187-1011** | | | | | |
| 0.22μF | NEW SMD **187-1012** | | | | | |
| 0.33μF | NEW SMD **187-1013** | | | | | |
| 0.47μF | NEW SMD **187-1014** | | | | | |
| 1μF | NEW SMD **187-1015** | | | | | |
| 2.2μF | NEW SMD **187-1016** | | | | | |
| 3.3μF | SMD **945-2699** | | | | | |
| 4.7μF | NEW SMD **187-1017** | | | | | |
| 10μF | SMD **945-2702** | | | | | |
| 22μF | SMD **945-2710** | | | | | |
| 33μF | NEW SMD **187-1019** | | | | | |
| 47μF | NEW SMD **187-1021** | | | | | |
| **63 Volt d.c.** | | | | | | |
| 0.1μF | **945-2729** | | | | | |
| 0.22μF | NEW SMD **187-1022** | | | | | |
| 0.33μF | NEW SMD **187-1023** | | | | | |
| 0.47μF | NEW SMD **187-1024** | | | | | |
| 1μF | SMD **945-2737** | | | | | |
| 2.2μF | NEW SMD **187-1025** | | | | | |
| 3.3μF | NEW SMD **187-1026** | | | | | |
| 4.7μF | SMD **945-2745** | | | | | |
| 10μF | NEW SMD **187-1027** | | | | | |

## GPR Series – General Purpose



- General purpose radial leaded electrolytic
- Supplied loose with straight leads

| | |
|---|---|
| Operating temperature | -40°C to +85°C |
| Tolerance @ | ±20% |
| Ripple current measured at | 120Hz@85°C |
| DC leakage current | I=0.01CV |

| 10 Volt d.c. | Ripple (mA) | Dimensions H | Dimensions Dia. | Lead Dia. | Lead Pitch | Order Code |
|---|---|---|---|---|---|---|
| 100µF | 140 | 11 | 5 | 0.6 | 2 | 190-2882 |
| 220µF | 240 | 11 | 6.3 | 0.6 | 2.5 | 190-2883 |
| 470µF | 400 | 11 | 8 | 0.6 | 3.5 | 190-2884 |
| 1000µF | 660 | 13 | 10 | 0.6 | 5 | 190-2885 |
| 2200µF | 1050 | 21 | 10 | 0.6 | 5 | 190-2886 |
| 4700µF | 1720 | 26 | 13 | 0.6 | 5 | 190-2887 |

**Order Multiple=10**

| 10 Volt d.c. | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 100µF | NEW 190-2882 | | | | | |
| 220µF | NEW 190-2883 | | | | | |
| 470µF | NEW 190-2884 | | | | | |
| 1000µF | NEW 190-2885 | | | | | |
| 2200µF | NEW 190-2886 | | | | | |
| 4700µF | NEW 190-2887 | | | | | |

| 16 Volt d.c. | Ripple (mA) | Dimensions H | Dimensions Dia. | Lead Dia. | Lead Pitch | Order Code |
|---|---|---|---|---|---|---|
| 10µF | 39 | 11 | 5 | 0.5 | 2 | 945-1056 |
| 22µF | 50 | 11 | 5 | 0.5 | 2 | 945-1064 |
| 33µF | 75 | 11 | 5 | 0.5 | 2 | 190-2888 |
| 47µF | 78 | 11 | 5 | 0.5 | 2 | 945-1072 |
| 100µF | 123 | 12 | 6.3 | 0.5 | 2.5 | 945-1080 |
| 220µF | 232 | 12 | 6.3 | 0.5 | 2.5 | 945-1099 |
| 330µF | 310 | 12 | 8 | 0.6 | 3.5 | 945-1102 |
| 470µF | 390 | 12 | 8 | 0.6 | 2 | 945-1110 |
| 1000µF | 690 | 17 | 10 | 0.6 | 5 | 945-1129 |
| 2200µF | 1052 | 21 | 13 | 0.6 | 5 | 945-1137 |
| 3300µF | 1340 | 26 | 13 | 0.6 | 5 | 190-2889 |
| 4700µF | 1960 | 26 | 16 | 0.8 | 7.5 | 945-1145 |

**Order Multiple=10**

| 16 Volt d.c. | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10µF | 945-1056 | | | | | |
| 22µF | 945-1064 | | | | | |
| 33µF | NEW 190-2888 | | | | | |
| 47µF | 945-1072 | | | | | |
| 100µF | 945-1080 | | | | | |
| 220µF | 945-1099 | | | | | |
| 330µF | 945-1102 | | | | | |
| 470µF | 945-1110 | | | | | |
| 1000µF | 945-1129 | | | | | |
| 2200µF | 945-1137 | | | | | |
| 3300µF | NEW 190-2889 | | | | | |
| 4700µF | 945-1145 | | | | | |

| 25 Volt d.c. | Ripple (mA) | Dimensions H | Dimensions Dia. | Lead Dia. | Lead Pitch | Order Code |
|---|---|---|---|---|---|---|
| 10µF | 39 | 11 | 5 | 0.5 | 2 | 945-1153 |
| 22µF | 50 | 11 | 5 | 0.5 | 2 | 945-1161 |
| 33µF | 95 | 11 | 5 | 0.5 | 2 | 190-2890 |
| 47µF | 89 | 11 | 5 | 0.5 | 2 | 945-1170 |
| 100µF | 142 | 12 | 6.3 | 0.5 | 2.5 | 945-1188 |
| 220µF | 270 | 12 | 8 | 0.5 | 3.5 | 945-1196 |
| 330µF | 420 | 13 | 8 | 0.6 | 3.5 | 190-2892 |
| 470µF | 460 | 17 | 10 | 0.6 | 5 | 945-1200 |
| 1000µF | 850 | 21 | 10 | 0.6 | 5 | 945-1226 |
| 2200µF | 1460 | 26 | 13 | 0.6 | 5 | 190-2893 |
| 3300µF | 1800 | 26 | 16 | 0.8 | 7.5 | 190-2894 |
| 4700µF | 2150 | 26 | 16 | 0.8 | 7.5 | 190-2895 |

**Order Multiple=10**

| 25 Volt d.c. | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10µF | 945-1153 | | | | | |
| 22µF | 945-1161 | | | | | |
| 33µF | NEW 190-2890 | | | | | |
| 47µF | 945-1170 | | | | | |
| 100µF | 945-1188 | | | | | |
| 220µF | 945-1196 | | | | | |
| 330µF | NEW 190-2892 | | | | | |
| 470µF | 945-1200 | | | | | |
| 1000µF | 945-1226 | | | | | |
| 2200µF | NEW 190-2893 | | | | | |
| 3300µF | NEW 190-2894 | | | | | |
| 4700µF | NEW 190-2895 | | | | | |

| 35 Volt d.c. | Ripple (mA) | Dimensions H | Dimensions Dia. | Lead Dia. | Lead Pitch | Order Code |
|---|---|---|---|---|---|---|
| 4.7µF | 27 | 11 | 5 | 0.5 | 2 | 945-1234 |
| 10µF | 39 | 11 | 5 | 0.5 | 2 | 945-1242 |
| 22µF | 69 | 11 | 5 | 0.5 | 2 | 945-1250 |
| 33µF | 75 | 12 | 5 | 0.5 | 2 | 945-1269 |
| 47µF | 102 | 12 | 6.3 | 0.5 | 2.5 | 945-1277 |
| 100µF | 140 | 12 | 8 | 0.6 | 3.5 | 945-1285 |
| 220µF | 315 | 13 | 10 | 0.6 | 5 | 945-1293 |
| 330µF | 435 | 16 | 10 | 0.6 | 5 | 945-1307 |
| 470µF | 560 | 21 | 10 | 0.6 | 5 | 945-1315 |
| 1000µF | 875 | 22 | 13 | 0.6 | 5 | 945-1323 |
| 2200µF | 1462 | 32 | 16 | 0.8 | 7.5 | 945-1331 |
| 3300µF | 2060 | 36 | 16 | 0.8 | 7.5 | 190-2896 |
| 4700µF | 2280 | 36 | 18 | 0.8 | 7.5 | 190-2897 |

**Order Multiple=10**

| 35 Volt d.c. | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 4.7µF | 945-1234 | | | | | |
| 10µF | 945-1242 | | | | | |
| 22µF | 945-1250 | | | | | |
| 33µF | 945-1269 | | | | | |
| 47µF | 945-1277 | | | | | |
| 100µF | 945-1285 | | | | | |
| 220µF | 945-1293 | | | | | |
| 330µF | 945-1307 | | | | | |
| 470µF | 945-1315 | | | | | |
| 1000µF | 945-1323 | | | | | |
| 2200µF | 945-1331 | | | | | |
| 3300µF | NEW 190-2896 | | | | | |
| 4700µF | NEW 190-2897 | | | | | |

| 50 Volt d.c. | Ripple (mA) | Dimensions H | Dimensions Dia. | Lead Dia. | Lead Pitch | Order Code |
|---|---|---|---|---|---|---|
| 0.47µF | 8 | 11 | 5 | 0.5 | 2 | 945-1340 |
| 1µF | 12 | 11 | 5 | 0.5 | 2 | 945-1358 |
| 2.2µF | 18 | 11 | 5 | 0.5 | 2 | 945-1366 |
| 3.3µF | 30 | 11 | 5 | 0.5 | 2 | 190-2898 |
| 4.7µF | 27 | 11 | 5 | 0.5 | 2 | 945-1374 |
| 10µF | 39 | 11 | 5 | 0.5 | 2 | 945-1382 |
| 22µF | 65 | 11 | 5 | 0.5 | 2 | 945-1390 |
| 33µF | 120 | 11 | 6.3 | 0.5 | 2.5 | 190-2899 |
| 47µF | 112 | 12 | 6.3 | 0.5 | 2.5 | 945-1404 |
| 100µF | 220 | 11 | 8 | 0.6 | 3.5 | 945-1412 |
| 220µF | 395 | 17 | 10 | 0.6 | 5 | 945-1420 |
| 330µF | 540 | 21 | 10 | 0.6 | 5 | 190-2900 |
| 470µF | 670 | 21 | 13 | 0.6 | 5 | 945-1439 |
| 1000µF | 1140 | 26 | 16 | 0.8 | 7.5 | 945-1447 |
| 2200µF | 1900 | 36 | 16 | 0.8 | 7.5 | 190-2901 |
| 3300µF | 2180 | 36 | 18 | 0.8 | 7.5 | 190-2902 |
| 4700µF | 3380 | 41 | 22 | 0.8 | 10 | 190-2903 |

**Order Multiple=10**

| 50 Volt d.c. | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.47µF | 945-1340 | | | | | |
| 1µF | 945-1358 | | | | | |
| 2.2µF | 945-1366 | | | | | |
| 3.3µF | NEW 190-2898 | | | | | |
| 4.7µF | 945-1374 | | | | | |
| 10µF | 945-1382 | | | | | |
| 22µF | 945-1390 | | | | | |
| 33µF | NEW 190-2899 | | | | | |
| 47µF | 945-1404 | | | | | |
| 100µF | 945-1412 | | | | | |
| 220µF | 945-1420 | | | | | |
| 330µF | 190-2900 | | | | | |
| 470µF | 945-1439 | | | | | |
| 1000µF | 945-1447 | | | | | |
| 2200µF | NEW 190-2901 | | | | | |
| 3300µF | NEW 190-2902 | | | | | |
| 4700µF | NEW 190-2903 | | | | | |

| 63 Volt d.c. | Ripple (mA) | Dimensions H | Dimensions Dia. | Lead Dia. | Lead Pitch | Order Code |
|---|---|---|---|---|---|---|
| 1µF | 12 | 11 | 5 | 0.5 | 2 | 945-1455 |
| 2.2µF | 20 | 11 | 5 | 0.5 | 2 | 945-1463 |
| 4.7µF | 30 | 11 | 5 | 0.5 | 2 | 945-1471 |
| 10µF | 50 | 11 | 5 | 0.5 | 2 | 945-1480 |
| 22µF | 85 | 11 | 6.3 | 0.5 | 2.5 | 945-1498 |
| 47µF | 146 | 11 | 8 | 0.6 | 3.5 | 945-1501 |
| 100µF | 285 | 13 | 10 | 0.6 | 5 | 945-1510 |
| 220µF | 460 | 21 | 10 | 0.6 | 5 | 945-1528 |
| 470µF | 768 | 26 | 13 | 0.6 | 5 | 945-1536 |
| 1000µF | 1435 | 32 | 16 | 0.8 | 7.5 | 945-1544 |
| 2200µF | 2460 | 36 | 18 | 0.8 | 7.5 | 190-2904 |
| 4700µF | 3270 | 50 | 25 | 0.8 | 12 | 190-2905 |

**Order Multiple=10**

| 63 Volt d.c. | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1µF | 945-1455 | | | | | |
| 2.2µF | 945-1463 | | | | | |
| 4.7µF | 945-1471 | | | | | |
| 10µF | 945-1480 | | | | | |
| 22µF | 945-1498 | | | | | |

# Aluminium Electrolytic - Radial - Multicomp - continued

## GPR Series – General Purpose - continued

**Order Multiple=10**

**63 Volt d.c.**

| | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 47µF | 945-1501 | | | | | |
| 100µF | 945-1510 | | | | | |
| 220µF | 945-1528 | | | | | |
| 470µF | 945-1536 | | | | | |
| 1000µF | 945-1544 | | | | | |
| 2200µF | NEW 190-2904 | | | | | |
| 4700µF | NEW 190-2905 | | | | | |

| 100 Volt d.c. | Ripple (mA) | Dimensions H | Dia. | Lead Dia. | Lead Pitch | Order Code |
|---|---|---|---|---|---|---|
| 1µF | 15 | 11 | 5 | 0.5 | 2 | 945-1552 |
| 2.2µF | 27 | 11 | 5 | 0.5 | 2 | 190-2906 |
| 4.7µF | 45 | 11 | 5 | 0.5 | 2 | 190-2907 |
| 10µF | 61 | 11 | 6.3 | 0.5 | 2.5 | 945-1560 |
| 22µF | 106 | 11 | 8 | 0.6 | 3.5 | 945-1579 |
| 47µF | 190 | 16 | 10 | 0.6 | 5 | 945-1587 |
| 100µF | 320 | 21 | 13 | 0.6 | 5 | 945-1595 |
| 220µF | 665 | 26 | 16 | 0.8 | 7.5 | 945-1609 |
| 470µF | 925 | 32 | 16 | 0.8 | 7.5 | 945-1617 |

208525

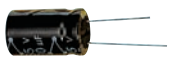
**Order Multiple=10**

**100 Volt d.c.**

| | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1µF | 945-1552 | | | | | |
| 2.2µF | NEW 190-2906 | | | | | |
| 4.7µF | NEW 190-2907 | | | | | |
| 10µF | 945-1560 | | | | | |
| 22µF | 945-1579 | | | | | |
| 47µF | 945-1587 | | | | | |
| 100µF | 945-1595 | | | | | |
| 220µF | 945-1609 | | | | | |
| 470µF | 945-1617 | | | | | |

## ECRH Series – 105°C

multicomp



- High temperature radial leaded electrolytic
- Supplied loose with straight leads

| | |
|---|---|
| Operating temperature | -40°C to +105°C |
| Tolerance | ±20% |
| Ripple current measured at | 120Hz@85°C |
| DC leakage current | I = 0.03CV |

| 10 Volt d.c. | Ripple (mA) | Dimensions H | Dia. | Lead Dia. | Lead Pitch | Order Code |
|---|---|---|---|---|---|---|
| 47µF | 70 | 11 | 5 | 0.5 | 2 | 190-2909 |
| 100µF | 99 | 11 | 5 | 0.5 | 2 | 945-1625 |
| 220µF | 171 | 11 | 6.3 | 0.5 | 2.5 | 945-1633 |
| 330µF | 245 | 13 | 8 | 0.5 | 3.5 | 190-2911 |
| 470µF | 328 | 11 | 8 | 0.6 | 3.5 | 945-1641 |
| 1000µF | 570 | 16 | 10 | 0.6 | 5 | 945-1650 |
| 2200µF | 960 | 21 | 13 | 0.6 | 5 | 945-1668 |
| 3300µF | 1194 | 21 | 13 | 0.6 | 5 | 945-1676 |
| 4700Capacitance | 1423 | 26 | 16 | 0.8 | 7.5 | 945-1684 |

**Order Multiple=5**

**10 Volt d.c.**

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 47µF | NEW 190-2909 | | | | | |
| 100µF | 945-1625 | | | | | |
| 220µF | 945-1633 | | | | | |
| 330µF | NEW 190-2911 | | | | | |
| 470µF | 945-1641 | | | | | |
| 1000µF | 945-1650 | | | | | |
| 2200µF | 945-1668 | | | | | |
| 3300µF | 945-1676 | | | | | |
| 4700µF | 945-1684 | | | | | |

| 16 Volt d.c. | Ripple (mA) | Dimensions H | Dia. | Lead Dia. | Lead Pitch | Order Code |
|---|---|---|---|---|---|---|
| 10µF | 39 | 11 | 5 | 0.5 | 2 | 945-1692 |
| 22µF | 49 | 11 | 5 | 0.5 | 2 | 945-1706 |
| 33µF | 64 | 11 | 5 | 0.5 | 2 | 190-2912 |
| 47µF | 76 | 11 | 5 | 0.5 | 2 | 945-1714 |
| 100µF | 129 | 12 | 6.3 | 0.5 | 2.5 | 945-1722 |
| 220µF | 225 | 11 | 8 | 0.6 | 3.5 | 945-1730 |
| 330µF | 295 | 11 | 8 | 0.6 | 3.5 | 945-1749 |
| 470µF | 392 | 13 | 10 | 0.6 | 5 | 945-1765 |
| 1000µF | 577 | 21 | 10 | 0.6 | 5 | 945-1773 |
| 2200µF | 1053 | 21 | 13 | 0.6 | 5 | 945-1781 |
| 3300µF | 1586 | 26 | 13 | 0.6 | 5 | 945-1790 |
| 4700µF | 1889 | 32 | 16 | 0.8 | 7.5 | 945-1803 |

**Order Multiple=5**

**16 Volt d.c.**

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10µF | 945-1692 | | | | | |
| 22µF | 945-1706 | | | | | |
| 33µF | NEW 190-2912 | | | | | |
| 47µF | 945-1714 | | | | | |
| 33µF | 190-2912 | | | | | |
| 33µF | 190-2912 | | | | | |
| 100µF | 945-1722 | | | | | |
| 220µF | 945-1730 | | | | | |
| 330µF | 945-1749 | | | | | |
| 470µF | 945-1765 | | | | | |
| 1000µF | 945-1773 | | | | | |
| 2200µF | 945-1781 | | | | | |
| 3300µF | 945-1790 | | | | | |
| 4700µF | 945-1803 | | | | | |

| 25 Volt d.c. | Ripple (mA) | Dimensions H | Dia. | Lead Dia. | Lead Pitch | Order Code |
|---|---|---|---|---|---|---|
| 10µF | 38 | 11 | 5 | 0.5 | 2 | 190-2913 |
| 22µF | 57 | 11 | 5 | 0.5 | 2 | 190-2914 |
| 33µF | 88 | 11 | 5 | 0.5 | 2 | 945-1811 |
| 47µF | 81 | 11 | 5 | 0.5 | 2 | 945-1820 |
| 100µF | 137 | 11 | 6.3 | 0.5 | 2.5 | 945-1838 |
| 220µF | 200 | 11 | 8 | 0.6 | 3.5 | 945-1846 |
| 330µF | 347 | 13 | 10 | 0.6 | 5 | 945-1854 |
| 470µF | 458 | 16 | 10 | 0.6 | 5 | 945-1862 |
| 1000µF | 505 | 21 | 13 | 0.6 | 5 | 945-1870 |
| 2200µF | 1234 | 26 | 13 | 0.6 | 5 | 945-1889 |
| 3300µF | 1630 | 32 | 16 | 0.8 | 7.5 | 945-1897 |
| 4700µF | 1780 | 36 | 16 | 0.8 | 7.5 | 190-2915 |

**Order Multiple=5**

**25 Volt d.c.**

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10µF | NEW 190-2913 | | | | | |
| 22µF | NEW 190-2914 | | | | | |
| 33µF | 945-1811 | | | | | |
| 47µF | 945-1820 | | | | | |
| 100µF | 945-1838 | | | | | |
| 220µF | 945-1846 | | | | | |
| 330µF | 945-1854 | | | | | |
| 470µF | 945-1862 | | | | | |
| 1000µF | 945-1870 | | | | | |
| 2200µF | 945-1889 | | | | | |
| 3300µF | 945-1897 | | | | | |
| 4700µF | NEW 190-2915 | | | | | |

| 35 Volt d.c. | Ripple (mA) | Dimensions H | Dia. | Lead Dia. | Lead Pitch | Order Code |
|---|---|---|---|---|---|---|
| 4.7µF | 28 | 11 | 5 | 0.5 | 2 | 190-2916 |
| 10µF | 39 | 11 | 5 | 0.5 | 2 | 945-1900 |
| 22µF | 60 | 11 | 5 | 0.5 | 2 | 945-1919 |
| 33µF | 72 | 11 | 5 | 0.5 | 2 | 945-1927 |
| 47µF | 101 | 11 | 6.3 | 0.5 | 2.5 | 945-1935 |
| 100µF | 172 | 11 | 8 | 0.6 | 3.5 | 945-1943 |
| 220µF | 300 | 13 | 10 | 0.6 | 5 | 945-1951 |
| 330µF | 417 | 16 | 10 | 0.6 | 5 | 945-1960 |
| 470µF | 535 | 21 | 10 | 0.6 | 5 | 945-1978 |
| 1000µF | 869 | 21 | 13 | 0.6 | 5 | 945-1986 |
| 2200µF | 1362 | 32 | 16 | 0.8 | 7.5 | 945-1994 |
| 3300µF | 1650 | 36 | 18 | 0.8 | 7.5 | 190-2917 |
| 4700µF | 4700 | 36 | 18 | 0.8 | 7.5 | 190-2918 |

**Order Multiple=5**

**35 Volt d.c.**

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 4.7µF | NEW 190-2916 | | | | | |
| 10µF | 945-1900 | | | | | |
| 22µF | 945-1919 | | | | | |
| 33µF | 945-1927 | | | | | |
| 47µF | 945-1935 | | | | | |
| 100µF | 945-1943 | | | | | |
| 220µF | 945-1951 | | | | | |
| 330µF | 945-1960 | | | | | |
| 470µF | 945-1978 | | | | | |
| 1000µF | 945-1986 | | | | | |
| 2200µF | 945-1994 | | | | | |
| 3300µF | NEW 190-2917 | | | | | |
| 4700µF | NEW 190-2918 | | | | | |

| 50 Volt d.c. | Ripple (mA) | Dimensions H | Dia. | Lead Dia. | Lead Pitch | Order Code |
|---|---|---|---|---|---|---|
| 0.1µF | 7 | 11 | 5 | 0.5 | 2 | 190-2919 |
| 0.22µF | 7 | 11 | 5 | 0.5 | 2 | 190-2920 |
| 0.33µF | 7 | 11 | 5 | 0.5 | 2 | 190-2922 |
| 0.47µF | 8 | 11 | 5 | 0.5 | 2 | 190-2923 |
| 1µF | 12 | 11 | 5 | 0.5 | 2 | 190-2924 |
| 2.2µF | 17 | 11 | 5 | 0.5 | 2 | 190-2925 |
| 3.3µF | 21 | 11 | 5 | 0.5 | 2 | 190-2926 |
| 4.7µF | 30 | 11 | 5 | 0.5 | 2 | 190-2927 |
| 10µF | 46 | 11 | 5 | 0.5 | 2 | 190-2928 |

| | Ripple (mA) | H | Dimensions Dia. | Dia. | Pitch | Order Code |
|---|---|---|---|---|---|---|
| **50 Volt d.c.** | | | | | | |
| 22µF | 68 | 11 | 5 | 0.5 | 2 | 190-2929 |
| 33µF | 90 | 11 | 6.3 | 0.5 | 2.5 | 190-2930 |
| 47µF | 110 | 11 | 6.3 | 0.5 | 2.5 | 190-2931 |
| 100µF | 180 | 11 | 8 | 0.6 | 3.5 | 190-2932 |
| 220µF | 345 | 16 | 10 | 0.6 | 5 | 190-2934 |
| 330µF | 460 | 21 | 10 | 0.6 | 5 | 190-2935 |
| 470µF | 610 | 21 | 13 | 0.6 | 5 | 190-2936 |
| 1000µF | 100 | 26 | 16 | 0.8 | 7.5 | 190-2937 |

**Order Multiple=5**

**50 Volt d.c.** — **Price Each**

| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.1µF | NEW **190-2919** | | | | | |
| 0.22µF | NEW **190-2920** | | | | | |
| 0.33µF | NEW **190-2922** | | | | | |
| 0.47µF | NEW **190-2923** | | | | | |
| 1µF | NEW **190-2924** | | | | | |
| 2.2µF | NEW **190-2925** | | | | | |
| 3.3µF | NEW **190-2926** | | | | | |
| 4.7µF | NEW **190-2927** | | | | | |
| 10µF | NEW **190-2928** | | | | | |
| 22µF | NEW **190-2929** | | | | | |
| 33µF | NEW **190-2930** | | | | | |
| 47µF | NEW **190-2931** | | | | | |
| 100µF | NEW **190-2932** | | | | | |
| 220µF | NEW **190-2934** | | | | | |
| 330µF | NEW **190-2935** | | | | | |
| 470µF | NEW **190-2936** | | | | | |
| 1000µF | NEW **190-2937** | | | | | |

| | Ripple (mA) | H | Dimensions Dia. | Dia. | Pitch | Order Code |
|---|---|---|---|---|---|---|
| **63 Volt d.c.** | | | | | | |
| 1µF | 12 | 11 | 5 | 0.5 | 2 | 945-2001 |
| 2.2µF | 20 | 11 | 5 | 0.5 | 2 | 945-2010 |
| 4.7µF | 30 | 11 | 5 | 0.5 | 2 | 945-2028 |
| 10µF | 50 | 11 | 5 | 0.5 | 2 | 945-2036 |
| 22µF | 85 | 11 | 6.3 | 0.5 | 2.5 | 945-2044 |
| 33µF | 105 | 11 | 6.3 | 0.5 | 2.5 | 945-2052 |
| 47µF | 146 | 11 | 8 | 0.6 | 3.5 | 945-2060 |
| 100µF | 285 | 13 | 10 | 0.6 | 5 | 945-2079 |
| 220µF | 460 | 21 | 10 | 0.6 | 5 | 945-2087 |
| 330µF | 551 | 21 | 13 | 0.6 | 5 | 945-2095 |
| 470µF | 768 | 26 | 13 | 0.6 | 5 | 945-2109 |
| 1000µF | 1435 | 32 | 16 | 0.8 | 7.5 | 945-2117 |

**Order Multiple=5**

**63 Volt d.c.** — **Price Each**

| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1µF | **945-2001** | | | | | |
| 2.2µF | **945-2010** | | | | | |
| 4.7µF | **945-2028** | | | | | |
| 10µF | **945-2036** | | | | | |
| 22µF | **945-2044** | | | | | |
| 33µF | **945-2052** | | | | | |
| 47µF | **945-2060** | | | | | |
| 100µF | **945-2079** | | | | | |
| 220µF | **945-2087** | | | | | |
| 330µF | **945-2095** | | | | | |
| 470µF | **945-2109** | | | | | |
| 1000µF | **945-2117** | | | | | |

| | Ripple (mA) | H | Dimensions Dia. | Dia. | Pitch | Order Code |
|---|---|---|---|---|---|---|
| **100 Volt d.c.** | | | | | | |
| 0.1µF | 8 | 11 | 5 | 0.5 | 2 | 190-2938 |
| 0.22µF | 8 | 11 | 5 | 0.5 | 2 | 190-2939 |
| 0.33µF | 8 | 11 | 5 | 0.5 | 2 | 190-2940 |
| 0.47µF | 10 | 11 | 5 | 0.5 | 2 | 190-2941 |
| 1µF | 15 | 11 | 5 | 0.5 | 2 | 190-2942 |
| 2.2µF | 23 | 11 | 5 | 0.5 | 2 | 190-2943 |
| 3.3µF | 29 | 11 | 5 | 0.5 | 2 | 190-2944 |
| 4.7µF | 34 | 11 | 5 | 0.5 | 2 | 190-2946 |
| 10µF | 56 | 11 | 6.3 | 0.5 | 2.5 | 190-2947 |
| 22µF | 106 | 11 | 8 | 0.6 | 3.5 | 945-2125 |
| 33µF | 140 | 11 | 8 | 0.8 | 3.5 | 190-2948 |
| 47µF | 190 | 16 | 10 | 0.6 | 5 | 945-2133 |
| 100µF | 320 | 21 | 13 | 0.6 | 5 | 945-2141 |
| 220µF | 665 | 26 | 16 | 0.8 | 7.5 | 945-2150 |
| 330µF | 702 | 26 | 16 | 0.8 | 7.5 | 945-2168 |
| 470µF | 880 | 26 | 16 | 0.8 | 7.5 | 190-2949 |

208523

**Order Multiple=5**

**100 Volt d.c.** — **Price Each**

| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.1µF | NEW **190-2938** | | | | | |
| 0.22µF | NEW **190-2939** | | | | | |
| 0.33µF | NEW **190-2940** | | | | | |
| 0.47µF | NEW **190-2941** | | | | | |
| 1µF | NEW **190-2942** | | | | | |
| 2.2µF | NEW **190-2943** | | | | | |
| 3.3µF | NEW **190-2944** | | | | | |
| 4.7µF | NEW **190-2946** | | | | | |

**Order Multiple=5**

**100 Volt d.c.** — **Price Each**

| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10µF | NEW **190-2947** | | | | | |
| 22µF | **945-2125** | | | | | |
| 33µF | NEW **190-2948** | | | | | |
| 47µF | **945-2133** | | | | | |
| 100µF | **945-2141** | | | | | |
| 220µF | **945-2150** | | | | | |
| 330µF | **945-2168** | | | | | |
| 470µF | NEW **190-2949** | | | | | |

## GLR Series - 105°C (Radial Leaded) NEW

multicomp



- High reliabilty with low impedance and low ESR
- Guaranteed 2000 hours at 105°C
- Suitable for switching power and automobile industry

Operating temperature -55°C to +105°C
Capacitance tolerance ± 20%
Voltage rating 10 V to 100 V

| Capacitance | Ripple Current @100 kHz | Impedance @ 100 kHz | Dimensions in mm H | Dia. | Lead spacing | Order Code |
|---|---|---|---|---|---|---|
| **10 V d.c** | | | | | | |
| 100µF | 250mA | 0.7ohm | 11 | 5 | 2 | 190-2950 |
| 220µF | 410mA | 0.19ohm | 11 | 6.3 | 2.5 | 190-2951 |
| 330µF | 500mA | 0.175ohm | 11 | 8 | 3.5 | 190-2952 |
| 470µF | 650mA | 0.135ohm | 11 | 8 | 3.5 | 190-2954 |
| 1000µF | 1A | 0.085ohm | 16 | 10 | 5 | 190-2959 |
| 2200µF | 1.65A | 0.056ohm | 26 | 13 | 5 | 190-2961 |
| 3300µF | 2A | 0.048ohm | 25 | 13 | 5 | 190-2962 |
| 4700µF | 2.5A | 0.038ohm | 26 | 16 | 7.5 | 190-2963 |
| **16 V d.c** | | | | | | |
| 33µF | 105mA | 1.2ohm | 11 | 5 | 2 | 190-2964 |
| 47µF | 150mA | 0.80ohm | 11 | 5 | 2 | 190-2965 |
| 100µF | 300mA | 0.350ohm | 11 | 6.3 | 2.5 | 190-2966 |
| 220µF | 450mA | 0.182ohm | 11 | 8 | 3.5 | 190-2967 |
| 330µF | 600mA | 0.156ohm | 14 | 8 | 3.5 | 190-2968 |
| 470µF | 750mA | 0.120ohm | 16 | 10 | 5 | 190-2971 |
| 1000µF | 1.3A | 0.080ohm | 16 | 10 | 5 | 190-2972 |
| 2200µF | 2.5A | 0.050ohm | 26 | 13 | 5 | 190-2973 |
| 3300µF | 2.7A | 0.045ohm | 32 | 16 | 7.5 | 190-2974 |
| 4700µF | | 0.035ohm | 36 | 16 | 7.5 | 190-2975 |
| **25 V d.c** | | | | | | |
| 33µF | 1.2A | 0.80ohm | 11 | 6.3 | 2.5 | 190-2976 |
| 47µF | 1.6A | 0.70ohm | 11 | 6.3 | 2.5 | 190-2977 |
| 100µF | 3.9A | 0.330ohm | 11 | 8 | 3.5 | 190-2978 |
| 220µF | 600mA | 0.175ohm | 14 | 8 | 3.5 | 190-2979 |
| 330µF | 800mA | 0.145ohm | 16 | 10 | 5 | 190-2980 |
| 470µF | 1A | 0.115ohm | 16 | 10 | 5 | 190-2981 |
| 1000µF | 1.8A | 0.076ohm | 21 | 13 | 5 | 190-2983 |
| **35 V d.c** | | | | | | |
| 33µF | 135mA | 0.70ohm | 11 | 6.3 | 2.5 | 190-2984 |
| 47µF | 250mA | 0.65ohm | 11 | 6.3 | 2.5 | 190-2985 |
| 100µF | 400mA | 0.321ohm | 11 | 8 | 3.5 | 190-2986 |
| 220µF | 700mA | 0.168ohm | 16 | 10 | 5 | 190-2987 |
| 330µF | 950mA | 0.138ohm | 21 | 10 | 5 | 190-2988 |
| 470µF | 1.2A | 0.102ohm | 21 | 10 | 5 | 190-2989 |
| 1000µF | 2.2A | 0.070ohm | 26 | 16 | 7.5 | 190-2990 |
| **50 V d.c** | | | | | | |
| 1µF | 10mA | 2.3ohm | 11 | 5 | 2 | 190-2991 |
| 2.2µF | 25mA | 1.9ohm | 11 | 5 | 2 | 190-2992 |
| 3.3µF | 43mA | 1.5ohm | 11 | 5 | 2 | 190-2993 |
| 4.7µF | 48mA | 1.4ohm | 11 | 5 | 2 | 190-2995 |
| 10µF | 79mA | 1.2ohm | 11 | 5 | 2 | 190-2996 |
| 22µF | 118mA | 0.75ohm | 11 | 5 | 2 | 190-2997 |
| 33µF | 250mA | 0.65ohm | 11 | 6.3 | 2.5 | 190-2998 |
| 47µF | 360mA | 0.49ohm | 11 | 8 | 3.5 | 190-2999 |
| 100µF | 500mA | 0.298ohm | 13 | 10 | 5 | 190-3000 |
| 220µF | 900mA | 0.158ohm | 21 | 10 | 5 | 190-3001 |
| 330µF | 1.2A | 0.127ohm | 21 | 13 | 5 | 190-3002 |
| 470µF | 1.55A | 0.096ohm | 26 | 13 | 5 | 190-3003 |
| 1000µF | 2.5A | 0.069ohm | 32 | 16 | 7.5 | 190-3004 |
| **100 V d.c** | | | | | | |
| 1µF | 12mA | 2.3ohm | 11 | 5 | 2 | 190-3005 |
| 2.2µF | 28mA | 1.8ohm | 11 | 5 | 2 | 190-3006 |
| 3.3µF | 50mA | 1.4ohm | 11 | 5 | 2 | 190-3008 |
| 4.7µF | 53mA | 1.3ohm | 11 | 5 | 2 | 190-3009 |
| 10µF | 90mA | 0.70ohm | 11 | 6.3 | 2.5 | 190-3010 |
| 22µF | 320mA | 0.65ohm | 12 | 8 | 3.5 | 190-3011 |
| 33µF | 380mA | 0.45ohm | 14 | 8 | 3.5 | 190-3012 |
| 47µF | 450mA | 0.398ohm | 17 | 10 | 5 | 190-3013 |
| 100µF | 750mA | 0.254ohm | 20 | 10 | 5 | 190-3014 |

641352

| Capacitance | Mftrs. List No. | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **10 V d.c** | | | | | | | |
| 100µF | MCGLR10V107M5X11 | **190-2950** | | | | | |
| 220µF | MCGLR10V227M6.3X11 | **190-2951** | | | | | |
| 330µF | MCGLR10V337M8X11 | **190-2952** | | | | | |
| 470µF | MCGLR10V477M8X11 | **190-2954** | | | | | |
| 1000µF | MCGLR10V108M10X16 | **190-2959** | | | | | |
| 2200µF | MCGLR10V228M13X26 | **190-2961** | | | | | |
| 3300µF | MCGLR10V338M13X25 | **190-2962** | | | | | |
| 4700µF | MCGLR10V478M16X26 | **190-2963** | | | | | |

# Aluminium Electrolytic - Radial - Multicomp - continued

## GLR Series - 105°C (Radial Leaded) - continued

| Capacitance | Mftrs. List No. | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **16 V d.c** | | | | | | | |
| 33µF | MCGLR16V336M5X11 | 190-2964 | | | | | |
| 47µF | MCGLR16V476M5X11 | 190-2965 | | | | | |
| 100µF | MCGLR16V107M6.3X11 | 190-2966 | | | | | |
| 220µF | MCGLR16V227M8X11 | 190-2967 | | | | | |
| 330µF | MCGLR16V337M8X14 | 190-2968 | | | | | |
| 470µF | MCGLR16V477M10X16 | 190-2971 | | | | | |
| 1000µF | MCGLR16V108M10X16 | 190-2972 | | | | | |
| 2200µF | MCGLR16V228M13X26 | 190-2973 | | | | | |
| 3300µF | MCGLR16V338M16X32 | 190-2974 | | | | | |
| 4700µF | MCGLR16V478M16X36 | 190-2975 | | | | | |
| **25 V d.c** | | | | | | | |
| 33µF | MCGLR25V336M6.3X11 | 190-2976 | | | | | |
| 47µF | MCGLR25V476M6.3X11 | 190-2977 | | | | | |
| 100µF | MCGLR25V107M8X11 | 190-2978 | | | | | |
| 220µF | MCGLR25V227M8X14 | 190-2979 | | | | | |
| 330µF | MCGLR25V337M10X16 | 190-2980 | | | | | |
| 470µF | MCGLR25V477M10X16 | 190-2981 | | | | | |
| 1000µF | MCGLR25V108M13X21 | 190-2983 | | | | | |
| **35 V d.c** | | | | | | | |
| 33µF | MCGLR35V336M6.3X11 | 190-2984 | | | | | |
| 47µF | MCGLR35V476M6.3X11 | 190-2985 | | | | | |
| 100µF | MCGLR35V107M8X11 | 190-2986 | | | | | |
| 220µF | MCGLR35V227M10X16 | 190-2987 | | | | | |
| 330µF | MCGLR35V337M10X21 | 190-2988 | | | | | |
| 470µF | MCGLR35V477M10X21 | 190-2989 | | | | | |
| 1000µF | MCGLR35V108M16X26 | 190-2990 | | | | | |
| **50 V d.c** | | | | | | | |
| 1µF | MCGLR50V105M5X11 | 190-2991 | | | | | |
| 2.2µF | MCGLR50V225M5X11 | 190-2992 | | | | | |
| 3.3µF | MCGLR50V335M5X11 | 190-2993 | | | | | |
| 4.7µF | MCGLR50V475M5X11 | 190-2995 | | | | | |
| 10µF | MCGLR50V106M5X11 | 190-2996 | | | | | |
| 22µF | MCGLR50V226M5X11 | 190-2997 | | | | | |
| 33µF | MCGLR50V336M6.3X11 | 190-2998 | | | | | |
| 47µF | MCGLR50V476M8X11 | 190-2999 | | | | | |
| 100µF | MCGLR50V107M10X13 | 190-3000 | | | | | |
| 220µF | MCGLR50V227M10X21 | 190-3001 | | | | | |
| 330µF | MCGLR50V337M13X21 | 190-3002 | | | | | |
| 470µF | MCGLR50V477M13X26 | 190-3003 | | | | | |
| 1000µF | MCGLR50V108M16X32 | 190-3004 | | | | | |
| **100 V d.c** | | | | | | | |
| 1µF | MCGLR100V105M5X11 | 190-3005 | | | | | |
| 2.2µF | MCGLR100V225M5X11 | 190-3006 | | | | | |
| 3.3µF | MCGLR100V335M5X11 | 190-3008 | | | | | |
| 4.7µF | MCGLR100V475M5X11 | 190-3009 | | | | | |
| 10µF | MCGLR100V106M6.3X11 | 190-3010 | | | | | |
| 22µF | MCGLR100V226M8X12 | 190-3011 | | | | | |
| 33µF | MCGLR100V336M8X14 | 190-3012 | | | | | |
| 47µF | MCGLR100V476M10X17 | 190-3013 | | | | | |
| 100µF | MCGLR100V107M10X20 | 190-3014 | | | | | |

# Aluminium Electrolytic - Radial - Panasonic

## M Series - General Purpose

Panasonic



- Miniature general purpose radial electrolytic
- AECQ-200 Automotive Approved

Operating temperature 6.3 to 100 V .DC -40°C to +85°C Ripple current measured at 120Hz @ 85°C
Operating temperature 160 to 450 V .DC -25°C to +85°C DC leakage current 0.01CV or 3µA
Tolerance ±20% whichever is greater

Order Multiple=5

**6.3 Volt d.c.**

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 100µF | NEW 190-7106 | | | | | |
| 220µF | NEW 190-7107 | | | | | |
| 330µF | NEW 190-7108 | | | | | |
| 470µF | NEW 184-8481 | | | | | |
| 1000µF | NEW 184-8482 | | | | | |
| 2200µF | NEW 184-8484 | | | | | |
| 3300µF | NEW 184-8485 | | | | | |
| 4700µF | NEW 184-8486 | | | | | |
| 6800µF | NEW 184-8487 | | | | | |
| 10000µF | NEW 190-7109 | | | | | |
| 15000µF | NEW 190-7110 | | | | | |
| 22000µF | NEW 190-7111 | | | | | |

| | Ripple (mA) | Dimensions H | Dia. | Lead Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **6.3 Volt d.c.** | | | | | | | |
| 100µF | 130 | 11 | 5 | 0.5 | 2 | ECA0JM101 | 190-7106 |
| 220µF | 240 | 11 | 5 | 0.5 | 2 | ECA0JM221 | 190-7107 |
| 330µF | 330 | 11.2 | 6.3 | 0.5 | 2.5 | ECA0JM331 | 190-7108 |
| 470µF | 380 | 11.2 | 6.3 | 0.5 | 2.5 | ECA0JM471 | 184-8481 |
| 1000µF | 580 | 11.5 | 8 | 0.6 | 3.5 | ECA0JM102 | 184-8482 |
| 2200µF | 890 | 16 | 10 | 0.6 | 5 | ECA0JM222 | 184-8484 |
| 3300µF | 1020 | 20 | 10 | 0.6 | 5 | ECA0JM332 | 184-8485 |
| 4700µF | 1170 | 20 | 12.5 | 0.6 | 5 | ECA0JM472 | 184-8486 |
| 6800µF | 1270 | 25 | 12.5 | 0.6 | 5 | ECA0JM682 | 184-8487 |
| 10000µF | 1450 | 25 | 16 | 0.8 | 7.5 | ECA0JM103 | 190-7109 |
| 15000µF | 1700 | 31.5 | 16 | 0.8 | 7.5 | ECA0JM153 | 190-7110 |
| 22000µF | 1900 | 35.5 | 18 | 0.8 | 7.5 | ECA0JM223 | 190-7111 |

Order Multiple=5

**10 Volt d.c.**

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 22µF | NEW 190-7112 | | | | | |
| 33µF | NEW 190-7113 | | | | | |
| 47µF | NEW 190-7114 | | | | | |
| 100µF | NEW 190-7115 | | | | | |
| 220µF | NEW 190-7117 | | | | | |
| 330µF | NEW 190-7118 | | | | | |
| 470µF | NEW 190-7119 | | | | | |
| 1000µF | NEW 184-8488 | | | | | |
| 2200µF | NEW 184-8489 | | | | | |
| 3300µF | NEW 184-8490 | | | | | |
| 4700µF | NEW 184-8491 | | | | | |
| 6800µF | NEW 190-7120 | | | | | |
| 10000µF | NEW 184-8492 | | | | | |
| 15000µF | NEW 190-7121 | | | | | |

| | Ripple (mA) | Dimensions H | Dia. | Lead Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **10 Volt d.c.** | | | | | | | |
| 22µF | 40 | | 5 | | | ECA1AM220 | 190-7112 |
| 33µF | 60 | | 5 | | | ECA1AM330 | 190-7113 |
| 47µF | 90 | | 5 | | | ECA1AM470 | 190-7114 |
| 100µF | | 11 | 5 | 0.5 | 2 | ECA1AM101 | 190-7115 |
| 220µF | | 11.2 | 6.3 | 0.5 | 2.5 | ECA1AM221 | 190-7117 |
| 330µF | 330 | 11.2 | 6.3 | 0.5 | 2.5 | ECA1AM331 | 190-7118 |
| 470µF | | 11.5 | 8 | 0.6 | 3.5 | ECA1AM471 | 190-7119 |
| 1000µF | 630 | 12.5 | 10 | 0.6 | 5 | ECA1AM102 | 184-8488 |
| 2200µF | 920 | 20 | 10 | 0.6 | 5 | ECA1AM222 | 184-8489 |
| 3300µF | 1090 | 20 | 12.5 | 0.6 | 5 | ECA1AM332 | 184-8490 |
| 4700µF | 1200 | 25 | 12.5 | 0.6 | 5 | ECA1AM472 | 184-8491 |
| 6800µF | 1400 | 25 | 16 | 0.8 | 7.5 | ECA1AM682 | 190-7120 |
| 10000µF | 1600 | 31.5 | 16 | 0.8 | 7.5 | ECA1AM103 | 184-8492 |
| 15000µF | 1850 | 35.5 | 18 | 0.8 | 7.5 | ECA1AM153 | 190-7121 |

Order Multiple=5

**16 Volt d.c.**

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10µF | 969-3548 | | | | | |
| 22µF | 969-3564 | | | | | |
| 33µF | NEW 184-8493 | | | | | |
| 47µF | 969-3572 | | | | | |
| 100µF | 969-3580 | | | | | |
| 220µF | 969-3599 | | | | | |
| 330µF | NEW 190-7122 | | | | | |
| 470µF | 969-3602 | | | | | |
| 1000µF | 969-3610 | | | | | |
| 2200µF | 969-3629 | | | | | |
| 3300µF | NEW 184-8494 | | | | | |
| 4700µF | NEW 184-8496 | | | | | |
| 6800µF | NEW 184-8497 | | | | | |
| 10000µF | NEW 190-7123 | | | | | |

| | Ripple (mA) | Dimensions H | Dia. | Lead Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **16 Volt d.c.** | | | | | | | |
| 10µF | 30 | 11 | 5 | 0.5 | 2 | ECA1CM100 | 969-3548 |
| 22µF | 75 | 11 | 5 | 0.5 | 2 | ECA1CM220 | 969-3564 |
| 33µF | 110 | 11 | 5 | 0.5 | 2 | ECA1CM330 | 184-8493 |
| 47µF | 130 | 11 | 5 | 0.5 | 2 | ECA1CM470 | 969-3572 |
| 100µF | 180 | 11 | 5 | 0.5 | 2 | ECA1CM101 | 969-3580 |
| 220µF | 280 | 11.2 | 6.3 | 0.5 | 2.5 | ECA1CM221 | 969-3599 |
| 330µF | 350 | 11.5 | 8 | 0.6 | 3.5 | ECA1CM331 | 190-7122 |
| 470µF | 440 | 11.5 | 8 | 0.6 | 3.5 | ECA1CM471 | 969-3602 |
| 1000µF | 680 | 16 | 10 | 0.6 | 5 | ECA1CM102 | 969-3610 |
| 2200µF | 1000 | 20 | 12.5 | 0.6 | 5 | ECA1CM222 | 969-3629 |
| 3300µF | 1200 | 25 | 12.5 | 0.6 | 5 | ECA1CM332 | 184-8494 |
| 4700µF | 1360 | 25 | 16 | 0.8 | 7.5 | ECA1CM472 | 184-8496 |
| 6800µF | 1600 | 31.5 | 16 | 0.8 | 7.5 | ECA1CM682 | 184-8497 |
| 10000µF | 1800 | 35.5 | 18 | 0.8 | 7.5 | ECA1CM103 | 190-7123 |

Order Multiple=5

**25 Volt d.c.**

| | Ripple (mA) | Dimensions H | Dia. | Lead Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 4.7µF | | | | | | ECA1EM4R7 | 190-7124 |
| 10µF | | | | | | ECA1EM100 | 190-7125 |
| 22µF | | | | | | ECA1EM220 | 190-7126 |
| 33µF | | | | | | ECA1EM330 | 190-7127 |


RoHS ● Compliant ▲ Non-compliant

| | Ripple (mA) | Dimensions H | Dia. | Lead Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **25 Volt d.c.** | | | | | | | |
| 47µF | 180 | 11.2 | 6.3 | 0.5 | 2.5 | ECA1EM470 | 184-8498 |
| 100µF | 180 | 11.2 | 6.3 | 0.5 | 2.5 | ECA1EM101 | 184-8499 |
| 220µF | | 11.5 | 8 | 0.6 | 3.5 | ECA1EM221 | 190-7129 |
| 330µF | 390 | 11.5 | 8 | 0.6 | 3.5 | ECA1EM331 | 184-8500 |
| 470µF | 480 | 12.5 | 10 | 0.6 | 5 | ECA1EM471 | 184-8502 |
| 1000µF | 850 | 20 | 10 | 0.6 | 5 | ECA1EM102 | 184-8503 |
| 3300µF | 1300 | 25 | 16 | 0.8 | 7.5 | ECA1EM332 | 184-8504 |
| 4700µF | 1500 | 31.5 | 16 | 0.8 | 7.5 | ECA1EM472 | 184-8505 |
| 6800µF | 1750 | 35.5 | 18 | 0.8 | 7.5 | ECA1EM682 | 184-8506 |
| 2200µF | 1200 | 25 | 12.5 | 0.6 | 5 | ECA1EM222 | 190-7131 |

**Order Multiple=5**

**25 Volt d.c.** — **Price Each**

| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 4.7µF | NEW **190-7124** | | | | | |
| 10µF | NEW **190-7125** | | | | | |
| 22µF | NEW **190-7126** | | | | | |
| 33µF | NEW **190-7127** | | | | | |
| 47µF | NEW **184-8498** | | | | | |
| 100µF | NEW **184-8499** | | | | | |
| 220µF | NEW **190-7129** | | | | | |
| 330µF | NEW **184-8500** | | | | | |
| 470µF | NEW **184-8502** | | | | | |
| 1000µF | NEW **184-8503** | | | | | |
| 3300µF | NEW **184-8504** | | | | | |
| 4700µF | NEW **184-8505** | | | | | |
| 6800µF | NEW **184-8506** | | | | | |
| 2200µF | NEW **190-7131** | | | | | |

| | Ripple (mA) | Dimensions H | Dia. | Lead Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **35 Volt d.c.** | | | | | | | |
| 4.7µF | | | | | | ECA1VM4R7 | 190-7132 |
| 10µF | 60 | 11 | 5 | 0.5 | 2 | ECA1VM100 | 969-3637 |
| 22µF | 95 | 11 | 5 | 0.5 | 2 | ECA1VM220 | 969-3645 |
| 33µF | 110 | 11 | 5 | 0.5 | 2 | ECA1VM330 | 969-3653 |
| 47µF | 130 | 11 | 5 | 0.5 | 2 | ECA1VM470 | 969-3661 |
| 100µF | 210 | 11.2 | 6.3 | 0.5 | 2.5 | ECA1VM101 | 969-3670 |
| 220µF | 350 | 11.5 | 8 | 0.6 | 3.5 | ECA1VM221 | 969-3688 |
| 330µF | 440 | 12.5 | 10 | 0.6 | 5 | ECA1VM331 | 969-3696 |
| 470µF | 550 | 16 | 10 | 0.6 | 5 | ECA1VM471 | 969-3700 |
| 1000µF | 900 | 20 | 12.5 | 0.6 | 5 | ECA1VM102 | 969-3718 |
| 2200µF | 1250 | 25 | 16 | 0.8 | 7.5 | ECA1VM222 | 969-3726 |
| 3300µF | 1400 | 31.5 | 16 | 0.8 | 7.5 | ECA1VM332 | 184-8507 |
| 4700µF | 1600 | 35.5 | 18 | 0.8 | 7.5 | ECA1VM472 | 184-8508 |

**Order Multiple=5**

**35 Volt d.c.** — **Price Each**

| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 4.7µF | NEW **190-7132** | | | | | |
| 10µF | **969-3637** | | | | | |
| 22µF | **969-3645** | | | | | |
| 33µF | **969-3653** | | | | | |
| 47µF | **969-3661** | | | | | |
| 100µF | **969-3670** | | | | | |
| 220µF | **969-3688** | | | | | |
| 330µF | **969-3696** | | | | | |
| 470µF | **969-3700** | | | | | |
| 1000µF | **969-3718** | | | | | |
| 2200µF | **969-3726** | | | | | |
| 3300µF | NEW **184-8507** | | | | | |
| 4700µF | NEW **184-8508** | | | | | |

| | Ripple (mA) | Dimensions H | Dia. | Lead Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **50 Volt d.c.** | | | | | | | |
| 0.1µF | 1.3 | 11 | 5 | 0.5 | 2 | ECA1HM0R1 | 190-7133 |
| 0.22µF | 2.9 | 11 | 5 | 0.5 | 2 | ECA1HMR22 | 190-7134 |
| 0.33µF | 4.4 | 11 | 5 | 0.5 | 2 | ECA1HMR33 | 190-7135 |
| 3.3µF | 35 | 11 | 5 | 0.5 | 2 | ECA1HM3R3 | 190-7136 |
| 0.47µF | 5 | 11 | 5 | 0.5 | 2 | ECA1HMR47 | 119-8285 |
| 1µF | 10 | 11 | 5 | 0.5 | 2 | ECA1HM010 | 969-3734 |
| 2.2µF | 20 | 11 | 5 | 0.5 | 2 | ECA1HM2R2 | 969-3742 |
| 4.7µF | 45 | 11 | 5 | 0.5 | 2 | ECA1HM4R7 | 969-3750 |
| 10µF | 65 | 11 | 5 | 0.5 | 2 | ECA1HM100 | 969-3769 |
| 22µF | 100 | 11 | 5 | 0.5 | 2 | ECA1HM220 | 969-3777 |
| 33µF | 110 | 11 | 5 | 0.5 | 2 | ECA1HM330 | 184-8509 |
| 47µF | 130 | 11.2 | 6.3 | 0.5 | 2.5 | ECA1HM470 | 969-3785 |
| 100µF | 250 | 11.5 | 8 | 0.6 | 3.5 | ECA1HM101 | 969-3793 |
| 220µF | 400 | 12.5 | 10 | 0.6 | 5 | ECA1HM221 | 969-3807 |
| 330µF | 500 | 16 | 10 | 0.6 | 5 | ECA1HM331 | 184-8510 |
| 470µF | 650 | 20 | 10 | 0.6 | 5 | ECA1HM471 | 969-3815 |
| 1000µF | 1050 | 25 | 12.5 | 0.6 | 5 | ECA1HM102 | 969-3823 |
| 2200µF | 1300 | 31.5 | 16 | 0.8 | 7.5 | ECA1HM222 | 184-8511 |
| 3300µF | 1500 | 35.5 | 18 | 0.8 | 7.5 | ECA1HM332 | 184-8512 |

**Order Multiple=5**

**50 Volt d.c.** — **Price Each**

| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.1µF | NEW **190-7133** | | | | | |
| 0.22µF | NEW **190-7134** | | | | | |
| 0.33µF | NEW **190-7135** | | | | | |
| 0.47µF | **119-8285** | | | | | |
| 1µF | **969-3734** | | | | | |

**Order Multiple=5**

**50 Volt d.c.** — **Price Each**

| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 2.2µF | **969-3742** | | | | | |
| 3.3µF | NEW **190-7136** | | | | | |
| 4.7µF | **969-3750** | | | | | |
| 10µF | **969-3769** | | | | | |
| 22µF | **969-3777** | | | | | |
| 33µF | NEW **184-8509** | | | | | |
| 47µF | **969-3785** | | | | | |
| 100µF | **969-3793** | | | | | |
| 220µF | **969-3807** | | | | | |
| 330µF | NEW **184-8510** | | | | | |
| 470µF | **969-3815** | | | | | |
| 1000µF | **969-3823** | | | | | |
| 2200µF | NEW **184-8511** | | | | | |
| 3300µF | NEW **184-8512** | | | | | |

| | Ripple (mA) | Dimensions H | Dia. | Lead Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **63 Volt d.c.** | | | | | | | |
| 4.7µF | | | | | | ECA1JM4R7 | 190-7137 |
| 10µF | 70 | 11 | 5 | 0.5 | 2 | ECA1JM100 | 969-3831 |
| 22µF | 105 | 11 | 5 | 0.5 | 2 | ECA1JM220 | 969-3840 |
| 33µF | 130 | 11.2 | 6.3 | 0.5 | 2.5 | ECA1JM330 | 190-7138 |
| 47µF | 160 | 11.2 | 6.3 | 0.5 | 2.5 | ECA1JM470 | 969-3858 |
| 100µF | 270 | 11.5 | 8 | 0.6 | 3.5 | ECA1JM101 | 969-3866 |
| 220µF | 450 | 16 | 10 | 0.6 | 5 | ECA1JM221 | 969-3874 |
| 330µF | 550 | 20 | 10 | 0.6 | 5 | ECA1JM331 | 184-8514 |
| 470µF | 750 | 20 | 12.5 | 0.6 | 5 | ECA1JM471 | 969-3882 |
| 1000µF | 1100 | 25 | 16 | 0.6 | 7.5 | ECA1JM102 | 969-3890 |
| 2200µF | 1400 | 35.5 | 18 | 0.8 | 7.5 | ECA1JM222 | 184-8515 |

**Order Multiple=5**

**63 Volt d.c.** — **Price Each**

| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 4.7µF | NEW **190-7137** | | | | | |
| 10µF | **969-3831** | | | | | |
| 22µF | **969-3840** | | | | | |
| 33µF | NEW **190-7138** | | | | | |
| 47µF | **969-3858** | | | | | |
| 100µF | **969-3866** | | | | | |
| 220µF | **969-3874** | | | | | |
| 330µF | NEW **184-8514** | | | | | |
| 470µF | **969-3882** | | | | | |
| 1000µF | **969-3890** | | | | | |
| 2200µF | NEW **184-8515** | | | | | |

| | Ripple (mA) | Dimensions H | Dia. | Lead Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **100 Volt d.c.** | | | | | | | |
| 0.1µF | | | | | | ECA2AM0R1 | 190-7139 |
| 0.22µF | | | | | | ECA2AMR22 | 190-7140 |
| 0.33µF | | | | | | ECA2AMR33 | 190-7142 |
| 0.47µF | 10 | 11 | 5 | 0.5 | 2 | ECA2AMR47 | 119-8286 |
| 1µF | 20 | 11 | 5 | 0.5 | 2 | ECA2AM010 | 969-3904 |
| 2.2µF | 30 | 11 | 5 | 0.5 | 2 | ECA2AM2R2 | 119-8287 |
| 3.3µF | 40 | 11 | 5 | 0.5 | 2 | ECA2AM3R3 | 190-7143 |
| 4.7µF | 50 | 11 | 5 | 0.5 | 2 | ECA2AM4R7 | 119-8289 |
| 10µF | 70 | 11 | 5 | 0.5 | 2 | ECA2AM100 | 969-3912 |
| 22µF | 115 | 11.2 | 6.3 | 0.5 | 2.5 | ECA2AM220 | 969-3920 |
| 33µF | 145 | 11.5 | 8 | | 3.5 | ECA2AM330 | 190-7144 |
| 47µF | 180 | 11.5 | 8 | 0.6 | 3.5 | ECA2AM470 | 969-3939 |
| 100µF | 350 | 16 | 10 | 0.6 | 5 | ECA2AM101 | 969-3947 |
| 220µF | 550 | 20 | 12.5 | 0.6 | 5 | ECA2AM221 | 969-3955 |
| 330µF | 700 | 25 | 12.5 | | 5 | ECA2AM331 | 190-7145 |
| 470µF | 900 | 25 | 16 | 0.8 | 7.5 | ECA2AM471 | 969-3963 |
| 1000µF | 1300 | 35.5 | 18 | 0.8 | 7.5 | ECA2AM102 | 969-3971 |

**Order Multiple=5**

**100 Volt d.c.** — **Price Each**

| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.1µF | NEW **190-7139** | | | | | |
| 0.22µF | NEW **190-7140** | | | | | |
| 0.33µF | NEW **190-7142** | | | | | |
| 0.47µF | **119-8285** | | | | | |
| 1µF | **969-3904** | | | | | |
| 3.3µF | NEW **190-7143** | | | | | |
| 4.7µF | **119-8289** | | | | | |
| 10µF | **969-3912** | | | | | |
| 22µF | **969-3920** | | | | | |
| 33µF | NEW **190-7144** | | | | | |
| 47µF | **969-3939** | | | | | |
| 100µF | **969-3947** | | | | | |
| 220µF | **969-3955** | | | | | |
| 330µF | NEW **190-7145** | | | | | |
| 470µF | **969-3963** | | | | | |
| 1000µF | **969-3971** | | | | | |

# Aluminium Electrolytic - Radial - Panasonic - continued

## M Series - General Purpose - continued

| | Ripple (mA) | Dimensions H | Dia. | Lead Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **200 Volt d.c.** | | | | | | | |
| 1µF | 34 | 11.2 | 6.3 | 0.5 | 2.5 | ECA2DM010 | 190-7154 |
| 2.2µF | 50 | 11.2 | 6.3 | 0.5 | 2.5 | ECA2DM2R2 | 190-7155 |
| 3.3µF | 62 | 11.2 | 6.3 | 0.5 | 2.5 | ECA2DM3R3 | 190-7156 |
| 4.7µF | 86 | 11.5 | 8 | 0.6 | 3.5 | ECA2DM4R7 | 190-7157 |
| 10µF | 100 | 12.5 | 10 | 100 | 5 | ECA2DM100 | 190-7158 |
| 22µF | 180 | 20 | 10 | 0.6 | 5 | ECA2DM220 | 190-7159 |
| 33µF | 220 | 20 | 10 | 0.6 | 5 | ECA2DM330 | 190-7160 |
| 47µF | 300 | 20 | 12.5 | 0.6 | 5 | ECA2DM470 | 190-7161 |
| 100µF | 475 | 25 | 16 | 0.8 | 7.5 | ECA2DM101 | 190-7162 |
| 220µF | 835 | 31.5 | 18 | 0.8 | 7.5 | ECA2DM221 | 190-7163 |
| 330µF | 1140 | 40 | 18 | 0.8 | 7.5 | ECA2DM331 | 190-7164 |

**Order Multiple=5**

**200 Volt d.c.** — **Price Each**

| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1µF | NEW 190-7154 | | | | | |
| 2.2µF | NEW 190-7155 | | | | | |
| 3.3µF | NEW 190-7156 | | | | | |
| 4.7µF | NEW 190-7157 | | | | | |
| 10µF | NEW 190-7158 | | | | | |
| 22µF | NEW 190-7159 | | | | | |
| 33µF | NEW 190-7160 | | | | | |
| 47µF | NEW 190-7161 | | | | | |
| 100µF | NEW 190-7162 | | | | | |
| 220µF | NEW 190-7163 | | | | | |
| 330µF | NEW 190-7164 | | | | | |

| | Ripple (mA) | Dimensions H | Dia. | Lead Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **160 Volt d.c.** | | | | | | | |
| 1µF | 36 | 11.2 | 6.3 | 0.5 | 2.5 | ECA2CM010 | 190-7146 |
| 2.2µF | 53 | 11.2 | 6.3 | 0.5 | 2.5 | ECA2CM2R2 | 184-8516 |
| 3.3µF | 66 | 11.2 | 6.3 | 0.5 | 2.5 | ECA2CM3R3 | 190-7147 |
| 4.7µF | 78 | 11.2 | 6.3 | 0.5 | 2.5 | ECA2CM4R7 | 184-8517 |
| 10µF | 105 | 12.5 | 10 | 0.6 | 5 | ECA2CM100 | 184-8518 |
| 22µF | 175 | 16 | 10 | 0.6 | 5 | ECA2CM220 | 190-7148 |
| 33µF | 235 | 20 | 10 | 0.6 | 5 | ECA2CM330 | 190-7149 |
| 47µF | 320 | 20 | 12.5 | 0.6 | 5 | ECA2CM470 | 190-7150 |
| 100µF | 515 | 25 | 12.5 | 0.6 | 5 | ECA2CM101 | 184-8519 |
| 220µF | 830 | 31.5 | 16 | 0.8 | 7.5 | ECA2CM221 | 184-8520 |
| 330µF | 1090 | 31.5 | 18 | 0.8 | 7.5 | ECA2CM331 | 190-7151 |
| 470µF | 1440 | 40 | 18 | 0.8 | 7.5 | ECA2CM471 | 190-7152 |

**Order Multiple=5**

**160 Volt d.c.** — **Price Each**

| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1µF | NEW 190-7146 | | | | | |
| 2.2µF | NEW 184-8516 | | | | | |
| 3.3µF | NEW 190-7147 | | | | | |
| 4.7µF | NEW 184-8517 | | | | | |
| 10µF | NEW 184-8518 | | | | | |
| 22µF | NEW 190-7148 | | | | | |
| 33µF | NEW 190-7149 | | | | | |
| 47µF | NEW 190-7150 | | | | | |
| 100µF | NEW 184-8519 | | | | | |
| 220µF | NEW 184-8520 | | | | | |
| 330µF | NEW 190-7151 | | | | | |
| 470µF | NEW 190-7152 | | | | | |

| | Ripple (mA) | Dimensions H | Dia. | Lead Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **250 Volt d.c.** | | | | | | | |
| 1µF | 34 | 11.2 | 6.3 | 0.5 | 2.5 | ECA2EM010 | 969-3980 |
| 2.2µF | 50 | 11.2 | 6.3 | 0.5 | 2.5 | ECA2EM2R2 | 969-3998 |
| 3.3µF | 72 | 11.5 | 8 | 0.6 | 3.5 | ECA2EM3R3 | 184-8521 |
| 4.7µF | 86 | 11.5 | 8 | 0.6 | 3.5 | ECA2EM4R7 | 969-4005 |
| 10µF | 110 | 16 | 10 | 0.6 | 5 | ECA2EM100 | 969-4013 |
| 22µF | 180 | 20 | 12.5 | 0.6 | 5 | ECA2EM220 | 969-4021 |
| 33µF | 250 | 20 | 12.5 | 0.6 | 5 | ECA2EM330 | 190-7166 |
| 47µF | 330 | 25 | 12.5 | 0.6 | 5 | ECA2EM470 | 969-4030 |
| 100µF | 530 | 31.5 | 16 | 0.8 | 7.5 | ECA2EM101 | 969-4048 |
| 220µF | 930 | 40 | 18 | 0.8 | 7.5 | ECA2EM221 | 969-4056 |

**Order Multiple=5**

**250 Volt d.c.** — **Price Each**

| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1µF | 969-3980 | | | | | |
| 2.2µF | 969-3998 | | | | | |
| 3.3µF | NEW 184-8521 | | | | | |
| 4.7µF | 969-4005 | | | | | |
| 10µF | 969-4013 | | | | | |
| 22µF | 969-4021 | | | | | |
| 33µF | NEW 190-7166 | | | | | |
| 47µF | 969-4030 | | | | | |
| 100µF | 969-4048 | | | | | |
| 220µF | 969-4056 | | | | | |

| | Ripple (mA) | Dimensions H | Dia. | Lead Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **350 Volt d.c.** | | | | | | | |
| 1µF | 32 | 11.2 | 6.3 | 0.6 | 2.5 | ECA2VM010 | 190-7167 |
| 2.2µF | 50 | 11.5 | 8 | 0.6 | 3.5 | ECA2VM2R2 | 190-7168 |
| 3.3µF | 60 | 11.5 | 8 | 0.6 | 3.5 | ECA2VM3R3 | 190-7169 |
| 4.7µF | 65 | 12.5 | 10 | 0.6 | 5 | ECA2VM4R7 | 190-7170 |
| 10µF | 115 | 20 | 10 | 0.6 | 5 | ECA2VM100 | 190-7171 |
| 22µF | 195 | 20 | 12.5 | 0.6 | 5 | ECA2VM220 | 190-7172 |
| 33µF | 300 | 25 | 16 | 0.8 | 7.5 | ECA2VM330 | 190-7173 |
| 47µF | 325 | 25 | 16 | 0.8 | 7.5 | ECA2VM470 | 190-7174 |
| 100µF | 535 | 31.5 | 18 | 0.8 | 7.5 | ECA2VM101 | 190-7175 |

**Order Multiple=5**

**350 Volt d.c.** — **Price Each**

| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1µF | NEW 190-7167 | | | | | |
| 2.2µF | NEW 190-7168 | | | | | |
| 3.3µF | NEW 190-7169 | | | | | |
| 4.7µF | NEW 190-7170 | | | | | |
| 10µF | NEW 190-7171 | | | | | |
| 22µF | NEW 190-7172 | | | | | |
| 33µF | NEW 190-7173 | | | | | |
| 47µF | NEW 190-7174 | | | | | |
| 100µF | NEW 190-7175 | | | | | |

| | Ripple (mA) | Dimensions H | Dia. | Lead Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **400 Volt d.c.** | | | | | | | |
| 1µF | 32 | 11.2 | 6.3 | 0.5 | 2.5 | ECA2GM010 | 190-7176 |
| 2.2µF | 50 | 11.5 | 8 | 0.6 | 3.5 | ECA2GM2R2 | 190-7178 |
| 3.3µF | 54 | 12.5 | 10 | 0.6 | 5 | ECA2GM3R3 | 190-7179 |
| 4.7µF | 72 | 16 | 10 | 0.6 | 5 | ECA2GM4R7 | 190-7180 |
| 10µF | 115 | 20 | 10 | 0.6 | 5 | ECA2GM100 | 190-7181 |
| 22µF | 215 | 25 | 12.5 | 0.6 | 5 | ECA2GM220 | 190-7182 |
| 33µF | 275 | 25 | 16 | 0.8 | 7.5 | ECA2GM330 | 190-7183 |
| 47µF | 350 | 31.5 | 16 | 0.8 | 7.5 | ECA2GM470 | 969-4064 |
| 100µF | 600 | 40 | 18 | 0.8 | 7.5 | ECA2GM101 | 969-4072 |

**Order Multiple=5**

**400 Volt d.c.** — **Price Each**

| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1µF | NEW 190-7176 | | | | | |
| 2.2µF | NEW 190-7178 | | | | | |
| 3.3µF | NEW 190-7179 | | | | | |
| 4.7µF | NEW 190-7180 | | | | | |
| 10µF | NEW 190-7181 | | | | | |
| 22µF | NEW 190-7182 | | | | | |
| 33µF | NEW 190-7183 | | | | | |
| 47µF | 969-4064 | | | | | |
| 100µF | 969-4072 | | | | | |

| | Ripple (mA) | Dimensions H | Dia. | Lead Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **450 Volt d.c.** | | | | | | | |
| 1µF | 37 | 12.5 | 8 | 0.6 | 3.5 | ECA2WM010 | 969-4080 |
| 2.2µF | 44 | 16 | 10 | 0.6 | 5 | ECA2WM2R2 | 969-4099 |
| 3.3µF | 60 | 16 | 10 | 0.6 | 5 | ECA2WM3R3 | 190-7184 |
| 4.7µF | 79 | 20 | 12.5 | 0.6 | 5 | ECA2WM4R7 | 969-4102 |
| 10µF | 130 | 25 | 12.5 | 0.6 | 5 | ECA2WM100 | 969-4110 |
| 22µF | 210 | 31.5 | 16 | 0.8 | 7.5 | ECA2WM220 | 969-4129 |
| 33µF | 285 | 31.5 | 18 | 0.8 | 7.5 | ECA2WM330 | 969-4137 |

208589

**Order Multiple=5**

**450 Volt d.c.** — **Price Each**

| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1µF | 969-4080 | | | | | |
| 2.2µF | 969-4099 | | | | | |
| 3.3µF | NEW 190-7184 | | | | | |
| 4.7µF | 969-4102 | | | | | |
| 10µF | 969-4110 | | | | | |
| 22µF | 969-4129 | | | | | |
| 33µF | 969-4137 | | | | | |

## NHG Series – 105°C

Panasonic



- High temperature miniature radial electrolytic
- AECQ-200 Automotive Approved

Operating temperature -55°C to +105°C 6.3 to 100V
-55°C to +105°C 160 to 450V
Tolerance ±20%
Leakage current 0.01CV or 3uA 6.3 to 100V
0.06CV + 10uA 160 to 450V
Ripple current measured at 120Hz @ 105°C

| | Ripple (mA) | Dimensions H | D | Lead Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **6.3 Volt d.c.** | | | | | | | |
| 100µF | 91 | 11 | 5 | 0.5 | 2 | ECA0JHG101 | 184-8522 |
| 220µF | 140 | 11 | 5 | 0.5 | 2 | ECA0JHG221 | 184-8523 |
| 330µF | 190 | 11.2 | 6.3 | 0.5 | 2.5 | ECA0JHG331 | 184-8524 |
| 470µF | 230 | 11.2 | 6.3 | 0.5 | 2.5 | ECA0JHG471 | 184-8526 |
| 1000µF | 380 | 11.5 | 8 | 0.6 | 3.5 | ECA0JHG102 | 969-2738 |
| 2200µF | 710 | 16 | 10 | 0.6 | 5 | ECA0JHG222 | 184-8527 |
| 3300µF | 840 | 20 | 10 | 0.6 | 5 | ECA0JHG332 | 184-8528 |

| 6.3 Volt d.c. | Ripple | Dimensions | | Lead | | | Order |
|---|---|---|---|---|---|---|---|
| | | H | D | Dia. | Pitch | Mftrs. List No. | Code |
| 4700µF | 1090 | 20 | 12.5 | 0.6 | 5 | ECA0JHG472 | 184-8529 |
| 6800µF | 1350 | 25 | 12.5 | 0.6 | 5 | ECA0JHG682 | 184-8533 |
| 10000µF | 1650 | 25 | 16 | 0.8 | 7.5 | ECA0JHG103 | 184-8530 |
| 15000µF | 2010 | 31.5 | 16 | 0.8 | 7.5 | ECA0JHG153 | 184-8531 |
| 22000µF | 2350 | 35.5 | 18 | 0.8 | 7.5 | ECA0JHG223 | 184-8532 |

**Order Multiple=5**

**6.3 Volt d.c.** — **Price Each**

| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 100µF | NEW 184-8522 | | | | | |
| 220µF | NEW 184-8523 | | | | | |
| 330µF | NEW 184-8524 | | | | | |
| 470µF | NEW 184-8526 | | | | | |
| 1000µF | 969-2738 | | | | | |
| 2200µF | NEW 184-8527 | | | | | |
| 3300µF | NEW 184-8528 | | | | | |
| 4700µF | NEW 184-8529 | | | | | |
| 6800µF | NEW 184-8533 | | | | | |
| 10000µF | NEW 184-8530 | | | | | |
| 15000µF | NEW 184-8531 | | | | | |
| 22000µF | NEW 184-8532 | | | | | |

| 10 Volt d.c. | Ripple | Dimensions | | Lead | | | Order |
|---|---|---|---|---|---|---|---|
| | (mA) | H | Dia | Dia. | Pitch | Mftrs. List No. | Code |
| 100µF | 110 | 11 | 5 | 0.5 | 2 | ECA1AHG101 | 190-7185 |
| 220µF | 170 | 11.2 | 6.3 | 0.5 | 2.5 | ECA1AHG221 | 190-7186 |
| 330µF | 200 | 11.2 | 6.3 | 0.5 | 2.5 | ECA1AHG331 | 190-7187 |
| 470µF | 200 | 11.5 | 8 | 0.6 | 3.5 | ECA1AHG471 | 190-7188 |
| 1000µF | 460 | 12.5 | 10 | 0.6 | 5 | ECA1AHG102 | 184-8534 |
| 2200µF | 760 | 20 | 10 | 0.6 | 5 | ECA1AHG222 | 184-8535 |
| 3300µF | 1000 | 20 | 12.5 | 0.6 | 5 | ECA1AHG332 | 969-2746 |
| 4700µF | 1260 | 25 | 12.5 | 0.6 | 5 | ECA1AHG472 | 969-2754 |
| 6800µF | 1570 | 25 | 16 | 0.8 | 7.5 | ECA1AHG682 | 969-2762 |
| 10000µF | 1890 | 31.5 | 16 | 0.8 | 7.5 | ECA1AHG103 | 190-7191 |
| 15000µF | 2180 | 35.5 | 18 | 0.8 | 7.5 | ECA1AHG153 | 190-7192 |

**Order Multiple=5**

**10 Volt d.c.** — **Price Each**

| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 100µF | NEW 190-7185 | | | | | |
| 220µF | NEW 190-7186 | | | | | |
| 330µF | NEW 190-7187 | | | | | |
| 470µF | NEW 190-7188 | | | | | |
| 1000µF | NEW 184-8534 | | | | | |
| 2200µF | NEW 184-8535 | | | | | |
| 3300µF | 969-2746 | | | | | |
| 4700µF | 969-2754 | | | | | |
| 6800µF | 969-2762 | | | | | |
| 10000µF | NEW 190-7191 | | | | | |
| 15000µF | NEW 190-7192 | | | | | |

| 16 Volt d.c. | Ripple | Dimensions | | Lead | | | Order |
|---|---|---|---|---|---|---|---|
| | (mA) | H | D | Dia. | Pitch | Mftrs. List No. | Code |
| 10µF | | | | | | ECA1CHG100 | 190-7193 |
| 22µF | | | | | | ECA1CHG220 | 190-7194 |
| 33µF | | | | | | ECA1CHG330 | 190-7195 |
| 47µF | 77 | 11 | 5 | 0.5 | 2 | ECA1CHG470 | 190-7196 |
| 100µF | 110 | 11 | 5 | 0.5 | 2 | ECA1CHG101 | 184-8536 |
| 220µF | 180 | 11.2 | 6.3 | 0.5 | 2.5 | ECA1CHG221 | 184-8538 |
| 330µF | 260 | 11.5 | 8 | 0.6 | 3.5 | ECA1CHG331 | 969-2770 |
| 470µF | 310 | 11.5 | 8 | 0.6 | 3.5 | ECA1CHG471 | 969-2789 |
| 1000µF | 560 | 16 | 10 | 0.6 | 5 | ECA1CHG102 | 969-2797 |
| 2200µF | 920 | 20 | 12.5 | 0.6 | 5 | ECA1CHG222 | 969-2800 |
| 3300µF | 1170 | 25 | 12.5 | 0.6 | 5 | ECA1CHG332 | 184-8539 |
| 4700µF | 1480 | 25 | 16 | 0.8 | 7.5 | ECA1CHG472 | 969-2819 |
| 6800µF | 1780 | 31.5 | 16 | 0.8 | 7.5 | ECA1CHG682 | 184-8540 |
| 10000µF | 2060 | 35.5 | 18 | 0.8 | 7.5 | ECA1CHG103 | 190-7197 |

**Order Multiple=5**

**16 Volt d.c.** — **Price Each**

| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10µF | NEW 190-7193 | | | | | |
| 22µF | NEW 190-7194 | | | | | |
| 33µF | NEW 190-7195 | | | | | |
| 47µF | NEW 190-7196 | | | | | |
| 100µF | NEW 184-8536 | | | | | |
| 220µF | NEW 184-8538 | | | | | |
| 330µF | 969-2770 | | | | | |
| 470µF | 969-2789 | | | | | |
| 1000µF | 969-2797 | | | | | |
| 2200µF | 969-2800 | | | | | |
| 3300µF | NEW 184-8539 | | | | | |
| 4700µF | 969-2819 | | | | | |
| 6800µF | NEW 184-8540 | | | | | |
| 10000µF | NEW 190-7197 | | | | | |

| 25 Volt d.c. | Ripple | Dimensions | | Lead | | | Order |
|---|---|---|---|---|---|---|---|
| | (mA) | H | D | Dia. | Pitch | Mftrs. List No. | Code |
| 4.7µF | | | | | | ECA1EHG100 | 190-7199 |
| 10µF | | | | | | ECA1EHG220 | 190-7200 |
| 22µF | | | | | | ECA1EHG330 | 190-7201 |
| 47µF | 91 | 11 | 5 | 0.5 | 2 | ECA1EHG470 | 184-8541 |
| 100µF | 130 | 11.2 | 6.3 | 0.5 | 2.5 | ECA1EHG101 | 969-2827 |
| 220µF | 230 | 11.5 | 8 | 0.6 | 3.5 | ECA1EHG221 | 969-2835 |
| 330µF | 310 | 11.5 | 8 | 0.6 | 3.5 | ECA1EHG331 | 184-8542 |
| 470µF | 380 | 12.5 | 10 | 0.6 | 5 | ECA1EHG471 | 969-2843 |

| 25 Volt d.c. | Ripple | Dimensions | | Lead | | | Order |
|---|---|---|---|---|---|---|---|
| | | H | D | Dia. | Pitch | Mftrs. List No. | Code |
| 1000µF | 680 | 20 | 10 | 0.6 | 5 | ECA1EHG102 | 184-8543 |
| 2200µF | 1090 | 25 | 12.5 | 0.6 | 5 | ECA1EHG222 | 969-2851 |
| 3300µF | 1400 | 25 | 16 | 0.8 | 7.5 | ECA1EHG332 | 969-2860 |
| 4700µF | 1750 | 31.5 | 16 | 0.8 | 7.5 | ECA1EHG472 | 184-8544 |
| 6800µF | 2040 | 35.5 | 18 | 0.8 | 7.5 | ECA1EHG682 | 190-7202 |

**Order Multiple=5**

**25 Volt d.c.** — **Price Each**

| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 4.7µF | NEW 190-7199 | | | | | |
| 10µF | NEW 190-7200 | | | | | |
| 22µF | NEW 190-7201 | | | | | |
| 47µF | NEW 184-8541 | | | | | |
| 100µF | 969-2827 | | | | | |
| 220µF | 969-2835 | | | | | |
| 330µF | NEW 184-8542 | | | | | |
| 470µF | 969-2843 | | | | | |
| 1000µF | NEW 184-8543 | | | | | |
| 2200µF | 969-2851 | | | | | |
| 3300µF | 969-2860 | | | | | |
| 4700µF | NEW 184-8544 | | | | | |
| 6800µF | NEW 190-7202 | | | | | |

| 35 Volt d.c. | Ripple | Dimensions | | Lead | | | Order |
|---|---|---|---|---|---|---|---|
| | (mA) | H | D | Dia. | Pitch | Mftrs. List No. | Code |
| 10µF | | | | | | ECA1VHG100 | 190-7204 |
| 33µF | | 11 | 5 | | 2 | ECA1VHG330 | 190-7206 |
| 47µF | 90 | 11 | 5 | 0.5 | 2 | ECA1VHG470 | 184-8545 |
| 100µF | 150 | 11.2 | 6.3 | 0.5 | 2.5 | ECA1VHG101 | 184-8546 |
| 220µF | 270 | 11.5 | 8 | 0.6 | 3.5 | ECA1VHG221 | 184-8547 |
| 330µF | 350 | 12.5 | 10 | 0.6 | 5 | ECA1VHG331 | 184-8548 |
| 470µF | 460 | 16 | 10 | 0.6 | 5 | ECA1VHG471 | 184-8551 |
| 1000µF | 810 | 20 | 12.5 | 0.6 | 5 | ECA1VHG102 | 969-2878 |
| 2200µF | 1260 | 25 | 16 | 0.8 | 7.5 | ECA1VHG222 | 184-8552 |
| 3300µF | 1610 | 31.5 | 16 | 0.8 | 7.5 | ECA1VHG332 | 184-8553 |
| 4700µF | 1910 | 35.5 | 18 | 0.8 | 7.5 | ECA1VHG472 | 184-8554 |

**Order Multiple=5**

**35 Volt d.c.** — **Price Each**

| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10µF | NEW 190-7204 | | | | | |
| 33µF | NEW 190-7206 | | | | | |
| 47µF | NEW 184-8545 | | | | | |
| 100µF | NEW 184-8546 | | | | | |
| 220µF | NEW 184-8547 | | | | | |
| 330µF | NEW 184-8548 | | | | | |
| 470µF | NEW 184-8551 | | | | | |
| 1000µF | 969-2878 | | | | | |
| 2200µF | NEW 184-8552 | | | | | |
| 3300µF | NEW 184-8553 | | | | | |
| 4700µF | NEW 184-8554 | | | | | |

| 50 Volt d.c. | Ripple | Dimensions | | Lead | | | Order |
|---|---|---|---|---|---|---|---|
| | (mA) | H | D | Dia. | Pitch | Mftrs. List No. | Code |
| 0.1µF | 1.1 | 11 | 5 | 0.5 | 2 | ECA1HHG0R1 | 190-7208 |
| 0.22µF | 2.3 | 11 | 5 | 0.5 | 2 | ECA1HHGR22 | 190-7209 |
| 0.33µF | 3.5 | 11 | 5 | 0.5 | 2 | ECA1HHGR33 | 190-7210 |
| 0.47µF | 5 | 11 | 5 | 0.5 | 2 | ECA1HHGR47 | 190-7211 |
| 1µF | 10 | 11 | 5 | 0.5 | 2 | ECA1HHG010 | 969-2886 |
| 2.2µF | 18 | 11 | 5 | 0.5 | 2 | ECA1HHG2R2 | 969-2894 |
| 3.3µF | 22 | 11 | 5 | 0.5 | 2 | ECA1HHG3R3 | 969-2908 |
| 4.7µF | 26 | 11 | 5 | 0.5 | 2 | ECA1HHG4R7 | 969-2916 |
| 10µF | 39 | 11 | 5 | 0.5 | 2 | ECA1HHG100 | 969-2924 |
| 22µF | 65 | 11 | 5 | 0.5 | 2 | ECA1HHG220 | 969-2932 |
| 33µF | 90 | 11 | 5 | 0.5 | 2 | ECA1HHG330 | 969-2940 |
| 47µF | 110 | 11.2 | 6.3 | 0.5 | 2.5 | ECA1HHG470 | 969-2959 |
| 100µF | 180 | 11.5 | 8 | 0.6 | 3.5 | ECA1HHG101 | 969-2967 |
| 220µF | 300 | 12.5 | 10 | 0.6 | 5 | ECA1HHG221 | 969-2975 |
| 330µF | 410 | 16 | 10 | 0.6 | 5 | ECA1HHG331 | 969-2983 |
| 470µF | 530 | 20 | 10 | 0.6 | 5 | ECA1HHG471 | 969-2991 |
| 1000µF | 950 | 25 | 12.5 | 0.6 | 5 | ECA1HHG102 | 969-3009 |
| 2200µF | 1470 | 31.5 | 16 | 0.8 | 7.5 | ECA1HHG222 | 969-3017 |
| 3300µF | 1770 | 35.5 | 18 | 0.8 | 7.5 | ECA1HHG332 | 184-8555 |

**Order Multiple=5**

**50 Volt d.c.** — **Price Each**

| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.1µF | NEW 190-7208 | | | | | |
| 0.22µF | NEW 190-7209 | | | | | |
| 0.33µF | NEW 190-7210 | | | | | |
| 0.47µF | NEW 190-7211 | | | | | |
| 1µF | 969-2886 | | | | | |
| 2.2µF | 969-2894 | | | | | |
| 3.3µF | 969-2908 | | | | | |
| 4.7µF | 969-2916 | | | | | |
| 10µF | 969-2924 | | | | | |
| 22µF | 969-2932 | | | | | |
| 33µF | 969-2940 | | | | | |
| 47µF | 969-2959 | | | | | |
| 100µF | 969-2967 | | | | | |
| 220µF | 969-2975 | | | | | |

# Aluminium Electrolytic - Radial - Panasonic - continued

## NHG Series – 105°C - continued

**Order Multiple=5**

**50 Volt d.c.**

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 330µF | 969-2983 | | | | | |
| 470µF | 969-2991 | | | | | |
| 1000µF | 969-3009 | | | | | |
| 2200µF | 969-3017 | | | | | |
| 3300µF | NEW 184-8555 | | | | | |

| 63 Volt d.c. | Ripple (mA) | Dimensions H | D | Lead Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 4.7µF | | | 5 | 0.5 | | ECA1JHG4R7 | 184-8556 |
| 10µF | 46 | 11 | 5 | 0.5 | 2 | ECA1JHG100 | 184-8557 |
| 22µF | 71 | 11 | 5 | 0.5 | 2 | ECA1JHG220 | 184-8558 |
| 33µF | 100 | 11.2 | 6.3 | 0.5 | 2.5 | ECA1JHG330 | 969-3025 |
| 47µF | 120 | 11.2 | 6.3 | 0.5 | 2.5 | ECA1JHG470 | 969-3033 |
| 100µF | 215 | 12.5 | 10 | 0.6 | 5 | ECA1JHG101 | 184-8559 |
| 220µF | 335 | 16 | 10 | 0.6 | 5 | ECA1JHG221 | 969-3041 |
| 330µF | 510 | 20 | 10 | 0.6 | 5 | ECA1JHG331 | 969-3050 |
| 470µF | 640 | 20 | 12.5 | 0.6 | 5 | ECA1JHG471 | 969-3068 |
| 1000µF | 930 | 25 | 16 | 0.8 | 7.5 | ECA1JHG102 | 969-3076 |
| 2200µF | 1610 | 35.5 | 18 | 0.8 | 7.5 | ECA1JHG222 | 184-8560 |

**Order Multiple=5**

**63 Volt d.c.**

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 4.7µF | NEW 184-8556 | | | | | |
| 10µF | NEW 184-8557 | | | | | |
| 22µF | NEW 184-8558 | | | | | |
| 33µF | 969-3025 | | | | | |
| 47µF | 969-3033 | | | | | |
| 100µF | NEW 184-8559 | | | | | |
| 220µF | 969-3041 | | | | | |
| 330µF | 969-3050 | | | | | |
| 470µF | 969-3068 | | | | | |
| 1000µF | 969-3076 | | | | | |
| 2200µF | NEW 184-8560 | | | | | |

| 100 Volt d.c. | Ripple (mA) | Dimensions H | D | Lead Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.47µF | 9 | 11 | 5 | 0.5 | 2 | ECA2AHGR47 | 969-3084 |
| 1µF | 14 | 11 | 5 | 0.5 | 2 | ECA2AHG010 | 969-3092 |
| 2.2µF | 21 | 11 | 5 | 0.5 | 2 | ECA2AHG2R2 | 969-3106 |
| 3.3µF | 31 | 11 | 5 | 0.5 | 2 | ECA2AHG3R3 | 969-3114 |
| 4.7µF | 38 | 11 | 5 | 0.5 | 2 | ECA2AHG4R7 | 969-3122 |
| 10µF | 54 | 11.2 | 6.3 | 0.5 | 2.5 | ECA2AHG100 | 969-3130 |
| 22µF | 93 | 11.2 | 6.3 | 0.5 | 2.5 | ECA2AHG220 | 969-3149 |
| 330µF | 540 | 25 | 16 | 0.8 | 7.5 | ECA2AHG331 | 969-3157 |
| 470µF | 715 | 25 | 16 | 0.8 | 7.5 | ECA2AHG471 | 969-3165 |
| 33µF | 130 | 11.5 | 8 | 0.6 | 3.5 | ECA2AHG330 | 969-4609 |
| 47µF | 165 | 12.5 | 10 | 0.6 | 5 | ECA2AHG470 | 969-4617 |
| 100µF | 265 | 20 | 10 | 0.6 | 5 | ECA2AHG101 | 969-4625 |
| 220µF | 440 | 25 | 12.5 | 0.6 | 5 | ECA2AHG221 | 969-4633 |
| 1000µF | 985 | 35.5 | 18 | 0.8 | 7.5 | ECA2AHG102 | 190-7212 |

**Order Multiple=5**

**100 Volt d.c.**

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 0.47µF | 969-3084 | | | | | |
| 1µF | 969-3092 | | | | | |
| 2.2µF | 969-3106 | | | | | |
| 3.3µF | 969-3114 | | | | | |
| 4.7µF | 969-3122 | | | | | |
| 10µF | 969-3130 | | | | | |
| 22µF | 969-3149 | | | | | |
| 330µF | 969-3157 | | | | | |
| 470µF | 969-3165 | | | | | |
| 33µF | 969-4609 | | | | | |
| 47µF | 969-4617 | | | | | |
| 100µF | 969-4625 | | | | | |
| 220µF | 969-4633 | | | | | |
| 1000µF | NEW 190-7212 | | | | | |

| 160 Volt d.c. | Ripple (mA) | Dimensions H | Dia | Lead Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 1µF | 17 | 11.2 | 6.3 | 0.5 | 2.5 | ECA2CHG010 | 184-8561 |
| 2.2µF | 25 | 11.2 | 6.3 | 0.5 | 2.5 | ECA2CHG2R2 | 184-8563 |
| 3.3µF | 36 | 11.2 | 6.3 | 0.5 | 2.5 | ECA2CHG3R3 | 184-8564 |
| 4.7µF | 43 | 11.2 | 6.3 | 0.5 | 2.5 | ECA2CHG4R7 | 969-3173 |
| 10µF | 70 | 12.5 | 10 | 0.6 | 5 | ECA2CHG100 | 969-3181 |
| 22µF | 130 | 20 | 10 | 0.6 | 5 | ECA2CHG220 | 184-8565 |
| 33µF | 180 | 20 | 10 | 0.6 | 5 | ECA2CHG330 | 184-8566 |
| 47µF | 220 | 20 | 12.5 | 0.6 | 5 | ECA2CHG470 | 184-8567 |
| 100µF | 335 | 25 | 16 | 0.8 | 7.5 | ECA2CHG101 | 184-8568 |
| 220µF | 540 | 31.5 | 16 | 0.8 | 7.5 | ECA2CHG221 | 190-7213 |
| 330µF | 705 | 31.5 | 18 | 0.8 | 7.5 | ECA2CHG331 | 190-7214 |

**Order Multiple=5**

**160 Volt d.c.**

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1µF | NEW 184-8561 | | | | | |
| 2.2µF | NEW 184-8563 | | | | | |
| 3.3µF | NEW 184-8564 | | | | | |
| 4.7µF | 969-3173 | | | | | |
| 10µF | 969-3181 | | | | | |
| 22µF | NEW 184-8565 | | | | | |
| 33µF | NEW 184-8566 | | | | | |
| 47µF | NEW 184-8567 | | | | | |
| 100µF | NEW 184-8568 | | | | | |
| 220µF | NEW 190-7213 | | | | | |
| 330µF | NEW 190-7214 | | | | | |

| 200 Volt d.c. | Ripple (mA) | Dimensions H | Dia | Lead Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 1µF | 17 | 11.2 | 6.3 | 0.5 | 2.5 | ECA2DHG010 | 184-8569 |
| 2.2µF | 25 | 11.2 | 6.3 | 0.5 | 2.5 | ECA2DHG2R2 | 184-8570 |
| 3.3µF | 36 | 11.2 | 6.3 | 0.5 | 2.5 | ECA2DHG3R3 | 969-3190 |
| 4.7µF | 50 | 11.5 | 8 | 0.6 | 3.5 | ECA2DHG4R7 | 184-8571 |
| 10µF | 80 | 16 | 10 | 0.6 | 5 | ECA2DHG100 | 184-8572 |
| 22µF | 140 | 20 | 10 | 0.6 | 5 | ECA2DHG220 | 969-3203 |
| 33µF | 190 | 20 | 12.5 | 0.6 | 5 | ECA2DHG330 | 184-8573 |
| 47µF | 220 | 20 | 12.5 | 0.6 | 5 | ECA2DHG470 | 969-3211 |
| 100µF | 335 | 25 | 16 | 0.8 | 7.5 | ECA2DHG101 | 969-3220 |
| 220µF | 575 | 31.5 | 18 | 0.8 | 7.5 | ECA2DHG221 | 190-7215 |

**Order Multiple=5**

**200 Volt d.c.**

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1µF | NEW 184-8569 | | | | | |
| 2.2µF | NEW 184-8570 | | | | | |
| 3.3µF | 969-3190 | | | | | |
| 4.7µF | NEW 184-8571 | | | | | |
| 10µF | NEW 184-8572 | | | | | |
| 22µF | 969-3203 | | | | | |
| 33µF | NEW 184-8573 | | | | | |
| 47µF | 969-3211 | | | | | |
| 100µF | 969-3220 | | | | | |
| 220µF | NEW 190-7215 | | | | | |

| 250 Volt d.c. | Ripple (mA) | Dimensions H | Dia | Lead Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 1µF | 17 | 11.2 | 6.3 | 0.5 | 2.5 | ECA2EHG010 | 969-3238 |
| 2.2µF | 29 | 11.2 | 6.3 | 0.5 | 2.5 | ECA2EHG2R2 | 969-3246 |
| 3.3µF | 42 | 11.5 | 8 | 0.6 | 3.5 | ECA2EHG3R3 | 184-8575 |
| 4.7µF | 50 | 11.5 | 8 | 0.6 | 3.5 | ECA2EHG4R7 | 969-3254 |
| 10µF | 88 | 16 | 10 | 0.6 | 5 | ECA2EHG100 | 969-3262 |
| 22µF | 155 | 20 | 12.5 | 0.6 | 5 | ECA2EHG220 | 969-3270 |
| 33µF | 190 | 20 | 12.5 | 0.6 | 5 | ECA2EHG330 | 969-3289 |
| 47µF | 230 | 25 | 12.5 | 0.6 | 5 | ECA2EHG470 | 969-3300 |
| 100µF | 365 | 31.5 | 16 | 0.8 | 7.5 | ECA2EHG101 | 184-8576 |

**Order Multiple=5**

**250 Volt d.c.**

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1µF | 969-3238 | | | | | |
| 2.2µF | 969-3246 | | | | | |
| 3.3µF | NEW 184-8575 | | | | | |
| 4.7µF | 969-3254 | | | | | |
| 10µF | 969-3262 | | | | | |
| 22µF | 969-3270 | | | | | |
| 33µF | 969-3289 | | | | | |
| 47µF | 969-3300 | | | | | |
| 100µF | NEW 184-8576 | | | | | |

| 350 Volt d.c. | Ripple (mA) | Dimensions H | Dia. | Lead Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 1µF | 18 | 11.2 | 6.3 | 0.6 | 2.5 | ECA2VHG010 | 190-7216 |
| 2.2µF | 31 | 11.5 | 8 | 0.6 | 3.5 | ECA2VHG2R2 | 190-7217 |
| 3.3µF | 38 | 12.5 | 10 | 0.6 | 5 | ECA2VHG3R3 | 190-7218 |
| 4.7µF | 50 | 16 | 10 | 0.6 | 5 | ECA2VHG4R7 | 190-7221 |
| 10µF | 82 | 20 | 10 | 0.6 | 5 | ECA2VHG100 | 190-7222 |
| 22µF | 130 | 20 | 12.5 | 0.6 | 5 | ECA2VHG220 | 190-7223 |
| 33µF | 195 | 25 | 16 | 0.8 | 7.5 | ECA2VHG330 | 190-7224 |
| 47µF | 230 | 25 | 16 | 0.8 | 7.5 | ECA2VHG470 | 190-7225 |
| 100µF | 375 | 31.5 | 18 | 0.8 | 7.5 | ECA2VHG101 | 190-7226 |

**Order Multiple=5**

**400 Volt d.c.**

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1µF | NEW 190-7216 | | | | | |
| 2.2µF | NEW 190-7217 | | | | | |
| 3.3µF | NEW 190-7218 | | | | | |
| 4.7µF | NEW 190-7221 | | | | | |
| 10µF | NEW 190-7222 | | | | | |
| 22µF | NEW 190-7223 | | | | | |
| 33µF | NEW 190-7224 | | | | | |
| 47µF | NEW 190-7225 | | | | | |
| 100µF | NEW 190-7226 | | | | | |

| 400 Volt d.c. | Ripple (mA) | Dimensions H | Dia. | Lead Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 1µF | 18 | 11.2 | 6.3 | 0.5 | 2.5 | ECA2GHG010 | 969-3319 |
| 2.2µF | 30 | 11.5 | 8 | 0.6 | 3.5 | ECA2GHG2R2 | 969-3327 |
| 3.3µF | 40 | 12.5 | 10 | 0.6 | 5 | ECA2GHG3R3 | 969-3335 |
| 4.7µF | 50 | 16 | 10 | 0.6 | 5 | ECA2GHG4R7 | 969-3343 |
| 10µF | 80 | 20 | 10 | 0.6 | 5 | ECA2GHG100 | 969-3351 |
| 22µF | 145 | 25 | 12.5 | 0.6 | 5 | ECA2GHG220 | 969-3360 |
| 33µF | 195 | 25 | 16 | 0.8 | 7.5 | ECA2GHG330 | 969-3378 |
| 47µF | 250 | 31.5 | 16 | 0.8 | 7.5 | ECA2GHG470 | 969-3386 |

**Order Multiple=5**

| 400 Volt d.c. | Price Each | | | | |
|---|---|---|---|---|---|
| Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
| 1µF **969-3319** | | | | | |
| 2.2µF **969-3327** | | | | | |
| 3.3µF **969-3335** | | | | | |
| 4.7µF **969-3343** | | | | | |
| 10µF **969-3351** | | | | | |
| 22µF **969-3360** | | | | | |
| 33µF **969-3378** | | | | | |
| 47µF **969-3386** | | | | | |

| 450 Volt d.c. | Ripple (mA) | Dimensions H | Dia. | Lead Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 1µF | 18 | 11.5 | 8 | 0.6 | 3.5 | ECA2WHG010 | 969-3394 |
| 2.2µF | 29 | 12.5 | 10 | 0.6 | 5 | ECA2WHG2R2 | 969-3408 |
| 3.3µF | 41 | 16 | 10 | 0.6 | 5 | ECA2WHG3R3 | 969-3416 |
| 4.7µF | 49 | 20 | 10 | 0.6 | 5 | ECA2WHG4R7 | 969-3424 |
| 10µF | 75 | 20 | 12.5 | 0.6 | 5 | ECA2WHG100 | 969-3432 |
| 22µF | 115 | 25 | 16 | 0.8 | 7.5 | ECA2WHG220 | 969-3440 |
| 33µF | 155 | 31.5 | 16 | 0.8 | 7.5 | ECA2WHG330 | 969-3459 |

208591

**Order Multiple=5**

| 450 Volt d.c. | Price Each | | | | |
|---|---|---|---|---|---|
| Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
| 1µF **969-3394** | | | | | |
| 2.2µF **969-3408** | | | | | |
| 3.3µF **969-3416** | | | | | |
| 4.7µF **969-3424** | | | | | |
| 10µF **969-3432** | | | | | |
| 22µF **969-3440** | | | | | |
| 33µF **969-3459** | | | | | |

## Alu Electrolytic EB Series Capacitors

**Type A (high ripple, high frequency, high voltage).**

Panasonic NEW



Operating temperature -40°C to +105°C
Tolerance ± 20%

| Capacitance | AC Ripple current 100 kHz | Life Time @ Temperature | Lead Spacing mm | Dimensions in mm Dia. | Length | Order Code |
|---|---|---|---|---|---|---|
| **10 Volt d.c** | | | | | | |
| 100µF | 66mA | 5000 hours @ 105°C | 2 | 5 | 11 | 207-9166 |
| 100µF | 105mA | 7000 hours @ 105°C | 2 | 5 | 15 | 207-9167 |
| 220µF | 100mA | 5000 hours @ 105°C | 2.5 | 6.3 | 11.2 | 207-9164 |
| 220µF | 152mA | 7000 hours @ 105°C | 2.5 | 6.3 | 15 | 207-9165 |
| 470µF | 180mA | 5000 hours @ 105°C | 3.5 | 8 | 11.5 | 207-9159 |
| 470µF | 278mA | 10000 hours @ 105°C | 3.5 | 8 | 15 | 207-9160 |
| 2200µF | 540mA | 10000 hours @ 105°C | 5 | 12.5 | 20 | 207-9163 |
| 3300µF | 802mA | 10000 hours @ 105°C | 5 | 12.5 | 25 | 207-9162 |
| **16 Volt d.c** | | | | | | |
| 1000µF | 430mA | 10000 hours @ 105°C | 5 | 10 | 20 | 207-9158 |
| 2200µF | 706mA | 10000 hours @ 105°C | 5 | 12.5 | 25 | 207-9157 |
| **25 Volt d.c** | | | | | | |
| 47µF | 55mA | 5000 hours @ 105°C | 2 | 5 | 11 | 207-9149 |
| 47µF | 78mA | 7000 hours @ 105°C | 2 | 5 | 15 | 207-9151 |
| 100µF | 95mA | 5000 hours @ 105°C | 2.5 | 6.3 | 11.2 | 207-9155 |
| 100µF | 135mA | 7000 hours @ 105°C | 2.5 | 6.3 | 15 | 207-9156 |
| 220µF | 125mA | 5000 hours @ 105°C | 3.5 | 8 | 11.5 | 207-9153 |
| 330µF | 255mA | 10000 hours @ 105°C | 3.5 | 8 | 15 | 207-9152 |
| 470µF | 321mA | 10000 hours @ 105°C | 5 | 10 | 16 | 207-9147 |
| 1000µF | 498mA | 10000 hours @ 105°C | 5 | 12.5 | 20 | 207-9154 |
| **35 Volt d.c** | | | | | | |
| 33µF | 46mA | 5000 hours @ 105°C | 2 | 5 | 11 | 207-9104 |
| 33µF | 66mA | 7000 hours @ 105°C | 2 | 5 | 15 | 207-9105 |
| 220µF | 197mA | 10000 hours @ 105°C | 3.5 | 8 | 15 | 207-9106 |
| 330µF | 278mA | 10000 hours @ 105°C | 5 | 10 | 16 | 207-9103 |
| 470µF | 349mA | 10000 hours @ 105°C | 5 | 10 | 20 | 207-9102 |
| 1000µF | 586mA | 10000 hours @ 105°C | 5 | 12.5 | 25 | 207-9107 |
| **50 Volt d.c** | | | | | | |
| 0.47µF | 4mA | 5000 hours @ 105°C | 2 | 5 | 11 | 207-9132 |
| 1µF | 8mA | 5000 hours @ 105°C | 2 | 5 | 11 | 207-9144 |
| 2.2µF | 15mA | 5000 hours @ 105°C | 2 | 5 | 11 | 207-9140 |
| 3.3µF | 18mA | 5000 hours @ 105°C | 2 | 5 | 11 | 207-9138 |
| 4.7µF | 18mA | 5000 hours @ 105°C | 2 | 5 | 11 | 207-9133 |
| 10µF | 27mA | 5000 hours @ 105°C | 2 | 5 | 11 | 207-9146 |
| 22µF | 39mA | 5000 hours @ 105°C | 2 | 5 | 11 | 207-9142 |
| 22µF | 55mA | 7000 hours @ 105°C | 2 | 5 | 15 | 207-9143 |
| 47µF | 61mA | 5000 hours @ 105°C | 2.5 | 6.3 | 11.2 | 207-9135 |
| 47µF | 87mA | 7000 hours @ 105°C | 2.5 | 6.3 | 15 | 207-9137 |
| 100µF | 99mA | 5000 hours @ 105°C | 3.5 | 8 | 11.5 | 207-9145 |
| **50 Volt d.c** | | | | | | |
| 220µF | 234mA | 10000 hours @ 105°C | 5 | 10 | 16 | 207-9141 |
| 330µF | 293mA | 10000 hours @ 105°C | 5 | 10 | 20 | 207-9139 |
| 470µF | 370mA | 10000 hours @ 105°C | 5 | 12.5 | 20 | 207-9134 |
| **63 Volt d.c** | | | | | | |
| 0.47µF | 4.5mA | 5000 hours @ 105°C | 2 | 5 | 15 | 207-9108 |
| 0.47µF | 6mA | 7000 hours @ 105°C | 2 | 5 | 11 | 207-9109 |
| 1µF | 9mA | 5000 hours @ 105°C | 2 | 5 | 11 | 207-9127 |
| 1µF | 12mA | 7000 hours @ 105°C | 2 | 5 | 15 | 207-9128 |
| 2.2µF | 16.5mA | 5000 hours @ 105°C | 2 | 5 | 11 | 207-9121 |
| 2.2µF | 22mA | 7000 hours @ 105°C | 2 | 5 | 15 | 207-9122 |
| 3.3µF | 20mA | 5000 hours @ 105°C | 2 | 5 | 11 | 207-9116 |
| 2200µF | 30mA | 7000 hours @ 105°C | 2 | 5 | 15 | 207-9117 |
| 4.7µF | 23mA | 5000 hours @ 105°C | 2 | 5 | 11 | 207-9110 |
| 4.7µF | 30mA | 7000 hours @ 105°C | 2 | 5 | 15 | 207-9111 |
| 10µF | 30mA | 5000 hours @ 105°C | 2 | 5 | 11 | 207-9130 |
| 10µF | 46mA | 7000 hours @ 105°C | 2 | 5 | 15 | 207-9131 |
| 22µF | 40mA | 5000 hours @ 105°C | 2.5 | 6.3 | 11.2 | 207-9125 |
| 22µF | 55mA | 7000 hours @ 105°C | 2.5 | 6.3 | 15 | 207-9126 |
| 33µF | 50mA | 5000 hours @ 105°C | 2.5 | 6.3 | 11.2 | 207-9119 |
| 33µF | 71mA | 7000 hours @ 105°C | 2.5 | 6.3 | 15 | 207-9120 |
| 47µF | 94mA | 5000 hours @ 105°C | 3.5 | 8 | 11.5 | 207-9114 |
| 47µF | 80mA | 10000 hours @ 105°C | 3.5 | 8 | 15 | 207-9115 |
| 100µF | 180mA | 10000 hours @ 105°C | 3.5 | 8 | 15 | 207-9129 |
| 220µF | 292mA | 10000 hours @ 105°C | 5 | 10 | 20 | 207-9123 |
| 330µF | 381mA | 10000 hours @ 105°C | 5 | 12.5 | 20 | 207-9118 |
| 470µF | 454mA | 10000 hours @ 105°C | 5 | 12.5 | 25 | 207-9113 |

656018

| Capacitance | Mftrs. List No. | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **10 Volt d.c** | | | | | | | |
| 100µF | EEUEB1A101S | **207-9166** | | | | | |
| 100µF | EEUEB1A101 | **207-9167** | | | | | |
| 220µF | EEUEB1A221S | **207-9164** | | | | | |
| 220µF | EEUEB1A221 | **207-9165** | | | | | |
| 470µF | EEUEB1A471S | **207-9159** | | | | | |
| 470µF | EEUEB1A471 | **207-9160** | | | | | |
| 2200µF | EEUEB1A222 | **207-9163** | | | | | |
| 3300µF | EEUEB1A332 | **207-9162** | | | | | |
| **16 Volt d.c** | | | | | | | |
| 1000µF | EEUEB1C102 | **207-9158** | | | | | |
| 2200µF | EEUEB1C222 | **207-9157** | | | | | |
| **25 Volt d.c** | | | | | | | |
| 47µF | EEUEB1E470S | **207-9149** | | | | | |
| 47µF | EEUEB1E470 | **207-9151** | | | | | |
| 100µF | EEUEB1E101S | **207-9155** | | | | | |
| 100µF | EEUEB1E101 | **207-9156** | | | | | |
| 220µF | EEUEB1E221S | **207-9153** | | | | | |
| 330µF | EEUEB1E331 | **207-9152** | | | | | |
| 470µF | EEUEB1E471 | **207-9147** | | | | | |
| 1000µF | EEUEB1E102 | **207-9154** | | | | | |
| **35 Volt d.c** | | | | | | | |
| 33µF | EEUEB1V330S | **207-9104** | | | | | |
| 33µF | EEUEB1V330 | **207-9105** | | | | | |
| 220µF | EEUEB1V221 | **207-9106** | | | | | |
| 330µF | EEUEB1V331 | **207-9103** | | | | | |
| 470µF | EEUEB1V471 | **207-9102** | | | | | |
| 1000µF | EEUEB1V102 | **207-9107** | | | | | |
| **50 Volt d.c** | | | | | | | |
| 0.47µF | EEUEB1HR47S | **207-9132** | | | | | |
| 1µF | EEUEB1H1R0S | **207-9144** | | | | | |
| 2.2µF | EEUEB1H2R2S | **207-9140** | | | | | |
| 3.3µF | EEUEB1H3R3S | **207-9138** | | | | | |
| 4.7µF | EEUEB1H4R7S | **207-9133** | | | | | |
| 10µF | EEUEB1H100S | **207-9146** | | | | | |
| 22µF | EEUEB1H220S | **207-9142** | | | | | |
| 22µF | EEUEB1H220 | **207-9143** | | | | | |
| 47µF | EEUEB1H470S | **207-9135** | | | | | |
| 47µF | EEUEB1H470 | **207-9137** | | | | | |
| 100µF | EEUEB1H101S | **207-9145** | | | | | |
| 220µF | EEUEB1H221 | **207-9141** | | | | | |
| 330µF | EEUEB1H331 | **207-9139** | | | | | |
| 470µF | EEUEB1H471 | **207-9134** | | | | | |
| **63 Volt d.c** | | | | | | | |
| 0.47µF | EEUEB1JR47S | **207-9108** | | | | | |
| 0.47µF | EEUEB1JR47 | **207-9109** | | | | | |
| 1µF | EEUEB1J1R0S | **207-9127** | | | | | |
| 1µF | EEUEB1J1R0 | **207-9128** | | | | | |
| 2.2µF | EEUEB1J2R2S | **207-9121** | | | | | |
| 2.2µF | EEUEB1J2R2 | **207-9122** | | | | | |
| 3.3µF | EEUEB1J3R3S | **207-9116** | | | | | |
| 2200µF | EEUEB1J3R3 | **207-9117** | | | | | |
| 4.7µF | EEUEB1J4R7S | **207-9110** | | | | | |
| 4.7µF | EEUEB1J4R7 | **207-9111** | | | | | |
| 10µF | EEUEB1J100S | **207-9130** | | | | | |
| 10µF | EEUEB1J100 | **207-9131** | | | | | |
| 22µF | EEUEB1J220S | **207-9125** | | | | | |
| 22µF | EEUEB1J220 | **207-9126** | | | | | |

# Aluminium Electrolytic - Radial - Panasonic - continued

## Alu Electrolytic EB Series Capacitors - continued

**Type A (high ripple, high frequency, high voltage). - continued**

| Capacitance | Mftrs. List No. | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| 33µF | EEUEB1J330S | **207-9119** | | | | | |
| 33µF | EEUEB1J330 | **207-9120** | | | | | |
| 47µF | EEUEB1J470S | **207-9114** | | | | | |
| 47µF | EEUEB1J470 | **207-9115** | | | | | |
| 100µF | EEUEB1J101 | **207-9129** | | | | | |
| 220µF | EEUEB1J221 | **207-9123** | | | | | |
| 330µF | EEUEB1J331 | **207-9118** | | | | | |
| 470µF | EEUEB1J471 | **207-9113** | | | | | |

## FC Series - Low Impedance 105°C

Panasonic



- High performance miniature radial electrolytic
- High temperature 105°C
- Low impedance and long life
- AECQ-200 Automotive Approved

| | | | |
|---|---|---|---|
| Operating temperature | -55°C to +105°C | Operating life @ 105°C | Dependent on case dia. |
| Tolerance | ±20% | | 4.0 to 6.3 1000hrs |
| Leakage current | 0.01CV or 3µA | | 8.0 2000hrs |
| | whichever is greater | | 10 3000hrs |
| Ripple current measured at | 100kHz @ 105°C | | 12.5 5000hrs |
| Impedance measured at | 100kHz @ 20°C | | |

| | Ripple (mA) | Impedance (Ω) | Dimensions H | Dia. | Lead Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| **6.3 Volt d.c** | | | | | | | | |
| 100µF | 175 | 0.8 | 11 | 5 | 0.5 | 2 | EEUFC0J101 | 184-8403 |
| 220µF | 290 | 0.35 | 11.2 | 6.3 | 0.5 | 2.5 | EEUFC0J221 | 184-8404 |
| 330µF | 290 | 0.35 | 11.2 | 6.3 | 0.5 | 2.5 | EEUFC0J331 | 184-8405 |
| 470µF | 555 | 0.0117 | 11.5 | 8 | 0.6 | 3.5 | EEUFC0J471 | 184-8406 |
| 560µF | 555 | 0.117 | 11.5 | 8 | 0.6 | 3.5 | EEUFC0J561 | 969-1847 |
| 820µF | 755 | 0.09 | 12.5 | 10 | 0.6 | 5 | EEUFC0J821 | 184-8407 |
| 820µF | 730 | 0.085 | 15 | 8 | 0.6 | 3.5 | EEUFC0J821L | 185-5151 |
| 1000µF | 755 | 0.09 | 12.5 | 10 | 0.6 | 5 | EEUFC0J102 | 969-1855 |
| 1200µF | 1050 | 0.068 | 16 | 10 | 0.6 | 5 | EEUFC0J122 | 969-1863 |
| 1200µF | 995 | 0.065 | 20 | 8 | 0.6 | 3.5 | EEUFC0J122L | 185-5152 |
| 1500µF | 1220 | 0.052 | 20 | 10 | 0.6 | 5 | EEUFC0J152 | 184-8408 |
| 1800µF | 1440 | 0.045 | 25 | 10 | 0.6 | 5 | EEUFC0J182 | 184-8411 |
| 2200µF | 1440 | 0.045 | 25 | 10 | 0.6 | 5 | EEUFC0J222 | 184-8412 |
| 2700µF | 1690 | 0.43 | 15 | 16 | 0.8 | 7.5 | EEUFC0J272S | 969-1871 |
| 3300µF | 1655 | 0.038 | 20 | 12.5 | 0.6 | 5 | EEUFC0J332 | 184-8413 |
| 3900µF | 1945 | 0.03 | 25 | 12.5 | 0.6 | 5 | EEUFC0J392 | 969-1880 |
| 4700µF | 2310 | 0.025 | 30 | 12.5 | 0.8 | 5 | EEUFC0J472 | 969-1898 |
| 5600µF | 2205 | 0.029 | 20 | 16 | 0.8 | 7.5 | EEUFC0J562 | 969-1901 |
| 6800µF | 2555 | 0.022 | 25 | 16 | 0.8 | 7.5 | EEUFC0J682 | 969-1910 |
| 8200µF | 3010 | 0.018 | 31.5 | 16 | 0.8 | 7.5 | EEUFC0J822 | 184-8414 |
| 10000µF | 3150 | 0.016 | 35.5 | 16 | 0.8 | 7.5 | EEUFC0J103 | 184-8415 |
| **10 Volt d.c** | | | | | | | | |
| 47µF | 120 | 1.3 | 11 | 4 | 0.45 | 1.5 | EEUFC1A470 | 184-8416 |
| 100µF | 235 | 0.5 | 15 | 5 | 0.5 | 2 | EEUFC1A101 | 184-8417 |
| 100µF | 175 | 0.8 | 11 | 5 | 0.5 | 2 | EEUFC1A101S | 185-5154 |
| 180µF | 290 | 0.35 | 11.2 | 6.3 | 0.5 | 2.5 | EEUFC1A181 | 969-1928 |
| 220µF | 400 | 0.25 | 15 | 6.3 | 0.5 | 2.5 | EEUFC1A221 | 969-1936 |
| 220µF | 290 | 0.35 | 11.2 | 6.3 | 0.5 | 2.5 | EEUFC1A221S | 184-8418 |
| 330µF | 555 | 0.117 | 11.5 | 8 | 0.6 | 3.5 | EEUFC1A331 | 184-8419 |
| 470µF | 555 | 0.117 | 11.5 | 8 | 0.6 | 3.5 | EEUFC1A471 | 969-1944 |
| 680µF | 730 | 0.085 | 15 | 8 | 0.6 | 3.5 | EEUFC1A681L | 185-5155 |
| 820µF | 1050 | 0.068 | 16 | 10 | 0.6 | 5 | EEUFC1A821 | 184-8420 |
| 1000µF | 1050 | 0.068 | 16 | 10 | 0.6 | 5 | EEUFC1A102 | 969-1952 |
| 1000µF | 995 | 0.065 | 20 | 8 | 0.6 | 3.5 | EEUFC1A102L | 185-5156 |
| 1200µF | 1220 | 0.052 | 20 | 10 | 0.6 | 5 | EEUFC1A122 | 969-1960 |
| 1500µF | 1440 | 0.045 | 25 | 10 | 0.6 | 5 | EEUFC1A152 | 184-8421 |
| 1800µF | 1655 | 0.038 | 20 | 12.5 | 0.6 | 5 | EEUFC1A182 | 184-8423 |
| 2200µF | 1655 | 0.038 | 20 | 12.5 | 0.6 | 5 | EEUFC1A222 | 969-1979 |
| 2200µF | 1815 | 0.035 | 30 | 10 | 0.60 | 5 | EEUFC1A222L | 185-5157 |
| 2700µF | 1945 | 0.03 | 25 | 12.5 | 0.6 | 5 | EEUFC1A272 | 184-8424 |
| 3300µF | 2310 | 0.025 | 30 | 12.5 | 0.6 | 5 | EEUFC1A332 | 969-1987 |
| 3900µF | 2205 | 0.029 | 20 | 16 | 0.8 | 7.5 | EEUFC1A392 | 184-8425 |
| 3900µF | 2510 | 0.022 | 35 | 12.5 | 0.80 | 5 | EEUFC1A392L | 185-5158 |
| 4700µF | 2555 | 0.022 | 25 | 16 | 0.8 | 7.5 | EEUFC1A472 | 184-8426 |
| 4700µF | 2655 | 0.018 | 40 | 12.5 | 0.80 | 5 | EEUFC1A472L | 185-5159 |
| 5600µF | 2555 | 0.022 | 25 | 16 | 0.8 | 7.5 | EEUFC1A562 | 969-1995 |
| 6800µF | 3010 | 0.018 | 31.5 | 16 | 0.8 | 7.5 | EEUFC1A682 | 969-2002 |
| 8200µF | 3150 | 0.016 | 35.5 | 16 | 0.8 | 7.5 | EEUFC1A822L | 185-5160 |
| 10000µF | 3680 | 0.015 | 35.5 | 18 | 0.8 | 7.5 | EEUFC1A103 | 969-2010 |
| **16 Volt d.c** | | | | | | | | |
| 47µF | 175 | 0.8 | 11 | 5 | 0.5 | 2 | EEUFC1C470 | 184-8427 |
| 82µF | 235 | 0.5 | 15 | 5 | 0.5 | 2 | EEUFC1C820 | 969-2029 |
| 100µF | 290 | 0.35 | 11.2 | 6.3 | 0.5 | 2.5 | EEUFC1C101 | 184-8428 |
| 180µF | 400 | 0.25 | 15 | 6.3 | 0.5 | 2.5 | EEUFC1C181 | 969-2037 |
| 220µF | 555 | 0.117 | 11.5 | 8 | 0.6 | 3.5 | EEUFC1C221 | 184-8429 |
| 270µF | 555 | 0.117 | 11.5 | 8 | 0.6 | 3.5 | EEUFC1C271 | 184-8430 |
| 330µF | 555 | 0.117 | 11.5 | 8 | 0.6 | 3.5 | EEUFC1C331 | 969-2045 |
| 470µF | 755 | 0.09 | 12.5 | 10 | 0.6 | 5 | EEUFC1C471 | 969-2053 |
| 470µF | 730 | 0.085 | 15 | 8 | 0.6 | 3.5 | EEUFC1C471L | 185-5161 |
| 560µF | 1050 | 0.068 | 16 | 10 | 0.6 | 5 | EEUFC1C561 | 185-5162 |
| 680µF | 995 | 0.065 | 20 | 8 | 0.6 | 3.5 | EEUFC1C681L | 185-5163 |
| 820µF | 1220 | 0.052 | 20 | 10 | 0.6 | 5 | EEUFC1C821 | 969-2061 |
| 820µF | 1205 | 0.065 | 15 | 12.5 | 0.6 | 5 | EEUFC1C821S | 184-8431 |
| 1000µF | 1220 | 0.052 | 20 | 10 | 0.6 | 5 | EEUFC1C102S | 184-8432 |
| 1000µF | 1440 | 0.045 | 25 | 10 | 0.6 | 5 | EEUFC1C102 | 184-8433 |
| 1200µF | 1440 | 0.045 | 25 | 10 | 0.6 | 5 | EEUFC1C122 | 969-2070 |
| 1500µF | 1815 | 0.035 | 30 | 10 | 0.6 | 5 | EEUFC1C152L | 185-5164 |
| 1800µF | 1945 | 0.03 | 25 | 12.5 | 0.6 | 5 | EEUFC1C182 | 184-8435 |
| 2200µF | 1945 | 0.03 | 25 | 12.5 | 0.6 | 5 | EEUFC1C222 | 969-2088 |
| **16 Volt d.c** | | | | | | | | |
| 2700µF | 2205 | 0.029 | 20 | 16 | 0.8 | 7.5 | EEUFC1C272 | 184-8436 |
| 2700µF | 2310 | 0.025 | 30 | 12.5 | 0.80 | 5 | EEUFC1C272L | 185-5166 |
| 3300µF | 2510 | 0.022 | 35 | 12.5 | 0.8 | 5 | EEUFC1C332 | 969-2096 |
| 4700µF | 3010 | 0.018 | 31.5 | 16 | 0.8 | 7.5 | EEUFC1C472 | 969-2100 |
| 4700µF | 2740 | 0.02 | 25 | 18 | 0.8 | 7.5 | EEUFC1C472S | 184-8437 |
| 5600µF | 3150 | 0.016 | 35.5 | 16 | 0.80 | 7.5 | EEUFC1C562L | 185-5167 |
| 8200µF | 3680 | 0.015 | 35.5 | 18 | 0.8 | 7.5 | EEUFC1C822 | 969-2126 |
| **25 Volt d.c** | | | | | | | | |
| 47µF | 175 | 0.8 | 11 | 5 | 0.5 | 2 | EEUFC1E470 | 184-8438 |
| 100µF | 290 | 0.35 | 11.2 | 6.3 | 0.5 | 2.5 | EEUFC1E101S | 184-8439 |
| 120µF | 400 | 0.25 | 15 | 6.3 | 0.5 | 2.5 | EEUFC1E121 | 969-2134 |
| 220µF | 555 | 0.117 | 11.5 | 8 | 0.6 | 3.5 | EEUFC1E221 | 969-2142 |
| 330µF | 755 | 0.09 | 12.5 | 10 | 0.6 | 5 | EEUFC1E331 | 969-2150 |
| 330µF | 730 | 0.085 | 15 | 8 | 0.6 | 3.5 | EEUFC1E331L | 185-5168 |
| 470µF | 1050 | 0.068 | 16 | 10 | 0.6 | 5 | EEUFC1E471 | 969-2169 |
| 470µF | 995 | 0.065 | 20 | 8 | 0.6 | 3.5 | EEUFC1E471L | 185-5169 |
| 560µF | 1220 | 0.052 | 20 | 10 | 0.6 | 5 | EEUFC1E561 | 969-2177 |
| 680µF | 1220 | 0.052 | 20 | 10 | 0.6 | 5 | EEUFC1E681 | 184-8440 |
| 820µF | 1440 | 0.045 | 25 | 10 | 0.6 | 5 | EEUFC1E821 | 969-2185 |
| 820µF | 1655 | 0.038 | 20 | 12.5 | 0.6 | 5 | EEUFC1E821S | 184-8441 |
| 1000µF | 1655 | 0.038 | 20 | 12.5 | 0.6 | 5 | EEUFC1E102 | 969-2193 |
| 1000µF | 1815 | 0.035 | 30 | 10 | 0.6 | 5 | EEUFC1E102L | 185-5170 |
| 1500µF | 1945 | 0.03 | 25 | 12.5 | 0.6 | 5 | EEUFC1E152 | 184-8442 |
| 1800µF | 2205 | 0.029 | 20 | 16 | 0.8 | 7.5 | EEUFC1E182 | 969-2207 |
| 2200µF | 2490 | 0.028 | 20 | 18 | 0.8 | 7.5 | EEUFC1E222S | 184-8443 |
| 2200µF | 2510 | 0.022 | 35 | 12.5 | 0.8 | 5 | EEUFC1E222 | 969-2215 |
| 2700µF | 2555 | 0.022 | 25 | 16 | 0.8 | 7.5 | EEUFC1E272 | 184-8444 |
| 3300µF | 3010 | 0.018 | 31.5 | 16 | 0.8 | 7.5 | EEUFC1E332 | 969-2223 |
| 3900µF | 3150 | 0.016 | 35.5 | 16 | 0.8 | 7.5 | EEUFC1E392L | 185-5171 |
| 4700µF | 3680 | 0.015 | 35.5 | 18 | 0.8 | 7.5 | EEUFC1E472 | 969-2231 |
| 1800µF | 2310 | 0.025 | 30 | 12.5 | 0.8 | 5 | EEUFC1E182L | 185-5172 |
| **35 Volt d.c** | | | | | | | | |
| 33µF | 175 | 0.08 | 11 | 5 | 0.5 | 2 | EEUFC1V330 | 184-8445 |
| 39µF | 235 | 0.5 | 15 | 5 | 0.5 | 2 | EEUFC1V390 | 969-2240 |
| 47µF | 290 | 0.35 | 11.2 | 6.3 | 0.5 | 2.5 | EEUFC1V470 | 184-8447 |
| 56µF | 290 | 0.35 | 11.2 | 6.3 | 0.5 | 2.5 | EEUFC1V560 | 969-2258 |
| 68µF | 290 | 0.35 | 11.2 | 6.3 | 0.5 | 2.5 | EEUFC1V680 | 184-8448 |
| 82µF | 400 | 0.25 | 15 | 6.3 | 0.5 | 2.5 | EEUFC1V820 | 969-2266 |
| 100µF | 555 | 0.117 | 11.5 | 8 | 0.6 | 3.5 | EEUFC1V101 | 184-8449 |
| 120µF | 555 | 0.117 | 11.5 | 8 | 0.6 | 3.5 | EEUFC1V121 | 184-8450 |
| 150µF | 555 | 0.117 | 11.5 | 8 | 0.6 | 3.5 | EEUFC1V151 | 969-2274 |
| 220µF | 755 | 0.09 | 12.5 | 10 | 0.6 | 5 | EEUFC1V221 | 969-2282 |
| 220µF | 730 | 0.085 | 15 | 8 | 0.6 | 3.5 | EEUFC1V221L | 185-5173 |
| 330µF | 1050 | 0.068 | 16 | 10 | 0.6 | 5 | EEUFC1V331 | 969-2290 |
| 330µF | 995 | 0.065 | 20 | 8 | 0.6 | 3.5 | EEUFC1V331L | 185-5174 |
| 390µF | 1205 | 0.065 | 15 | 12.5 | 0.6 | 5 | EEUFC1V391S | 184-8451 |
| 470µF | 1220 | 0.052 | 20 | 10 | 0.6 | 5 | EEUFC1V471 | 184-8452 |
| 680µF | 1655 | 0.038 | 20 | 12.5 | 0.6 | 5 | EEUFC1V681 | 969-2304 |
| 680µF | 1815 | 0.035 | 30 | 10 | 0.6 | 5 | EEUFC1V681L | 185-5175 |
| 820µF | 2000 | 0.038 | 15 | 18 | 0.8 | 7.5 | EEUFC1V821 | 184-8453 |
| 820µF | 1945 | 0.030 | 25 | 12.5 | 0.6 | 5 | EEUFC1V821L | 185-5176 |
| 1000µF | 1945 | 0.03 | 25 | 12.5 | 0.6 | 5 | EEUFC1V102 | 969-2312 |
| 1000µF | 2205 | 0.029 | 20 | 16 | 0.8 | 7.5 | EEUFC1V102S | 184-8454 |
| 1200µF | 2205 | 0.029 | 20 | 16 | 0.6 | 7.5 | EEUFC1V122 | 969-2320 |
| 1200µF | 2310 | 0.025 | 30 | 12.5 | 0.8 | 5 | EEUFC1V122L | 185-5178 |
| 1500µF | 2510 | 0.022 | 35 | 12.5 | 0.8 | 5 | EEUFC1V152L | 185-5179 |
| 1800µF | 2555 | 0.022 | 25 | 16 | 0.6 | 7.5 | EEUFC1V182 | 969-2339 |
| 1800µF | 2655 | 0.018 | 40 | 12.5 | 0.8 | 5 | EEUFC1V182L | 185-5180 |
| 2200µF | 3010 | 0.018 | 31.5 | 16 | 0.8 | 7.5 | EEUFC1V222 | 969-2347 |
| 2700µF | 3150 | 0.016 | 35.5 | 16 | 0.8 | 7.5 | EEUFC1V272L | 185-5181 |
| 3300µF | 3680 | 0.015 | 35.5 | 18 | 0.8 | 7.5 | EEUFC1V332 | 969-2355 |
| **50 Volt d.c** | | | | | | | | |
| 1µF | 20 | 2.4 | 11 | 5 | 0.5 | 2 | EEUFC1H1R0 | 184-8455 |
| 2.2µF | 45 | 1.8 | 11 | 5 | 0.5 | 2 | EEUFC1H2R2 | 184-8456 |
| 3.3µF | 65 | 1.3 | 11 | 5 | 0.5 | 2 | EEUFC1H3R3 | 184-8457 |
| 4.7µF | 95 | 1.3 | 11 | 5 | 0.5 | 2 | EEUFC1H4R7 | 184-8459 |
| 10µF | 90 | 2.5 | 11 | 4 | 0.45 | 1.5 | EEUFC1H100 | 969-2363 |
| 10µF | 125 | 1.3 | 11 | 5 | 0.5 | 2 | EEUFC1H100L | 185-5182 |
| 15µF | 145 | 1.3 | 11 | 5 | 0.5 | 2 | EEUFC1H150 | 184-8461 |
| 18µF | 155 | 1.3 | 11 | 5 | 0.5 | 2 | EEUFC1H180 | 969-2371 |
| 22µF | 155 | 1.3 | 11 | 5 | 0.5 | 2 | EEUFC1H220 | 184-8462 |
| 27µF | 215 | 0.9 | 11 | 5 | 0.5 | 2 | EEUFC1H270 | 969-2398 |
| 33µF | 260 | 0.6 | 11.2 | 6.3 | 0.5 | 2.5 | EEUFC1H330 | 969-2401 |
| 47µF | 260 | 0.6 | 11.2 | 6.3 | 0.5 | 2.5 | EEUFC1H470 | 184-8463 |
| 82µF | 485 | 0.234 | 11.5 | 8 | 0.6 | 3.5 | EEUFC1H820 | 969-2410 |
| 100µF | 615 | 0.162 | 12.5 | 10 | 0.6 | 5 | EEUFC1H101 | 184-8464 |
| 120µF | 615 | 0.162 | 12.5 | 10 | 0.6 | 5 | EEUFC1H121 | 969-2428 |
| 120µF | 635 | 0.155 | 15 | 8 | 0.6 | 3.5 | EEUFC1H121L | 185-5183 |
| 180µF | 860 | 0.12 | 20 | 8 | 0.6 | 3.5 | EEUFC1H181L | 185-5184 |
| 270µF | 1200 | 0.082 | 25 | 10 | 0.6 | 5 | EEUFC1H271 | 969-2436 |
| 330µF | 1480 | 0.063 | 20 | 12.5 | 0.6 | 5 | EEUFC1H331 | 184-8465 |
| 330µF | 1610 | 0.06 | 30 | 10 | 0.6 | 5 | EEUFC1H331L | 185-5185 |
| 390µF | 1480 | 0.063 | 20 | 12.5 | 0.6 | 5 | EEUFC1H391 | 969-2444 |
| 470µF | 1832 | 0.05 | 25 | 12.5 | 0.6 | 5 | EEUFC1H471 | 184-8466 |
| 470µF | 1832 | 0.05 | 25 | 12.5 | 0.6 | 5 | EEUFC1H471B | 185-5186 |
| 470µF | 1610 | 0.06 | 30 | 10 | 0.6 | 5 | EEUFC1H471L | 185-5187 |
| 680µF | 1835 | 0.048 | 20 | 16 | 0.6 | 7.5 | EEUFC1H681 | 969-2452 |
| 680µF | 2215 | 0.04 | 30 | 12.5 | 0.8 | 5 | EEUFC1H681L | 185-5188 |
| 820µF | 2420 | 0.042 | 20 | 18 | 0.8 | 7.5 | EEUFC1H821 | 184-8467 |
| 820µF | 2285 | 0.034 | 35 | 12.5 | 0.8 | 5 | EEUFC1H821L | 185-5191 |
| 1000µF | 2235 | 0.034 | 25 | 16 | 0.6 | 7.5 | EEUFC1H102 | 969-2460 |
| 1000µF | 2590 | 0.030 | 40 | 12.5 | 0.8 | 5 | EEUFC1H102L | 185-5192 |
| 1200µF | 2700 | 0.028 | 31.5 | 16 | 0.8 | 7.5 | EEUFC1H122 | 969-2479 |
| 1500µF | 2790 | 0.025 | 35.5 | 16 | 0.8 | 7.5 | EEUFC1H152L | 185-5193 |
| 1800µF | 2845 | 0.023 | 40 | 16 | 0.8 | 7.5 | EEUFC1H182L | 185-5194 |
| 2200µF | 3100 | 0.023 | 35.5 | 18 | 0.8 | 7.5 | EEUFC1H222 | 969-2487 |
| **63 Volt d.c** | | | | | | | | |
| 6.8µF | 80 | 3.5 | 11 | 4 | 0.45 | 1.5 | EEUFC1J6R8 | 184-8468 |
| 22µF | 240 | 1 | 11.2 | 6.3 | 0.5 | 2.5 | EEUFC1J220 | 969-2495 |
| 33µF | 240 | 1 | 11.2 | 6.3 | 0.5 | 2.5 | EEUFC1J330 | 184-8469 |
| 39µF | 330 | 0.7 | 15 | 6.3 | 0.5 | 2.5 | EEUFC1J390 | 969-2509 |
| 47µF | 405 | 0.342 | 11.5 | 8 | 0.6 | 3.5 | EEUFC1J470 | 184-8470 |
| 68µF | 405 | 0.342 | 11.5 | 8 | 0.6 | 3.5 | EEUFC1J680 | 184-8472 |
| 100µF | 535 | 0.256 | 12.5 | 10 | 0.6 | 5 | EEUFC1J101 | 969-2517 |



RoHS Compliant / Non-compliant

| | Ripple (mA) | Impedance (Ω) | Dimensions H | Dia. | Lead Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| **63 Volt d.c** | | | | | | | | |
| 100µF | 535 | 0.23 | 15 | 8 | 0.6 | 3.5 | EEUFC1J101L | 185-5195 |
| 150µF | 690 | 0.178 | 20 | 8 | 0.6 | 3.5 | EEUFC1J151 | 184-8473 |
| 180µF | 885 | 0.147 | 20 | 10 | 0.6 | 5 | EEUFC1J181 | 969-2525 |
| 180µF | 1020 | 0.15 | 15 | 12.5 | 0.6 | 5 | EEUFC1J181S | 184-8474 |
| 220µF | 1050 | 0.13 | 25 | 10 | 0.6 | 5 | EEUFC1J221 | 969-2533 |
| 220µF | 1285 | 0.085 | 20 | 12.5 | 0.6 | 5 | EEUFC1J221S | 184-8475 |
| 330µF | 1300 | 0.09 | 30 | 10 | 0.6 | 5 | EEUFC1J331L | 185-5196 |
| 390µF | 1720 | 0.07 | 25 | 12.5 | 0.6 | 5 | EEUFC1J391 | 969-2541 |
| 470µF | 1765 | 0.059 | 20 | 16 | 0.6 | 7.5 | EEUFC1J471 | 969-2550 |
| **50 Volt d.c** | | | | | | | | |
| 470µF | 2090 | 0.055 | 30 | 12.5 | 0.8 | 5 | EEUFC1J471L | 185-5197 |
| 680µF | 2160 | 0.05 | 25 | 16 | 0.6 | 7.5 | EEUFC1J681 | 969-2568 |
| 680µF | 2290 | 0.055 | 20 | 18 | 0.8 | 7.5 | EEUFC1J681S | 184-8476 |
| 680µF | 2265 | 0.047 | 35 | 12.5 | 0.8 | 5 | EEUFC1J681L | 185-5198 |
| 820µF | 2560 | 0.042 | 40 | 12.5 | 0.8 | 5 | EEUFC1J821L | 185-5199 |
| 1000µF | 2770 | 0.036 | 35.5 | 16 | 0.8 | 7.5 | EEUFC1J102 | 969-2576 |
| 1000µF | 2670 | 0.043 | 31.5 | 16 | 0.8 | 7.5 | EEUFC1J102U | 184-8477 |
| 1200µF | 2950 | 0.032 | 31.5 | 18 | 0.8 | 7.5 | EEUFC1J122 | 969-2584 |
| 1800µF | 3205 | 0.025 | 40 | 18 | 0.8 | 7.5 | EEUFC1J182 | 184-8478 |
| 1200µF | 2825 | 0.030 | 40 | 16 | 0.8 | 7.5 | EEUFC1J122L | 185-5200 |
| **100 Volt d.c** | | | | | | | | |
| 1µF | 15 | 7.5 | 11 | 5 | 0.5 | 2 | EEUFC2A1R0 | 184-8479 |
| 22µF | 260 | 0.55 | 11.5 | 8 | 0.6 | 3.5 | EEUFC2A220 | 969-2592 |
| 33µF | 306 | 0.42 | 12.5 | 10 | 0.6 | 5 | EEUFC2A330 | 969-2606 |
| 33µF | 340 | 0.45 | 15 | 8 | 0.6 | 3.5 | EEUFC2A330L | 185-5201 |
| 39µF | 455 | 0.33 | 20 | 8 | 0.6 | 3.5 | EEUFC2A390L | 185-5202 |
| 68µF | 599 | 0.21 | 25 | 10 | 0.6 | 5 | EEUFC2A680L | 185-5203 |
| 100µF | 671 | 0.18 | 20 | 12.5 | 0.6 | 5 | EEUFC2A101 | 969-2614 |
| 100µF | 698 | 0.15 | 30 | 10 | 0.6 | 5 | EEUFC2A101L | 185-5204 |
| 150µF | 917 | 0.12 | 15 | 18 | 0.8 | 7.5 | EEUFC2A151S | 184-8480 |
| 180µF | 937 | 0.098 | 30 | 12.5 | 0.8 | 5 | EEUFC2A181L | 185-5205 |
| 220µF | 1170 | 0.089 | 25 | 16 | 0.8 | 7.5 | EEUFC2A221 | 969-2622 |
| 220µF | 1040 | 0.087 | 35 | 12.5 | 0.8 | 5 | EEUFC2A221L | 185-5206 |
| 270µF | 1130 | 0.072 | 40 | 12.5 | 0.8 | 5 | EEUFC2A271L | 185-5208 |
| 330µF | 1520 | 0.062 | 31.5 | 16 | 0.8 | 7.5 | EEUFC2A331 | 969-2630 |
| 390µF | 1730 | 0.053 | 35.5 | 16 | 0.8 | 7.5 | EEUFC2A391L | 185-5209 |
| 470µF | 1920 | 0.047 | 40 | 16 | 0.8 | 7.5 | EEUFC2A471 | 969-2649 |
| 680µF | 2300 | 0.036 | 40 | 18 | 0.8 | 7.5 | EEUFC2A681 | 969-2657 |

208559

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **6.3 Volt d.c.** | | | | | | |
| 100µF | NEW 184-8403 | | | | | |
| 220µF | NEW 184-8404 | | | | | |
| 330µF | NEW 184-8405 | | | | | |
| 470µF | NEW 184-8406 | | | | | |
| 560µF | 969-1847 | | | | | |
| 820µF | NEW 184-8407 | | | | | |
| 820µF | NEW 185-5151 | | | | | |
| 1000µF | 969-1855 | | | | | |
| 1200µF | 969-1863 | | | | | |
| 1200µF | NEW 185-5152 | | | | | |
| 1500µF | NEW 184-8408 | | | | | |
| 1800µF | NEW 184-8411 | | | | | |
| 2200µF | NEW 184-8412 | | | | | |
| 2700µF | 969-1871 | | | | | |
| 3300µF | NEW 184-8413 | | | | | |
| 3900µF | 969-1880 | | | | | |
| 4700µF | 969-1898 | | | | | |
| 5600µF | 969-1901 | | | | | |
| 6800µF | 969-1910 | | | | | |
| 8200µF | NEW 184-8414 | | | | | |
| 10000µF | NEW 184-8415 | | | | | |
| **10 Volt d.c.** | | | | | | |
| 47µF | NEW 184-8416 | | | | | |
| 100µF | NEW 184-8417 | | | | | |
| 100µF | NEW 185-5154 | | | | | |
| 180µF | 969-1928 | | | | | |
| 220µF | 969-1936 | | | | | |
| 220µF | NEW 184-8418 | | | | | |
| 330µF | NEW 184-8419 | | | | | |
| 470µF | 969-1944 | | | | | |
| 680µF | NEW 185-5155 | | | | | |
| 820µF | NEW 184-8420 | | | | | |
| 1000µF | 969-1952 | | | | | |
| 1000µF | NEW 185-5156 | | | | | |
| 1200µF | 969-1960 | | | | | |
| 1500µF | NEW 184-8421 | | | | | |
| 1800µF | NEW 184-8423 | | | | | |
| 2200µF | 969-1979 | | | | | |
| 2200µF | NEW 185-5157 | | | | | |
| 2700µF | NEW 184-8424 | | | | | |
| 3300µF | 969-1987 | | | | | |
| 3900µF | NEW 184-8425 | | | | | |
| 3900µF | NEW 185-5158 | | | | | |
| 4700µF | NEW 184-8426 | | | | | |
| 4700µF | NEW 185-5159 | | | | | |
| 5600µF | 969-1995 | | | | | |

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **10 Volt d.c.** | | | | | | |
| 6800µF | 969-2002 | | | | | |
| 8200µF | NEW 185-5160 | | | | | |
| 10000µF | 969-2010 | | | | | |
| **16 Volt d.c.** | | | | | | |
| 47µF | NEW 184-8427 | | | | | |
| 82µF | 969-2029 | | | | | |
| 100µF | NEW 184-8428 | | | | | |
| 180µF | 969-2037 | | | | | |
| 220µF | NEW 184-8429 | | | | | |
| 270µF | NEW 184-8430 | | | | | |
| 330µF | 969-2045 | | | | | |
| 470µF | 969-2053 | | | | | |
| 470µF | NEW 185-5161 | | | | | |
| 560µF | NEW 185-5162 | | | | | |
| 680µF | NEW 185-5163 | | | | | |
| 820µF | NEW 184-8431 | | | | | |
| 820µF | 969-2061 | | | | | |
| 1000µF | NEW 184-8432 | | | | | |
| 1000µF | NEW 184-8433 | | | | | |
| 1200µF | 969-2070 | | | | | |
| 1500µF | NEW 185-5164 | | | | | |
| 1800µF | NEW 184-8435 | | | | | |
| 2200µF | 969-2088 | | | | | |
| 2700µF | NEW 184-8436 | | | | | |
| 2700µF | NEW 185-5166 | | | | | |
| 3300µF | 969-2096 | | | | | |
| 4700µF | 969-2100 | | | | | |
| 4700µF | NEW 184-8437 | | | | | |
| 5600µF | NEW 185-5167 | | | | | |
| 8200µF | 969-2126 | | | | | |
| **25 Volt d.c.** | | | | | | |
| 47µF | NEW 184-8438 | | | | | |
| 100µF | NEW 184-8439 | | | | | |
| 120µF | 969-2134 | | | | | |
| 220µF | 969-2142 | | | | | |
| 330µF | 969-2150 | | | | | |
| 330µF | NEW 185-5168 | | | | | |
| 470µF | NEW 185-5169 | | | | | |
| 470µF | 969-2169 | | | | | |
| 560µF | 969-2177 | | | | | |
| 680µF | NEW 184-8440 | | | | | |
| 820µF | 969-2185 | | | | | |
| 820µF | NEW 184-8441 | | | | | |
| 1000µF | 969-2193 | | | | | |
| 1000µF | NEW 185-5170 | | | | | |
| 1500µF | NEW 184-8442 | | | | | |
| 1800µF | 969-2207 | | | | | |
| 2200µF | NEW 184-8443 | | | | | |
| 2200µF | 969-2215 | | | | | |
| 2700µF | NEW 184-8444 | | | | | |
| 3300µF | 969-2223 | | | | | |
| 3900µF | NEW 185-5171 | | | | | |
| 4700µF | 969-2231 | | | | | |
| 1800µF | NEW 185-5172 | | | | | |
| **35 Volt d.c.** | | | | | | |
| 33µF | NEW 184-8445 | | | | | |
| 39µF | 969-2240 | | | | | |
| 47µF | NEW 184-8447 | | | | | |
| 56µF | 969-2258 | | | | | |
| 68µF | NEW 184-8448 | | | | | |
| 82µF | 969-2266 | | | | | |
| 100µF | NEW 184-8449 | | | | | |
| 120µF | NEW 184-8450 | | | | | |
| 150µF | 969-2274 | | | | | |
| 220µF | 969-2282 | | | | | |
| 220µF | NEW 185-5173 | | | | | |
| 330µF | 969-2290 | | | | | |
| 330µF | NEW 185-5174 | | | | | |
| 390µF | NEW 184-8451 | | | | | |
| 470µF | NEW 184-8452 | | | | | |
| 680µF | 969-2304 | | | | | |
| 680µF | NEW 185-5175 | | | | | |
| 820µF | NEW 184-8453 | | | | | |
| 820µF | NEW 185-5176 | | | | | |
| 1000µF | 969-2312 | | | | | |
| 1000µF | NEW 184-8454 | | | | | |
| 1200µF | 969-2320 | | | | | |
| 1200µF | NEW 185-5178 | | | | | |
| 1500µF | NEW 185-5179 | | | | | |
| 1800µF | 969-2339 | | | | | |

# Aluminium Electrolytic - Radial - Panasonic - continued

## FC Series - Low Impedance 105°C - continued

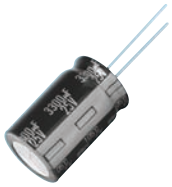
| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **35 Volt d.c.** | | | | | | |
| 1800µF | NEW 185-5180 | | | | | |
| 2200µF | 969-2347 | | | | | |
| 2700µF | NEW 185-5181 | | | | | |
| 3300µF | 969-2355 | | | | | |
| **50 Volt d.c.** | | | | | | |
| 1µF | NEW 184-8455 | | | | | |
| 2.2µF | NEW 184-8456 | | | | | |
| 3.3µF | NEW 184-8457 | | | | | |
| 4.7µF | NEW 184-8459 | | | | | |
| 10µF | 969-2363 | | | | | |
| 10µF | NEW 185-5182 | | | | | |
| 15µF | NEW 184-8461 | | | | | |
| 18µF | 969-2371 | | | | | |
| 22µF | NEW 184-8462 | | | | | |
| 27µF | 969-2398 | | | | | |
| 33µF | 969-2401 | | | | | |
| 47µF | NEW 184-8463 | | | | | |
| 82µF | 969-2410 | | | | | |
| 100µF | NEW 184-8464 | | | | | |
| 120µF | 969-2428 | | | | | |
| 120µF | NEW 185-5183 | | | | | |
| 180µF | NEW 185-5184 | | | | | |
| 270µF | 969-2436 | | | | | |
| 330µF | NEW 184-8465 | | | | | |
| 330µF | NEW 185-5185 | | | | | |
| 390µF | 969-2444 | | | | | |
| 470µF | NEW 184-8466 | | | | | |
| 470µF | NEW 185-5186 | | | | | |
| 470µF | NEW 185-5187 | | | | | |
| 680µF | 969-2452 | | | | | |
| 680µF | NEW 185-5188 | | | | | |
| 820µF | NEW 184-8467 | | | | | |
| 820µF | NEW 185-5191 | | | | | |
| 1000µF | 969-2460 | | | | | |
| 1000µF | NEW 185-5192 | | | | | |
| 1200µF | 969-2479 | | | | | |
| 1500µF | NEW 185-5193 | | | | | |
| 1800µF | NEW 185-5194 | | | | | |
| 2200µF | 969-2487 | | | | | |
| **63 Volt d.c** | | | | | | |
| 22µF | 969-2495 | | | | | |
| 33µF | 184-8469 | | | | | |
| 39µF | 969-2509 | | | | | |
| 47µF | 184-8470 | | | | | |
| 68µF | 184-8472 | | | | | |
| 100µF | 969-2517 | | | | | |
| 100µF | NEW 185-5195 | | | | | |
| 150µF | 184-8473 | | | | | |
| 180µF | 969-2525 | | | | | |
| 180µF | 184-8474 | | | | | |
| 220µF | 969-2533 | | | | | |
| 220µF | 184-8475 | | | | | |
| 330µF | NEW 185-5196 | | | | | |
| 390µF | 969-2541 | | | | | |
| 470µF | 969-2550 | | | | | |
| 470µF | NEW 185-5197 | | | | | |
| 680µF | 969-2568 | | | | | |
| 680µF | 184-8476 | | | | | |
| 680µF | NEW 185-5198 | | | | | |
| 820µF | NEW 185-5199 | | | | | |
| 1000µF | 969-2576 | | | | | |
| 1000µF | 184-8477 | | | | | |
| 1200µF | 969-2584 | | | | | |
| 1800µF | 184-8478 | | | | | |
| 1200µF | NEW 185-5200 | | | | | |
| **100 Volt d.c** | | | | | | |
| 1µF | NEW 184-8479 | | | | | |
| 22µF | 969-2592 | | | | | |
| 33µF | 969-2606 | | | | | |
| 33µF | NEW 185-5201 | | | | | |
| 39µF | NEW 185-5202 | | | | | |
| 68µF | NEW 185-5203 | | | | | |
| 100µF | 969-2614 | | | | | |
| 100µF | NEW 185-5204 | | | | | |
| 150µF | NEW 184-8480 | | | | | |

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **100 Volt d.c** | | | | | | |
| 180µF | NEW 185-5205 | | | | | |
| 220µF | 969-2622 | | | | | |
| 220µF | NEW 185-5206 | | | | | |
| 270µF | NEW 185-5208 | | | | | |
| 330µF | 969-2630 | | | | | |
| 390µF | NEW 185-5209 | | | | | |
| 470µF | 969-2649 | | | | | |
| 680µF | 969-2657 | | | | | |

## FK Series

NEW

Panasonic



- Low impedance (10 % to 30 % less than FC Series)
- Miniaturization (30 % to 40 % less than FC Series)
- AECQ-200 Automotive Approved

| | |
|---|---|
| Operating temperature | -55°C to +105°C |
| Tolerance | ± 20% |
| Ripple current measured at | 100kHz @ 105°C |
| Impedance measured at | 100kHz @ 20°C |

| | Ripple (mA) | Impedance (Ω) | Body Dimensions (mm) H | Dia. | Lead Dimensions (mm) Spacing | Dia | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| **6.3 Volt d.c** | | | | | | | | |
| 680µF | 630 | 0.09 | 11.5 | 8 | 3.5 | 0.6 | EEUFK0J681 | 174-4868 |
| 1000µF | 900 | 0.063 | 12.5 | 10 | 5 | 0.6 | EEUFK0J102 | 174-4869 |
| 1000µF | 860 | 0.062 | 15 | 8 | 3.5 | 0.6 | EEUFK0J102L | 174-4870 |
| 1500µF | 1240 | 0.049 | 16 | 10 | 5 | 0.6 | EEUFK0J152 | 174-4871 |
| 1500µF | 1220 | 0.044 | 20 | 8 | 3.5 | 0.6 | EEUFK0J152L | 174-4873 |
| 1800µF | 1400 | 0.048 | 15 | 12.5 | 5 | 0.6 | EEUFK0J182S | 174-4874 |
| 2200µF | 1490 | 0.035 | 20 | 10 | 5 | 0.6 | EEUFK0J222 | 174-4875 |
| 2200µF | 1680 | 0.033 | 25 | 10 | 5 | 0.6 | EEUFK0J222L | 174-4876 |
| 3300µF | 1890 | 0.029 | 20 | 12.5 | 5 | 0.6 | EEUFK0J332 | 174-4877 |
| 3300µF | 2140 | 0.025 | 30 | 10 | 5 | 0.6 | EEUFK0J332L | 174-4878 |
| 3300µF | 1800 | 0.038 | 15 | 16 | 7.5 | 0.8 | EEUFK0J332S | 174-4879 |
| 4700µF | 2280 | 0.022 | 25 | 12.5 | 5 | 0.6 | EEUFK0J472 | 174-4880 |
| 4700µF | 2060 | 0.036 | 15 | 18 | 7.5 | 0.8 | EEUFK0J472S | 174-4881 |
| 5600µF | 2720 | 0.018 | 30 | 12.5 | 5 | 0.8 | EEUFK0J562L | 174-4882 |
| 5600µF | 2330 | 0.026 | 20 | 16 | 7.5 | 0.8 | EEUFK0J562S | 174-4883 |
| 6800µF | 2940 | 0.016 | 35 | 12.5 | 5 | 0.8 | EEUFK0J682L | 174-4885 |
| 8200µF | 2760 | 0.019 | 25 | 16 | 7.5 | 0.8 | EEUFK0J822 | 174-4886 |
| 8200µF | 3010 | 0.014 | 40 | 12.5 | 5 | 0.8 | EEUFK0J822L | 174-4887 |
| 8200µF | 2640 | 0.025 | 20 | 18 | 7.5 | 0.8 | EEUFK0J822S | 174-4888 |
| 12000µF | 2850 | 0.018 | 25 | 18 | 7.5 | 0.8 | EEUFK0J123S | 174-4889 |
| **10 Volt d.c** | | | | | | | | |
| 820µF | 900 | 0.063 | 12.5 | 10 | 5 | 0.6 | EEUFK1A821 | 174-4891 |
| 820µF | 860 | 0.062 | 15 | 8 | 3.5 | 0.6 | EEUFK1A821L | 174-4892 |
| 1200µF | 1240 | 0.049 | 16 | 10 | 5 | 0.6 | EEUFK1A122 | 174-4893 |
| 1200µF | 1220 | 0.044 | 20 | 8 | 3.5 | 0.6 | EEUFK1A122L | 174-4894 |
| 1500µF | 1400 | 0.048 | 15 | 12.5 | 5 | 0.6 | EEUFK1A152S | 174-4895 |
| 1800µF | 1490 | 0.035 | 20 | 10 | 5 | 0.6 | EEUFK1A182 | 174-4897 |
| 1800µF | 1680 | 0.033 | 25 | 10 | 5 | 0.6 | EEUFK1A182L | 174-4898 |
| 2700µF | 1890 | 0.029 | 20 | 12.5 | 5 | 0.6 | EEUFK1A272 | 174-4899 |
| 2700µF | 2140 | 0.025 | 30 | 10 | 5 | 0.6 | EEUFK1A272L | 174-4900 |
| 2700µF | 1800 | 0.038 | 15 | 16 | 7.5 | 0.8 | EEUFK1A272S | 174-4901 |
| 3900µF | 2280 | 0.022 | 25 | 12.5 | 5 | 0.6 | EEUFK1A392 | 174-4903 |
| 3900µF | 2060 | 0.036 | 15 | 18 | 7.5 | 0.8 | EEUFK1A392S | 174-4904 |
| 4700µF | 2720 | 0.018 | 30 | 12.5 | 5 | 0.8 | EEUFK1A472L | 174-4905 |
| 4700µF | 2330 | 0.026 | 20 | 16 | 7.5 | 0.8 | EEUFK1A472S | 174-4906 |
| 5600µF | 2940 | 0.016 | 35 | 12.5 | 5 | 0.8 | EEUFK1A562L | 174-4907 |
| 6800µF | 2760 | 0.019 | 25 | 16 | 7.5 | 0.8 | EEUFK1A682 | 174-4908 |
| 6800µF | 3010 | 0.014 | 40 | 12.5 | 5 | 0.8 | EEUFK1A682L | 174-4909 |
| 6800µF | 2640 | 0.025 | 20 | 18 | 7.5 | 0.8 | EEUFK1A682S | 174-4910 |
| 8200µF | 2850 | 0.018 | 25 | 18 | 7.5 | 0.8 | EEUFK1A822S | 174-4911 |
| **16 Volt d.c** | | | | | | | | |
| 390µF | 630 | 0.09 | 11.5 | 8 | 3.5 | 0.6 | EEUFK1C391 | 174-4912 |
| 680µF | 900 | 0.063 | 12.5 | 10 | 5 | 0.6 | EEUFK1C681 | 174-4913 |
| 680µF | 860 | 0.062 | 15 | 8 | 3.5 | 0.6 | EEUFK1C681L | 174-4915 |
| 820µF | 1220 | 0.044 | 20 | 8 | 3.5 | 0.6 | EEUFK1C821L | 174-4916 |
| 1000µF | 1240 | 0.049 | 16 | 10 | 5 | 0.6 | EEUFK1C102 | 174-4917 |
| 1200µF | 1490 | 0.035 | 20 | 10 | 5 | 0.6 | EEUFK1C122 | 174-4918 |
| 1200µF | 1400 | 0.048 | 15 | 12.5 | 5 | 0.6 | EEUFK1C122S | 174-4919 |
| 1500µF | 1680 | 0.033 | 25 | 10 | 5 | 0.6 | EEUFK1C152L | 174-4920 |
| 2200µF | 1890 | 0.029 | 20 | 12.5 | 5 | 0.6 | EEUFK1C222 | 174-4921 |
| 2200µF | 2140 | 0.025 | 30 | 10 | 5 | 0.6 | EEUFK1C222L | 174-4922 |
| 2200µF | 1800 | 0.038 | 15 | 16 | 7.5 | 0.8 | EEUFK1C222S | 174-4923 |
| 2700µF | 2280 | 0.022 | 25 | 12.5 | 5 | 0.6 | EEUFK1C272 | 174-4924 |
| 2700µF | 2060 | 0.036 | 15 | 18 | 7.5 | 0.8 | EEUFK1C272S | 174-4925 |
| 3300µF | 2720 | 0.018 | 30 | 12.5 | 5 | 0.8 | EEUFK1C332L | 174-4927 |
| 3900µF | 2940 | 0.016 | 35 | 12.5 | 5 | 0.8 | EEUFK1C392L | 174-4928 |
| 3900µF | 2330 | 0.026 | 20 | 16 | 7.5 | 0.8 | EEUFK1C392S | 174-4929 |
| 4700µF | 3010 | 0.014 | 40 | 12.5 | 5 | 0.8 | EEUFK1C472L | 174-4930 |
| 4700µF | 2640 | 0.025 | 20 | 18 | 7.5 | 0.8 | EEUFK1C472S | 174-4931 |
| 5600µF | 2760 | 0.019 | 25 | 16 | 7.5 | 0.8 | EEUFK1C562 | 174-4932 |
| 6800µF | 2850 | 0.018 | 25 | 18 | 7.5 | 0.8 | EEUFK1C682S | 174-4933 |
| **25 Volt d.c** | | | | | | | | |
| 390µF | 860 | 0.062 | 15 | 8 | 3.5 | 0.6 | EEUFK1E391L | 174-4935 |
| 470µF | 900 | 0.063 | 12.5 | 10 | 5 | 0.6 | EEUFK1E471 | 174-4936 |
| 560µF | 1240 | 0.049 | 16 | 10 | 5 | 0.6 | EEUFK1E561 | 174-4937 |
| 560µF | 1220 | 0.044 | 20 | 8 | 3.5 | 0.6 | EEUFK1E561L | 174-4939 |
| 820µF | 1490 | 0.035 | 20 | 10 | 5 | 0.6 | EEUFK1E821 | 174-4941 |
| 820µF | 1400 | 0.048 | 15 | 12.5 | 5 | 0.6 | EEUFK1E821S | 174-4942 |
| 1000µF | 1680 | 0.033 | 25 | 10 | 5 | 0.6 | EEUFK1E102L | 174-4943 |
| 1200µF | 1890 | 0.029 | 20 | 12.5 | 5 | 0.6 | EEUFK1E122 | 174-4944 |
| 1500µF | 2140 | 0.025 | 30 | 10 | 5 | 0.6 | EEUFK1E152L | 174-4945 |
| 1500µF | 1800 | 0.038 | 15 | 16 | 7.5 | 0.8 | EEUFK1E152S | 174-4946 |
| 1800µF | 2280 | 0.022 | 25 | 12.5 | 5 | 0.6 | EEUFK1E182 | 174-4947 |
| 1800µF | 2060 | 0.036 | 15 | 18 | 7.5 | 0.6 | EEUFK1E182S | 174-4948 |
| 2200µF | 2720 | 0.018 | 30 | 12.5 | 5 | 0.8 | EEUFK1E222L | 174-4949 |
| 2200µF | 2330 | 0.026 | 20 | 16 | 7.5 | 0.8 | EEUFK1E222S | 174-4950 |



RoHS ● Compliant ▲ Non-compliant

| | Ripple (mA) | Impedance (Ω) | Body Dimensions (mm) H | Dia. | Lead Dimensions (mm) Spacing | Dia | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| **25 Volt d.c** | | | | | | | | |
| 2700µF | 2940 | 0.016 | 35 | 12.5 | 5 | 0.8 | EEUFK1E272L | 174-4952 |
| 3300µF | 2760 | 0.019 | 25 | 16 | 7.5 | 0.8 | EEUFK1E332 | 174-4953 |
| 3300µF | 3010 | 0.014 | 40 | 12.5 | 5 | 0.8 | EEUFK1E332L | 174-4954 |
| 3300µF | 2640 | 0.025 | 20 | 18 | 7.5 | 0.8 | EEUFK1E332S | 174-4955 |
| 4700µF | 2850 | 0.018 | 25 | 18 | 7.5 | 0.8 | EEUFK1E472S | 174-4956 |
| **35 Volt d.c** | | | | | | | | |
| 180µF | 630 | 0.09 | 11.5 | 8 | 3.5 | 0.6 | EEUFK1V181 | 174-4957 |
| 270µF | 900 | 0.063 | 12.5 | 10 | 5 | 0.6 | EEUFK1V271 | 174-4958 |
| 270µF | 860 | 0.062 | 15 | 8 | 3.5 | 0.6 | EEUFK1V271L | 174-4959 |
| 390µF | 1240 | 0.049 | 16 | 10 | 5 | 0.6 | EEUFK1V391 | 174-4960 |
| 390µF | 1220 | 0.044 | 20 | 8 | 3.5 | 0.6 | EEUFK1V391L | 174-4961 |
| 560µF | 1490 | 0.035 | 20 | 10 | 5 | 0.6 | EEUFK1V561 | 174-4962 |
| 560µF | 1400 | 0.048 | 15 | 12.5 | 5 | 0.6 | EEUFK1V561S | 174-4964 |
| 680µF | 1680 | 0.033 | 25 | 10 | 5 | 0.6 | EEUFK1V681L | 174-4965 |
| 820µF | 1890 | 0.029 | 20 | 12.5 | 5 | 0.6 | EEUFK1V821 | 174-4966 |
| 1000µF | 2140 | 0.025 | 30 | 10 | 5 | 0.6 | EEUFK1V102L | 174-4967 |
| 1000µF | 1800 | 0.038 | 15 | 16 | 7.5 | 0.8 | EEUFK1V102S | 174-4968 |
| 1200µF | 2280 | 0.022 | 25 | 12.5 | 5 | 0.6 | EEUFK1V122 | 174-4969 |
| 1200µF | 2060 | 0.036 | 15 | 18 | 7.5 | 0.8 | EEUFK1V122S | 174-4970 |
| 1500µF | 2720 | 0.018 | 30 | 12.5 | 5 | 0.8 | EEUFK1V152L | 174-4971 |
| 1800µF | 2940 | 0.016 | 35 | 12.5 | 5 | 0.8 | EEUFK1V182L | 174-4972 |
| 1800µF | 2330 | 0.026 | 20 | 16 | 7.5 | 0.8 | EEUFK1V182S | 174-4973 |
| 2200µF | 2760 | 0.019 | 25 | 16 | 7.5 | 0.8 | EEUFK1V222 | 174-4974 |
| 2200µF | 3010 | 0.014 | 40 | 12.5 | 5 | 0.8 | EEUFK1V222L | 174-4976 |
| 2200µF | 2640 | 0.025 | 20 | 18 | 7.5 | 0.8 | EEUFK1V222S | 174-4977 |
| 3300µF | 2850 | 0.018 | 25 | 18 | 7.5 | 0.8 | EEUFK1V332S | 174-4978 |

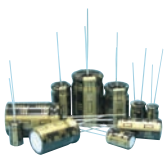
542063

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **6.3 Volt d.c.** | | | | | | |
| 680µF | 174-4868 | | | | | |
| 1000µF | 174-4869 | | | | | |
| 1000µF | 174-4870 | | | | | |
| 1500µF | 174-4871 | | | | | |
| 1500µF | 174-4873 | | | | | |
| 1800µF | 174-4874 | | | | | |
| 2200µF | 174-4875 | | | | | |
| 2200µF | 174-4876 | | | | | |
| 3300µF | 174-4877 | | | | | |
| 3300µF | 174-4878 | | | | | |
| 3300µF | 174-4879 | | | | | |
| 4700µF | 174-4880 | | | | | |
| 4700µF | 174-4881 | | | | | |
| 5600µF | 174-4882 | | | | | |
| 5600µF | 174-4883 | | | | | |
| 6800µF | 174-4885 | | | | | |
| 8200µF | 174-4886 | | | | | |
| 8200µF | 174-4887 | | | | | |
| 8200µF | 174-4888 | | | | | |
| 12000µF | 174-4889 | | | | | |
| **10 Volt d.c.** | | | | | | |
| 820µF | 174-4891 | | | | | |
| 820µF | 174-4892 | | | | | |
| 1200µF | 174-4893 | | | | | |
| 1200µF | 174-4894 | | | | | |
| 1500µF | 174-4895 | | | | | |
| 1800µF | 174-4897 | | | | | |
| 1800µF | 174-4898 | | | | | |
| 2700µF | 174-4899 | | | | | |
| 2700µF | 174-4900 | | | | | |
| 2700µF | 174-4901 | | | | | |
| 3900µF | 174-4903 | | | | | |
| 3900µF | 174-4904 | | | | | |
| 4700µF | 174-4905 | | | | | |
| 4700µF | 174-4906 | | | | | |
| 5600µF | 174-4907 | | | | | |
| 6800µF | 174-4908 | | | | | |
| 6800µF | 174-4909 | | | | | |
| 6800µF | 174-4910 | | | | | |
| 8200µF | 174-4911 | | | | | |
| **16 Volt d.c.** | | | | | | |
| 390µF | 174-4912 | | | | | |
| 680µF | 174-4913 | | | | | |
| 680µF | 174-4915 | | | | | |
| 820µF | 174-4916 | | | | | |
| 1000µF | 174-4917 | | | | | |
| 1200µF | 174-4918 | | | | | |
| 1200µF | 174-4919 | | | | | |
| 1500µF | 174-4920 | | | | | |
| 2200µF | 174-4921 | | | | | |
| 2200µF | 174-4922 | | | | | |
| 2200µF | 174-4923 | | | | | |
| 2700µF | 174-4924 | | | | | |
| 2700µF | 174-4925 | | | | | |
| 3300µF | 174-4927 | | | | | |
| 3900µF | 174-4928 | | | | | |

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **16 Volt d.c.** | | | | | | |
| 3900µF | 174-4929 | | | | | |
| 4700µF | 174-4930 | | | | | |
| 4700µF | 174-4931 | | | | | |
| 5600µF | 174-4932 | | | | | |
| 6800µF | 174-4933 | | | | | |
| **25 Volt d.c.** | | | | | | |
| 390µF | 174-4935 | | | | | |
| 470µF | 174-4936 | | | | | |
| 560µF | 174-4937 | | | | | |
| 560µF | 174-4939 | | | | | |
| 820µF | 174-4941 | | | | | |
| 820µF | 174-4942 | | | | | |
| 1000µF | 174-4943 | | | | | |
| 1200µF | 174-4944 | | | | | |
| 1500µF | 174-4945 | | | | | |
| 1500µF | 174-4946 | | | | | |
| 1800µF | 174-4947 | | | | | |
| 1800µF | 174-4948 | | | | | |
| 2200µF | 174-4949 | | | | | |
| 2200µF | 174-4950 | | | | | |
| 2700µF | 174-4952 | | | | | |
| 3300µF | 174-4953 | | | | | |
| 3300µF | 174-4954 | | | | | |
| 3300µF | 174-4955 | | | | | |
| 4700µF | 174-4956 | | | | | |
| **35 Volt d.c.** | | | | | | |
| 180µF | 174-4957 | | | | | |
| 270µF | 174-4958 | | | | | |
| 270µF | 174-4959 | | | | | |
| 390µF | 174-4960 | | | | | |
| 390µF | 174-4961 | | | | | |
| 560µF | 174-4962 | | | | | |
| 560µF | 174-4964 | | | | | |
| 680µF | 174-4965 | | | | | |
| 820µF | 174-4966 | | | | | |
| 1000µF | 174-4967 | | | | | |
| 1000µF | 174-4968 | | | | | |
| 1200µF | 174-4969 | | | | | |
| 1200µF | 174-4970 | | | | | |
| 1500µF | 174-4971 | | | | | |
| 1800µF | 174-4972 | | | | | |
| 1800µF | 174-4973 | | | | | |
| 2200µF | 174-4974 | | | | | |
| 2200µF | 174-4976 | | | | | |
| 2200µF | 174-4977 | | | | | |
| 3300µF | 174-4978 | | | | | |

## FM Series – Low Impedance 105°C

Panasonic



- High temperature – 105°C
- Low impedance
- High ripple current capability
- Long life – 2000 to 7000 hours
- Approximately 30% smaller case size than standard FC series
- Applications include the secondary circuit of a switching power supply

Operating temperature -40°C to +105°C
Tolerance ±20%
DC Leakage current (max) 0.01µA
Ripple current measured at 100kHz @ 105°C
Impedance measured at 100kHz @ 20°C

| | Ripple (mA) | Impedance (Ω) | Operating Life (h) | Dimensions H | Dia. | Lead Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|---|
| **6.3 Volt d.c** | | | | | | | | | |
| 150µF | 280 | 0.3 | 2000 | 11 | 5 | 0.5 | 2 | EEUFM0J151 | 121-9442 |
| 330µF | 455 | 0.13 | 2000 | 11.2 | 6 | 0.5 | 2.5 | EEUFM0J331 | 121-9445 |
| 820µF | 1240 | 0.041 | 3000 | 15 | 8 | 0.6 | 3.5 | EEUFM0J821L | 185-5210 |
| 1200µF | 1560 | 0.03 | 4000 | 20 | 8 | 0.6 | 3.5 | EEUFM0J122L | 121-9446 |
| 1000µF | 1290 | 0.038 | 4000 | 12.5 | 10 | 0.6 | 5 | EEUFM0J102 | 121-9447 |
| 1500µF | 2180 | 0.019 | 5000 | 20 | 10 | 0.6 | 5 | EEUFM0J152 | 121-9448 |
| 2200µF | 2470 | 0.018 | 5000 | 25 | 10 | 0.6 | 5 | EEUFM0J222L | 121-9449 |
| 3300µF | 2600 | 0.018 | 5000 | 20 | 12.5 | 0.6 | 5 | EEUFM0J332 | 121-9450 |
| 4700µF | 3630 | 0.013 | 7000 | 30 | 12.5 | 0.8 | 5 | EEUFM0J472L | 121-9451 |
| 5600µF | 3750 | 0.012 | 7000 | 35 | 12.5 | 0.8 | 5 | EEUFM0J562L | 185-5211 |
| 6800µF | 3820 | 0.014 | 7000 | 25 | 16 | 0.8 | 7.5 | EEUFM0J682 | 121-9452 |
| **10 Volt d.c.** | | | | | | | | | |
| 100µF | 280 | 0.3 | 2000 | 11 | 5 | 0.5 | 2 | EEUFM1A101 | 121-9453 |
| 220µF | 455 | 0.13 | 2000 | 11.2 | 6 | 0.5 | 2.5 | EEUFM1A221 | 121-9454 |
| 470µF | 950 | 0.056 | 3000 | 11.5 | 8 | 0.6 | 3.5 | EEUFM1A471 | 184-8376 |
| 680µF | 1240 | 0.041 | 3000 | 15 | 8 | 0.6 | 3.5 | EEUFM1A681 | 184-8377 |
| 680µF | 1240 | 0.041 | 3000 | 15 | 8 | 0.6 | 3.5 | EEUFM1A681L | 185-5212 |
| 1000µF | 1560 | 0.03 | 4000 | 20 | 8 | 0.6 | 3.5 | EEUFM1A102L | 121-9456 |
| 1000µF | 1560 | 0.03 | 4000 | 16 | 10 | 0.6 | 3.5 | EEUFM1A102 | 184-8378 |
| 1200µF | 2180 | 0.019 | 5000 | 20 | 10 | 0.6 | 5 | EEUFM1A122 | 184-8381 |
| 1500µF | 2470 | 0.018 | 5000 | 25 | 10 | 0.6 | 5 | EEUFM1A152L | 185-5213 |
| 3300µF | 3190 | 0.015 | 7000 | 25 | 12.5 | 0.6 | 5 | EEUFM1A332 | 121-9458 |
| 3900µF | 3630 | 0.013 | 7000 | 30 | 12.5 | 0.8 | 5 | EEUFM1A392L | 185-5214 |
| 4700µF | 3750 | 0.012 | 7000 | 35 | 12.5 | 0.8 | 5 | EEUFM1A472L | 121-9459 |
| 5600µF | 3820 | 0.014 | 7000 | 25 | 16 | 0.8 | 7.5 | EEUFM1A562 | 121-9460 |
| **16 Volt d.c.** | | | | | | | | | |

# Aluminium Electrolytic - Radial - Panasonic - continued

## FM Series – Low Impedance 105°C - continued

| | Ripple (mA) | Impedance (Ω) | Operating Life (h) | Dimensions H | Dia. | Lead Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|---|
| 68µF | 280 | 0.3 | 2000 | 11 | 5 | 0.5 | 2 | EEUFM1C680 | 184-8382 |
| 120µF | 455 | 0.13 | 2000 | 11.2 | 6.3 | 0.5 | 2.5 | EEUFM1C121 | 184-8383 |
| 330µF | 950 | 0.056 | 3000 | 11.5 | 8 | 0.6 | 3.5 | EEUFM1C331 | 121-9461 |
| 470µF | 1240 | 0.041 | 3000 | 15 | 8 | 0.6 | 3.5 | EEUFM1C471L | 121-9462 |
| 470µF | 1240 | 0.041 | 3000 | 15 | 10 | 0.6 | 3.5 | EEUFM1C471 | 184-8384 |
| 680µF | 1560 | 0.03 | 4000 | 20 | 8 | 0.6 | 3.5 | EEUFM1C681 | 184-8385 |
| 680µF | 1560 | 0.030 | 4000 | 20 | 8 | 0.6 | 3.5 | EEUFM1C681L | 185-5215 |
| 1000µF | 2180 | 0.019 | 5000 | 20 | 10 | 0.6 | 5 | EEUFM1C102 | 121-9463 |
| 1200µF | 2470 | 0.015 | 7000 | 25 | 10 | 0.6 | 5 | EEUFM1C122L | 185-5216 |
| 2200µF | 3190 | 0.015 | 7000 | 25 | 12.5 | 0.6 | 5 | EEUFM1C222 | 121-9464 |
| 2700µF | 3630 | 0.012 | 7000 | 30 | 12.5 | 0.8 | 5 | EEUFM1C272L | 185-5217 |
| 3300µF | 3750 | 0.012 | 7000 | 35 | 12.5 | 0.8 | 5 | EEUFM1C332L | 121-9465 |
| **25 Volt d.c.** | | | | | | | | | |
| 47µF | 280 | 0.3 | 2000 | 11 | 5 | 0.5 | 2 | EEUFM1E470 | 184-8386 |
| 100µF | 455 | 0.13 | 2000 | 11.2 | 6 | 0.5 | 2.5 | EEUFM1E101 | 121-9466 |
| 220µF | 950 | 0.056 | 3000 | 11.5 | 8 | 0.6 | 3.5 | EEUFM1E221 | 121-9468 |
| 330µF | 1240 | 0.041 | 3000 | 15 | 8 | 0.6 | 3.5 | EEUFM1E331L | 121-9469 |
| 330µF | 1240 | 0.041 | 3000 | 15 | 8 | 0.6 | 3.5 | EEUFM1E331 | 184-8387 |
| 470µF | 1560 | 0.03 | 4000 | 20 | 8 | 0.6 | 3.5 | EEUFM1E471L | 121-9470 |
| 470µF | 1560 | 0.03 | 4000 | 16 | 10 | 0.6 | 3.5 | EEUFM1E471 | 184-8388 |
| 680µF | 2180 | 0.019 | 5000 | 20 | 10 | 0.6 | 5 | EEUFM1E681 | 184-8389 |
| 820µF | 2600 | 0.018 | 5000 | 25 | 10 | 0.6 | 5 | EEUFM1E821L | 185-5218 |
| 1000µF | 2600 | 0.018 | 5000 | 20 | 12.5 | 0.6 | 5 | EEUFM1E102 | 121-9471 |
| 1800µF | 3630 | 0.013 | 7000 | 30 | 12.5 | 0.8 | 5 | EEUFM1E182L | 185-5221 |
| 2200µF | 3750 | 0.012 | 7000 | 35 | 12.5 | 0.8 | 5 | EEUFM1E222L | 121-9472 |
| 2700µF | 3820 | 0.014 | 7000 | 25 | 16 | 0.8 | 7.5 | EEUFM1E272 | 184-8390 |
| **35 Volt d.c.** | | | | | | | | | |
| 33µF | 280 | 0.3 | 2000 | 11 | 5 | 0.5 | 2 | EEUFM1V330 | 184-8391 |
| 68µF | 455 | 0.13 | 2000 | 11.2 | 6.3 | 0.5 | 2.5 | EEUFM1V680 | 184-8393 |
| 150µF | 950 | 0.056 | 3000 | 11.5 | 8 | 0.6 | 3.5 | EEUFM1V151 | 184-8394 |
| 220µF | 1240 | 0.04 | 3000 | 15 | 8 | 0.6 | 3.5 | EEUFM1V221L | 121-9473 |
| 220µF | 1290 | 0.038 | 4000 | 12.5 | 10 | 0.6 | 5 | EEUFM1V221 | 184-8395 |
| 330µF | 1560 | 0.03 | 4000 | 20 | 8 | 0.6 | 3.5 | EEUFM1V331L | 121-9474 |
| 330µF | 1560 | 0.03 | 4000 | 20 | 8 | 0.6 | 3.5 | EEUFM1V331 | 184-8396 |
| 470µF | 2180 | 0.019 | 5000 | 20 | 10 | 0.6 | 5 | EEUFM1V471 | 121-9475 |
| 560µF | 2470 | 0.018 | 5000 | 25 | 10 | 0.6 | 5 | EEUFM1V561L | 185-5222 |
| 680µF | 2600 | 0.018 | 5000 | 20 | 12.5 | 0.6 | 5 | EEUFM1V681 | 184-8397 |
| 1000µF | 3190 | 0.015 | 7000 | 25 | 12.5 | 0.6 | 5 | EEUFM1V102 | 121-9476 |
| 1200µF | 3630 | 0.013 | 7000 | 30 | 12.5 | 0.8 | 5 | EEUFM1V122L | 185-5223 |
| 1500µF | 3630 | 0.013 | 7000 | 35 | 12.5 | 0.8 | 5 | EEUFM1V152L | 121-9477 |
| 1800µF | 3820 | 0.014 | 7000 | 25 | 16 | 0.8 | 7.5 | EEUFM1V182 | 184-8398 |
| **50 Volt d.c.** | | | | | | | | | |
| 22µF | 250 | 0.34 | 2000 | 11 | 5 | 0.5 | 2 | EEUFM1H220 | 184-8399 |
| 56µF | 405 | 0.14 | 2000 | 11.2 | 6.3 | 0.5 | 2.5 | EEUFM1H560 | 184-8400 |
| 100µF | 870 | 0.061 | 3000 | 11.5 | 8 | 0.6 | 3.5 | EEUFM1H101 | 121-9478 |
| 120µF | 1140 | 0.045 | 3000 | 15 | 8 | 0.6 | 3.5 | EEUFM1H121L | 185-5224 |
| 150µF | 1170 | 0.042 | 4000 | 12.5 | 10 | 0.6 | 5 | EEUFM1H151 | 184-8401 |
| 180µF | 1430 | 0.033 | 4000 | 20 | 8 | 0.6 | 3.5 | EEUFM1H181L | 185-5225 |
| 220µF | 1650 | 0.03 | 4000 | 16 | 10 | 0.6 | 5 | EEUFM1H221 | 121-9481 |
| 330µF | 2150 | 0.022 | 5000 | 25 | 10 | 0.6 | 5 | EEUFM1H331L | 121-9482 |
| 470µF | 2260 | 0.022 | 5000 | 20 | 12.5 | 0.6 | 5 | EEUFM1H471 | 121-9483 |
| 680µF | 3160 | 0.016 | 7000 | 30 | 12.5 | 0.8 | 5 | EEUFM1H681L | 185-5226 |
| 820µF | 2870 | 0.019 | 5000 | 20 | 16 | 0.8 | 7.5 | EEUFM1H821S | 184-8402 |
| 820µF | 3270 | 0.014 | 7000 | 35 | 12.5 | 0.8 | 5 | EEUFM1H821L | 185-5227 |
| 1000µF | 3320 | 0.016 | 7000 | 25 | 16 | 0.8 | 7.5 | EEUFM1H102 | 121-9484 |

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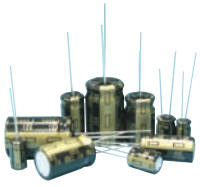
| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **6.3 Volt d.c.** | | | | | | |
| 150µF | 121-9442 | | | | | |
| 330µF | 121-9445 | | | | | |
| 820µF | NEW 185-5210 | | | | | |
| 1200µF | 121-9446 | | | | | |
| 1000µF | 121-9447 | | | | | |
| 1500µF | 121-9448 | | | | | |
| 2200µF | 121-9449 | | | | | |
| 3300µF | 121-9450 | | | | | |
| 4700µF | 121-9451 | | | | | |
| 5600µF | NEW 185-5211 | | | | | |
| 6800µF | 121-9452 | | | | | |
| **10 Volt d.c.** | | | | | | |
| 100µF | 121-9453 | | | | | |
| 220µF | 121-9454 | | | | | |
| 470µF | NEW 184-8376 | | | | | |
| 680µF | NEW 184-8377 | | | | | |
| 680µF | NEW 185-5212 | | | | | |
| 1000µF | 121-9456 | | | | | |
| 1000µF | NEW 184-8378 | | | | | |
| 1200µF | NEW 184-8381 | | | | | |
| 1500µF | NEW 185-5213 | | | | | |
| 3300µF | 121-9458 | | | | | |
| 3900µF | NEW 185-5214 | | | | | |
| 4700µF | 121-9459 | | | | | |
| 5600µF | 121-9460 | | | | | |
| **16 Volt d.c.** | | | | | | |
| 68µF | NEW 184-8382 | | | | | |
| 120µF | NEW 184-8383 | | | | | |
| 330µF | 121-9461 | | | | | |
| 470µF | 121-9462 | | | | | |

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **16 Volt d.c.** | | | | | | |
| 470µF | NEW 184-8384 | | | | | |
| 680µF | NEW 184-8385 | | | | | |
| 680µF | NEW 185-5215 | | | | | |
| 1000µF | 121-9463 | | | | | |
| 1200µF | NEW 185-5216 | | | | | |
| 2200µF | 121-9464 | | | | | |
| 2700µF | NEW 185-5217 | | | | | |
| 3300µF | 121-9465 | | | | | |
| **25 Volt d.c.** | | | | | | |
| 47µF | NEW 184-8386 | | | | | |
| 100µF | 121-9466 | | | | | |
| 220µF | 121-9468 | | | | | |
| 330µF | 121-9469 | | | | | |
| 330µF | NEW 184-8387 | | | | | |
| 470µF | 121-9470 | | | | | |
| 470µF | NEW 184-8388 | | | | | |
| 680µF | NEW 184-8389 | | | | | |
| 820µF | NEW 185-5218 | | | | | |
| 1000µF | 121-9471 | | | | | |
| 2200µF | 121-9472 | | | | | |
| 1800µF | NEW 185-5221 | | | | | |
| 2700µF | NEW 184-8390 | | | | | |
| **35 Volt d.c.** | | | | | | |
| 33µF | NEW 184-8391 | | | | | |
| 68µF | NEW 184-8393 | | | | | |
| 150µF | NEW 184-8394 | | | | | |
| 220µF | 121-9473 | | | | | |
| 220µF | NEW 184-8395 | | | | | |
| 330µF | 121-9474 | | | | | |
| 330µF | NEW 184-8396 | | | | | |
| 470µF | 121-9475 | | | | | |
| 560µF | NEW 185-5222 | | | | | |
| 680µF | NEW 184-8397 | | | | | |
| 1000µF | 121-9476 | | | | | |
| 1200µF | NEW 185-5223 | | | | | |
| 1500µF | 121-9477 | | | | | |
| 1800µF | NEW 184-8398 | | | | | |
| **50 Volt d.c.** | | | | | | |
| 22µF | NEW 184-8399 | | | | | |
| 56µF | NEW 184-8400 | | | | | |
| 100µF | 121-9478 | | | | | |
| 120µF | NEW 185-5224 | | | | | |
| 150µF | NEW 184-8401 | | | | | |
| 180µF | NEW 185-5225 | | | | | |
| 220µF | 121-9481 | | | | | |
| 330µF | 121-9482 | | | | | |
| 470µF | 121-9483 | | | | | |
| 680µF | NEW 185-5226 | | | | | |
| 820µF | NEW 184-8402 | | | | | |
| 820µF | NEW 185-5227 | | | | | |
| 1000µF | 121-9484 | | | | | |

## FR Series

Panasonic ideas for life

NEW



- Low ESR
- Endurance : 2000 h to 10000 h at +105 °C
- RoHS directive compliant

Operating temperature -40°C to +105°C
Tolerance ± 20%

| | Ripple (mA) | Impedance (Ω) | Operating Life | Dimensions H | Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| **6.3 Volt** | | | | | | | | |
| 330µF | 455 | 0.13 | 2000 hours @ 105°C | 11.2 | 6.3 | 2.5 | EEUFR0J331 | 190-7227 |
| 820µF | 950 | 0.056 | 6000 hours @ 105°C | 11.5 | 8 | 3.5 | EEUFR0J821 | 180-0604 |
| 1220µF | 1240 | 0.041 | 8000 hours @ 105°C | 15 | 8 | 3.5 | EEUFR0J122L | 180-0605 |
| 1200µF | 1290 | 0.043 | 6000 hours @ 105°C | 12.5 | 10 | 5 | EEUFR0J122 | 180-0606 |
| 1500µF | 1560 | 0.03 | 9000 hours @ 105°C | 20 | 8 | 3.5 | EEUFR0J152L | 180-0608 |
| 1800µF | 1790 | 0.028 | 8000 hours @ 105°C | 16 | 10 | 5 | EEUFR0J182 | 180-0609 |
| 2200µF | 2180 | 0.02 | 10000 hours @ 105°C | 20 | 10 | 5 | EEUFR0J222 | 180-0610 |
| 2700µF | 2470 | 0.018 | 10000 hours @ 105°C | 25 | 10 | 5 | EEUFR0J272L | 180-0611 |
| 3900µF | 2600 | 0.018 | 10000 hours @ 105°C | 20 | 12.5 | 5 | EEUFR0J392 | 180-0612 |
| 4700µF | 3190 | 0.015 | 10000 hours @ 105°C | 25 | 12.5 | 5 | EEUFR0J472 | 180-0613 |
| 5600µF | 3630 | 0.013 | 10000 hours @ 105°C | 30 | 12.5 | 5 | EEUFR0J562L | 180-0614 |
| 6800µF | 3750 | 0.012 | 10000 hours @ 105°C | 35 | 12.5 | 5 | EEUFR0J682L | 180-0615 |
| 6800µF | 3300 | 0.017 | 10000 hours @ 105°C | 20 | 16 | 7.5 | EEUFR0J682S | 180-0616 |
| 8200µF | 3820 | 0.014 | 10000 hours @ 105°C | 25 | 16 | 7.5 | EEUFR0J822 | 180-0617 |
| **10 Volt** | | | | | | | | |
| 680µF | 950 | 0.056 | 6000 hours @ 105°C | 11.5 | 8 | 3.5 | EEUFR1A681 | 180-0618 |
| 820µF | 1290 | 0.043 | 6000 hours @ 105°C | 12.5 | 10 | 5 | EEUFR1A821 | 180-0621 |
| 1000µF | 1240 | 0.041 | 8000 hours @ 105°C | 15 | 8 | 3.5 | EEUFR1A102L | 180-0622 |
| 1500µF | 1560 | 0.03 | 9000 hours @ 105°C | 20 | 8 | 3.5 | EEUFR1A152L | 180-0623 |
| 1500µF | 1790 | 0.028 | 8000 hours @ 105°C | 16 | 10 | 5 | EEUFR1A152 | 180-0624 |
| 1800µF | 2180 | 0.02 | 10000 hours @ 105°C | 20 | 10 | 5 | EEUFR1A182 | 180-0625 |

| | Ripple (mA) | Impedance (Ω) | Operating Life | Dimensions H | Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 2200µF | 2470 | 0.018 | 10000 hours @ 105°C | 25 | 10 | 5 | EEUFR1A222L | 180-0626 |
| 3300µF | 2600 | 0.018 | 10000 hours @ 105°C | 20 | 12.5 | 5 | EEUFR1A332 | 180-0627 |
| 3900µF | 3190 | 0.015 | 10000 hours @ 105°C | 25 | 12.5 | 5 | EEUFR1A392 | 180-0628 |
| 4700µF | 3630 | 0.013 | 10000 hours @ 105°C | 30 | 12.5 | 5 | EEUFR1A472L | 180-0629 |
| 4700µF | 3300 | 0.017 | 10000 hours @ 105°C | 20 | 16 | 7.5 | EEUFR1A472S | 180-0630 |
| 5600µF | 3750 | 0.012 | 10000 hours @ 105°C | 35 | 12.5 | 5 | EEUFR1A562L | 180-0631 |
| 6800µF | 3820 | 0.014 | 10000 hours @ 105°C | 25 | 16 | 7.5 | EEUFR1A682 | 180-0633 |
| 6800µF | 3820 | 0.012 | 10000 hours @ 105°C | 35 | 12.5 | 5 | EEUFR1A682L | 206-3064 |
| 220µF | 455 | 0.013 | 2000 hours @ 105°C | 11.2 | 6.3 | 2.5 | EEUFR1A221 | 206-3065 |
| 150µF | 280 | 0.3 | 2000 hours @ 105°C | 11 | 5 | 2 | EEUFR1A151 | 206-3066 |
| 100µF | 280 | 0.3 | 2000 hours @ 105°C | 11 | 5 | 2 | EEUFR1A101 | 206-3067 |
| **16 Volt** | | | | | | | | |
| 100µF | 280 | 0.3 | 2000 hours @ 105°C | 11 | 5 | 2 | EEUFR1C101 | 190-7228 |
| 220µF | 455 | 0.13 | 2000 hours @ 105°C | 11.2 | 6.3 | 2.5 | EEUFR1C221 | 190-7229 |
| 470µF | 950 | 0.056 | 6000 hours @ 105°C | 11.5 | 8 | 3.5 | EEUFR1C471 | 180-0634 |
| 680µF | 1240 | 0.041 | 8000 hours @ 105°C | 15 | 8 | 3.5 | EEUFR1C681L | 180-0635 |
| 680µF | 1290 | 0.043 | 6000 hours @ 105°C | 12.5 | 10 | 5 | EEUFR1C681 | 180-0636 |
| 1000µF | 1790 | 0.028 | 8000 hours @ 105°C | 16 | 10 | 5 | EEUFR1C102 | 180-0637 |
| 1000µF | 1560 | 0.03 | 8000 hours @ 105°C | 20 | 8 | 3.5 | EEUFR1C102L | 180-0638 |
| 1500µF | 2180 | 0.02 | 10000 hours @ 105°C | 20 | 10 | 5 | EEUFR1C152 | 180-0639 |
| 1500µF | 2470 | 0.018 | 10000 hours @ 105°C | 25 | 10 | 5 | EEUFR1C152L | 180-0640 |
| 1800µF | 2470 | 0.018 | 10000 hours @ 105°C | 25 | 10 | 5 | EEUFR1C182L | 190-7230 |
| 2200µF | 2600 | 0.018 | 10000 hours @ 105°C | 20 | 12.5 | 5 | EEUFR1C222 | 180-0641 |
| 2700µF | 3190 | 0.015 | 10000 hours @ 105°C | 25 | 12.5 | 5 | EEUFR1C272 | 180-0642 |
| 3300µF | 3630 | 0.013 | 10000 hours @ 105°C | 30 | 12.5 | 5 | EEUFR1C332L | 180-0643 |
| 3300µF | 3300 | 0.017 | 10000 hours @ 105°C | 20 | 16 | 7.5 | EEUFR1C332S | 180-0645 |
| 3900µF | 3300 | 0.017 | 10000 hours @ 105°C | 20 | 16 | 7.5 | EEUFR1C392S | 206-3068 |
| 3900µF | 3750 | 0.012 | 10000 hours @ 105°C | 35 | 12.5 | 5 | EEUFR1C392L | 180-0646 |
| 4700µF | 3820 | 0.014 | 10000 hours @ 105°C | 25 | 16 | 7.5 | EEUFR1C472 | 180-0647 |
| 4700µF | 3750 | 0.012 | 10000 hours @ 105°C | 35 | 12.5 | 5 | EEUFR1C472L | 190-7231 |
| 5600µF | 3820 | 0.014 | 10000 hours @ 105°C | 25 | 16 | 7.5 | EEUFR1C562 | 190-7233 |
| **25 Volt** | | | | | | | | |
| 47µF | 280 | 0.3 | 2000 hours @ 105°C | 11 | 5 | 2 | EEUFR1E470 | 190-7234 |
| 68µF | 280 | 0.3 | 2000 hours @ 105°C | 11 | 5 | 2 | EEUFR1E680 | 206-3070 |
| 100µF | 455 | 0.13 | 2000 hours @ 105°C | 11.2 | 6.3 | 2.5 | EEUFR1E101 | 190-7235 |
| 150µF | 455 | 0.13 | 2000 hours @ 105°C | 11.2 | 6.3 | 2.5 | EEUFR1E151 | 190-7236 |
| 330µF | 950 | 0.056 | 6000 hours @ 105°C | 11.5 | 8 | 3.5 | EEUFR1E331 | 180-0648 |
| 390µF | 1240 | 0.041 | 8000 hours @ 105°C | 15 | 8 | 3.5 | EEUFR1E391L | 180-0649 |
| 470µF | 1290 | 0.043 | 6000 hours @ 105°C | 12.5 | 10 | 5 | EEUFR1E471 | 180-0650 |
| 470µF | 1560 | 0.03 | 9000 hours @ 105°C | 20 | 8 | 3.5 | EEUFR1E471L | 190-7237 |
| 560µF | 1560 | 0.03 | 9000 hours @ 105°C | 20 | 8 | 3.5 | EEUFR1E561L | 180-0651 |
| 680µF | 1560 | 0.03 | 9000 hours @ 105°C | 20 | 8 | 3.5 | EEUFR1E681L | 206-3069 |
| 680µF | 1790 | 0.028 | 8000 hours @ 105°C | 16 | 10 | 5 | EEUFR1E681 | 180-0652 |
| 820µF | 2180 | 0.02 | 10000 hours @ 105°C | 20 | 10 | 5 | EEUFR1E821 | 180-0653 |
| 1000µF | 2180 | 0.02 | 10000 hours @ 105°C | 20 | 10 | 5 | EEUFR1E102 | 190-7238 |
| 1000µF | 2470 | 0.018 | 10000 hours @ 105°C | 25 | 10 | 5 | EEUFR1E102L | 180-0654 |
| 1200µF | 2470 | 0.018 | 10000 hours @ 105°C | 25 | 10 | 5 | EEUFR1E122L | 206-3072 |
| 1500µF | 2600 | 0.018 | 10000 hours @ 105°C | 20 | 12.5 | 5 | EEUFR1E152 | 180-0655 |
| 1800µF | 3190 | 0.015 | 10000 hours @ 105°C | 25 | 12.5 | 5 | EEUFR1E182 | 180-0657 |
| 2200µF | 3630 | 0.013 | 10000 hours @ 105°C | 30 | 12.5 | 5 | EEUFR1E222L | 180-0658 |
| 2200µF | 3300 | 0.017 | 10000 hours @ 105°C | 20 | 16 | 7.5 | EEUFR1E222S | 180-0659 |
| 2700µF | 3300 | 0.017 | 10000 hours @ 105°C | 20 | 16 | 7.5 | EEUFR1E272S | 206-3071 |
| 2700µF | 3750 | 0.012 | 10000 hours @ 105°C | 35 | 12.5 | 5 | EEUFR1E272L | 180-0660 |
| 3300µF | 3820 | 0.014 | 10000 hours @ 105°C | 25 | 16 | 7.5 | EEUFR1E332 | 180-0661 |
| **35 Volt** | | | | | | | | |
| 33µF | 280 | 0.3 | 2000 hours @ 105°C | 11 | 5 | 2 | EEUFR1V330 | 206-3077 |
| 68µF | 455 | 0.13 | 2000 hours @ 105°C | 11.2 | 6.3 | 2.5 | EEUFR1V680 | 206-3076 |
| 180µF | 950 | 0.056 | 6000 hours @ 105°C | 11.5 | 8 | 3.5 | EEUFR1V181 | 180-0662 |
| 270µF | 1240 | 0.041 | 8000 hours @ 105°C | 15 | 8 | 3.5 | EEUFR1V271L | 180-0663 |
| 270µF | 1290 | 0.043 | 6000 hours @ 105°C | 12.5 | 10 | 5 | EEUFR1V271 | 180-0664 |
| 390µF | 1560 | 0.03 | 9000 hours @ 105°C | 20 | 8 | 3.5 | EEUFR1V391L | 180-0665 |
| 470µF | 1790 | 0.028 | 8000 hours @ 105°C | 16 | 10 | 5 | EEUFR1V471 | 180-0666 |
| 470µF | 1560 | 0.03 | 9000 hours @ 105°C | 20 | 8 | 3.5 | EEUFR1V471L | 190-7239 |
| 560µF | 2180 | 0.02 | 10000 hours @ 105°C | 20 | 10 | 5 | EEUFR1V561 | 180-0667 |
| 680µF | 2180 | 0.02 | 10000 hours @ 105°C | 20 | 10 | 5 | EEUFR1V681 | 206-3075 |
| 680µF | 2470 | 0.018 | 10000 hours @ 105°C | 25 | 10 | 5 | EEUFR1V681L | 180-0669 |
| 820µF | 2470 | 0.018 | 10000 hours @ 105°C | 25 | 10 | 5 | EEUFR1V821L | 206-3073 |
| 1000µF | 2600 | 0.018 | 10000 hours @ 105°C | 20 | 12.5 | 5 | EEUFR1V102 | 180-0671 |
| 1200µF | 3190 | 0.015 | 10000 hours @ 105°C | 25 | 12.5 | 5 | EEUFR1V122 | 180-0672 |
| 1500µF | 3630 | 0.013 | 10000 hours @ 105°C | 30 | 12.5 | 5 | EEUFR1V152L | 180-0673 |
| 1500µF | 3300 | 0.017 | 10000 hours @ 105°C | 20 | 16 | 7.5 | EEUFR1V152S | 180-0674 |
| 1800µF | 3750 | 0.012 | 10000 hours @ 105°C | 35 | 12.5 | 5 | EEUFR1V182L | 180-0675 |
| 2200µF | 3820 | 0.014 | 10000 hours @ 105°C | 25 | 16 | 7.5 | EEUFR1V222 | 180-0676 |
| 2200µF | 3750 | 0.012 | 10000 hours @ 105°C | 35 | 12.5 | 5 | EEUFR1V222L | 190-7240 |
| **50 Volt** | | | | | | | | |
| 22µF | 250 | 0.34 | 2000 hours @ 105°C | 11.5 | 5 | 2 | EEUFR1H220 | 206-3079 |
| 56µF | 405 | 0.14 | 2000 hours @ 105°C | 11.2 | 6.3 | 2.5 | EEUFR1H560 | 206-3078 |
| 100µF | 870 | 0.061 | 6000 hours @ 105°C | 11.5 | 8 | 3.5 | EEUFR1H101 | 180-0677 |
| 120µF | 1140 | 0.045 | 8000 hours @ 105°C | 15 | 8 | 3.5 | EEUFR1H121L | 180-0678 |
| 150µF | 1170 | 0.042 | 6000 hours @ 105°C | 12.5 | 10 | 5 | EEUFR1H151 | 180-0679 |
| 180µF | 1430 | 0.033 | 9000 hours @ 105°C | 20 | 8 | 3.5 | EEUFR1H181L | 180-0680 |
| 220µF | 1650 | 0.03 | 8000 hours @ 105°C | 16 | 10 | 5 | EEUFR1H221 | 180-0682 |
| 270µF | 1890 | 0.023 | 10000 hours @ 105°C | 20 | 10 | 5 | EEUFR1H271 | 180-0683 |
| 330µF | 2150 | 0.022 | 10000 hours @ 105°C | 25 | 10 | 5 | EEUFR1H331L | 180-0684 |
| 470µF | 2260 | 0.022 | 10000 hours @ 105°C | 20 | 12.5 | 5 | EEUFR1H471 | 180-0685 |
| 560µF | 2660 | 0.018 | 10000 hours @ 105°C | 25 | 12.5 | 5 | EEUFR1H561 | 180-0686 |
| 680µF | 3160 | 0.016 | 10000 hours @ 105°C | 30 | 12.5 | 5 | EEUFR1H681L | 180-0687 |
| 820µF | 2870 | 0.019 | 10000 hours @ 105°C | 20 | 16 | 7.5 | EEUFR1H821S | 180-0688 |
| 820µF | 3270 | 0.014 | 10000 hours @ 105°C | 35 | 12.5 | 5 | EEUFR1H821L | 180-0689 |
| 1000µF | 3320 | 0.016 | 10000 hours @ 105°C | 25 | 16 | 7.5 | EEUFR1H102 | 180-0690 |
| **63 Volt** | | | | | | | | |
| 18µF | 175 | 0.51 | 5000 hours @ 105°C | 11 | 5 | 2 | EEUFR1J180 | 207-9292 |
| 47µF | 284 | 0.21 | 5000 hours @ 105°C | 11.2 | 6.3 | 2.5 | EEUFR1J470 | 207-9293 |
| 82µF | 566 | 0.092 | 6000 hours @ 105°C | 11.5 | 8 | 3.5 | EEUFR1J820 | 207-9294 |
| 100µF | 761 | 0.068 | 6000 hours @ 105°C | 12.5 | 10 | 5 | EEUFR1J101 | 207-9295 |
| 100µF | 741 | 0.063 | 8000 hours @ 105°C | 15 | 8 | 3.5 | EEUFR1J101L | 207-9296 |
| 120µF | 1073 | 0.05 | 8000 hours @ 105°C | 16 | 10 | 5 | EEUFR1J121 | 207-9297 |
| 120µF | 930 | 0.045 | 9000 hours @ 105°C | 20 | 8 | 3.5 | EEUFR1J121L | 207-9298 |
| 150µF | 1073 | 0.05 | 8000 hours @ 105°C | 16 | 10 | 5 | EEUFR1J151 | 207-9299 |
| 150µF | 930 | 0.045 | 9000 hours @ 105°C | 20 | 8 | 3.5 | EEUFR1J151L | 207-9300 |
| 180µF | 1229 | 0.035 | 10000 hours @ 105°C | 20 | 10 | 5 | EEUFR1J181 | 207-9301 |
| 220µF | 1500 | 0.033 | 10000 hours @ 105°C | 25 | 10 | 5 | EEUFR1J221L | 207-9302 |
| 270µF | 1582 | 0.035 | 10000 hours @ 105°C | 20 | 12.5 | 5 | EEUFR1J271 | 207-9303 |
| 270µF | 1500 | 0.033 | 10000 hours @ 105°C | 25 | 10 | 5 | EEUFR1J271L | 207-9304 |
| 330µF | 1852 | 0.033 | 10000 hours @ 105°C | 20 | 12.5 | 5 | EEUFR1J331 | 207-9305 |
| 390µF | 1995 | 0.027 | 10000 hours @ 105°C | 25 | 12.5 | 5 | EEUFR1J391 | 207-9307 |
| 470µF | 1995 | 0.027 | 10000 hours @ 105°C | 25 | 12.5 | 5 | EEUFR1J471 | 207-9308 |
| 560µF | 2528 | 0.024 | 10000 hours @ 105°C | 30 | 12.5 | 5 | EEUFR1J561L | 207-9309 |
| 560µF | 2153 | 0.029 | 10000 hours @ 105°C | 20 | 16 | 7.5 | EEUFR1J561S | 207-9310 |
| 680µF | 2780 | 0.021 | 10000 hours @ 105°C | 35 | 12.5 | 5 | EEUFR1J681L | 207-9311 |
| 820µF | 2988 | 0.024 | 10000 hours @ 105°C | 25 | 16 | 7.5 | EEUFR1J821 | 207-9312 |

605808

**Order Multiple=5**

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **6.3 Volt** | | | | | | |
| 330µF | NEW 190-7227 | | | | | |
| 820µF | 180-0604 | | | | | |
| 1220µF | 180-0605 | | | | | |
| 1200µF | 180-0606 | | | | | |
| 1500µF | 180-0608 | | | | | |
| 1800µF | 180-0609 | | | | | |
| 2200µF | 180-0610 | | | | | |
| 2700µF | 180-0611 | | | | | |
| 3900µF | 180-0612 | | | | | |
| 4700µF | 180-0613 | | | | | |
| 6800µF | 180-0615 | | | | | |
| 6800µF | 180-0616 | | | | | |
| 8200µF | 180-0617 | | | | | |
| **10 Volt** | | | | | | |
| 680µF | 180-0618 | | | | | |
| 820µF | 180-0621 | | | | | |
| 1000µF | 180-0622 | | | | | |
| 1500µF | 180-0623 | | | | | |
| 1500µF | 180-0624 | | | | | |
| 1800µF | 180-0625 | | | | | |
| 2200µF | 180-0626 | | | | | |
| 3300µF | 180-0627 | | | | | |
| 3900µF | 180-0628 | | | | | |
| 4700µF | 180-0629 | | | | | |
| 4700µF | 180-0630 | | | | | |
| 5600µF | 180-0631 | | | | | |
| 6800µF | 180-0633 | | | | | |
| **16 Volt** | | | | | | |
| 100µF | NEW 190-7228 | | | | | |
| 220µF | NEW 190-7229 | | | | | |
| 470µF | 180-0634 | | | | | |
| 680µF | 180-0635 | | | | | |
| 680µF | 180-0636 | | | | | |
| 1000µF | 180-0637 | | | | | |
| 1000µF | 180-0638 | | | | | |
| 1500µF | 180-0639 | | | | | |
| 1500µF | 180-0640 | | | | | |
| 1800µF | NEW 190-7230 | | | | | |
| 2200µF | 180-0641 | | | | | |
| 2700µF | 180-0642 | | | | | |
| 3300µF | 180-0643 | | | | | |
| 3300µF | 180-0645 | | | | | |
| 3900µF | 180-0646 | | | | | |
| 4700µF | 180-0647 | | | | | |
| 4700µF | NEW 190-7231 | | | | | |
| 5600µF | NEW 190-7233 | | | | | |
| **25 Volt** | | | | | | |
| 47µF | NEW 190-7234 | | | | | |
| 100µF | NEW 190-7235 | | | | | |
| 150µF | NEW 190-7236 | | | | | |
| 330µF | 180-0648 | | | | | |
| 390µF | 180-0649 | | | | | |
| 470µF | NEW 190-7237 | | | | | |
| 470µF | 180-0650 | | | | | |
| 560µF | 180-0651 | | | | | |
| 680µF | 180-0652 | | | | | |
| 820µF | 180-0653 | | | | | |
| 1000µF | NEW 190-7238 | | | | | |
| 1000µF | 180-0654 | | | | | |
| 1500µF | 180-0655 | | | | | |
| 1800µF | 180-0657 | | | | | |
| 2200µF | 180-0658 | | | | | |
| 2200µF | 180-0659 | | | | | |
| 2700µF | 180-0660 | | | | | |
| 3300µF | 180-0661 | | | | | |
| **35 Volt** | | | | | | |
| 180µF | 180-0662 | | | | | |
| 270µF | 180-0663 | | | | | |
| 270µF | 180-0664 | | | | | |
| 390µF | 180-0665 | | | | | |
| 470µF | 180-0666 | | | | | |
| 470µF | NEW 190-7239 | | | | | |
| 560µF | 180-0667 | | | | | |

# Aluminium Electrolytic - Radial - Panasonic - continued

## FR Series - continued

| Order Multiple=5 | | Price Each | | | | |
|---|---|---|---|---|---|---|
| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
| **35 Volt** | | | | | | |
| 680µF | 180-0669 | | | | | |
| 1000µF | 180-0671 | | | | | |
| 1200µF | 180-0672 | | | | | |
| 1500µF | 180-0673 | | | | | |
| 1500µF | 180-0674 | | | | | |
| 1800µF | 180-0675 | | | | | |
| 2200µF | 180-0676 | | | | | |
| 2200µF | NEW 190-7240 | | | | | |
| **50 Volt** | | | | | | |
| 100µF | 180-0677 | | | | | |
| 120µF | 180-0678 | | | | | |
| 150µF | 180-0679 | | | | | |
| 180µF | 180-0680 | | | | | |
| 220µF | 180-0682 | | | | | |
| 270µF | 180-0683 | | | | | |
| 330µF | 180-0684 | | | | | |
| 470µF | 180-0685 | | | | | |
| 560µF | 180-0686 | | | | | |
| 680µF | 180-0687 | | | | | |
| 820µF | 180-0688 | | | | | |
| 820µF | 180-0689 | | | | | |
| 1000µF | 180-0690 | | | | | |
| **63 Volt** | | | | | | |
| 18µF | NEW 207-9292 | | | | | |
| 47µF | NEW 207-9293 | | | | | |
| 82µF | NEW 207-9294 | | | | | |
| 100µF | NEW 207-9295 | | | | | |
| 100µF | NEW 207-9296 | | | | | |
| 120µF | NEW 207-9297 | | | | | |
| 120µF | NEW 207-9298 | | | | | |
| 150µF | NEW 207-9299 | | | | | |
| 150µF | NEW 207-9300 | | | | | |
| 180µF | NEW 207-9301 | | | | | |
| 220µF | NEW 207-9302 | | | | | |
| 270µF | NEW 207-9303 | | | | | |
| 270µF | NEW 207-9304 | | | | | |
| 330µF | NEW 207-9305 | | | | | |
| 390µF | NEW 207-9307 | | | | | |
| 470µF | NEW 207-9308 | | | | | |
| 560µF | NEW 207-9309 | | | | | |
| 560µF | NEW 207-9310 | | | | | |
| 680µF | NEW 207-9311 | | | | | |
| 820µF | NEW 207-9312 | | | | | |

## Alu Electrolytic GA Series Capacitors

Panasonic NEW

**Type A**



| | |
|---|---|
| Operating temperature | -55°C to +105°C |
| Endurance | 1000 hours @ 105°C |
| Tolerance | ± 20% |

| Capacitance | AC Ripple current 100 kHz | Lead Spacing mm | Dimensions in mm Dia. | Length | Order Code |
|---|---|---|---|---|---|
| **10 Volt d.c** | | | | | |
| 22µF | 30mA | 1.5 | 4 | 7 | 207-9099 |
| 33µF | 50mA | 2 | 5 | 7 | 207-9097 |
| 47µF | 65mA | 2.5 | 6.3 | 7 | 207-9096 |
| 68µF | 75mA | 2.5 | 6.3 | 7 | 207-9095 |
| 100µF | 110mA | 2.5 | 6.3 | 7 | 207-9101 |
| 220µF | 160mA | 2.5 | 8 | 7 | 207-9098 |
| **16 Volt d.c** | | | | | |
| 10µF | 30mA | 1.5 | 4 | 7 | 207-9093 |
| 15µF | 33mA | 1.5 | 4 | 7 | 207-9091 |
| 22µF | 50mA | 2 | 5 | 7 | 207-9090 |
| 33µF | 65mA | 2.5 | 6.3 | 7 | 207-9089 |
| 47µF | 11mA | 2.5 | 6.3 | 7 | 207-9088 |
| 100µF | 120mA | 2.5 | 8 | 7 | 207-9092 |
| **25 Volt d.c** | | | | | |
| 10µF | 33mA | 1.5 | 4 | 7 | 207-9087 |
| 15µF | 45mA | 2 | 5 | 7 | 207-9086 |
| 22µF | 50mA | 2 | 5 | 7 | 207-9085 |
| 33µF | 75mA | 2.5 | 6.3 | 7 | 207-9084 |
| 68µF | 100mA | 2.5 | 8 | 7 | 207-9083 |
| **35 Volt d.c** | | | | | |
| 6.8µF | 33mA | 1.5 | 4 | 7 | 207-9059 |
| 10µF | 50mA | 2 | 5 | 7 | 207-9063 |
| 15µF | 35mA | 2.5 | 6.3 | 7 | 207-9062 |
| 22µF | 70mA | 2.5 | 6.3 | 7 | 207-9061 |
| **35 Volt d.c** | | | | | |
| 47µF | 96mA | 2.5 | 8 | 7 | 207-9060 |
| **50 Volt d.c** | | | | | |
| 0.1µF | 1.1mA | 1.5 | 4 | 7 | 207-9071 |
| 0.15µF | 1.7mA | 1.5 | 4 | 7 | 207-9068 |
| 0.22µF | 2.3mA | 1.5 | 4 | 7 | 207-9067 |
| 0.33µF | 3.5mA | 1.5 | 4 | 7 | 207-9066 |
| 0.47µF | 5mA | 1.5 | 4 | 7 | 207-9065 |
| 0.68µF | 7mA | 1.5 | 4 | 7 | 207-9064 |
| 1µF | 10mA | 1.5 | 4 | 7 | 207-9079 |
| 1.5µF | 16mA | 1.5 | 4 | 7 | 207-9078 |
| 2.2µF | 18mA | 1.5 | 4 | 7 | 207-9076 |
| 3.3µF | 22mA | 1.5 | 4 | 7 | 207-9074 |
| 4.7µF | 26mA | 1.5 | 4 | 7 | 207-9073 |
| 6.8µF | 35mA | 2 | 5 | 7 | 207-9072 |
| 10µF | 39mA | 2.5 | 6.3 | 7 | 207-9081 |
| 15µF | 55mA | 2.5 | 6.3 | 7 | 207-9080 |
| 22µF | 70mA | 2.5 | 8 | 7 | 207-9077 |
| 33µF | 91mA | 2.5 | 8 | 7 | 207-9075 |

656005

| Capacitance | Mftrs. List No. | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **10 Volt d.c** | | | | | | | |
| 22µF | EEAGA1A220 | 207-9099 | | | | | |
| 33µF | EEAGA1A330 | 207-9097 | | | | | |
| 47µF | EEAGA1A470 | 207-9096 | | | | | |
| 68µF | EEAGA1A680 | 207-9095 | | | | | |
| 100µF | EEAGA1A101 | 207-9101 | | | | | |
| 220µF | EEAGA1A221 | 207-9098 | | | | | |
| **16 Volt d.c** | | | | | | | |
| 10µF | EEAGA1C100 | 207-9093 | | | | | |
| 15µF | EEAGA1C150 | 207-9091 | | | | | |
| 22µF | EEAGA1C220 | 207-9090 | | | | | |
| 33µF | EEAGA1C330 | 207-9089 | | | | | |
| 47µF | EEAGA1C470 | 207-9088 | | | | | |
| 100µF | EEAGA1C101 | 207-9092 | | | | | |
| **25 Volt d.c** | | | | | | | |
| 10µF | EEAGA1E100 | 207-9087 | | | | | |
| 15µF | EEAGA1E150 | 207-9086 | | | | | |
| 22µF | EEAGA1E220 | 207-9085 | | | | | |
| 33µF | EEAGA1E330 | 207-9084 | | | | | |
| 68µF | EEAGA1E680 | 207-9083 | | | | | |
| **35 Volt d.c** | | | | | | | |
| 6.8µF | EEAGA1V6R8 | 207-9059 | | | | | |
| 10µF | EEAGA1V100 | 207-9063 | | | | | |
| 15µF | EEAGA1V150 | 207-9062 | | | | | |
| 22µF | EEAGA1V220 | 207-9061 | | | | | |
| 47µF | EEAGA1V470 | 207-9060 | | | | | |
| **50 Volt d.c** | | | | | | | |
| 0.1µF | EEAGA1HR10 | 207-9071 | | | | | |
| 0.15µF | EEAGA1HR15 | 207-9068 | | | | | |
| 0.22µF | EEAGA1HR22 | 207-9067 | | | | | |
| 0.33µF | EEAGA1HR33 | 207-9066 | | | | | |
| 0.47µF | EEAGA1HR47 | 207-9065 | | | | | |
| 0.68µF | EEAGA1HR68 | 207-9064 | | | | | |
| 1µF | EEAGA1H1R0 | 207-9079 | | | | | |
| 1.5µF | EEAGA1H1R5 | 207-9078 | | | | | |
| 2.2µF | EEAGA1H2R2 | 207-9076 | | | | | |
| 3.3µF | EEAGA1H3R3 | 207-9074 | | | | | |
| 4.7µF | EEAGA1H4R7 | 207-9073 | | | | | |
| 6.8µF | EEAGA1H6R8 | 207-9072 | | | | | |
| 10µF | EEAGA1H100 | 207-9081 | | | | | |
| 15µF | EEAGA1H150 | 207-9080 | | | | | |
| 22µF | EEAGA1H220 | 207-9077 | | | | | |
| 33µF | EEAGA1H330 | 207-9075 | | | | | |

## SMD Electrolytic Capacitors

Panasonic

**HA Series**



| | |
|---|---|
| Operating temperature | -40°C to +105°C°C to +°C |
| Capacitance Tolerance | ± 20% |
| Leakage current | 1≤ 0.01CV or 3µA |
| Ripple current measured at | 120Hz @105°C |
| Impedance measured at | 120Hz @ 20°C |
| Operating life | 1000 hours @ 105°C |

| Mftrs. List No. | | Ripple (mA) | Dimensions H | Dia. | Order Code |
|---|---|---|---|---|---|
| **6.3V** | | | | | |
| EEEHA0J220R | 22µF | 29 | 5.4 | 4mm | 197-3274 |
| EEEHA0J330WR | 33µF | 29 | 5.4 | 4mm | 197-3275 |
| EEEHA0J470WR | 47µF | 36 | 5.4 | 4mm | 197-3276 |
| EEEHA0J470R | 47µF | 46 | 5.4 | 5mm | 197-3278 |
| EEEHA0J101WR | 100µF | 47 | 5.4 | 5mm | 197-3279 |
| EEEHA0J101P | 100µF | 71 | 5.4 | 6.3mm | 197-3280 |
| EEEHA0J221WP | 220µF | 74 | 5.4 | 6.3mm | 197-3281 |
| EEEHA0J331XP | 330µF | 105 | 7.7 | 6.3mm | 197-3282 |


RoHS ● Compliant ▲ Non-compliant

| Mftrs. List No. | | Ripple (mA) | Dimensions H | Dia. | Order Code |
|---|---|---|---|---|---|
| **6.3V** | | | | | |
| EEEHA0J331P | 330µF | 230 | 10.2 | 8mm | 197-3283 |
| EEEHA0J471UP | 470µF | 300 | 10.2 | 8mm | 197-3284 |
| EEEHA0J102UP | 1000µF | 300 | 10.2 | 8mm | 197-3285 |
| EEEHA0J102P | 1000µF | 400 | 10.2 | 10mm | 197-3286 |
| EEEHA0J152P | 1500µF | 480 | 10.2 | 10mm | 197-3287 |
| **10V** | | | | | |
| EEEHA1A220WR | 22µF | 28 | 5.4 | 4mm | 197-3288 |
| EEEHA1A330WR | 33µF | 29 | 5.4 | 4mm | 197-3291 |
| EEEHA1A330R | 33µF | 43 | 5.4 | 5mm | 197-3292 |
| EEEHA1A470WR | 47µF | 43 | 5.4 | 5mm | 197-3293 |
| EEEHA1A101WP | 100µF | 71 | 5.4 | 6.3mm | 197-3294 |
| EEEHA1A101P | 100µF | 110 | 6.2 | 8mm | 197-3295 |
| EEEHA1A221XP | 220µF | 105 | 7.7 | 6.3mm | 197-3296 |
| EEEHA1A221P | 220µF | 160 | 10.2 | 8mm | 197-3297 |
| EEEHA1A471UP | 470µF | 200 | 10.2 | 8mm | 197-3298 |
| EEEHA1A471P | 470µF | 270 | 10.2 | 10mm | 197-3299 |
| EEEHA1A102P | 1000µF | 400 | 10.2 | 10mm | 197-3300 |
| **16 V** | | | | | |
| EEEHA1C100R | 10µF | 28 | 5.4 | 4mm | 197-3301 |
| EEEHA1C220WR | 22µF | 28 | 5.4 | 4mm | 197-3302 |
| EEEHA1C220R | 22µF | 39 | 5.4 | 5mm | 197-3303 |
| EEEHA1C330WR | 33µF | 35 | 5.4 | 5mm | 197-3304 |
| EEEHA1C470WR | 47µF | 39 | 5.4 | 5mm | 197-3305 |
| EEEHA1C470P | 47µF | 70 | 5.4 | 6.3mm | 197-3306 |
| EEEHA1C101WP | 100µF | 70 | 5.4 | 6.3mm | 197-3308 |
| EEEHA1C221XP | 220µF | 105 | 7.7 | 6.3mm | 197-3309 |
| EEEHA1C221UP | 220µF | 150 | 10.2 | 8mm | 197-3310 |
| EEEHA1C221P | 220µF | 210 | 10.2 | 10mm | 197-3311 |
| EEEHA1C331UP | 330µF | 170 | 10.2 | 8mm | 197-3312 |
| EEEHA1C331P | 330µF | 230 | 10.2 | 10mm | 197-3313 |
| EEEHA1C471UP | 470µF | 340 | 10.2 | 8mm | 197-3314 |
| EEEHA1C471P | 470µF | 340 | 10.2 | 10mm | 197-3315 |
| EEEHA1C681P | 680µF | 380 | 10.2 | 10mm | 197-3316 |
| **25 V** | | | | | |
| EEEHA1E4R7R | 4.7µF | 22 | 5.4 | 4mm | 197-3317 |
| EEEHA1E100WR | 10µF | 22 | 5.4 | 4mm | 197-3318 |
| EEEHA1E100R | 10µF | 28 | 5.4 | 5mm | 197-3321 |
| EEEHA1E220WR | 22µF | 35 | 5.4 | 5mm | 197-3322 |
| EEEHA1E220P | 22µF | 55 | 5.4 | 6.3mm | 197-3323 |
| EEEHA1E330WR | 33µF | 45 | 5.4 | 5mm | 197-3324 |
| EEEHA1E330P | 33µF | 65 | 5.4 | 6.3mm | 197-3325 |
| EEEHA1E470WP | 47µF | 70 | 5.4 | 6.3mm | 197-3326 |
| EEEHA1E470P | 47µF | 91 | 6.2 | 8mm | 197-3327 |
| EEEHA1E101XP | 100µF | 91 | 7.7 | 6.3mm | 197-3328 |
| EEEHA1E101UP | 100µF | 91 | 6.2 | 8mm | 197-3329 |
| EEEHA1E101P | 100µF | 130 | 10.2 | 8mm | 197-3330 |
| EEEHA1E221UP | 220µF | 160 | 10.2 | 8mm | 197-3331 |
| EEEHA1E221P | 220µF | 190 | 10.2 | 10mm | 197-3333 |
| EEEHA1E331UP | 330µF | 180 | 10.2 | 8mm | 197-3334 |
| EEEHA1E331P | 330µF | 340 | 10.2 | 10mm | 197-3335 |
| EEEHA1E471P | 470µF | 360 | 10.2 | 10mm | 197-3336 |
| **35 V** | | | | | |
| EEEHA1V4R7R | 4.7µF | 22 | 5.4 | 4mm | 197-3337 |
| EEEHA1V100WR | 10µF | 22 | 5.4 | 4mm | 197-3338 |
| EEEHA1V100R | 10µF | 30 | 5.4 | 5mm | 197-3339 |
| EEEHA1V220WR | 22µF | 35 | 5.4 | 5mm | 197-3340 |
| EEEHA1V220P | 22µF | 60 | 5.4 | 6.3mm | 197-3341 |
| EEEHA1V330WP | 33µF | 42 | 5.4 | 6.3mm | 197-3342 |
| EEEHA1V330P | 33µF | 84 | 6.2 | 8mm | 197-3343 |
| EEEHA1V470UP | 47µF | 84 | 6.2 | 8mm | 197-3345 |
| EEEHA1V470P | 47µF | 98 | 10.2 | 8mm | 197-3346 |
| EEEHA1V101XP | 100µF | 84 | 7.7 | 6.3mm | 197-3347 |
| EEEHA1V101UP | 100µF | 120 | 10.2 | 8mm | 197-3348 |
| EEEHA1V101P | 100µF | 160 | 10.2 | 10mm | 197-3349 |
| EEEHA1V221UP | 220µF | 170 | 10.2 | 8mm | 197-3350 |
| EEEHA1V221P | 220µF | 210 | 10.2 | 10mm | 197-3351 |
| EEEHA1V331P | 330µF | 250 | 10.2 | 10mm | 197-3352 |
| **50 V** | | | | | |
| EEEHA1HR10R | 0.1µF | 1 | 5.4 | 4mm | 197-3353 |
| EEEHA1HR22R | 0.22µF | 2 | 5.4 | 4mm | 197-3354 |
| EEEHA1HR33R | 0.33µF | 3 | 5.4 | 4mm | 197-3355 |
| EEEHA1HR47R | 0.47µF | 5 | 5.4 | 4mm | 197-3357 |
| EEEHA1H1R0R | 1µF | 10 | 5.4 | 4mm | 197-3358 |
| EEEHA1H2R2R | 2.2µF | 16 | 5.4 | 4mm | 197-3359 |
| EEEHA1H3R3R | 3.3µF | 16 | 5.4 | 4mm | 197-3360 |
| EEEHA1H4R7R | 4.7µF | 23 | 5.4 | 5mm | 197-3361 |
| EEEHA1H100P | 10µF | 35 | 5.4 | 6.3mm | 197-3362 |
| EEEHA1H220P | 22µF | 70 | 6.2 | 8mm | 197-3363 |
| EEEHA1H330XP | 33µF | 70 | 7.7 | 6.3mm | 197-3364 |
| EEEHA1H330UP | 33µF | 70 | 6.2 | 8mm | 197-3365 |
| EEEHA1H330P | 33µF | 91 | 10.2 | 8mm | 197-3366 |
| EEEHA1H470XP | 47µF | 63 | 7.7 | 6.3mm | 197-3367 |
| EEEHA1H470UP | 47µF | 95 | 10.2 | 8mm | 197-3369 |
| EEEHA1H470P | 47µF | 100 | 10.2 | 10mm | 197-3371 |
| EEEHA1H101UP | 100µF | 110 | 10.2 | 8mm | 197-3372 |
| EEEHA1H101P | 100µF | 120 | 10.2 | 10mm | 197-3373 |
| EEEHA1H221P | 220µF | 150 | 10.2 | 10mm | 197-3374 |
| **63 V** | | | | | |
| EEEHA1J100P | 10µF | 25 | 6.2 | 8mm | 197-3375 |
| EEEHA1J220UP | 22µF | 25 | 6.2 | 8mm | 197-3376 |
| EEEHA1J220P | 22µF | 30 | 10.2 | 8mm | 197-3377 |
| EEEHA1J330P | 33µF | 45 | 10.2 | 10mm | 197-3378 |
| EEEHA1J470UP | 47µF | 45 | 10.2 | 8mm | 197-3379 |
| EEEHA1J470P | 47µF | 50 | 10.2 | 10mm | 197-3380 |
| **100 V** | | | | | |
| EEEHA2A3R3P | 3.3µF | 30 | 6.2 | 8mm | 197-3382 |
| EEEHA2A4R7UP | 4.7µF | 30 | 6.2 | 8mm | 197-3383 |
| EEEHA2A4R7P | 4.7µF | 50 | 10.2 | 8mm | 197-3384 |
| EEEHA2A100P | 10µF | 55 | 10.2 | 8mm | 197-3385 |
| EEEHA2A220UP | 22µF | 55 | 10.2 | 8mm | 197-3386 |
| EEEHA2A220P | 22µF | 60 | 10.2 | 10mm | 197-3387 |
| EEEHA2A330P | 33µF | 65 | 10.2 | 10mm | 197-3388 |
| EEEHA2A470UP | 47µF | 65 | 10.2 | 10mm | 197-3389 |

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **6.3 V** | | | | | | |
| 22µF | **197-3274** | | | | | |
| 33µF | **197-3275** | | | | | |
| 47µF | **197-3276** | | | | | |
| 47µF | **197-3278** | | | | | |
| 100µF | **197-3279** | | | | | |
| 100µF | **197-3280** | | | | | |
| 220µF | **197-3281** | | | | | |
| 330µF | **197-3282** | | | | | |
| 330µF | **197-3283** | | | | | |
| 470µF | **197-3284** | | | | | |
| 1000µF | **197-3285** | | | | | |
| 1000µF | **197-3286** | | | | | |
| 1500µF | **197-3287** | | | | | |
| 22µF | **197-3288** | | | | | |
| **10 V** | | | | | | |
| 33µF | **197-3291** | | | | | |
| 33µF | **197-3292** | | | | | |
| 47µF | **197-3293** | | | | | |
| 100µF | **197-3294** | | | | | |
| 100µF | **197-3295** | | | | | |
| 220µF | **197-3296** | | | | | |
| 220µF | **197-3297** | | | | | |
| 470µF | **197-3298** | | | | | |
| 470µF | **197-3299** | | | | | |
| 1000µF | **197-3300** | | | | | |
| **16 V** | | | | | | |
| 10µF | **197-3301** | | | | | |
| 22µF | **197-3302** | | | | | |
| 22µF | **197-3303** | | | | | |
| 33µF | **197-3304** | | | | | |
| 47µF | **197-3305** | | | | | |
| 47µF | **197-3306** | | | | | |
| 100µF | **197-3308** | | | | | |
| 220µF | **197-3309** | | | | | |
| 220µF | **197-3310** | | | | | |
| 220µF | **197-3311** | | | | | |
| 330µF | **197-3312** | | | | | |
| 330µF | **197-3313** | | | | | |
| 470µF | **197-3314** | | | | | |
| 470µF | **197-3315** | | | | | |
| 680µF | **197-3316** | | | | | |
| **25 V** | | | | | | |
| 4.7µF | **197-3317** | | | | | |
| 10µF | **197-3318** | | | | | |
| 10µF | **197-3321** | | | | | |
| 22µF | **197-3322** | | | | | |
| 22µF | **197-3323** | | | | | |
| 33µF | **197-3324** | | | | | |
| 33µF | **197-3325** | | | | | |
| 47µF | **197-3326** | | | | | |
| 47µF | **197-3327** | | | | | |
| 100µF | **197-3328** | | | | | |
| 100µF | **197-3329** | | | | | |
| 100µF | **197-3330** | | | | | |
| 220µF | **197-3331** | | | | | |
| 220µF | **197-3333** | | | | | |
| 330µF | **197-3334** | | | | | |
| 330µF | **197-3335** | | | | | |
| 470µF | **197-3336** | | | | | |
| **35 V** | | | | | | |
| 4.7µF | **197-3337** | | | | | |
| 10µF | **197-3338** | | | | | |
| 10µF | **197-3339** | | | | | |
| 22µF | **197-3340** | | | | | |
| 22µF | **197-3341** | | | | | |
| 33µF | **197-3342** | | | | | |
| 33µF | **197-3343** | | | | | |
| 47µF | **197-3345** | | | | | |
| 47µF | **197-3346** | | | | | |
| 100µF | **197-3347** | | | | | |
| 100µF | **197-3348** | | | | | |
| 100µF | **197-3349** | | | | | |
| 220µF | **197-3350** | | | | | |
| 220µF | **197-3351** | | | | | |
| 330µF | **197-3352** | | | | | |
| **50 V** | | | | | | |
| 0.1µF | **197-3353** | | | | | |
| 0.22µF | **197-3354** | | | | | |
| 0.33µF | **197-3355** | | | | | |

# Aluminium Electrolytic - Radial - Panasonic - continued

## SMD Electrolytic Capacitors - continued

### HA Series - continued

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **50 V** | | | | | | |
| 0.47µF | 197-3357● | | | | | |
| 1µF | 197-3358● | | | | | |
| 2.2µF | 197-3359● | | | | | |
| 3.3µF | 197-3360● | | | | | |
| 4.7µF | 197-3361● | | | | | |
| 10µF | 197-3362● | | | | | |
| 22µF | 197-3363● | | | | | |
| 33µF | 197-3364● | | | | | |
| 33µF | 197-3365● | | | | | |
| 33µF | 197-3366● | | | | | |
| 47µF | 197-3367● | | | | | |
| 47µF | 197-3369● | | | | | |
| 47µF | 197-3371● | | | | | |
| 100µF | 197-3372● | | | | | |
| 100µF | 197-3373● | | | | | |
| 220µF | 197-3374● | | | | | |
| **63 V** | | | | | | |
| 10µF | 197-3375● | | | | | |
| 22µF | 197-3376● | | | | | |
| 22µF | 197-3377● | | | | | |
| 33µF | 197-3378● | | | | | |
| 47µF | 197-3379● | | | | | |
| 47µF | 197-3380● | | | | | |
| **100 V** | | | | | | |
| 3.3µF | 197-3382● | | | | | |
| 4.7µF | 197-3383● | | | | | |
| 4.7µF | 197-3384● | | | | | |
| 10µF | 197-3385● | | | | | |
| 22µF | 197-3386● | | | | | |
| 22µF | 197-3387● | | | | | |
| 33µF | 197-3388● | | | | | |
| 47µF | 197-3389● | | | | | |

## HD Series – Low Impedance 105°C

Panasonic



- High performance miniature radial electrolytic
- High temperature 105°C

| | |
|---|---|
| Operating temperature | -55°C to +105°C |
| Tolerance | ±± 20%% |
| Leakage current | 0.01CV or 3µA whichever is greater |
| Ripple current measured at | 100kHz @ 105°C |

| | Ripple (mA) | Dimensions H | Dia. | Lead Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **6.3 Volt d.c** | | | | | | | |
| 330µF | 310mA | 11.5 | 8 | 0.6 | 3.5 | EEUHD1E331 | 197-3479 |
| 470µF | 250mA | 11.5 | 8 | 0.6 | 3.5 | EEUHD1A471 | 197-3454 |
| 1000µF | 460mA | 12.5 | 10 | 0.6 | 5 | EEUHD1A102 | 197-3455 |
| 2200µF | 760mA | 16 | 10 | 0.6 | 5 | EEUHD1A222 | 197-3456 |
| 4700µF | 1260mA | 20 | 12.5 | 0.6 | 5 | EEUHD1A472 | 197-3457 |
| 6800µF | 1570mA | 25 | 12.5 | 0.6 | 5 | EEUHD1A682 | 197-3458 |
| 10000µF | 1890mA | 25 | 16 | 0.8 | 7.5 | EEUHD1A103 | 197-3461 |
| 15000µF | 2180mA | 31.5 | 16 | 0.8 | 7.5 | EEUHD1A153 | 197-3462 |
| 22000µF | 2400mA | 35.5 | 18 | 0.8 | 7.5 | EEUHD1A223 | 197-3463 |
| 100µF | 110mA | 11 | 5 | 0.5 | 2.5 | EEUHD1C101 | 197-3464 |
| 220µF | 180mA | 11.2 | 6.3 | 0.5 | 2.5 | EEUHD1C221 | 197-3465 |
| 330µF | 260mA | 11.5 | 8 | 0.6 | 3.5 | EEUHD1C331 | 197-3466 |
| 470µF | 310mA | 11.5 | 8 | 0.6 | 3.5 | EEUHD1C471 | 197-3467 |
| 3300µF | 1170mA | 20 | 12.5 | 0.6 | 5 | EEUHD1C332 | 197-3468 |
| 4700µF | 1480mA | 25 | 12.5 | 0.6 | 5 | EEUHD1C472 | 197-3469 |
| 6800µF | 1780mA | 25 | 16 | 0.8 | 7.5 | EEUHD1C682 | 197-3470 |
| 8200µF | 1780mA | 25 | 16 | 0.8 | 7.5 | EEUHD1C822 | 197-3471 |
| 10000µF | 2060mA | 31.5 | 16 | 0.8 | 7.5 | EEUHD1C103 | 197-3473 |
| 15000µF | 2210mA | 35.5 | 18 | 0.8 | 7.5 | EEUHD1C153 | 197-3474 |
| 47µF | 91mA | 11 | 5 | 0.5 | 2.5 | EEUHD1E470 | 197-3475 |
| 68µF | 91mA | 11 | 5 | 0.5 | 2.5 | EEUHD1E680 | 197-3476 |
| 100µF | 130mA | 11.2 | 6.3 | 0.5 | 2.5 | EEUHD1E101 | 197-3477 |
| 220µF | 230mA | 11.5 | 8 | 0.6 | 3.5 | EEUHD1E221 | 197-3478 |
| 330µF | 310mA | 11.5 | 8 | 0.6 | 3.5 | EEUHD1E331 | 197-3479 |
| 470µF | 380mA | 12.5 | 10 | 0.6 | 5 | EEUHD1E471 | 197-3480 |
| 1000µF | 680mA | 16 | 10 | 0.6 | 5 | EEUHD1E102 | 197-3481 |
| 2200µF | 1090mA | 20 | 12.5 | 0.6 | 5 | EEUHD1E222 | 197-3482 |
| 3300µF | 1400mA | 25 | 12.5 | 0.6 | 5 | EEUHD1E332 | 197-3483 |
| 4700µF | 1750mA | 25 | 16 | 0.8 | 7.5 | EEUHD1E472 | 197-3485 |
| 5600µF | 1750mA | 25 | 16 | 0.8 | 7.5 | EEUHD1E562 | 197-3486 |
| 6800µF | 2040mA | 31.5 | 16 | 0.8 | 7.5 | EEUHD1E682 | 197-3487 |
| 10000µF | 2200mA | 35.5 | 18 | 0.8 | 7.5 | EEUHD1E103 | 197-3488 |
| 47µF | 90mA | 11 | 5 | 0.5 | 2.5 | EEUHD1V470 | 197-3489 |
| 100µF | 150mA | 11.2 | 6.3 | 0.5 | 2.5 | EEUHD1V101 | 197-3490 |
| 220µF | 270mA | 11.5 | 8 | 0.6 | 3.5 | EEUHD1V221 | 197-3491 |
| 330µF | 350mA | 12.5 | 10 | 0.6 | 5 | EEUHD1V331 | 197-3492 |
| 470µF | 460mA | 16 | 10 | 0.6 | 5 | EEUHD1V471 | 197-3493 |
| 680µF | 460mA | 16 | 10 | 0.6 | 5 | EEUHD1V681 | 197-3494 |
| 2200µF | 1260mA | 25 | 12.5 | 0.6 | 5 | EEUHD1V222 | 197-3495 |
| 3300µF | 1610mA | 25 | 16 | 0.8 | 7.5 | EEUHD1V332 | 197-3497 |
| 4700µF | 1910mA | 31.5 | 16 | 0.8 | 7.5 | EEUHD1V472 | 197-3498 |
| 6800µF | 2050mA | 35.5 | 18 | 0.8 | 7.5 | EEUHD1V682 | 197-3499 |
| 0.1µF | 1.1mA | 11 | 5 | 0.5 | 2.5 | EEUHD1HR10 | 197-3500 |
| 0.22µF | 2.3mA | 11 | 5 | 0.5 | 2.5 | EEUHD1HR22 | 197-3501 |
| 0.33µF | 3.5mA | 11 | 5 | 0.5 | 2.5 | EEUHD1HR33 | 197-3503 |
| 0.47µF | 5mA | 11 | 5 | 0.5 | 2.5 | EEUHD1HR47 | 197-3504 |
| 1µF | 10mA | 11 | 5 | 0.5 | 2.5 | EEUHD1H1R0 | 197-3505 |
| 2.2µF | 18mA | 11 | 5 | 0.5 | 2.5 | EEUHD1H2R2 | 197-3506 |
| 3.3µF | 22mA | 11 | 5 | 0.5 | 2.5 | EEUHD1H3R3 | 197-3507 |
| 4.7µF | 26mA | 11 | 5 | 0.5 | 2.5 | EEUHD1H4R7 | 197-3508 |
| 10µF | 39mA | 11 | 5 | 0.5 | 2.5 | EEUHD1H100 | 197-3509 |
| 22µF | 65mA | 11 | 5 | 0.5 | 2.5 | EEUHD1H220 | 197-3510 |
| 33µF | 90mA | 11 | 5 | 0.5 | 2.5 | EEUHD1H330 | 197-3511 |
| 47µF | 110mA | 11.2 | 6.3 | 0.5 | 2.5 | EEUHD1H470 | 197-3512 |
| 68µF | 110mA | 11.2 | 6.3 | 0.5 | 2.5 | EEUHD1H680 | 197-3513 |
| 100µF | 180mA | 11.5 | 8 | 0.6 | 3.5 | EEUHD1H101 | 197-3515 |
| 220µF | 300mA | 12.5 | 10 | 0.6 | 5 | EEUHD1H221 | 197-3516 |
| 330µF | 410mA | 16 | 10 | 0.6 | 5 | EEUHD1H331 | 197-3517 |
| 470µF | 530mA | 20 | 10 | 0.6 | 5 | EEUHD1H471 | 197-3518 |
| 560µF | 650mA | 15 | 16 | 0.8 | 7.5 | EEUHD1H561S | 197-3519 |
| 680µF | 650mA | 15 | 16 | 0.8 | 7.5 | EEUHD1H681S | 197-3520 |
| 1000µF | 950mA | 25 | 12.5 | 0.6 | 5 | EEUHD1H102 | 197-3521 |
| 2200µF | 1470mA | 31.5 | 16 | 0.8 | 7.5 | EEUHD1H222 | 197-3522 |
| 3300µF | 1770mA | 35.5 | 18 | 0.8 | 7.5 | EEUHD1H332 | 197-3523 |

659478

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **10 Volt d.c.** | | | | | | |
| 330µF | 197-3453● | | | | | |
| 470µF | 197-3454● | | | | | |
| 1000µF | 197-3455● | | | | | |
| 2200µF | 197-3456● | | | | | |
| 4700µF | 197-3457● | | | | | |
| 6800µF | 197-3458● | | | | | |
| 10000µF | 197-3461● | | | | | |
| 15000µF | 197-3462● | | | | | |
| 22000µF | 197-3463● | | | | | |
| **16 Volt d.c.** | | | | | | |
| 100µF | 197-3464● | | | | | |
| 220µF | 197-3465● | | | | | |
| 330µF | 197-3466● | | | | | |
| 470µF | 197-3467● | | | | | |
| 3300µF | 197-3468● | | | | | |
| 4700µF | 197-3469● | | | | | |
| 6800µF | 197-3470● | | | | | |
| 8200µF | 197-3471● | | | | | |
| 10000µF | 197-3473● | | | | | |
| 15000µF | 197-3474● | | | | | |
| **25 Volt d.c.** | | | | | | |
| 47µF | 197-3475● | | | | | |
| 68µF | 197-3476● | | | | | |
| 100µF | 197-3477● | | | | | |
| 220µF | 197-3478● | | | | | |
| 330µF | 197-3479● | | | | | |
| 470µF | 197-3480● | | | | | |
| 1000µF | 197-3481● | | | | | |
| 2200µF | 197-3482● | | | | | |
| 3300µF | 197-3483● | | | | | |
| 4700µF | 197-3485● | | | | | |
| 5600µF | 197-3486● | | | | | |
| 6800µF | 197-3487● | | | | | |
| 10000µF | 197-3488● | | | | | |
| **35 Volt d.c.** | | | | | | |
| 47µF | 197-3489● | | | | | |
| 100µF | 197-3490● | | | | | |
| 220µF | 197-3491● | | | | | |
| 330µF | 197-3492● | | | | | |
| 470µF | 197-3493● | | | | | |
| 680µF | 197-3494● | | | | | |
| 2200µF | 197-3495● | | | | | |
| 3300µF | 197-3497● | | | | | |
| 4700µF | 197-3498● | | | | | |
| 6800µF | 197-3499● | | | | | |
| **50 Volt d.c.** | | | | | | |
| 0.1µF | 197-3500● | | | | | |
| 0.22µF | 197-3501● | | | | | |
| 0.33µF | 197-3503● | | | | | |
| 0.47µF | 197-3504● | | | | | |
| 1µF | 197-3505● | | | | | |
| 2.2µF | 197-3506● | | | | | |
| 3.3µF | 197-3507● | | | | | |
| 4.7µF | 197-3508● | | | | | |
| 10µF | 197-3509● | | | | | |
| 22µF | 197-3510● | | | | | |
| 33µF | 197-3511● | | | | | |


RoHS ● Compliant ▲ Non-compliant

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **50 Volt d.c.** | | | | | | |
| 47µF | **197-3512** | | | | | |
| 68µF | **197-3513** | | | | | |
| 100µF | **197-3515** | | | | | |
| 220µF | **197-3516** | | | | | |
| 330µF | **197-3517** | | | | | |
| 470µF | **197-3518** | | | | | |
| 560µF | **197-3519** | | | | | |
| 680µF | **197-3520** | | | | | |
| 1000µF | **197-3521** | | | | | |
| 2200µF | **197-3522** | | | | | |
| 3300µF | **197-3523** | | | | | |

## TA Series

Panasonic

NEW



Features
- Endurance: 125 °C 2000 h
- Heat cycle: 1000 cycle -40 °C to +125 °C
- ±20% Tolerance

| | |
|---|---|
| Life Time @ Temperature | 2000 hours @ 125°C |
| Capacitance Tolerance | ± 20% |
| Operating Temperature Range | -40°C to +125°C |

| | Dimensions H | Dia. | Lead Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| **10 Volt d.c** | | | | | | |
| 330µF | 11.5 | 8 | 0.6 | 3.5 | EEUTA1A331 | 211-8137 |
| 470µF | 12.5 | 10 | 0.6 | 5 | EEUTA1A471 | 211-8138 |
| 1000µF | 20 | 10 | 0.6 | 5 | EEUTA1A102 | 211-8139 |
| 2200µF | 20 | 16 | 0.8 | 7.5 | EEUTA1A222 | 211-8140 |
| 2200µF | 25 | 12.5 | 0.6 | 5 | EEUTA1A222L | 211-8141 |
| 3300µF | 25 | 16 | 0.8 | 7.5 | EEUTA1A332 | 211-8143 |
| 4700µF | 31.5 | 16 | 0.8 | 7.5 | EEUTA1A472 | 211-8144 |
| **16 Volt d.c** | | | | | | |
| 220µF | 11.5 | 8 | 0.6 | 3.5 | EEUTA1C221 | 211-8145 |
| 330µF | 12.5 | 10 | 0.6 | 5 | EEUTA1C331 | 211-8146 |
| 470µF | 16 | 10 | 0.6 | 5 | EEUTA1C471 | 211-8147 |
| 470µF | 12.5 | 12.5 | 0.6 | 5 | EEUTA1C471S | 211-8148 |
| 1000µF | 20 | 12.5 | 0.6 | 5 | EEUTA1C102 | 211-8149 |
| 1000µF | 15 | 16 | 0.8 | 7.5 | EEUTA1C102S | 211-8150 |
| 2200µF | 25 | 16 | 0.8 | 7.5 | EEUTA1C222 | 211-8151 |
| 2200µF | 20 | 18 | 0.8 | 7.5 | EEUTA1C222S | 211-8152 |
| 3300µF | 31.5 | 16 | 0.8 | 7.5 | EEUTA1C332 | 211-8153 |
| 3300µF | 25 | 18 | 0.8 | 7.5 | EEUTA1C332S | 211-8155 |
| 4700µF | 31.5 | 18 | 0.8 | 7.5 | EEUTA1C472 | 211-8156 |
| **25 Volt d.c** | | | | | | |
| 100µF | 11.5 | 8 | 0.6 | 3.5 | EEUTA1E101 | 211-8157 |
| 220µF | 12.5 | 10 | 0.6 | 5 | EEUTA1E221 | 211-8158 |
| 330µF | 16 | 10 | 0.6 | 5 | EEUTA1E331 | 211-8159 |
| 470µF | 20 | 10 | 0.6 | 5 | EEUTA1E471 | 211-8160 |
| 470µF | 15 | 12.5 | 0.6 | 5 | EEUTA1E471S | 211-8161 |
| 1000µF | 20 | 16 | 0.8 | 7.5 | EEUTA1E102 | 211-8162 |
| 1000µF | 25 | 12.5 | 0.6 | 5 | EEUTA1E102L | 211-8163 |
| 1000µF | 15 | 18 | 0.8 | 7.5 | EEUTA1E102S | 211-8164 |
| 2200µF | 31.5 | 16 | 0.8 | 7.5 | EEUTA1E222 | 211-8165 |
| 2200µF | 25 | 18 | 0.8 | 7.5 | EEUTA1E222S | 211-8167 |
| 3300µF | 35.5 | 18 | 0.8 | 7.5 | EEUTA1E332 | 211-8168 |
| **35 Volt d.c** | | | | | | |
| 100µF | 12.5 | 10 | 0.6 | 5 | EEUTA1V101 | 211-8169 |
| 220µF | 16 | 10 | 0.6 | 5 | EEUTA1V221 | 211-8170 |
| 330µF | 20 | 10 | 0.6 | 5 | EEUTA1V331 | 211-8171 |
| 470µF | 20 | 12.5 | 0.6 | 5 | EEUTA1V471 | 211-8172 |
| 470µF | 15 | 16 | 0.8 | 7.5 | EEUTA1V471S | 211-8173 |
| 1000µF | 25 | 16 | 0.8 | 7.5 | EEUTA1V102 | 211-8174 |
| 1000µF | 20 | 18 | 0.8 | 7.5 | EEUTA1V102S | 211-8175 |
| 2200µF | 35.5 | 18 | 0.8 | 7.5 | EEUTA1V222 | 211-8176 |
| **50 Volt d.c** | | | | | | |
| 1µF | 11.5 | 8 | 0.6 | 3.5 | EEUTA1H1R0 | 211-8177 |
| 2.2µF | 11.5 | 8 | 0.6 | 3.5 | EEUTA1H2R2 | 211-8179 |
| 3.3µF | 11.5 | 8 | 0.6 | 3.5 | EEUTA1H3R3 | 211-8181 |
| 4.7µF | 11.5 | 8 | 0.6 | 3.5 | EEUTA1H4R7 | 211-8182 |
| 10µF | 11.5 | 8 | 0.6 | 3.5 | EEUTA1H100 | 211-8183 |
| 22µF | 11.5 | 8 | 0.6 | 3.5 | EEUTA1H220 | 211-8184 |
| 33µF | 11.5 | 8 | 0.6 | 3.5 | EEUTA1H330 | 211-8185 |
| 47µF | 11.5 | 8 | 0.6 | 3.5 | EEUTA1H470S | 211-8186 |
| 100µF | 12.5 | 10 | 0.6 | 5 | EEUTA1H101 | 211-8187 |
| 220µF | 20 | 10 | 0.6 | 5 | EEUTA1H221 | 211-8188 |
| 330µF | 20 | 12.5 | 0.6 | 5 | EEUTA1H331 | 211-8189 |
| 330µF | 15 | 16 | 0.8 | 7.5 | EEUTA1H331S | 211-8190 |
| 470µF | 20 | 16 | 0.8 | 7.5 | EEUTA1H471 | 211-8192 |
| 470µF | 25 | 12.5 | 0.6 | 5 | EEUTA1H471L | 211-8193 |
| 470µF | 15 | 18 | 0.8 | 7.5 | EEUTA1H471S | 211-8194 |
| 1000µF | 31.5 | 16 | 0.8 | 7.5 | EEUTA1H102 | 211-8195 |
| 1000µF | 25 | 18 | 0.8 | 7.5 | EEUTA1H102S | 211-8196 |
| **63 Volt d.c** | | | | | | |
| 22µF | 11.5 | 8 | 0.6 | 3.5 | EEUTA1J220 | 211-8197 |
| 33µF | 12.5 | 10 | 0.6 | 5 | EEUTA1J330 | 211-8198 |
| 47µF | 16 | 10 | 0.6 | 5 | EEUTA1J470 | 211-8199 |
| 47µF | 12.5 | 12.5 | 0.6 | 5 | EEUTA1J470S | 211-8200 |
| 100µF | 20 | 10 | 0.6 | 5 | EEUTA1J101 | 211-8201 |
| 220µF | 20 | 16 | 0.8 | 7.5 | EEUTA1J221 | 211-8202 |
| 220µF | 25 | 12.5 | 0.6 | 5 | EEUTA1J221L | 211-8203 |
| 220µF | 15 | 18 | 0.8 | 7.5 | EEUTA1J221S | 211-8204 |
| 330µF | 25 | 16 | 0.8 | 7.5 | EEUTA1J331 | 211-8205 |
| 330µF | 20 | 18 | 0.8 | 7.5 | EEUTA1J331S | 211-8206 |
| 470µF | 31.5 | 16 | 0.8 | 7.5 | EEUTA1J471 | 211-8207 |
| 470µF | 25 | 18 | 0.8 | 7.5 | EEUTA1J471S | 211-8209 |

660287

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 200+ |
|---|---|---|---|---|---|---|
| **10 Volt d.c.** | | | | | | |
| 330µF | **211-8137** | | | | | |
| 470µF | **211-8138** | | | | | |
| 1000µF | **211-8139** | | | | | |
| 2200µF | **211-8140** | | | | | |
| 2200µF | **211-8141** | | | | | |
| 3300µF | **211-8143** | | | | | |
| 4700µF | **211-8144** | | | | | |
| **16 Volt d.c.** | | | | | | |
| 220µF | **211-8145** | | | | | |
| 330µF | **211-8146** | | | | | |
| 470µF | **211-8147** | | | | | |
| 470µF | **211-8148** | | | | | |
| 1000µF | **211-8149** | | | | | |
| 1000µF | **211-8150** | | | | | |
| 2200µF | **211-8151** | | | | | |
| 2200µF | **211-8152** | | | | | |
| 3300µF | **211-8153** | | | | | |
| 3300µF | **211-8155** | | | | | |
| 4700µF | **211-8156** | | | | | |
| **25 Volt d.c.** | | | | | | |
| 100µF | **211-8157** | | | | | |
| 220µF | **211-8158** | | | | | |
| 330µF | **211-8159** | | | | | |
| 470µF | **211-8160** | | | | | |
| 470µF | **211-8161** | | | | | |
| 1000µF | **211-8162** | | | | | |
| 1000µF | **211-8163** | | | | | |
| 1000µF | **211-8164** | | | | | |
| 2200µF | **211-8165** | | | | | |
| 2200µF | **211-8167** | | | | | |
| 3300µF | **211-8168** | | | | | |
| **35 Volt d.c.** | | | | | | |
| 100µF | **211-8169** | | | | | |
| 220µF | **211-8170** | | | | | |
| 330µF | **211-8171** | | | | | |
| 470µF | **211-8172** | | | | | |
| 470µF | **211-8173** | | | | | |
| 1000µF | **211-8174** | | | | | |
| 1000µF | **211-8175** | | | | | |
| 2200µF | **211-8176** | | | | | |
| **50 Volt d.c.** | | | | | | |
| 1µF | **211-8177** | | | | | |
| 2.2µF | **211-8179** | | | | | |
| 3.3µF | **211-8181** | | | | | |
| 4.7µF | **211-8182** | | | | | |
| 10µF | **211-8183** | | | | | |
| 22µF | **211-8184** | | | | | |
| 33µF | **211-8185** | | | | | |
| 47µF | **211-8186** | | | | | |
| 100µF | **211-8187** | | | | | |
| 220µF | **211-8188** | | | | | |
| 330µF | **211-8189** | | | | | |
| 330µF | **211-8190** | | | | | |
| 470µF | **211-8192** | | | | | |
| 470µF | **211-8193** | | | | | |
| 470µF | **211-8194** | | | | | |
| 1000µF | **211-8195** | | | | | |
| 1000µF | **211-8196** | | | | | |
| **63 Volt d.c** | | | | | | |
| 22µF | **211-8197** | | | | | |
| 33µF | **211-8198** | | | | | |
| 47µF | **211-8199** | | | | | |
| 47µF | **211-8200** | | | | | |
| 100µF | **211-8201** | | | | | |
| 220µF | **211-8202** | | | | | |
| 220µF | **211-8203** | | | | | |

## Aluminium Electrolytic TG Series

**Type V**

Panasonic

SMD

NEW







Features include;
- Low ESR (low temp)
- Miniaturisation (40% less than the TA Series)

| | |
|---|---|
| Operating temperature | -40°C to +125°C |
| Tolerance | ± 20% |

# Aluminium Electrolytic - Radial - Panasonic - continued

## Aluminium Electrolytic TG Series - continued

### Type V - continued

| Capacitance | AC Ripple current 100 kHz | ESR / Ω 100 kHz | Life Time @ Temperature | Dimensions in mm Dia. | Length | Order Code |
|---|---|---|---|---|---|---|
| **10 Volt d.c** | | | | | | |
| 100µF | 100mA | 1 | 1000 hours @ 125°C | 8 | 8.6 | 207-9291 |
| 220µF | 100mA | 1 | 1000 hours @ 125°C | 8 | 6.2 | 207-9287 |
| 220µF | 197mA | 0.5 | 2000 hours @ 125°C | 8 | 10.2 | 207-9289 |
| 330µF | 197mA | 0.5 | 2000 hours @ 125°C | 8 | 10.2 | 207-9285 |
| 330µF | 270mA | 0.3 | 2000 hours @ 125°C | 10 | 10.2 | 207-9286 |
| 470µF | 270mA | 0.3 | 2000 hours @ 125°C | 10 | 10.2 | 207-9284 |
| **16 Volt d.c** | | | | | | |
| 100µF | 197mA | 0.5 | 2000 hours @ 125°C | 8 | 10.2 | 207-9283 |
| 220µF | 197mA | 0.5 | 2000 hours @ 125°C | 8 | 10.2 | 207-9281 |
| 220µF | 270mA | 0.3 | 2000 hours @ 125°C | 10 | 10.2 | 207-9282 |
| 330µF | 270mA | 0.3 | 2000 hours @ 125°C | 10 | 10.2 | 207-9280 |
| **25 Volt d.c** | | | | | | |
| 47µF | 100mA | 1 | 1000 hours @ 125°C | 8 | 6.2 | 207-9273 |
| 100µF | 100mA | 1 | 1000 hours @ 125°C | 8 | 6.2 | 207-9278 |
| 100µF | 197mA | 0.5 | 2000 hours @ 125°C | 8 | 10.2 | 207-9279 |
| 220µF | 197mA | 0.5 | 2000 hours @ 125°C | 8 | 10.2 | 207-9275 |
| 220µF | 270mA | 0.3 | 2000 hours @ 125°C | 10 | 10.2 | 207-9277 |
| 330µF | 270mA | 0.3 | 2000 hours @ 125°C | 10 | 10.2 | 207-9274 |
| **35 Volt d.c** | | | | | | |
| 33µF | 100mA | 1 | 1000 hours @ 125°C | 8 | 6.2 | 207-9247 |
| 47µF | 100mA | 1 | 1000 hours @ 125°C | 8 | 6.2 | 207-9245 |
| 47µF | 197mA | 0.5 | 2000 hours @ 125°C | 8 | 10.2 | 207-9246 |
| 100µF | 197mA | 0.5 | 2000 hours @ 125°C | 8 | 10.2 | 207-9249 |
| 100µF | 270mA | 0.3 | 2000 hours @ 125°C | 10 | 10.2 | 207-9250 |
| 220µF | 270mA | 0.3 | 2000 hours @ 125°C | 10 | 10.2 | 207-9248 |
| **50 Volt d.c** | | | | | | |
| 10µF | 80mA | 1.6 | 1000 hours @ 125°C | 8 | 6.2 | 207-9272 |
| 22µF | 80mA | 1.6 | 1000 hours @ 125°C | 8 | 6.2 | 207-9270 |
| 33µF | 80mA | 1.6 | 1000 hours @ 125°C | 8 | 10.2 | 207-9268 |
| 33µF | 133mA | 0.75 | 2000 hours @ 125°C | 10 | 10.2 | 207-9269 |
| 47µF | 133mA | 0.75 | 2000 hours @ 125°C | 8 | 10.2 | 207-9266 |
| 47µF | 221mA | 0.5 | 2000 hours @ 125°C | 10 | 10.2 | 207-9267 |
| 100µF | 221mA | 0.5 | 2000 hours @ 125°C | 10 | 10.2 | 207-9271 |
| **63 Volt d.c** | | | | | | |
| 10µF | 55mA | 2.2 | 1000 hours @ 125°C | 8 | 6.2 | 207-9265 |
| 22µF | 100mA | 1 | 2000 hours @ 125°C | 8 | 10.2 | 207-9262 |
| 33µF | 100mA | 1 | 2000 hours @ 125°C | 8 | 10.2 | 207-9260 |
| 33µF | 150mA | 0.8 | 2000 hours @ 125°C | 10 | 10.2 | 207-9261 |
| 47µF | 100mA | 1 | 2000 hours @ 125°C | 8 | 10.2 | 207-9258 |
| 47µF | 150mA | 0.8 | 2000 hours @ 125°C | 10 | 10.2 | 207-9259 |
| 100µF | 150mA | 0.8 | 2000 hours @ 125°C | 10 | 10.2 | 207-9263 |
| **80 Volt d.c** | | | | | | |
| 10µF | 70mA | 1.3 | 2000 hours @ 125°C | 8 | 10.2 | 207-9257 |
| 22µF | 70mA | 1.3 | 2000 hours @ 125°C | 8 | 10.2 | 207-9255 |
| 22µF | 90mA | 1 | 2000 hours @ 125°C | 10 | 10.2 | 207-9256 |
| 33µF | 70mA | 1.3 | 2000 hours @ 125°C | 8 | 10.2 | 207-9253 |
| 33µF | 90mA | 1 | 2000 hours @ 125°C | 10 | 10.2 | 207-9254 |
| 47µF | 90mA | 1 | 2000 hours @ 125°C | 10 | 10.2 | 207-9251 |
| **100 Volt d.c** | | | | | | |
| 10µF | 70mA | 1.3 | 2000 hours @ 125°C | 8 | 10.2 | 207-9244 |
| 22µF | 70mA | 1.3 | 2000 hours @ 125°C | 8 | 10.2 | 207-9242 |
| 22µF | 90mA | 1 | 2000 hours @ 125°C | 10 | 10.2 | 207-9243 |
| 33µF | 90mA | 1 | 2000 hours @ 125°C | 10 | 10.2 | 207-9241 |

656020

| Capacitance | Mftrs. List No. | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **10 Volt d.c** | | | | | | | |
| 100µF | EEETG1A101P | **207-9291** | | | | | |
| 220µF | EEETG1A221UP | **207-9287** | | | | | |
| 220µF | EEETG1A221P | **207-9289** | | | | | |
| 330µF | EEETG1A331UP | **207-9285** | | | | | |
| 330µF | EEETG1A331P | **207-9286** | | | | | |
| 470µF | EEETG1A471UP | **207-9284** | | | | | |
| **16 Volt d.c** | | | | | | | |
| 100µF | EEETG1C101P | **207-9283** | | | | | |
| 220µF | EEETG1C221UP | **207-9281** | | | | | |
| 220µF | EEETG1C221P | **207-9282** | | | | | |
| 330µF | EEETG1C331UP | **207-9280** | | | | | |
| **25 Volt d.c** | | | | | | | |
| 47µF | EEETG1E470P | **207-9273** | | | | | |
| 100µF | EEETG1E101UP | **207-9278** | | | | | |
| 100µF | EEETG1E101P | **207-9279** | | | | | |
| 220µF | EEETG1E221UP | **207-9275** | | | | | |
| 220µF | EEETG1E221P | **207-9277** | | | | | |
| 330µF | EEETG1E331UP | **207-9274** | | | | | |
| **35 Volt d.c** | | | | | | | |
| 33µF | EEETG1V330P | **207-9247** | | | | | |
| 47µF | EEETG1V470UP | **207-9245** | | | | | |
| 47µF | EEETG1V470P | **207-9246** | | | | | |
| 100µF | EEETG1V101UP | **207-9249** | | | | | |
| 100µF | EEETG1V101P | **207-9250** | | | | | |
| 220µF | EEETG1V221UP | **207-9248** | | | | | |
| **50 Volt d.c** | | | | | | | |
| 10µF | EEETG1H100P | **207-9272** | | | | | |
| 22µF | EEETG1H220P | **207-9270** | | | | | |
| 33µF | EEETG1H330UP | **207-9268** | | | | | |
| 33µF | EEETG1H330P | **207-9269** | | | | | |
| 47µF | EEETG1H470UP | **207-9266** | | | | | |
| 47µF | EEETG1H470P | **207-9267** | | | | | |
| 100µF | EEETG1H101UP | **207-9271** | | | | | |
| **63 Volt d.c** | | | | | | | |
| 10µF | EEETG1J100P | **207-9265** | | | | | |
| 22µF | EEETG1J220P | **207-9262** | | | | | |
| 33µF | EEETG1J330UP | **207-9260** | | | | | |
| 33µF | EEETG1J330P | **207-9261** | | | | | |
| 47µF | EEETG1J470UP | **207-9258** | | | | | |
| 47µF | EEETG1J470P | **207-9259** | | | | | |
| 100µF | EEETG1J101UP | **207-9263** | | | | | |
| **80 Volt d.c** | | | | | | | |
| 10µF | EEETG1K100P | **207-9257** | | | | | |
| 22µF | EEETG1K220UP | **207-9255** | | | | | |
| 22µF | EEETG1K220P | **207-9256** | | | | | |
| 33µF | EEETG1K330UP | **207-9253** | | | | | |
| 33µF | EEETG1K330P | **207-9254** | | | | | |
| 47µF | EEETG1K470UP | **207-9251** | | | | | |
| **100 Volt d.c** | | | | | | | |
| 10µF | EEETG2A100P | **207-9244** | | | | | |
| 22µF | EEETG2A220UP | **207-9242** | | | | | |
| 22µF | EEETG2A220P | **207-9243** | | | | | |
| 33µF | EEETG2A330P | **207-9241** | | | | | |

## Alu Electrolytic TK (medium-size) Series Capacitors

Panasonic

SMD

NEW

### Type V







Operating temperature -40°C to +125°C
Endurance 2000 hours @ 125°C
Tolerance ± 20%

| Capacitance | ESR Ω | Capacitor case style | AC Ripple current 100 kHz | Dimensions in mm Dia. | Length | Order Code |
|---|---|---|---|---|---|---|
| **10 Volt d.c** | | | | | | |
| 220µF | 0.3ohm | F | 197mA | 8 | 10.2 | 207-9169 |
| 330µF | 0.2ohm | G | 270mA | 10 | 10.2 | 207-9171 |
| 330µF | 0.3ohm | F | 197mA | 8 | 10.2 | 207-9172 |
| 470µF | 0.2ohm | G | 270mA | 10 | 10.2 | 207-9175 |
| 1000µF | 0.12ohm | H13 | 800mA | 12.5 | 13.5 | 207-9168 |
| 1500µF | 0.12ohm | H13 | 800mA | 12.5 | 13.5 | 207-9226 |
| 2200µF | 0.08ohm | J16 | 1100mA | 16 | 16.5 | 207-9170 |
| 3300µF | 0.075ohm | K16 | 1300mA | 18 | 16.5 | 207-9174 |
| 3300µF | 0.08ohm | J16 | 1100mA | 16 | 16.5 | 207-9228 |
| 4700µF | 0.075ohm | K16 | 1300mA | 18 | 16.5 | 207-9176 |
| **16 Volt d.c** | | | | | | |
| 100µF | 0.3ohm | F | 197mA | 8 | 10.2 | 207-9177 |
| 220µF | 0.2ohm | G | 270mA | 10 | 10.2 | 207-9179 |
| 220µF | 0.3ohm | F | 197mA | 8 | 10.2 | 207-9180 |
| 330µF | 0.12ohm | H13 | 800mA | 12.5 | 13.5 | 207-9182 |
| 330µF | 0.2ohm | G | 270mA | 10 | 10.2 | 207-9183 |
| 470µF | 0.12ohm | H13 | 800mA | 12.5 | 13.5 | 207-9186 |
| 680µF | 0.12ohm | H13 | 800mA | 12.5 | 13.5 | 207-9187 |
| 1000µF | 0.08ohm | J16 | 1100mA | 16 | 16.5 | 207-9178 |
| 1000µF | 0.12ohm | H13 | 800mA | 12.5 | 13.5 | 207-9229 |
| 2200µF | 0.075ohm | K16 | 1300mA | 18 | 16.5 | 207-9181 |
| 2200µF | 0.08ohm | J16 | 1100mA | 16 | 16.5 | 207-9230 |
| 3300µF | 0.075ohm | K16 | 1300mA | 18 | 16.5 | 207-9184 |
| **25 Volt d.c** | | | | | | |
| 100µF | 0.3ohm | F | 197mA | 8 | 10.2 | 207-9188 |
| 220µF | 0.2ohm | G | 270mA | 10 | 10.2 | 207-9190 |
| 220µF | 0.3ohm | F | 197mA | 8 | 10.2 | 207-9191 |
| 330µF | 0.12ohm | H13 | 800mA | 12.5 | 13.5 | 207-9193 |
| 330µF | 0.2ohm | G | 270mA | 10 | 10.2 | 207-9194 |
| 470µF | 0.12ohm | H13 | 800mA | 12.5 | 13.5 | 207-9195 |
| 680µF | 0.12ohm | H13 | 800mA | 12.5 | 13.5 | 207-9196 |
| 680µF | 0.12ohm | H13 | 800mA | 12.5 | 13.5 | 207-9232 |
| 1000µF | 0.075ohm | K16 | 1300mA | 18 | 16.5 | 207-9189 |
| 1000µF | 0.08ohm | J16 | 1100mA | 16 | 16.5 | 207-9231 |
| 2200µF | 0.075ohm | K16 | 1300mA | 18 | 16.5 | 207-9192 |
| **35 Volt d.c** | | | | | | |
| 47µF | 0.3ohm | F | 197mA | 8 | 10.2 | 207-9219 |
| 100µF | 0.2ohm | G | 270mA | 10 | 10.2 | 207-9213 |
| 100µF | 0.3ohm | F | 197mA | 8 | 10.2 | 207-9214 |
| 220µF | 0.2ohm | G | 270mA | 10 | 10.2 | 207-9217 |
| 330µF | 0.12ohm | H13 | 800mA | 12.5 | 13.5 | 207-9218 |
| 470µF | 0.08ohm | J16 | 1100mA | 16 | 16.5 | 207-9220 |
| 470µF | 0.12ohm | H13 | 800mA | 12.5 | 13.5 | 207-9237 |
| 680µF | 0.075ohm | K16 | 1300mA | 18 | 16.5 | 207-9221 |
| 680µF | 0.08ohm | J16 | 1100mA | 16 | 16.5 | 207-9238 |
| 1000µF | 0.075ohm | K16 | 1300mA | 18 | 16.5 | 207-9216 |


RoHS ● Compliant ▲ Non-compliant

| Capacitance | ESR Ω | Capacitor case style | AC Ripple current 100 kHz | Dimensions in mm Dia. | Length | Order Code |
|---|---|---|---|---|---|---|
| **50 Volt d.c** | | | | | | |
| 220µF | 0.23ohm | H13 | 600mA | 12.5 | 13.5 | 207-9199 |
| 330µF | 0.23ohm | H13 | 600mA | 12.5 | 13.5 | 207-9200 |
| 470µF | 0.15ohm | J16 | 900mA | 16 | 16.5 | 207-9201 |
| 680µF | 0.14ohm | K16 | 950mA | 18 | 16.5 | 207-9202 |
| 680µF | 0.15ohm | J16 | 900mA | 16 | 16.5 | 207-9233 |
| 1000µF | 0.14ohm | K16 | 950mA | 18 | 16.5 | 207-9198 |
| **63 Volt d.c** | | | | | | |
| 100µF | 0.26ohm | H13 | 350mA | 12.5 | 13.5 | 207-9204 |
| 220µF | 0.26ohm | H13 | 350mA | 12.5 | 13.5 | 207-9205 |
| 330µF | 0.18ohm | J16 | 500mA | 16 | 16.5 | 207-9206 |
| 470µF | 0.18ohm | J16 | 500mA | 16 | 16.5 | 207-9207 |
| **80 Volt d.c** | | | | | | |
| 47µF | 0.42ohm | H13 | 250mA | 12.5 | 13.5 | 207-9211 |
| 100µF | 0.3ohm | J16 | 350mA | 16 | 16.5 | 207-9208 |
| 100µF | 0.42ohm | H13 | 250mA | 12.5 | 13.5 | 207-9234 |
| 220µF | 2.8ohm | K16 | 400mA | 18 | 16.5 | 207-9209 |
| 220µF | 0.3ohm | J16 | 350mA | 16 | 16.5 | 207-9235 |
| 330µF | 2.8ohm | K16 | 400mA | 18 | 16.5 | 207-9210 |
| 330µF | 0.3ohm | J16 | 350mA | 16 | 16.5 | 207-9236 |
| 470µF | 2.8ohm | K16 | 400mA | 18 | 16.5 | 207-9212 |
| **100 Volt d.c** | | | | | | |
| 47µF | 0.42ohm | H13 | 250mA | 12.5 | 13.5 | 207-9225 |
| 100µF | 0.3ohm | J16 | 350mA | 16 | 16.5 | 207-9222 |
| 220µF | 0.28ohm | K16 | 400mA | 18 | 16.5 | 207-9223 |
| 330µF | 0.287ohm | K16 | 400mA | 18 | 16.5 | 207-9224 |

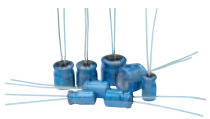
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| Capacitance | Mftrs. List No. | Order Code | Price Each 10+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| | | **10 Volt d.c** | | | | | |
| 220µF | EEETK1A221P | **207-9169** | | | | | |
| 330µF | EEETK1A331P | **207-9171** | | | | | |
| 330µF | EEETK1A331UP | **207-9172** | | | | | |
| 470µF | EEETK1A471UP | **207-9175** | | | | | |
| 1000µF | EEETK1A102AQ | **207-9168** | | | | | |
| 1500µF | EEETKA152UAQ | **207-9226** | | | | | |
| 2200µF | EEETK1A222AM | **207-9170** | | | | | |
| 3300µF | EEETK1A332AM | **207-9174** | | | | | |
| 3300µF | EEETKA332UAM | **207-9228** | | | | | |
| 4700µF | EEETK1A472AM | **207-9176** | | | | | |
| | | **16 Volt d.c** | | | | | |
| 100µF | EEETK1C101P | **207-9177** | | | | | |
| 220µF | EEETK1C221P | **207-9179** | | | | | |
| 220µF | EEETK1C221UP | **207-9180** | | | | | |
| 330µF | EEETK1C331AQ | **207-9182** | | | | | |
| 330µF | EEETK1C331UP | **207-9183** | | | | | |
| 470µF | EEETK1C471AQ | **207-9186** | | | | | |
| 680µF | EEETK1C681AQ | **207-9187** | | | | | |
| 1000µF | EEETK1C102AM | **207-9178** | | | | | |
| 1000µF | EEETKC102UAQ | **207-9229** | | | | | |
| 2200µF | EEETK1C222AM | **207-9181** | | | | | |
| 2200µF | EEETKC222UAM | **207-9230** | | | | | |
| 3300µF | EEETK1C332AM | **207-9184** | | | | | |
| | | **25 Volt d.c** | | | | | |
| 100µF | EEETK1E101P | **207-9188** | | | | | |
| 220µF | EEETK1E221P | **207-9190** | | | | | |
| 220µF | EEETK1E221UP | **207-9191** | | | | | |
| 330µF | EEETK1E331AQ | **207-9193** | | | | | |
| 330µF | EEETK1E331UP | **207-9194** | | | | | |
| 470µF | EEETK1E471AQ | **207-9195** | | | | | |
| 680µF | EEETK1E681AM | **207-9196** | | | | | |
| 680µF | EEETKE681UAQ | **207-9232** | | | | | |
| 1000µF | EEETK1E102AM | **207-9189** | | | | | |
| 1000µF | EEETKE102UAM | **207-9231** | | | | | |
| 2200µF | EEETK1E222AM | **207-9192** | | | | | |
| | | **35 Volt d.c** | | | | | |
| 47µF | EEETK1V470P | **207-9219** | | | | | |
| 100µF | EEETK1V101P | **207-9213** | | | | | |
| 100µF | EEETK1V101UP | **207-9214** | | | | | |
| 220µF | EEETK1V221UP | **207-9217** | | | | | |
| 330µF | EEETK1V331AQ | **207-9218** | | | | | |
| 470µF | EEETK1V471AM | **207-9220** | | | | | |
| 470µF | EEETKV471UAQ | **207-9237** | | | | | |
| 680µF | EEETK1V681AM | **207-9221** | | | | | |
| 680µF | EEETKV681UAM | **207-9238** | | | | | |
| 1000µF | EEETK1V102AM | **207-9216** | | | | | |
| | | **50 Volt d.c** | | | | | |
| 220µF | EEETK1H221AQ | **207-9199** | | | | | |
| 330µF | EEETK1H331AQ | **207-9200** | | | | | |
| 470µF | EEETK1H471AM | **207-9201** | | | | | |
| 680µF | EEETK1H681AM | **207-9202** | | | | | |
| 680µF | EEETKH681UAM | **207-9233** | | | | | |
| 1000µF | EEETK1H102AM | **207-9198** | | | | | |
| | | **63 Volt d.c** | | | | | |
| 100µF | EEETK1J101AQ | **207-9204** | | | | | |
| 220µF | EEETK1J221AQ | **207-9205** | | | | | |
| 330µF | EEETK1J331AM | **207-9206** | | | | | |
| 470µF | EEETK1J471AM | **207-9207** | | | | | |
| | | **80 Volt d.c** | | | | | |
| 47µF | EEETK1K470AQ | **207-9211** | | | | | |
| 100µF | EEETK1K101AM | **207-9208** | | | | | |
| 100µF | EEETKK101UAQ | **207-9234** | | | | | |
| 220µF | EEETK1K221AM | **207-9209** | | | | | |
| 220µF | EEETKK221UAM | **207-9235** | | | | | |
| 330µF | EEETK1K331AM | **207-9210** | | | | | |
| 330µF | EEETKK331UAM | **207-9236** | | | | | |
| 470µF | EEETK1K471AM | **207-9212** | | | | | |
| | | **100 Volt d.c** | | | | | |
| 47µF | EEETK2A470AQ | **207-9225** | | | | | |
| 100µF | EEETK2A101AM | **207-9222** | | | | | |
| 220µF | EEETK2A221AM | **207-9223** | | | | | |
| 330µF | EEETK2A331AM | **207-9224** | | | | | |

## TP Series

Panasonic

NEW



- Smaller than the TA series
- High ripple current (at high frequency) : 20 to 40% higher than TA series
- Endurance: 125°C 2000 h to 5000 h or 135°C 1000 h to 2000 h

| | |
|---|---|
| Operating temperature | -40°C to +135°C |
| Tolerance | ± 20% |
| Leakage current | 0.01 CV + 3µA |
| Ripple current measured at | 100kHz @ 125°CC |

| Capacitance | Ripple current | ESR | Dimensions (mm) H | Dia. | Lead dia. (mm) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **25 V dc** | | | | | | | |
| 220 µF | 580 mA | 0.19 ohm | 12.5 | 10 | 5 | EEUTP1E221 | 189-0536 |
| 330 µF | 1.1 A | 0.13 ohm | 16 | 10 | 5 | EEUTP1E331 | 189-0537 |
| 470 µF | 1.06 A | 0.067 ohm | 20 | 8 | 3.5 | EEUTP1E471L | 189-0538 |
| 470 µF | 1.1 A | 0.13 ohm | 16 | 10 | 5 | EEUTP1E471 | 189-0539 |
| 510 µF | 1.1 A | 0.13 ohm | 16 | 10 | 5 | EEUTP1E511 | 189-0540 |
| 820 µF | 1.54 A | 0.052 ohm | 20 | 10 | 5 | EEUTP1E821 | 189-0541 |
| 1000 µF | 1.86 A | 0.038 ohm | 20 | 12.5 | 5 | EEUTP1E102 | 189-0543 |
| 1200 µF | 1.86 A | 0.038 ohm | 20 | 12.5 | 5 | EEUTP1E122 | 189-0544 |
| 1800 µF | 2.18 A | 0.03 ohm | 25 | 12.5 | 5 | EEUTP1E182 | 189-0545 |
| 1800 µF | 2.38 A | 0.029 ohm | 20 | 16 | 7.5 | EEUTP1E182S | 189-0546 |
| 2000 µF | 2.38 A | 0.029 ohm | 20 | 16 | 7.5 | EEUTP1E202S | 189-0547 |
| 2200 µF | 2.76 A | 0.022 ohm | 25 | 16 | 7.5 | EEUTP1E222 | 189-0548 |
| 2200 µF | 2.7 A | 0.028 ohm | 20 | 18 | 7.5 | EEUTP1E222S | 189-0549 |
| 2700 µF | 2.76 A | 0.022 ohm | 25 | 16 | 7.5 | EEUTP1E272 | 189-0550 |
| 2700 µF | 2.7 A | 0.028 ohm | 20 | 18 | 7.5 | EEUTP1E272S | 189-0551 |
| 3300 µF | 3.25 A | 0.018 ohm | 31.5 | 16 | 7.5 | EEUTP1E332 | 189-0552 |
| 3300 µF | 2.96 A | 0.02 ohm | 25 | 18 | 7.5 | EEUTP1E332S | 189-0553 |
| 3900 µF | 3.25 A | 0.018 ohm | 31.5 | 16 | 7.5 | EEUTP1E392 | 189-0555 |
| 3900 µF | 2.96 A | 0.02 ohm | 25 | 18 | 7.5 | EEUTP1E392S | 189-0556 |
| 4700 µF | 3.48 A | 0.016 ohm | 31.5 | 18 | 7.5 | EEUTP1E472 | 189-0557 |
| 5100 µF | 3.48 A | 0.016 ohm | 31.5 | 18 | 7.5 | EEUTP1E512 | 189-0558 |
| **35 V dc** | | | | | | | |
| 100 µF | 580 mA | 0.19 ohm | 12.5 | 10 | 5 | EEUTP1V101 | 189-0559 |
| 120 µF | 580 mA | 0.19 ohm | 12.5 | 10 | 5 | EEUTP1V121 | 189-0560 |
| 220 µF | 1.06 A | 0.067 ohm | 20 | 8 | 3.5 | EEUTP1V221L | 189-0561 |
| 220 µF | 1.1 A | 0.13 ohm | 16 | 10 | 5 | EEUTP1V221 | 189-0562 |
| 270 µF | 1.06 A | 0.067 ohm | 20 | 8 | 3.5 | EEUTP1V271L | 189-0563 |
| 270 µF | 1.1 A | 0.13 ohm | 16 | 10 | 5 | EEUTP1V271 | 189-0564 |
| 330 µF | 1.54 A | 0.052 ohm | 20 | 10 | 5 | EEUTP1V331 | 189-0565 |
| 390 µF | 1.54 A | 0.052 ohm | 20 | 10 | 5 | EEUTP1V391 | 189-0567 |
| 470 µF | 1.86 A | 0.038 ohm | 20 | 12.5 | 5 | EEUTP1V471 | 189-0568 |
| 560 µF | 1.86 A | 0.038 ohm | 20 | 12.5 | 5 | EEUTP1V561 | 189-0569 |
| 620 µF | 1.86 A | 0.038 ohm | 20 | 12.5 | 5 | EEUTP1V621 | 189-0570 |
| 820 µF | 2.18 A | 0.03 ohm | 25 | 12.5 | 5 | EEUTP1V821 | 189-0571 |
| 1000 µF | 2.38 A | 0.029 ohm | 20 | 16 | 7.5 | EEUTP1V102 | 189-0572 |
| 1200 µF | 2.38 A | 0.029 ohm | 20 | 16 | 7.5 | EEUTP1V122 | 189-0573 |
| 1500 µF | 2.76 A | 0.022 ohm | 25 | 16 | 7.5 | EEUTP1V152 | 189-0574 |
| 1500 µF | 2.7 A | 0.028 ohm | 20 | 18 | 7.5 | EEUTP1V152S | 189-0575 |
| 1600 µF | 2.76 A | 0.022 ohm | 25 | 16 | 7.5 | EEUTP1V162 | 189-0576 |
| 1800 µF | 3.25 A | 0.018 ohm | 31.5 | 16 | 7.5 | EEUTP1V182 | 189-0577 |
| 1800 µF | 2.96 A | 0.02 ohm | 25 | 18 | 7.5 | EEUTP1V182S | 189-0579 |
| 2000 µF | 3.25 A | 0.018 ohm | 31.5 | 16 | 7.5 | EEUTP1V202 | 189-0581 |
| 2000 µF | 2.96 A | 0.02 ohm | 25 | 18 | 7.5 | EEUTP1V202S | 189-0582 |
| 2200 µF | 3.48 A | 0.016 ohm | 31.5 | 18 | 7.5 | EEUTP1V222 | 189-0583 |
| 2700 µF | 3.48 A | 0.016 ohm | 31.5 | 18 | 7.5 | EEUTP1V272 | 189-0584 |

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| Capacitance | Mftrs. List No. | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **25 V dc** | | | | | | | |
| 220 µF | EEUTP1E221 | **189-0536** | | | | | |
| 330 µF | EEUTP1E331 | **189-0537** | | | | | |
| 470 µF | EEUTP1E471L | **189-0538** | | | | | |
| 470 µF | EEUTP1E471 | **189-0539** | | | | | |
| 510 µF | EEUTP1E511 | **189-0540** | | | | | |
| 820 µF | EEUTP1E821 | **189-0541** | | | | | |
| 1000 µF | EEUTP1E102 | **189-0543** | | | | | |
| 1200 µF | EEUTP1E122 | **189-0544** | | | | | |
| 1800 µF | EEUTP1E182 | **189-0545** | | | | | |
| 1800 µF | EEUTP1E182S | **189-0546** | | | | | |
| 2000 µF | EEUTP1E202S | **189-0547** | | | | | |
| 2200 µF | EEUTP1E222 | **189-0548** | | | | | |
| 2200 µF | EEUTP1E222S | **189-0549** | | | | | |
| 2700 µF | EEUTP1E272 | **189-0550** | | | | | |

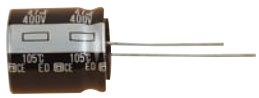
# Aluminium Electrolytic - Radial - Panasonic - continued

## TP Series - continued

| Capacitance | Mftrs. List No. | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| **25 V dc** | | | | | | | |
| 2700 µF | EEUTP1E272S | 189-0551 | | | | | |
| 3300 µF | EEUTP1E332 | 189-0552 | | | | | |
| 3300 µF | EEUTP1E332S | 189-0553 | | | | | |
| 3900 µF | EEUTP1E392 | 189-0555 | | | | | |
| 3900 µF | EEUTP1E392S | 189-0556 | | | | | |
| 4700 µF | EEUTP1E472 | 189-0557 | | | | | |
| 5100 µF | EEUTP1E512 | 189-0558 | | | | | |
| **35 V dc** | | | | | | | |
| 100 µF | EEUTP1V101 | 189-0559 | | | | | |
| 120 µF | EEUTP1V121 | 189-0560 | | | | | |
| 220 µF | EEUTP1V221L | 189-0561 | | | | | |
| 220 µF | EEUTP1V221 | 189-0562 | | | | | |
| 270 µF | EEUTP1V271L | 189-0563 | | | | | |
| 270 µF | EEUTP1V271 | 189-0564 | | | | | |
| 330 µF | EEUTP1V331 | 189-0565 | | | | | |
| 390 µF | EEUTP1V391 | 189-0567 | | | | | |
| 470 µF | EEUTP1V471 | 189-0568 | | | | | |
| 560 µF | EEUTP1V561 | 189-0569 | | | | | |
| 620 µF | EEUTP1V621 | 189-0570 | | | | | |
| 820 µF | EEUTP1V821 | 189-0571 | | | | | |
| 1000 µF | EEUTP1V102 | 189-0572 | | | | | |
| 1200 µF | EEUTP1V122 | 189-0573 | | | | | |
| 1500 µF | EEUTP1V152 | 189-0574 | | | | | |
| 1500 µF | EEUTP1V152S | 189-0575 | | | | | |
| 1600 µF | EEUTP1V162 | 189-0576 | | | | | |
| 1800 µF | EEUTP1V182 | 189-0577 | | | | | |
| 1800 µF | EEUTP1V182S | 189-0579 | | | | | |
| 2000 µF | EEUTP1V202 | 189-0581 | | | | | |
| 2000 µF | EEUTP1V202S | 189-0582 | | | | | |
| 2200 µF | EEUTP1V222 | 189-0583 | | | | | |
| 2700 µF | EEUTP1V272 | 189-0584 | | | | | |

## ED Series – Low Impedance, Long Life, 105°C

Panasonic



- High performance miniature radial electrolytic
- High temperature 105°C
- Low impedance
- High ripple current (at high frequency)
- Long life

| | | | |
|---|---|---|---|
| Operating temperature | -25°C to +105°C | Operating life @ °C | Dependent on case dia. |
| Tolerance | ±20% | | 12.5 or greater 10000hrs |
| Leakage current | 0.06CV + 10µA | | 10 8000hrs |
| Ripple current measured at | 100kHz @ 105°C | | |

**160 Volt d.c.**

| | Ripple (mA) | Dimensions H | D | Lead Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 22µF | 500 | 20 | 10 | 0.6 | 5 | EEUED2C220 | 969-6180 |
| 33µF | 580 | 20 | 10 | 0.6 | 5 | EEUED2C330 | 969-6199 |
| 47µF | 750 | 20 | 10 | 0.6 | 5 | EEUED2C470 | 969-6202 |
| 68µF | 950 | 20 | 12.5 | 0.6 | 5 | EEUED2C680 | 969-6210 |
| 100µF | 1170 | 25 | 12.5 | 0.6 | 5 | EEUED2C101 | 969-6229 |
| 150µF | 1400 | 25 | 16 | 0.8 | 7.5 | EEUED2C151 | 969-6237 |
| 220µF | 1700 | 31.5 | 16 | 0.8 | 7.5 | EEUED2C221 | 969-6245 |
| 330µF | 2000 | 31.5 | 18 | 0.8 | 7.5 | EEUED2C331 | 969-6253 |

**160 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 22µF | 969-6180 | | | | | |
| 33µF | 969-6199 | | | | | |
| 47µF | 969-6202 | | | | | |
| 68µF | 969-6210 | | | | | |
| 100µF | 969-6229 | | | | | |
| 150µF | 969-6237 | | | | | |
| 220µF | 969-6245 | | | | | |
| 330µF | 969-6253 | | | | | |

**200 Volt d.c.**

| | Ripple (mA) | Dimensions H | D | Lead Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 22µF | 600 | 20 | 10 | 0.6 | 5 | EEUED2D220 | 969-6261 |
| 33µF | 650 | 20 | 10 | 0.6 | 5 | EEUED2D330 | 969-6270 |
| 47µF | 790 | 20 | 12.5 | 0.6 | 5 | EEUED2D470 | 969-6288 |
| 100µF | 1300 | 25 | 16 | 0.8 | 7.5 | EEUED2D101 | 969-6296 |
| 150µF | 1400 | 25 | 16 | 0.8 | 7.5 | EEUED2D151 | 969-6300 |
| 220µF | 2000 | 31.5 | 18 | 0.8 | 7.5 | EEUED2D221 | 969-6318 |
| 330µF | 2400 | 40 | 18 | 0.8 | 7.5 | EEUED2D331 | 969-6326 |

**200 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 22µF | 969-6261 | | | | | |
| 33µF | 969-6270 | | | | | |
| 47µF | 969-6288 | | | | | |
| 100µF | 969-6296 | | | | | |
| 150µF | 969-6300 | | | | | |
| 220µF | 969-6318 | | | | | |
| 330µF | 969-6326 | | | | | |

**250 Volt d.c.**

| | Ripple (mA) | Dimensions H | D | Lead Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 22µF | 560 | 20 | 10 | 0.6 | 5 | EEUED2E220 | 969-6334 |
| 33µF | 710 | 20 | 12.5 | 0.6 | 5 | EEUED2E330 | 969-6342 |
| 47µF | 920 | 25 | 12.5 | 0.6 | 5 | EEUED2E470 | 969-6369 |
| 68µF | 1000 | 20 | 16 | 0.8 | 7.5 | EEUED2E680S | 969-6377 |
| 100µF | 1500 | 31.5 | 16 | 0.8 | 7.5 | EEUED2E101 | 969-6385 |
| 150µF | 1800 | 31.5 | 18 | 0.8 | 7.5 | EEUED2E151 | 969-6393 |
| 220µF | 2100 | 40 | 18 | 0.8 | 7.5 | EEUED2E221 | 969-6407 |

**250 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 22µF | 969-6334 | | | | | |
| 33µF | 969-6342 | | | | | |
| 47µF | 969-6369 | | | | | |
| 68µF | 969-6377 | | | | | |
| 100µF | 969-6385 | | | | | |
| 150µF | 969-6393 | | | | | |
| 220µF | 969-6407 | | | | | |

**350 Volt d.c.**

| | Ripple (mA) | Dimensions H | D | Lead Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 10µF | 350 | 20 | 10 | 0.6 | 5 | EEUED2V100 | 969-6415 |
| 22µF | 480 | 20 | 12.5 | 0.6 | 5 | EEUED2V220 | 969-6423 |
| 33µF | 640 | 20 | 16 | 0.8 | 7.5 | EEUED2V330S | 969-6431 |
| 47µF | 800 | 25 | 16 | 0.8 | 7.5 | EEUED2V470 | 969-6440 |
| 100µF | 1200 | 31.5 | 18 | 0.8 | 7.5 | EEUED2V101 | 969-6458 |

**350 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10µF | 969-6415 | | | | | |
| 22µF | 969-6423 | | | | | |
| 33µF | 969-6431 | | | | | |
| 47µF | 969-6440 | | | | | |
| 100µF | 969-6458 | | | | | |

**400 Volt d.c.**

| | Ripple (mA) | Dimensions H | D | Lead Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 10µF | 300 | 20 | 10 | 0.6 | 5 | EEUED2G100 | 969-6466 |
| 15µF | 410 | 20 | 12.5 | 0.6 | 5 | EEUED2G150 | 969-6474 |
| 22µF | 500 | 25 | 12.5 | 0.6 | 5 | EEUED2G220 | 969-6482 |
| 33µF | 730 | 20 | 16 | 0.8 | 7.5 | EEUED2G330S | 969-6490 |
| 47µF | 840 | 25 | 16 | 0.8 | 7.5 | EEUED2G470 | 969-6504 |
| 47µF | 840 | 20 | 18 | 0.8 | 7.5 | EEUED2G470S | 153-9446 |
| 68µF | 1200 | 31.5 | 18 | 0.8 | 7.5 | EEUED2G680 | 969-6512 |
| 82µF | 1500 | 40 | 18 | 0.8 | 7.5 | EEUED2G820 | 969-6520 |

**400 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10µF | 969-6466 | | | | | |
| 15µF | 969-6474 | | | | | |
| 22µF | 969-6482 | | | | | |
| 33µF | 969-6490 | | | | | |
| 47µF | 969-6504 | | | | | |
| 47µF | 153-9446 | | | | | |
| 68µF | 969-6512 | | | | | |
| 82µF | 969-6520 | | | | | |

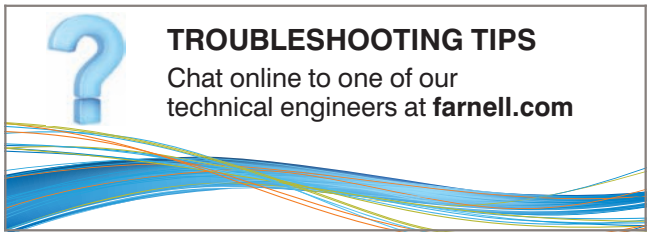
**450 Volt d.c.**

| | Ripple (mA) | Dimensions H | D | Lead Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 10µF | 350 | 20 | 12.5 | 0.6 | 5 | EEUED2W100 | 969-6539 |
| 15µF | 560 | 25 | 12.5 | 0.6 | 5 | EEUED2W150 | 969-6547 |
| 22µF | 680 | 20 | 16 | 0.8 | 7.5 | EEUED2W220S | 969-6555 |
| 33µF | 850 | 31.5 | 16 | 0.8 | 7.5 | EEUED2W330 | 969-6563 |
| 47µF | 1000 | 31.5 | 18 | 0.8 | 7.5 | EEUED2W470 | 969-6571 |
| 68µF | 1300 | 40 | 18 | 0.8 | 7.5 | EEUED2W680 | 969-6580 |

234316

**450 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10µF | 969-6539 | | | | | |
| 15µF | 969-6547 | | | | | |
| 22µF | 969-6555 | | | | | |
| 33µF | 969-6563 | | | | | |
| 47µF | 969-6571 | | | | | |
| 68µF | 969-6580 | | | | | |



## EE Series

Panasonic




- High performance miniature radial electrolytic
- High ripple current (at high frequency) - **40 % higher than ED Series**
- High temperature 105°C
- Long life

| | | | |
|---|---|---|---|
| Operating temperature | -25°C to +105°C | Operating life | Dependent on case dia. |
| Tolerance | ± 20% | | 12.5 or greater 10000hrs |
| Leakage current | 0.06CV + 10µA | | 10 8000hrs |
| Ripple current measured at | 100kHz @ 105°CC | | |

| **160 Volt d.c.** | Ripple (mA) | Dimensions H | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 22µF | 700 | 20 | 10 | 5 | EEUEE2C220 | 167-3438 |
| 33µF | 810 | 20 | 10 | 5 | EEUEE2C330 | 167-3441 |
| 47µF | 1065 | 20 | 10 | 5 | EEUEE2C470 | 167-3442 |
| 68µF | 1350 | 20 | 12.5 | 5 | EEUEE2C680 | 167-3443 |
| 82µF | 1480 | 25 | 12.5 | 5 | EEUEE2C820 | 167-3444 |
| 100µF | 1660 | 25 | 12.5 | 5 | EEUEE2C101 | 167-3445 |
| 100µF | 1700 | 20 | 16 | 7.5 | EEUEE2C101S | 167-3446 |
| 150µF | 1890 | 25 | 16 | 7.5 | EEUEE2C151 | 167-3447 |
| 150µF | 1820 | 20 | 18 | 7.5 | EEUEE2C151S | 167-3448 |
| 220µF | 2280 | 31.5 | 16 | 7.5 | EEUEE2C221 | 167-3449 |
| 220µF | 1950 | 25 | 18 | 7.5 | EEUEE2C221S | 167-3450 |
| 330µF | 2600 | 31.5 | 18 | 7.5 | EEUEE2C331 | 167-3451 |

| **160 Volt d.c.** | | **Price Each** | | | | |
|---|---|---|---|---|---|---|
| | **Order Code** | 1+ | 50+ | 100+ | 500+ | 1K+ |
| 22µF | **167-3438** | | | | | |
| 33µF | **167-3441** | | | | | |
| 47µF | **167-3442** | | | | | |
| 68µF | **167-3443** | | | | | |
| 82µF | **167-3444** | | | | | |
| 100µF | **167-3445** | | | | | |
| 100µF | **167-3446** | | | | | |
| 150µF | **167-3447** | | | | | |
| 150µF | **167-3448** | | | | | |
| 220µF | **167-3449** | | | | | |
| 220µF | **167-3450** | | | | | |
| 330µF | **167-3451** | | | | | |

| **200 Volt d.c.** | Ripple (mA) | Dimensions H | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 33µF | 920 | 20 | 10 | 5 | EEUEE2D330 | 167-3454 |
| 68µF | 1330 | 25 | 12.5 | 5 | EEUEE2D680 | 167-3456 |
| 82µF | 1460 | 20 | 16 | 7.5 | EEUEE2D820S | 167-3458 |
| 100µF | 1730 | 25 | 16 | 7.5 | EEUEE2D101 | 167-3459 |
| 100µF | 1665 | 20 | 18 | 7.5 | EEUEE2D101S | 167-3460 |
| 150µF | 1860 | 25 | 16 | 7.5 | EEUEE2D151 | 167-3461 |
| 330µF | 3120 | 40 | 18 | 7.5 | EEUEE2D331 | 167-3463 |

| **200 Volt d.c.** | | **Price Each** | | | | |
|---|---|---|---|---|---|---|
| | **Order Code** | 1+ | 50+ | 100+ | 500+ | 1K+ |
| 33µF | **167-3454** | | | | | |
| 68µF | **167-3456** | | | | | |
| 82µF | **167-3458** | | | | | |
| 100µF | **167-3459** | | | | | |
| 100µF | **167-3460** | | | | | |
| 150µF | **167-3461** | | | | | |
| 330µF | **167-3463** | | | | | |

| **250 Volt d.c.** | Ripple (mA) | Dimensions H | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 22µF | 785 | 20 | 10 | 5 | EEUEE2E220 | 167-3465 |
| 33µF | 995 | 20 | 12.5 | 5 | EEUEE2E330 | 167-3466 |
| 47µF | 1290 | 25 | 12.5 | 5 | EEUEE2E470 | 167-3467 |
| 47µF | 1400 | 20 | 16 | 7.5 | EEUEE2E470S | 167-3468 |
| 82µF | 1680 | 20 | 18 | 7.5 | EEUEE2E820S | 167-3471 |
| 100µF | 2100 | 25 | 18 | 7.5 | EEUEE2E101S | 167-3473 |
| 220µF | 2940 | 40 | 18 | 7.5 | EEUEE2E221 | 167-3475 |

| **250 Volt d.c.** | | **Price Each** | | | | |
|---|---|---|---|---|---|---|
| | **Order Code** | 1+ | 50+ | 100+ | 500+ | 1K+ |
| 22µF | **167-3465** | | | | | |
| 33µF | **167-3466** | | | | | |
| 47µF | **167-3467** | | | | | |
| 47µF | **167-3468** | | | | | |
| 82µF | **167-3471** | | | | | |
| 100µF | **167-3473** | | | | | |
| 220µF | **167-3475** | | | | | |

| **350 Volt d.c.** | Ripple (mA) | Dimensions H | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 15µF | 480 | 20 | 10 | 5 | EEUEE2V150 | 167-3477 |
| 22µF | 660 | 20 | 12.5 | 5 | EEUEE2V220 | 167-3478 |
| 33µF | 790 | 25 | 12.5 | 5 | EEUEE2V330 | 167-3479 |
| 33µF | 900 | 20 | 16 | 7.5 | EEUEE2V330S | 167-3480 |
| 47µF | 1070 | 25 | 16 | 7.5 | EEUEE2V470 | 167-3481 |
| 47µF | 1070 | 20 | 18 | 7.5 | EEUEE2V470S | 167-3482 |
| 68µF | 1530 | 31.5 | 16 | 7.5 | EEUEE2V680 | 167-3483 |
| 68µF | 1330 | 25 | 18 | 7.5 | EEUEE2V680S | 167-3484 |
| 100µF | 1600 | 31.5 | 18 | 7.5 | EEUEE2V101 | 167-3486 |

| **350 Volt d.c.** | | **Price Each** | | | | |
|---|---|---|---|---|---|---|
| | **Order Code** | 1+ | 50+ | 100+ | 500+ | 1K+ |
| 15µF | **167-3477** | | | | | |
| 22µF | **167-3478** | | | | | |
| 33µF | **167-3479** | | | | | |
| 33µF | **167-3480** | | | | | |
| 47µF | **167-3481** | | | | | |
| 47µF | **167-3482** | | | | | |
| 68µF | **167-3483** | | | | | |
| 68µF | **167-3484** | | | | | |
| 100µF | **167-3486** | | | | | |

| **400 Volt d.c.** | Ripple (mA) | Dimensions H | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 10µF | 430 | 20 | 10 | 5 | EEUEE2G100 | 167-3487 |
| 22µF | 760 | 25 | 12.5 | 5 | EEUEE2G220 | 167-3491 |
| 22µF | 860 | 20 | 16 | 7.5 | EEUEE2G220S | 167-3492 |
| 33µF | 1020 | 20 | 16 | 7.5 | EEUEE2G330S | 167-3493 |
| 47µF | 1180 | 25 | 16 | 7.5 | EEUEE2G470 | 167-3494 |
| 68µF | 1470 | 25 | 18 | 7.5 | EEUEE2G680 | 167-3496 |
| 82µF | 1645 | 18 | 31.5 | 7.5 | EEUEE2G820 | 167-3497 |
| 100µF | 2060 | 40 | 18 | 7.5 | EEUEE2G101 | 167-3498 |

| **400 Volt d.c.** | | **Price Each** | | | | |
|---|---|---|---|---|---|---|
| | **Order Code** | 1+ | 50+ | 100+ | 500+ | 1K+ |
| 10µF | **167-3487** | | | | | |
| 22µF | **167-3491** | | | | | |
| 22µF | **167-3492** | | | | | |
| 33µF | **167-3493** | | | | | |
| 47µF | **167-3494** | | | | | |
| 68µF | **167-3496** | | | | | |
| 82µF | **167-3497** | | | | | |
| 100µF | **167-3498** | | | | | |

| **450 Volt d.c.** | Ripple (mA) | Dimensions H | D | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 10µF | 330 | 20 | 10 | 5 | EEUEE2W100U | 167-3499 |
| 10µF | 490 | 20 | 12.5 | 5 | EEUEE2W100 | 167-3500 |
| 15µF | 780 | 25 | 12.5 | 5 | EEUEE2W150 | 167-3501 |
| 22µF | 945 | 20 | 16 | 7.5 | EEUEE2W220S | 167-3502 |
| 33µF | 1000 | 25 | 16 | 7.5 | EEUEE2W330 | 167-3503 |
| 33µF | 1000 | 20 | 18 | 7.5 | EEUEE2W330S | 167-3504 |
| 47µF | 1200 | 31.5 | 16 | 7.5 | EEUEE2W470 | 167-3505 |
| 47µF | 1200 | 25 | 18 | 7.5 | EEUEE2W470S | 167-3507 |

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| **450 Volt d.c.** | | **Price Each** | | | | |
|---|---|---|---|---|---|---|
| | **Order Code** | 1+ | 50+ | 100+ | 500+ | 1K+ |
| 10µF | **167-3499** | | | | | |
| 10µF | **167-3500** | | | | | |
| 15µF | **167-3501** | | | | | |
| 22µF | **167-3502** | | | | | |
| 33µF | **167-3503** | | | | | |
| 33µF | **167-3504** | | | | | |
| 47µF | **167-3505** | | | | | |
| 47µF | **167-3507** | | | | | |

## Panasonic Audio Capacitors

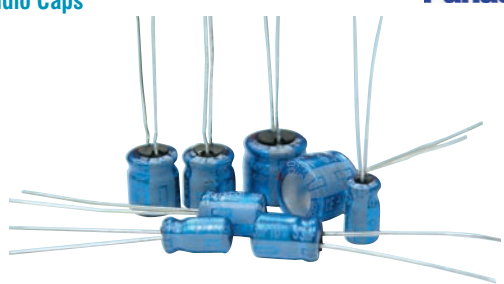
Panasonic ideas for life

A range of three series of capacitors suitable for audio applications. AD series with a maximum height of 5mm and AK series with a maximum height of 7mm are ideal for applications for where height is limited, e.g. car audio equipment. The AM series has a wide range of capacitance and voltage to give the user the maximum choice. All three series have been included in the module below for ease of selection.

452376

## ECA Audio Caps

Panasonic



- High Quality Audio Grade Electrolytic Capacitor
- For use in a variety of Audio Applications

**Special Features Include:**

- High Fidelity
- Low Distortion, High Resolution, Low Range Loudness
- For Improved Sound Quality It Features A Special Electrolyte and Vibration Controlled Outer Sleeve

| | | | |
|---|---|---|---|
| Operating Temperature | -40°C to +85°C | DC Leakage current | ≤0.01CV or 3µA whichever is greater |
| Tolerance | ±20 | | |

| **6.3 Volts d.c.** | Ripple Current (AC) mA | Dimensions (mm) D | L | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 220µF | 240 | 5 | 11 | ECA0JAM221X | 876-7033 |
| 470µF | 380 | 6.3 | 11.2 | ECA0JAM471X | 876-7041 |

# Aluminium Electrolytic - Radial - Panasonic - continued

## ECA Audio Caps - continued

**6.3 Volts d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 220µF | 876-7033● | | | | | |
| 470µF | 876-7041● | | | | | |

| 10 Volts d.c. | Ripple Current (AC) mA | Dimensions (mm) D | L | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 33µF | 43 | 5 | 5 | ECA1AAD330X | 876-6860 |
| 100µF | 80 | 6.3 | 5 | ECA1AAD101X | 876-6878 |
| 330µF | 330 | 6.3 | 11.2 | ECA1AAM331X | 876-7068 |

**10 Volts d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 33µF | 876-6860● | | | | | |
| 100µF | 876-6878● | | | | | |
| 330µF | 876-7068● | | | | | |

| 16 Volts d.c. | Ripple Current (AC) mA | Dimensions (mm) D | L | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 10µF | 28 | 4 | 5 | ECA1CAD100X | 876-6894 |
| 10µF | 30 | 5 | 11 | ECA1CAM100X | 876-7084 |
| 22µF | 39 | 4 | 7 | ECA1CAK220X | 876-6711 |
| 33µF | 60 | 5 | 7 | ECA1CAK330X | 876-6720 |
| 33µF | 110 | 5 | 11 | ECA1CAM330X | 876-7106 |
| 33µF | 70 | 5 | 7 | ECA1CAK470X | 876-6738 |
| 47µF | 70 | 6.3 | 5 | ECA1CAD470X | 876-6916 |
| 47µF | 130 | 5 | 11 | ECA1CAM470X | 876-7114 |
| 100µF | 91 | 6 | 7 | ECA1CAK101X | 876-6746 |
| 100µF | 91 | 8 | 5 | ECA1CAD101X | 876-6924 |
| 100µF | 180 | 5 | 11 | ECA1CAM101X | 876-7122 |
| 220µF | 280 | 6.3 | 11.2 | ECA1CAM221X | 876-7149 |
| 470µF | 440 | 8 | 11.5 | ECA1CAM471X | 876-7157 |
| 1000µF | 680 | 10 | 16 | ECA1CAM102X | 876-7165 |
| 2200µF | 1000 | 12.5 | 20 | ECA1CAM222X | 876-7173 |
| 3300µF | 1200 | 12.5 | 25 | ECA1CAM332X | 876-7181 |
| 4700µF | 1360 | 16 | 25 | ECA1CAM472X | 876-7190 |
| 6800µF | 1600 | 16 | 31.5 | ECA1CAM682X | 876-7203 |

**16 Volts d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10µF | 876-6894● | | | | | |
| 10µF | 876-7084● | | | | | |
| 22µF | 876-6711● | | | | | |
| 33µF | 876-6720● | | | | | |
| 33µF | 876-7106● | | | | | |
| 47µF | 876-6738● | | | | | |
| 47µF | 876-6916● | | | | | |
| 47µF | 876-7114● | | | | | |
| 100µF | 876-6746● | | | | | |
| 100µF | 876-6924● | | | | | |
| 100µF | 876-7122● | | | | | |
| 220µF | 876-7149● | | | | | |
| 470µF | 876-7157● | | | | | |
| 1000µF | 876-7165● | | | | | |
| 2200µF | 876-7173● | | | | | |
| 3300µF | 876-7181● | | | | | |
| 4700µF | 876-7190● | | | | | |
| 6800µF | 876-7203● | | | | | |

| 25 Volts d.c. | Ripple Current (AC) mA | Dimensions (mm) D | L | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 10µF | 28 | 4 | 7 | ECA1EAK100X | 876-6754 |
| 22µF | 55 | 5 | 7 | ECA1EAK220X | 876-6762 |

**25 Volts d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10µF | 876-6754● | | | | | |
| 22µF | 876-6762● | | | | | |

| 35 Volts d.c. | Ripple Current (AC) mA | Dimensions (mm) D | L | Mftrs. List No. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 4.7µF | 22 | 4 | 5 | ECA1VAD4R7X | | 876-6932 |
| 10µF | 30 | 5 | 5 | ECA1VAD100X | | 876-6940 |
| 22µF | 60 | 6.3 | 5 | ECA1VAD220X | | 876-6959 |
| 47µF | 85 | 8 | 7 | ECA1VAK470X | | 876-6770 |
| 47µF | 130 | 5 | 11 | ECA1VAM470X | | 876-7246 |
| 100µF | 210 | 6.3 | 11.2 | ECA1VAM101X | | 876-7254 |
| 220µF | 350 | 8 | 11.5 | ECA1VAM221X | | 876-7262 |
| 330µF | 440 | 10 | 12.5 | ECA1VAM331X | | 876-7270 |
| 470µF | 550 | 10 | 16 | ECA1VAM471X | | 876-7289 |
| 1000µF | 900 | 12.5 | 20 | ECA1VAM102X | | 876-7297 |
| 2200µF | 1250 | 16 | 25 | ECA1VAM222X | | 876-7300 |
| 3300µF | 1400 | 16 | 31.5 | ECA1VAM332X | | 876-7319 |
| 4700µF | 1600 | 18 | 35.5 | ECA1VAM472X | | 876-7327 |

**35 Volts d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 4.7µF | 876-6932● | | | | | |
| 10µF | 876-6940● | | | | | |
| 22µF | 876-6959● | | | | | |
| 47µF | 876-6770● | | | | | |
| 47µF | 876-7246● | | | | | |
| 100µF | 876-7254● | | | | | |

**35 Volts d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 220µF | 876-7262● | | | | | |
| 330µF | 876-7270● | | | | | |
| 470µF | 876-7289● | | | | | |
| 1000µF | 876-7297● | | | | | |
| 2200µF | 876-7300● | | | | | |
| 3300µF | 876-7319● | | | | | |
| 4700µF | 876-7327● | | | | | |

| 50 Volts d.c. | Ripple Current (AC) mA | Dimensions (mm) D | L | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 1µF | 1.3 | 5 | 11 | ECA1HAM010X | 876-7335 |
| 1µF | 10 | 4 | 7 | ECA1HAK010X | 876-6789 |
| 2.2µF | 16 | 4 | 5 | ECA1HAD2R2X | 876-6983 |
| 2.2µF | 16 | 4 | 7 | ECA1HAK2R2X | 876-6797 |
| 4.7µF | 45 | 5 | 11 | ECA1HAM4R7X | 876-7360 |
| 10µF | 35 | 5 | 7 | ECA1HAK100X | 876-6827 |
| 10µF | 65 | 5 | 11 | ECA1HAM100X | 876-7378 |
| 22µF | 60 | 6.3 | 7 | ECA1HAK220X | 876-6835 |
| 22µF | 100 | 5 | 11 | ECA1HAM220X | 876-7386 |
| 33µF | 110 | 5 | 11 | ECA1HAM330X | 876-7394 |
| 47µF | 130 | 6.3 | 11.2 | ECA1HAM470X | 876-7408 |
| 100µF | 250 | 8 | 11.5 | ECA1HAM101X | 876-7416 |
| 220µF | 400 | 10 | 12.5 | ECA1HAM221X | 876-7424 |
| 470µF | 650 | 10 | 20 | ECA1HAM471X | 876-7440 |
| 1000µF | 1050 | 12.5 | 25 | ECA1HAM102X | 876-7459 |
| 2200µF | 1300 | 16 | 31.5 | ECA1HAM222X | 876-7467 |
| 3300µF | 1500 | 18 | 35.5 | ECA1HAM332X | 876-7475 |

**50 Volts d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1µF | 876-7335● | | | | | |
| 1µF | 876-6789● | | | | | |
| 2.2µF | 876-6983● | | | | | |
| 2.2µF | 876-6797● | | | | | |
| 4.7µF | 876-7360● | | | | | |
| 10µF | 876-6827● | | | | | |
| 10µF | 876-7378● | | | | | |
| 22µF | 876-6835● | | | | | |
| 22µF | 876-7386● | | | | | |
| 33µF | 876-7394● | | | | | |
| 47µF | 876-7408● | | | | | |
| 100µF | 876-7416● | | | | | |
| 220µF | 876-7424● | | | | | |
| 470µF | 876-7440● | | | | | |
| 1000µF | 876-7459● | | | | | |
| 2200µF | 876-7467● | | | | | |
| 3300µF | 876-7475● | | | | | |

| 63 Volts d.c. | Ripple Current (AC) mA | Dimensions (mm) D | L | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 10µF | 70 | 5 | 11 | ECA1JAM100X | 876-7483 |
| 22µF | 105 | 5 | 11 | ECA1JAM220X | 876-7491 |
| 47µF | 160 | 6.3 | 11.2 | ECA1JAM470X | 876-7513 |
| 100µF | 270 | 8 | 11.5 | ECA1JAM101X | 876-7521 |
| 220µF | 450 | 10 | 16 | ECA1JAM221X | 876-7530 |
| 330µF | 550 | 10 | 20 | ECA1JAM331X | 876-7548 |
| 470µF | 750 | 12.5 | 20 | ECA1JAM471X | 876-7556 |
| 1000µF | 1100 | 16 | 25 | ECA1JAM102X | 876-7564 |
| 2200µF | 1400 | 18 | 35.5 | ECA1JAM222X | 876-7572 |

**63 Volts d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10µF | 876-7483● | | | | | |
| 22µF | 876-7491● | | | | | |
| 47µF | 876-7513● | | | | | |
| 100µF | 876-7521● | | | | | |
| 220µF | 876-7530● | | | | | |
| 330µF | 876-7548● | | | | | |
| 470µF | 876-7556● | | | | | |
| 1000µF | 876-7564● | | | | | |
| 2200µF | 876-7572● | | | | | |

| 100 Volts d.c. | Ripple Current (AC) mA | Dimensions (mm) D | L | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 2.2µF | 30 | 5 | 11 | ECA2AAM2R2X | 876-7599 |
| 4.7µF | 50 | 5 | 11 | ECA2AAM4R7X | 876-7610 |
| 10µF | 70 | 5 | 11 | ECA2AAM100X | 876-7629 |
| 22µF | 115 | 6.3 | 11.2 | ECA2AAM220X | 876-7637 |
| 33µF | 145 | 8 | 11.5 | ECA2AAM330X | 876-7645 |
| 47µF | 180 | 8 | 11.5 | ECA2AAM470X | 876-7653 |
| 100µF | 350 | 10 | 16 | ECA2AAM101X | 876-7661 |
| 220µF | 550 | 12.5 | 20 | ECA2AAM221X | 876-7670 |
| 330µF | 700 | 12.5 | 25 | ECA2AAM331X | 876-7688 |
| 470µF | 900 | 16 | 25 | ECA2AAM471X | 876-7696 |

388706/405631

**100 Volts d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 2.2µF | 876-7599● | | | | | |
| 4.7µF | 876-7610● | | | | | |
| 10µF | 876-7629● | | | | | |
| 22µF | 876-7637● | | | | | |
| 33µF | 876-7645● | | | | | |

**100 Volts d.c.**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 47µF | 876-7653 | | | | | |
| 100µF | 876-7661 | | | | | |
| 220µF | 876-7670 | | | | | |
| 330µF | 876-7688 | | | | | |
| 470µF | 876-7696 | | | | | |

# Aluminium Electrolytic - Radial - Rubycon

## MS5 Series – Micro-Miniature



- Micro miniature radial electrolytic capacitors
- Low profile for compact designs

Operating temperature -40°C to +85°C
Tolerance ± 20%
DC leakage current 0.01CV or 3µA whichever is greater
ESR measured at 120Hz @ 25°C
Ripple current measured at 120Hz @ 85°C

| Volt d.c. | | Ripple (mA) @ 120Hz 85°C | ESR Ω | Dimensions H | Dia. | Lead Spacing | Lead Dia. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 6.3 | 100µF | 62 | 3.45 | 5 | 6.3 | 2.5 | 0.45 | 114-4596 |
| 16 | 10µF | 20 | 23.9 | 5 | 4 | 1.5 | 0.45 | 114-4605 |
| 16 | 47µF | 65 | 5.08 | 5 | 6.3 | 2.5 | 0.45 | 114-4597 |
| 35 | 22µF | 46 | 8.44 | 5 | 6.3 | 2.5 | 0.45 | 114-4598 |
| 50 | 4.7µF | 20 | 33.8 | 5 | 5 | 2 | 0.45 | 114-4602 |
| 50 | 6.8µF | 26 | 23.4 | 5 | 6.3 | 2.5 | 0.45 | 114-4603 |
| 50 | 10µF | 31 | 15.9 | 5 | 6.3 | 2.5 | 0.45 | 114-4604 |

208637

**Order Multiple=5**

| Volt d.c. | | Order Code | 5+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| 6.3 | 100µF | 114-4596 | | | | |
| 16 | 10µF | 114-4605 | | | | |
| 16 | 47µF | 114-4597 | | | | |
| 35 | 22µF | 114-4598 | | | | |
| 50 | 4.7µF | 114-4602 | | | | |
| 50 | 6.8µF | 114-4603 | | | | |
| 50 | 10µF | 114-4604 | | | | |

## ML Series – Long Life, 105°C (Miniature Aluminum Electrolytic)



- New much lower profile alternative to standard components
- Load Life of 3000 hours
- 5mm to 10mm Height
- Complimenting lower profile, body diameter is kept to a minimum
- Ideally suited for multiple applications where height is a key consideration

Tolerance ±20%
Leakage current (max) 0.01 CV or 3µA whichever is greater
Operating temperature -40°C to +105°C
Ripple current measured at 105°C@ 100kHz

**6.3 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 47µF | 47 | 7 | 4 | 1.5 | 6.3ML47MEFC4X7 | 812-7131 |
| 220µF | 125 | 5 | 8 | 2.5 | 6.3ML220MEFC8X5 | 812-7123 |
| 470µF | 190 | 7.5 | 8 | 3.5 | 6.3ML470MEFC8X7.5 | 812-7140 |
| 1000µF | 480 | 9 | 10 | 5 | 6.3ML1000MEFC10X9 | 812-7115 |

**6.3 Volt d.c.** Price Each

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 47µF | 812-7131 | | | | | |
| 220µF | 812-7123 | | | | | |
| 470µF | 812-7140 | | | | | |
| 1000µF | 812-7115 | | | | | |

**10 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 22µF | 22 | 5 | 4 | 1.5 | 10ML22MEFC4X5 | 812-6178 |
| 47µF | 48 | 5 | 5 | 2 | 10ML47MEFC5X5 | 812-6194 |
| 100µF | 75 | 5 | 6.3 | 2.5 | 10ML100MEFC6.3X5 | 812-6160 |
| 220µF | 160 | 7 | 8 | 3.5 | 10ML220MEFC8X7 | 812-6186 |
| 470µF | 210 | 9 | 8 | 5 | 10ML470MEFC8X9 | 812-6208 |

**10 Volt d.c.** Price Each

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 22µF | 812-6178 | | | | | |
| 47µF | 812-6194 | | | | | |
| 100µF | 812-6160 | | | | | |
| 220µF | 812-6186 | | | | | |
| 470µF | 812-6208 | | | | | |

**16 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 22µF | 40 | 7 | 4 | 1.5 | 16ML22MEFC4X7 | 812-6259 |
| 100µF | 95 | 7 | 6.3 | 2.5 | 16ML100MEFC6.3X7 | 812-6240 |
| 220µF | 170 | 7.5 | 8 | 3.5 | 16ML220MEFC8X7.5 | 812-6267 |
| 470µF | 460 | 9 | 10 | 5 | 16ML470MEFC10X9 | 812-6275 |

**16 Volt d.c.** Price Each

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 22µF | 812-6259 | | | | | |
| 100µF | 812-6240 | | | | | |
| 220µF | 812-6267 | | | | | |
| 470µF | 812-6275 | | | | | |

**25 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 10µF | 18 | 5 | 4 | 1.5 | 25ML10MEFC4X5 | 812-6380 |
| 22µF | 42 | 5 | 5 | 2 | 25ML22MEFC5X5 | 812-6402 |
| 47µF | 65 | 5 | 6.3 | 2.5 | 25ML47MEFC6.3X5 | 812-6429 |
| 100µF | 112 | 7 | 8 | 3.5 | 25ML100MEFC8X7 | 812-6399 |
| 220µF | 190 | 9 | 8 | 3.5 | 25ML220MEFC8X9 | 812-6410 |

**25 Volt d.c.** Price Each

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10µF | 812-6380 | | | | | |
| 22µF | 812-6402 | | | | | |
| 47µF | 812-6429 | | | | | |
| 100µF | 812-6399 | | | | | |
| 220µF | 812-6410 | | | | | |

**35 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 10µF | 28 | 7 | 4 | 1.5 | 35ML10MEFC4X7 | 812-6542 |
| 47µF | 80 | 5 | 8 | 2.5 | 35ML47MEFC8X5 | 812-6577 |
| 100µF | 125 | 7.5 | 8 | 3.5 | 35ML100MEFC8X7.5 | 812-6550 |
| 220µF | 360 | 9 | 10 | 5 | 35ML220MEFC10X9 | 812-6569 |

**35 Volt d.c.** Price Each

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10µF | 812-6542 | | | | | |
| 47µF | 812-6577 | | | | | |
| 100µF | 812-6550 | | | | | |
| 220µF | 812-6569 | | | | | |

**50 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 1µF | 8 | 5 | 4 | 1.5 | 50ML1MEFC4X5 | 812-6933 |
| 2.2µF | 11 | 5 | 4 | 1.5 | 50ML2R2MEFC4X5 | 812-6950 |
| 4.7µF | 23 | 7 | 4 | 1.5 | 50ML4R7MEFC4X7 | 812-6976 |
| 10µF | 30 | 7 | 5 | 2 | 50ML10MEFC5X7 | 812-6941 |
| 22µF | 50 | 5 | 8 | 2.5 | 50ML22MEFC8X5 | 812-6968 |

372154

**50 Volt d.c.** Price Each

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1µF | 812-6933 | | | | | |
| 2.2µF | 812-6950 | | | | | |
| 4.7µF | 812-6976 | | | | | |
| 10µF | 812-6941 | | | | | |
| 22µF | 812-6968 | | | | | |

## BXA Series – 105°C (Miniature Aluminum Electrolytic)



- Upgraded Ultra Long Life (12,000 Hours at 105 degrees)
- Very High Ripple Current Handling further enhances life characteristics
- Miniaturised Package with High CV values available
- Ideally suited for Light Ballast or Power supply applications

Tolerance ±20%
Leakage current (max) 0.02 CV +25 µF whichever is greater
Operating temperature -25°C to +105°C
Ripple current measured at 105°C@ 100kHz

**250 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 10µF | 280 | 20 | 10 | 5 | 250BXA10MEFC10X20 | 812-6470 |
| 33µF | 600 | 20 | 12.5 | 5 | 250BXA33MEFC12.5X20 | 812-6518 |
| 47µF | 720 | 25 | 12.5 | 5 | 250BXA47MEFC12.5X25 | 812-6526 |
| 100µF | 1200 | 31.5 | 16 | 7.5 | 250BXA100MEFC16X31.5 | 812-6488 |

**250 Volt d.c.** Price Each

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10µF | 812-6470 | | | | | |
| 33µF | 812-6518 | | | | | |
| 47µF | 812-6526 | | | | | |
| 100µF | 812-6488 | | | | | |

**400 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 6.8µF | 220 | 16 | 10 | 5 | 400BXA6R8MEFC10X16 | 812-6828 |
| 10µF | 280 | 20 | 10 | 5 | 400BXA10MEFC10X20 | 812-6780 |
| 22µF | 430 | 25 | 12.5 | 5 | 400BXA22MEFC12.5X25 | 812-6798 |
| 33µF | 640 | 25 | 16 | 7.5 | 400BXA33MEFC16X25 | 812-6801 |
| 68µF | 1000 | 31.5 | 18 | 7.5 | 400BXA68MEFC18X31.5 | 812-6836 |

# Aluminium Electrolytic - Radial - Rubycon - continued

## BXA Series – 105°C (Miniature Aluminum Electrolytic) - continued

**400 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 6.8µF | 812-6828● | | | | | |
| 10µF | 812-6780● | | | | | |
| 22µF | 812-6798● | | | | | |
| 33µF | 812-6801● | | | | | |
| 68µF | 812-6836● | | | | | |

**450 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 6.8µF | 150 | 20 | 10 | 5 | 450BXA6R8MEFC10X20 | 812-6925 |
| 10µF | 320 | 20 | 12 | 5 | 450BXA10MEFC12.5X20 | 812-6887 |
| 22µF | 560 | 25 | 16 | 7.5 | 450BXA22MEFC16X25 | 812-6895 |
| 47µF | 880 | 31.5 | 18 | 7.5 | 450BXA47MEFC18X31.5 | 812-6917 |

372152

**450 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 6.8µF | 812-6925● | | | | | |
| 10µF | 812-6887● | | | | | |
| 22µF | 812-6895● | | | | | |
| 47µF | 812-6917● | | | | | |

## BXC Series

Rubycon



- Load Life: 105°C 8000-12000hours.
- High ripple current

NEW

Tolerance ± 20% Operating temperature -25°C to +105°C

**250 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 10µF | 320 | 16 | 10 | 5 | 250BXC10MEFC10X16 | 183-1304 |
| 33µF | 800 | 20 | 12.5 | 5 | 250BXC33MEFC12.5X20 | 183-1305 |
| 47µF | 980 | 20 | 12.5 | 5 | 250BXC47MEFC12.5X20 | 183-1307 |
| 150µF | 1960 | 25 | 18 | 7.5 | 250BXC150MEFC18X25 | 183-1308 |

**250 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 250+ | 1K+ |
|---|---|---|---|---|---|---|
| 10µF | 183-1304● | | | | | |
| 33µF | 183-1305● | | | | | |
| 47µF | 183-1307● | | | | | |
| 150µF | 183-1308● | | | | | |

**400 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 6.8µF | 280 | 16 | 10 | 5 | 400BXC6R8MEFC10X16 | 183-1309 |
| 10µF | 350 | 20 | 10 | 5 | 400BXC10MEFC10X20 | 183-1310 |
| 22µF | 760 | 25 | 12.5 | 5 | 400BXC22MEFC12.5X25 | 183-1311 |
| 33µF | 900 | 20 | 16 | 7.5 | 400BXC33MEFC16X20 | 183-1312 |
| 47µF | 1180 | 25 | 16 | 7.5 | 400BXC47MEFC16X25 | 183-1313 |
| 68µF | 1470 | 25 | 18 | 7.5 | 400BXC68MEFC18X25 | 183-1314 |

**400 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 250+ | 1K+ |
|---|---|---|---|---|---|---|
| 6.8µF | 183-1309● | | | | | |
| 10µF | 183-1310● | | | | | |
| 22µF | 183-1311● | | | | | |
| 33µF | 183-1312● | | | | | |
| 47µF | 183-1313● | | | | | |
| 68µF | 183-1314● | | | | | |

**450 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 6.8µF | 230 | 16 | 10 | 5 | 450BXC6R8MEFC10X16 | 183-1315 |
| 10µF | 330 | 20 | 10 | 5 | 450BXC10MEFC10X20 | 183-1316 |
| 22µF | 730 | 20 | 16 | 7.5 | 450BXC22MEFC16X20 | 183-1317 |
| 33µF | 980 | 25 | 16 | 7.5 | 450BXC33MEFC16X25 | 183-1319 |
| 47µF | 1200 | 25 | 18 | 7.5 | 450BXC47MEFC18X25 | 183-1321 |

612293

**450 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 250+ | 1K+ |
|---|---|---|---|---|---|---|
| 6.8µF | 183-1315● | | | | | |
| 10µF | 183-1316● | | | | | |
| 22µF | 183-1317● | | | | | |
| 33µF | 183-1319● | | | | | |
| 47µF | 183-1321● | | | | | |

## BXF Series

Rubycon



- Load Life: 105°C 10000hours.
- High ripple current

NEW

Tolerance ± 20% Operating temperature -25°C to +105°C

**250 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 56µF | 1350 | 20 | 12.5 | 5 | 250BXF56M12.5X20 | 210-2411 |
| 120µF | 2250 | 20 | 18 | 7.5 | 250BXF120M18X20 | 210-2410 |

**250 Volt d.c.**

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| 56µF | 210-2411● | | | | | |
| 120µF | 210-2410● | | | | | |

**350 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 22µF | 500 | 20 | 10 | 5 | 350BXF22M10X20 | 183-1322 |
| 33µF | 850 | 20 | 12.5 | 5 | 350BXF33M12.5X20 | 183-1323 |

**350 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 22µF | 183-1322● | | | | | |
| 33µF | 183-1323● | | | | | |

**400 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 12µF | 450 | 16 | 10 | 5 | 400BXF12M10X16 | 183-1324 |
| 27µF | 850 | 20 | 12.5 | 5 | 400BXF27M12.5X20 | 183-1325 |

**400 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 12µF | 183-1324● | | | | | |
| 27µF | 183-1325● | | | | | |

**450 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 10µF | 350 | 16 | 10 | 5 | 450BXF10M10X16 | 183-1326 |
| 15µF | 400 | 20 | 10 | 5 | 450BXF15M10X20 | 183-1327 |
| 22µF | 700 | 20 | 12.5 | 5 | 450BXF22M12.5X20 | 210-2413 |
| 33µF | 970 | 20 | 16 | 7.5 | 450BXF33M16X20 | 210-2414 |
| 47µF | 1170 | 20 | 18 | 7.5 | 450BXF47M18X20 | 210-2412 |

612294

**450 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10µF | 183-1326● | | | | | |
| 15µF | 183-1327● | | | | | |
| 22µF | 210-2413● | | | | | |
| 33µF | 210-2414● | | | | | |
| 47µF | 210-2412● | | | | | |

## CXW Series

Rubycon



- Load Life: 105°C 5000 hours.
- Ultra Miniaturised

NEW

Tolerance ± 20% Operating temperature -25°C to +105°C

**400 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 56µF | 470 | 20 | 18 | 7.5 | 400CXW56MEFC18X20 | 210-2415 |
| 100µF | 690 | 40 | 14.5 | 7.5 | 400CXW100MEFC14.5X40 | 210-2416 |
| 150µF | 920 | 40 | 16 | 7.5 | 400CXW150MEFC16X40 | 210-2417 |
| 180µF | 1060 | 40 | 18 | 7.5 | 400CXW180MEFC18X40 | 210-2418 |

**400 Volt d.c.**

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| 56µF | 210-2415● | | | | | |
| 100µF | 210-2416● | | | | | |
| 150µF | 210-2417● | | | | | |
| 180µF | 210-2418● | | | | | |

**450 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 82µF | 640 | 31.5 | 16 | 7.5 | 450CXW82MEFC16X31.5 | 210-2421 |
| 47µF | 440 | 40 | 12.5 | 5 | 450CXW47MEFC12.5X40 | 210-2422 |
| 220µF | 1220 | 50 | 18 | 7.5 | 450CXW220MEFC18X50 | 210-2423 |

659165


RoHS ● Compliant ▲ Non-compliant

**450 Volt d.c.** — Price Each

| | Order Code | 1+ | 10+ | 50+ | 100+ | 200+ |
|---|---|---|---|---|---|---|
| 82µF | 210-2421 | | | | | |
| 47µF | 210-2422 | | | | | |
| 220µF | 210-2423 | | | | | |

## KXW Series – 105°C (Miniature Aluminum Electrolytic)

Rubycon



- Body diameter of 10mm to 18mm with high ripple current capability
- Wide range of rated voltages up to 450 Volts
- Ultra high ripple current in a miniature Package
- Specifically designed for Switch Mode applications
- One case size smaller than standard Switch Mode Capacitors

**200 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 470µF | 1.27 | 40 | 18 | 7.5 | 200KXW470MEFC18X40 | 812-6364 |
| 560µF | 1.39 | 45 | 18 | 7.5 | 200KXW560MEFC18X45 | 812-6372 |

**200 Volt d.c.** — Price Each

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 470µF | 812-6364 | | | | | |
| 560µF | 812-6372 | | | | | |

**400 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 47µF | 0.37 | 30 | 12.5 | 5 | 400KXW47MEFC12.5X30 | 812-6860 |
| 56µF | 420 | 35 | 12.5 | 5 | 400KXW56MEFC12.5X35 | 154-7015 |
| 68µF | 480 | 40 | 12.5 | 5 | 400KXW68MEFC12.5X40 | 154-7016 |
| 82µF | 0.52 | 35 | 14.5 | 7.5 | 400KXW82MEFC14.5X35 | 812-6879 |
| 100µF | 0.58 | 30 | 16 | 7.5 | 400KXW100MEFC16X30 | 812-6844 |
| 120µF | 670 | 30 | 18 | 7.5 | 400KXW120MEFC18X30 | 154-7017 |
| 180µF | 880 | 40 | 18 | 7.5 | 400KXW180MEFC18X40 | 154-7018 |
| 220µF | 1 | 45 | 18 | 7.5 | 400KXW220MEFC18X45 | 812-6852 |

**400 Volt d.c.** — Price Each

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 47µF | 812-6860 | | | | | |
| 56µF | 154-7015 | | | | | |
| 68µF | 154-7016 | | | | | |
| 82µF | 812-6879 | | | | | |
| 100µF | 812-6844 | | | | | |
| 120µF | 154-7017 | | | | | |
| 180µF | 154-7018 | | | | | |
| 220µF | 812-6852 | | | | | |

**450 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 47µF | 380 | 40 | 12.5 | 5 | 450KXW47MEFC12.5X40 | 154-7019 |
| 150µF | 800 | 45 | 18 | 7.5 | 450KXW150MEFC18X45 | 154-7020 |

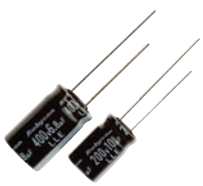
372153

**450 Volt d.c.** — Price Each

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 47µF | 154-7019 | | | | | |
| 150µF | 154-7020 | | | | | |

## LLE Series

Rubycon



NEW

- Load Life: 105°C 12000 to 20000 hours.
- Ultra Long Life

Tolerance ± 20% Operating temperature -40°C to +105°C

**200 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 4.7µF | 49 | 11 | 6.3 | 2.5 | 200LLE4.7MEFC6.3X11 | 210-2424 |
| 10µF | 80 | 11.5 | 8 | 3.5 | 200LLE10MEFC8X11.5 | 210-2425 |
| 18µF | 113 | 12.5 | 10 | 5 | 200LLE18MEFC10X12.5 | 210-2426 |
| 27µF | 149 | 16 | 10 | 5 | 200LLE27MEFC10X16 | 210-2427 |

**250 Volt d.c.** — Price Each

| | Order Code | 1+ | 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| 4.7µF | 210-2424 | | | | | |
| 10µF | 210-2425 | | | | | |
| 18µF | 210-2426 | | | | | |
| 27µF | 210-2427 | | | | | |

**400 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 6.8µF | 85 | 16 | 10 | 5 | 400LLE6.8MEFC10X16 | 210-2428 |
| 4.7µF | 61 | 12.5 | 10 | 5 | 400LLE4.7MEFC10X12.5 | 210-2429 |
| 2.2µF | 40 | 11.5 | 8 | 3.5 | 400LLE2.2MEFC8X11.5 | 210-2430 |
| 1µF | 24 | 11 | 6.3 | 2.5 | 400LLE1MEFC6.3X11 | 210-2431 |

659163

**400 Volt d.c.** — Price Each

| | Order Code | 1+ | 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| 6.8µF | 210-2428 | | | | | |
| 4.7µF | 210-2429 | | | | | |
| 2.2µF | 210-2430 | | | | | |
| 1µF | 210-2431 | | | | | |

## YXF Series – Low Impedance 105°C

Rubycon



- High performance radial electrolytic capacitors
- 105°C, low impedance

Operating temperature -40°C to +105°C
Tolerance ±20%
Impedance Ω max. at 100kHz @ 20°C
DC leakage 0.01CV or 3µA whichever is greater
Ripple current measured at 100kHz @105°C

| **6.3 Volt d.c.** | Ripple (mA) | Impedance (Ω) | Dimensions H | Dia. | Lead Pitch | Lead Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 1000µF | 576 | 0.17 | 12.5 | 10 | 5 | 0.6 | 6.3YXF1000MEFC10X12.5 | 114-4606 |
| 2200µF | 1296 | 0.078 | 20 | 12.5 | 5 | 0.6 | 6.3YXF2200MEFC12.5X20 | 114-4607 |

**Order Multiple=5** — Price Each

**6.3 Volt d.c**

| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1000µF | 114-4606 | | | | | |
| 2200µF | 114-4607 | | | | | |

| **10 Volt d.c** | Ripple (mA) | Impedance (Ω) | Dimensions H | Dia. | Lead Pitch | Lead Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 100µF | 147 | 0.9 | 11 | 5 | 2 | 0.5 | 10YXF100MEFC5X11 | 114-4608 |
| 220µF | 244 | 0.4 | 11 | 6.3 | 2.5 | 0.5 | 10YXF220MEFC6.3X11 | 114-4609 |
| 470µF | 391 | 0.26 | 11.5 | 8 | 3.5 | 0.6 | 10YXF470MEFC8X11.5 | 114-4610 |
| 4700µF | 1839 | 0.034 | 25 | 16 | 7.5 | 0.8 | 10YXF4700MEFC16X25 | 114-4611 |

**Order Multiple=5**
**10 Volt d.c.** — Price Each

| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 100µF | 114-4608 | | | | | |
| 220µF | 114-4609 | | | | | |
| 470µF | 114-4610 | | | | | |
| 4700µF | 114-4611 | | | | | |

| **16 Volt d.c.** | Ripple (mA) | Impedance (Ω) | Dimensions H | Dia. | Lead Pitch | Lead Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 47µF | 147 | 0.9 | 11 | 5 | 2 | 0.5 | 16YXF47MEFC5X11 | 114-4612 |
| 100µF | 244 | 0.4 | 11 | 6.3 | 2.5 | 0.5 | 16YXF100MEFC6.3X11 | 114-4614 |
| 220µF | 391 | 0.26 | 11.5 | 8 | 3.5 | 0.6 | 16YXF220MEFC8X11.5 | 114-4615 |
| 470µF | 576 | 0.17 | 12.5 | 10 | 5 | 0.6 | 16YXF470MEFC10X12.5 | 114-4616 |
| 1000µF | 1009 | 0.095 | 20 | 10 | 5 | 0.6 | 16YXF1000MEFC10X20 | 114-4617 |
| 2200µF | 1646 | 0.06 | 25 | 12.5 | 5 | 0.6 | 16YXF2200MEFC12.5X25 | 114-4618 |

**Order Multiple=5**
**16 Volt d.c.** — Price Each

| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 47µF | 114-4612 | | | | | |
| 100µF | 114-4614 | | | | | |
| 220µF | 114-4615 | | | | | |
| 470µF | 114-4616 | | | | | |
| 1000µF | 114-4617 | | | | | |
| 2200µF | 114-4618 | | | | | |

| **25 Volt d.c.** | Ripple (mA) | Impedance (Ω) | Dimensions H | Dia. | Lead Pitch | Lead Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 47µF | 147 | 0.9 | 11 | 5 | 2 | 0.5 | 25YXF47MEFC5X11 | 114-4619 |
| 100µF | 244 | 0.4 | 11 | 6.3 | 2.5 | 0.5 | 25YXF100MEFC6.3X11 | 114-4620 |
| 220µF | 391 | 0.26 | 11.5 | 8 | 3.5 | 0.6 | 25YXF220MEFC8X11.5 | 114-4621 |
| 330µF | 576 | 0.17 | 12.5 | 10 | 5 | 0.6 | 25YXF330MEFC10X12.5 | 114-4622 |
| 470µF | 762 | 0.12 | 16 | 10 | 5 | 0.6 | 25YXF470MEFC10X16 | 114-4623 |
| 1000µF | 1296 | 0.078 | 20 | 12.5 | 5 | 0.6 | 25YXF1000MEFC12.5X20 | 114-4624 |

**Order Multiple=5**
**25 Volt d.c.** — Price Each

| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 47µF | 114-4619 | | | | | |
| 100µF | 114-4620 | | | | | |
| 220µF | 114-4621 | | | | | |
| 330µF | 114-4622 | | | | | |
| 470µF | 114-4623 | | | | | |
| 1000µF | 114-4624 | | | | | |

| **35 Volt d.c.** | Ripple (mA) | Impedance (Ω) | Dimensions H | Dia. | Lead Pitch | Lead Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 47µF | 244 | 0.4 | 11 | 6.3 | 2.5 | 0.5 | 35YXF47MEFC6.3X11 | 114-4626 |
| 100µF | 391 | 0.26 | 11.5 | 8 | 3.5 | 0.6 | 35YXF100MEFC8X11.5 | 114-4627 |
| 220µF | 576 | 0.17 | 12.5 | 10 | 5 | 0.6 | 35YXF220MEFC10X12.5 | 114-4628 |
| 470µF | 1009 | 0.095 | 20 | 10 | 5 | 0.6 | 35YXF470MEFC10X20 | 114-4629 |
| 1000µF | 1646 | 0.06 | 25 | 12.5 | 5 | 0.6 | 35YXF1000MEFC12.5X25 | 114-4630 |
| 2200µF | 1994 | 0.029 | 31.5 | 16 | 7.5 | 0.8 | 35YXF2200MEFC16X31.5 | 114-4631 |

# Aluminium Electrolytic - Radial - Rubycon - continued

## YXF Series – Low Impedance 105°C - continued

Order Multiple=5

**35 Volt d.c.**

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 47µF | 114-4626 | | | | | |
| 100µF | 114-4627 | | | | | |
| 220µF | 114-4628 | | | | | |
| 470µF | 114-4629 | | | | | |
| 1000µF | 114-4630 | | | | | |
| 2200µF | 114-4631 | | | | | |

| 50 Volt d.c. | Ripple (mA) | Impedance (Ω) | Dimensions H | Dia. | Lead Pitch | Lead Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 10µF | 100 | 1.5 | 11 | 5 | 2 | 0.5 | 50YXF10MEFC5X11 | 114-4632 |
| 47µF | 244 | 0.4 | 11 | 6.3 | 2.5 | 0.5 | 50YXF47MEFC6.3X11 | 114-4633 |
| 100µF | 391 | 0.26 | 11.5 | 8 | 3.5 | 0.6 | 50YXF100MEFC8X11.5 | 114-4634 |
| 220µF | 762 | 0.12 | 16 | 10 | 5 | 0.6 | 50YXF220MEFC10X16 | 114-4635 |
| 1000µF | 1839 | 0.034 | 25 | 16 | 7.5 | 0.8 | 50YXF1000MEFC16X25 | 114-4636 |

Order Multiple=5

**50 Volt d.c.**

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10µF | 114-4632 | | | | | |
| 47µF | 114-4633 | | | | | |
| 100µF | 114-4634 | | | | | |
| 220µF | 114-4635 | | | | | |
| 1000µF | 114-4636 | | | | | |

| 63 Volt d.c. | Ripple (mA) | Impedance (Ω) | Dimensions H | Dia. | Lead Pitch | Lead Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 100µF | 300 | 0.45 | 12.5 | 10 | 5 | 0.6 | 63YXF100MEFC10X12.5 | 114-4638 |
| 470µF | 750 | 0.14 | 25 | 12.5 | 5 | 0.6 | 63YXF470MEFC12.5X25 | 114-4639 |

Order Multiple=5

**63 Volt d.c.**

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 100µF | 114-4638 | | | | | |
| 470µF | 114-4639 | | | | | |

| 100 Volt d.c. | Ripple (mA) | Impedance (Ω) | Dimensions H | Dia. | Lead Pitch | Lead Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 10µF | 138 | 2.2 | 11 | 6.3 | 2.5 | 0.5 | 100YXF10MEFC6.3X11 | 114-4640 |
| 47µF | 290 | 0.53 | 16 | 10 | 5 | 0.6 | 100YXF47MEFC10X16 | 114-4641 |
| 100µF | 430 | 0.37 | 20 | 12.5 | 5 | 0.6 | 100YXF100MEFC12.5X20 | 114-4642 |
| 220µF | 900 | 0.12 | 25 | 16 | 7.5 | 0.8 | 100YXF220MEFC16X25 | 114-4643 |

208631

Order Multiple=5

**100 Volt d.c.**

| | Order Code | Price Each 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 10µF | 114-4640 | | | | | |
| 47µF | 114-4641 | | | | | |
| 100µF | 114-4642 | | | | | |
| 220µF | 114-4643 | | | | | |

## YXM Series

**10,000 hours - 105°C**

Rubycon



- Miniaturised aluminium electrolytic can size
- Extremely long life of 10,000 hours

Tolerance ±20%
Leakage current (max) 0.01 CV or 3µA whichever is greater
Operating temperature -25°C to +105°C
Ripple current measured at 105°C@ 100kHz

**16 Volt d.c.**

| | Ripple (mA) | Dimensions H | Dia. | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 220µF | 330 | 11.5 | 8 | 0.6 | 3.5 | 16YXM220MEFC8X11.5 | 128-1849 |

**16 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 220µF | 128-1849 | | | | | |

**35 Volt d.c.**

| | Ripple (mA) | Dimensions H | Dia. | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 100µF | 330 | 11.5 | 8 | 0.6 | 3.5 | 35YXM100MEFC8X11.5 | 128-1853 |

**35 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 100µF | 128-1853 | | | | | |

**50 Volt d.c.**

| | Ripple (mA) | Dimensions H | Dia. | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 2.2µF | 35 | 11 | 5 | 0.5 | 2 | 50YXM2R2MEFC5X11 | 128-1850 |
| 47µF | 190 | 11 | 6.3 | 0.5 | 2.5 | 50YXM47MEFC6.3X11 | 128-1851 |
| 4.7µF | 80 | 11 | 5 | 0.5 | 2 | 50YXM4R7MEFC5X11 | 128-1852 |

**50 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 2.2µF | 128-1850 | | | | | |
| 47µF | 128-1851 | | | | | |
| 4.7µF | 128-1852 | | | | | |

**63 Volt d.c.**

| | Ripple (mA) | Dimensions H | Dia. | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 33µF | 170 | 11 | 6.3 | 0.5 | 2.5 | 63YXM33MEFC6.3X11 | 128-1854 |

**63 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 33µF | 128-1854 | | | | | |

**100 Volt d.c.**

| | Ripple (mA) | Dimensions H | Dia. | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 22µF | 230 | 11.5 | 8 | 0.6 | 3.5 | 100YXM22MEFC8X11.5 | 128-1855 |

451911

**100 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 22µF | 128-1855 | | | | | |

## ZL Series – Ultra Low Impedance

**– High Ripple 105°C**

Rubycon



- 40% Lower impedance than conventional low impedance electrolytics
- High ripple and low impedance offers component reduction or miniaturisation opportunities

Tolerance ±20%
Leakage current (max) 0.01 CV or 3µA whichever is greater
Operating temperature -40°C to +105°C
Ripple current measured at 105°C@ 100kHz

**6.3 Volt d.c.**

| | Ripple (mA) | Impedance (Ω Max @ 20°C 100kHz) | Dimensions H | Dia. | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 1000µF | 1030 | 0.053 | 12.5 | 10 | 0.6 | 5 | 6.3ZL1000MEFC10X12.5 | 114-4671 |
| 1500µF | 1820 | 0.023 | 20 | 10 | 0.6 | 5 | 6.3ZL1500MEFC10X20 | 114-4672 |
| 2200µF | 2150 | 0.022 | 23 | 10 | 0.6 | 5 | 6.3ZL2200MEFC10X23 | 114-4673 |
| 4700µF | 3290 | 0.016 | 30 | 12.5 | 0.6 | 5 | 6.3ZL4700MEFC12.5X30 | 114-4675 |
| 5600µF | 3140 | 0.018 | 20 | 16 | 0.8 | 7.5 | 6.3ZL5600MEFC16X20 | 114-4676 |
| 6800µF | 3460 | 0.016 | 25 | 16 | 0.8 | 7.5 | 6.3ZL6800MEFC16X25 | 114-4677 |

**6.3 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1000µF | 114-4671 | | | | | |
| 1500µF | 114-4672 | | | | | |
| 2200µF | 114-4673 | | | | | |
| 4700µF | 114-4675 | | | | | |
| 5600µF | 114-4676 | | | | | |
| 6800µF | 114-4677 | | | | | |

**10 Volt d.c.**

| | Ripple (mA) | Impedance (Ω Max @ 20°C 100kHz) | Dimensions H | Dia. | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 100µF | 250 | 0.3 | 11 | 5 | 0.5 | 2 | 10ZL100MEFC5X11 | 114-4678 |
| 220µF | 405 | 0.13 | 11 | 6.3 | 0.5 | 2.5 | 10ZL220MEFC6.3X11 | 114-4679 |
| 470µF | 760 | 0.072 | 11.5 | 8 | 0.6 | 3.5 | 10ZL470MEFC8X11.5 | 114-4680 |
| 680µF | 995 | 0.056 | 16 | 8 | 0.6 | 3.5 | 10ZL680MEFC8X16 | 114-4681 |
| 1000µF | 1250 | 0.041 | 20 | 8 | 0.6 | 3.5 | 10ZL1000MEFC8X20 | 114-4682 |
| 1500µF | 2150 | 0.022 | 23 | 10 | 0.6 | 5 | 10ZL1500MEFC10X23 | 114-4684 |
| 2200µF | 2360 | 0.021 | 20 | 12.5 | 0.6 | 5 | 10ZL2200MEFC12.5X20 | 114-4685 |
| 3300µF | 2770 | 0.018 | 25 | 12.5 | 0.6 | 5 | 10ZL3300MEFC12.5X25 | 114-4687 |
| 4700µF | 3400 | 0.015 | 35 | 12.5 | 0.8 | 5 | 10ZL4700MEFC12.5X35 | 114-4683 |

**10 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 100µF | 114-4678 | | | | | |
| 220µF | 114-4679 | | | | | |
| 470µF | 114-4680 | | | | | |
| 680µF | 114-4681 | | | | | |
| 1000µF | 114-4682 | | | | | |
| 1500µF | 114-4684 | | | | | |
| 2200µF | 114-4685 | | | | | |
| 3300µF | 114-4687 | | | | | |
| 4700µF | 114-4683 | | | | | |

**16 Volt d.c.**

| | Ripple (mA) | Impedance (Ω Max @ 20°C 100kHz) | Dimensions H | Dia. | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 330µF | 760 | 0.072 | 11.5 | 8 | 0.6 | 3.5 | 16ZL330MEFC8X11.5 | 114-4688 |
| 470µF | 995 | 0.056 | 16 | 8 | 0.6 | 3.5 | 16ZL470MEFC8X16 | 114-4689 |
| 470µF | 1030 | 0.053 | 12.5 | 10 | 0.6 | 5 | 16ZL470MEFC10X12.5 | 114-4690 |
| 680µF | 1430 | 0.038 | 16 | 10 | 0.6 | 5 | 16ZL680MEFC10X16 | 114-4691 |
| 1000µF | 1820 | 0.023 | 20 | 10 | 0.6 | 5 | 16ZL1000MEFC10X20 | 114-4692 |
| 1500µF | 2360 | 0.021 | 20 | 12.5 | 0.6 | 5 | 16ZL1500MEFC12.5X20 | 114-4693 |
| 2200µF | 2770 | 0.018 | 25 | 12.5 | 0.6 | 5 | 16ZL2200MEFC12.5X25 | 114-4694 |
| 3300µF | 3400 | 0.015 | 35 | 12.5 | 0.8 | 5 | 16ZL3300MEFC12.5X35 | 114-4695 |


RoHS ● Compliant ▲ Non-compliant

**16 Volt d.c.**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 330µF | **114-4688** | | | | | |
| 470µF | **114-4689** | | | | | |
| 470µF | **114-4690** | | | | | |
| 680µF | **114-4691** | | | | | |
| 1000µF | **114-4692** | | | | | |
| 1500µF | **114-4693** | | | | | |
| 2200µF | **114-4694** | | | | | |
| 3300µF | **114-4695** | | | | | |

**25 Volt d.c.**

| | Ripple (mA) | Impedance (Ω Max @ 20°C 100kHz) | Dimensions H | Dia. | Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 47µF | 250 | 0.3 | 11 | 5 | 0.5 | 2 | 25ZL47MEFC5X11 | 114-4696 |
| 100µF | 405 | 0.13 | 11 | 6.3 | 0.5 | 2.5 | 25ZL100MEFC6.3X11 | 114-4697 |
| 220µF | 760 | 0.072 | 11.5 | 8 | 0.6 | 3.5 | 25ZL220MEFC8X11.5 | 114-4699 |
| 470µF | 1250 | 0.041 | 20 | 8 | 0.6 | 3.5 | 25ZL470MEFC8X20 | 114-4700 |
| 470µF | 1430 | 0.038 | 16 | 10 | 0.6 | 5 | 25ZL470MEFC10X16 | 114-4701 |
| 680µF | 1820 | 0.023 | 20 | 10 | 0.6 | 5 | 25ZL680MEFC10X20 | 114-4702 |
| 1000µF | 2360 | 0.021 | 20 | 12.5 | 0.6 | 5 | 25ZL1000MEFC12.5X20 | 114-4703 |
| 1500µF | 2770 | 0.018 | 25 | 12.5 | 0.6 | 5 | 25ZL1500MEFC12.5X25 | 114-4705 |
| 2200µF | 3400 | 0.015 | 35 | 12.5 | 0.8 | 5 | 25ZL2200MEFC12.5X35 | 114-4706 |

**25 Volt d.c.**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 47µF | **114-4696** | | | | | |
| 100µF | **114-4697** | | | | | |
| 220µF | **114-4699** | | | | | |
| 470µF | **114-4700** | | | | | |
| 470µF | **114-4701** | | | | | |
| 680µF | **114-4702** | | | | | |
| 1000µF | **114-4703** | | | | | |
| 1500µF | **114-4705** | | | | | |
| 2200µF | **114-4706** | | | | | |

**35 Volt d.c.**

| | Ripple (mA) | Impedance (Ω Max @ 20°C 100kHz) | Dimensions H | Dia. | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 220µF | 995 | 0.056 | 16 | 8 | 0.6 | 3.5 | 35ZL220MEFC8X16 | 114-4707 |
| 470µF | 1820 | 0.023 | 20 | 10 | 0.6 | 5 | 35ZL470MEFC10X20 | 114-4708 |
| 680µF | 2360 | 0.021 | 20 | 12.5 | 0.6 | 5 | 35ZL680MEFC12.5X20 | 114-4709 |
| 1000µF | 2770 | 0.18 | 25 | 12.5 | 0.6 | 5 | 35ZL1000MEFC12.5X25 | 114-4710 |
| 1500µF | 3400 | 0.015 | 35 | 12.5 | 0.8 | 5 | 35ZL1500MEFC12.5X35 | 114-4711 |

**35 Volt d.c.**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 220µF | **114-4707** | | | | | |
| 470µF | **114-4708** | | | | | |
| 680µF | **114-4709** | | | | | |
| 1000µF | **114-4710** | | | | | |
| 1500µF | **114-4711** | | | | | |

**50 Volt d.c.**

| | Ripple (mA) | Impedance (Ω Max @ 20°C 100kHz) | Dimensions H | Dia. | Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 22µF | 238 | 0.34 | 11 | 5 | 0.5 | 2 | 50ZL22MEFC5X11 | 114-4712 |
| 100µF | 724 | 0.074 | 11.5 | 8 | 0.6 | 3.5 | 50ZL100MEFC8X11.5 | 114-4713 |
| 220µF | 1370 | 0.042 | 16 | 10 | 0.6 | 5 | 50ZL220MEFC10X16 | 114-4714 |
| 470µF | 2050 | 0.027 | 20 | 12.5 | 0.6 | 5 | 50ZL470MEFC12.5X20 | 114-4715 |
| 680µF | 2860 | 0.021 | 30 | 12.5 | 0.6 | 5 | 50ZL680MEFC12.5X30 | 114-4717 |
| 1000µF | 3010 | 0.021 | 25 | 16 | 0.8 | 7.5 | 50ZL1000MEFC16X25 | 114-4718 |

208552

**50 Volt d.c.**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 22µF | **114-4712** | | | | | |
| 100µF | **114-4713** | | | | | |
| 220µF | **114-4714** | | | | | |
| 470µF | **114-4715** | | | | | |
| 680µF | **114-4717** | | | | | |
| 1000µF | **114-4718** | | | | | |

**63 Volt d.c.**

| | Ripple (mA) | Impedance (Ω Max @ 20°C 100kHz) | Dimensions H | Dia. | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 33µF | 265 | 0.35 | 11 | 6.3 | 0.5 | 2.5 | 63ZL33MEFC6.3X11 | 128-1840 |
| 180µF | 945 | 0.11 | 20 | 10 | 0.6 | 5 | 63ZL180MEFC10X20 | 128-1838 |
| 220µF | 1300 | 0.073 | 23 | 10 | 0.6 | 5 | 63ZL220MEFC10X23 | 128-1839 |
| 680µF | 2780 | 0.029 | 40 | 12.5 | 0.6 | 5 | 63ZL680MEFC12.5X40 | 128-1842 |
| 470µF | 1990 | 0.045 | 20 | 16 | 0.8 | 7.5 | 63ZL470MEFC16X20 | 128-1841 |
| 1000µF | 2835 | 0.021 | 35.5 | 16 | 0.8 | 7.5 | 63ZL1000MEFC16X35.5 | 128-1837 |

**63 Volt d.c.**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 33µF | **128-1840** | | | | | |
| 180µF | **128-1838** | | | | | |
| 220µF | **128-1839** | | | | | |
| 680µF | **128-1842** | | | | | |
| 470µF | **128-1841** | | | | | |
| 1000µF | **128-1837** | | | | | |

**100 Volt d.c.**

| | Ripple (mA) | Impedance (Ω Max @ 20°C 100kHz) | Dimensions H | Dia. | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 15µF | 205 | 0.57 | 11 | 6.3 | 0.5 | 2.5 | 100ZL15MEFC6.3X11 | 128-1844 |
| 68µF | 580 | 0.18 | 16 | 10 | 0.6 | 5 | 100ZL68MEFC10X16 | 128-1848 |
| 100µF | 880 | 0.12 | 23 | 10 | 0.6 | 5 | 100ZL100MEFC10X23 | 128-1843 |
| 220µF | 1410 | 0.063 | 30 | 12.5 | 0.6 | 5 | 100ZL220MEFC12.5X30 | 128-1845 |
| 680µF | 2570 | 0.028 | 40 | 18 | 0.8 | 7.5 | 100ZL680MEFC18X40 | 128-1846 |
| 150µF | 1000 | 0.036 | 11.5 | 8 | 0.6 | 3.5 | 35ZLG150MEFC8X11.5 | 128-1819 |

451907

**100 Volt d.c.**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 15µF | **128-1844** | | | | | |
| 68µF | **128-1848** | | | | | |
| 100µF | **128-1843** | | | | | |
| 220µF | **128-1845** | | | | | |
| 680µF | **128-1846** | | | | | |
| 150µF | **128-1819** | | | | | |

## ZLK Series

Rubycon

NEW



- Load Life: 105°C 4000- 5000hours.
- High ripple
- Low impedance

Tolerance ± 20% Operating temperature -40°C to +105°C

**16 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 470µF | 2050 | 16 | 8 | 3.5 | 16ZLK470M8X16 | 183-1283 |
| 1200µF | 2880 | 20 | 10 | 5 | 16ZLK1200M10X20 | 183-1284 |
| 1500µF | 3160 | 25 | 10 | 5 | 16ZLK1500M10X25 | 210-2460 |

**16 Volt d.c.**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 470µF | **183-1283** | | | | | |
| 1200Capacitance | **183-1284** | | | | | |
| 1500Capacitance | **210-2460** | | | | | |

**25 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 330µF | 2050 | 16 | 8 | 3.5 | 25ZLK330M8X16 | 183-1285 |
| 390µF | 2190 | 12.5 | 10 | 5 | 25ZLK390M10X12.5 | 210-2462 |
| 470µF | 2380 | 20 | 8 | 3.5 | 25ZLK470M8X20 | 183-1286 |
| 820µF | 2880 | 20 | 10 | 5 | 25ZLK820M10X20 | 210-2461 |
| 1000µF | 3160 | 25 | 10 | 5 | 25ZLK1000M10X25 | 183-1287 |

**25 Volt d.c.**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 330µF | **183-1285** | | | | | |
| 390µF | **210-2462** | | | | | |
| 470µF | **183-1286** | | | | | |
| 820µF | **210-2461** | | | | | |
| 1000µF | **183-1287** | | | | | |

**35 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 220µF | 2050 | 16 | 8 | 3.5 | 35ZLK220M8X16 | 183-1289 |
| 220µF | 2190 | 12.5 | 10 | 5 | 35ZLK220M10X12.5 | 210-2463 |
| 330µF | 2550 | 16 | 10 | 5 | 35ZLK330M10X16 | 183-1291 |
| 470µF | 2880 | 20 | 10 | 5 | 35ZLK470M10X20 | 183-1292 |
| 560µF | 3160 | 25 | 10 | 5 | 35ZLK560M10X25 | 210-2464 |

612290

**35 Volt d.c.**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 220µF | **183-1289** | | | | | |
| 330µF | **183-1291** | | | | | |
| 470µF | **183-1292** | | | | | |
| 220µF | **210-2463** | | | | | |
| 560µF | **210-2464** | | | | | |

## ZLG Series – Ultra Low Impedance

Rubycon

**105°C**



- Extremely reduced impedance at high frequency than the ZL Series
- High ripple and low impedance offers component reduction or miniaturisation opportunities

Tolerance ±20%
Leakage current (max) 0.03 CV or 3µA whichever is greater
Operating temperature -40°C to +105°C
Ripple current measured at 105°C@ 100kHz

**6.3 Volt d.c.**

| | Ripple (mA) | Impedance (Ω Max @ 20°C 100kHz) | Dimensions H | Dia. | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 100µF | 405 | 0.15 | 7 | 6.3 | 2.5 | 2.5 | 6.3ZLG100MEFC6.3X7 | 127-8842 |
| 330µF | 760 | 0.15 | 11 | 6.3 | 0.5 | 2.5 | 6.3ZLG330MEFC6.3X11 | 128-1805 |
| 560µF | 1000 | 0.036 | 11.5 | 8 | 0.6 | 3.5 | 6.3ZLG560MEFC8X11.5 | 128-1806 |

# Aluminium Electrolytic - Radial - Rubycon - continued

## ZLG Series – Ultra Low Impedance - continued

**105°C - continued**

**6.3 Volt d.c.**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| | | Price Each | | | | |
| 100µF | 127-8842 | | | | | |
| 330µF | 128-1805 | | | | | |
| 560µF | 128-1806 | | | | | |

**10 Volt d.c.**

| | Ripple (mA) | Impedance (Ω Max @ 20°C 100kHz) | Dimensions H | Dia. | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 100µF | 405 | 0.15 | 11 | 5 | 0.5 | 2 | 10ZLG100MEFC5X11 | 128-1807 |
| 470µF | 1000 | 0.065 | 11.5 | 8 | 0.6 | 3.5 | 10ZLG470MEFC8X11.5 | 128-1808 |

**10 Volt d.c.**

| 4.7µF | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| | | Price Each | | | | |
| 100µF | 128-1807 | | | | | |
| 470µF | 128-1808 | | | | | |

**16 Volt d.c.**

| | Ripple (mA) | Impedance (Ω Max @ 20°C 100kHz) | Dimensions H | Dia. | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 47µF | 480 | 0.15 | 7 | 6.3 | 0.45 | 2.5 | 16ZLG47MEFC6.3X7 | 128-1810 |
| 120µF | 760 | 0.065 | 11 | 6.3 | 0.5 | 2.5 | 16ZLG120MEFC6.3X11 | 128-1809 |
| 330µF | 1000 | 0.036 | 11.5 | 8 | 0.6 | 3.5 | 16ZLG330MEFC8X11.5 | 171-2582 |
| 470µF | 1430 | 0.027 | 12.5 | 10 | 0.6 | 5 | 16ZLG470MEFC10X12.5 | 171-2583 |

**16 Volt d.c.**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| | | Price Each | | | | |
| 47µF | 128-1810 | | | | | |
| 120µF | 128-1809 | | | | | |
| 330µF | 171-2582 | | | | | |
| 470µF | 171-2583 | | | | | |

**25 Volt d.c.**

| | Ripple (mA) | Impedance (Ω Max @ 20°C 100kHz) | Dimensions H | Dia. | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 10µF | 230 | 0.52 | 7 | 4 | 0.45 | 1.5 | 25ZLG10MEFC4X7 | 128-1813 |
| 22µF | 350 | 0.27 | 7 | 5 | 0.45 | 2 | 25ZLG22MEFC5X7 | 128-1815 |
| 33µF | 480 | 0.16 | 7 | 6.3 | 0.45 | 2.5 | 25ZLG33MEFC6.3X7 | 128-1816 |
| 47µF | 480 | 0.15 | 7 | 6.3 | 0.5 | 2.5 | 25ZLG47MEFC6.3X7 | 171-2584 |
| 100µF | 760 | 0.065 | 11 | 6.3 | 0.5 | 2.5 | 25ZLG100MEFC6.3X11 | 128-1812 |
| 220µF | 1000 | 0.036 | 11.5 | 8 | 0.6 | 3.5 | 25ZLG220MEFC8X11.5 | 128-1814 |
| 330µF | 1430 | 0.027 | 12.5 | 10 | 0.6 | 5 | 25ZLG330MEFC10X12.5 | 171-2586 |

**25 Volt d.c.**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| | | Price Each | | | | |
| 10µF | 128-1813 | | | | | |
| 22µF | 128-1815 | | | | | |
| 33µF | 128-1816 | | | | | |
| 47µF | 171-2584 | | | | | |
| 100µF | 128-1812 | | | | | |
| 220µF | 128-1814 | | | | | |
| 330µF | 171-2586 | | | | | |

**35 Volt d.c.**

| | Ripple (mA) | Impedance (Ω Max @ 20°C 100kHz) | Dimensions H | Dia. | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 4.7µF | 230 | 0.64 | 7 | 4 | 0.45 | 1.5 | 35ZLG4R7MEFC4X7 | 128-1822 |
| 10µF | 350 | 0.33 | 7 | 5 | 0.45 | 2 | 35ZLG10MEFC5X7 | 128-1818 |
| 22µF | 480 | 0.16 | 7 | 6.3 | 0.45 | 2.5 | 35ZLG22MEFC6.3X7 | 128-1820 |
| 33µF | 480 | 0.15 | 7 | 6.3 | 0.45 | 2.5 | 35ZLG33MEFC6.3X7 | 128-1821 |
| 56µF | 760 | 0.065 | 11 | 6.3 | 0.5 | 2.5 | 35ZLG56MEFC6.3X11 | 171-2587 |
| 100µF | 910 | 0.048 | 11.5 | 8 | 0.6 | 3.5 | 35ZLG100MEFC8X11.5 | 180-5449 |
| 150µF | 1000 | 0.036 | 11.5 | 8 | 0.6 | 3.5 | 35ZLG150MEFC8X11.5 | 128-1819 |
| 220µF | 1430 | 0.027 | 12.5 | 10 | 0.6 | 5 | 35ZLG220MEFC10X12.5 | 171-2588 |

451904

**35 Volt d.c.**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| | | Price Each | | | | |
| 4.7µF | 128-1822 | | | | | |
| 10µF | 128-1818 | | | | | |
| 22µF | 128-1820 | | | | | |
| 33µF | 128-1821 | | | | | |
| 56µF | 171-2587 | | | | | |
| 100µF | 180-5449 | | | | | |
| 150µF | 128-1819 | | | | | |
| 220µF | 171-2588 | | | | | |

## ZLH Series – 105°C
## (Miniature Aluminium Electrolytic)

Rubycon



- Ultra Low Impedance at High frequencies
- Achieved endurance improvement and miniaturization of ZL series, as well as high frequency impedance reduction
- Load Life of up to 10000 hours
- Developed for high reliability applications
- Ideally suited for output filtering on switching power supplies, High end Audio, Servers

| | | | |
|---|---|---|---|
| Tolerance | ±20% | Operating temperature | -40°C to +105°C |
| Leakage current (max) | 0.01 CV or 3µA whichever is greater | Ripple current measured at | 105°C@ 100kHz |

**6.3 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 220µF | 345 | 11 | 5 | 2 | 6.3ZLH220MEFC5X11 | 812-7158 |
| 470µF | 540 | 11 | 6.3 | 2.5 | 6.3ZLH470MEFC6.3X11 | 812-7174 |
| 820µF | 945 | 11.5 | 8 | 3.5 | 6.3ZLH820MEFC8X11.5 | 171-2577 |
| 2200µF | 1960 | 20 | 10 | 5 | 6.3ZLH2200MEFC10X20 | 812-7166 |
| 4700µF | 2900 | 25 | 12.5 | 5 | 6.3ZLH4700MEFC12.5X25 | 812-7182 |
| 6800µF | 3250 | 20 | 16 | 7.5 | 6.3ZLH6800MEFC16X20 | 812-7190 |

**6.3 Volt d.c.**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| | | Price Each | | | | |
| 220µF | 812-7158 | | | | | |
| 470µF | 812-7174 | | | | | |
| 820µF | 171-2577 | | | | | |
| 2200µF | 812-7166 | | | | | |
| 4700µF | 812-7182 | | | | | |
| 6800µF | 812-7190 | | | | | |

**10 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 1000µF | 1250 | 16 | 8 | 3.5 | 10ZLH1000MEFC8X16 | 812-6216 |
| 4700µF | 3450 | 30 | 12.5 | 5 | 10ZLH4700MEFC12.5X30 | 812-6224 |
| 4700µF | 3250 | 16 | 20 | 7.5 | 10ZLH4700MEFC16X20 | 812-6232 |

**10 Volt d.c.**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| | | Price Each | | | | |
| 1000µF | 812-6216 | | | | | |
| 4700µF | 812-6224 | | | | | |
| 4700µF | 812-6232 | | | | | |

**16 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 100µF | 345 | 11 | 5 | 2 | 16ZLH100MEFC5X11 | 812-6283 |
| 220µF | 540 | 11 | 6.3 | 2.5 | 16ZLH220MEFC6.3X11 | 812-6305 |
| 470µF | 945 | 11.5 | 8 | 3.5 | 16ZLH470MEFC8X11.5 | 812-6321 |
| 1000µF | 1500 | 20 | 8 | 3.5 | 16ZLH1000MEFC8X20 | 812-6291 |
| 1500µF | 1960 | 20 | 10 | 5 | 16ZLH1500MEFC10X20 | 171-2578 |
| 2200µF | 2480 | 20 | 12.5 | 5 | 16ZLH2200MEFC12.5X20 | 812-6313 |
| 4700µF | 3630 | 25 | 16 | 7.5 | 16ZLH4700MEFC16X25 | 812-6330 |

**16 Volt d.c.**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| | | Price Each | | | | |
| 100µF | 812-6283 | | | | | |
| 220µF | 812-6305 | | | | | |
| 470µF | 812-6321 | | | | | |
| 1000µF | 812-6291 | | | | | |
| 1500µF | 171-2578 | | | | | |
| 2200µF | 812-6313 | | | | | |
| 4700µF | 812-6330 | | | | | |

**25 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 330µF | 945 | 11.5 | 8 | 3.5 | 25ZLH330MEFC8X11.5 | 171-2579 |
| 470µF | 1330 | 12.5 | 10 | 5 | 25ZLH470MEFC10X12.5 | 812-6461 |
| 820µF | 1960 | 20 | 10 | 5 | 25ZLH820MEFC10X20 | 171-2580 |
| 1000µF | 2250 | 23 | 10 | 5 | 25ZLH1000MEFC10X23 | 812-6437 |
| 2200µF | 3450 | 30 | 12.5 | 5 | 25ZLH2200MEFC12.5X30 | 812-6445 |
| 2200µF | 3250 | 20 | 16 | 7.5 | 25ZLH2200MEFC16X20 | 812-6453 |
| 3300µF | 3630 | 25 | 16 | 7.5 | 25ZLH3300MEFC16X25 | 171-2581 |

**25 Volt d.c.**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| | | Price Each | | | | |
| 330µF | 171-2579 | | | | | |
| 470µF | 812-6461 | | | | | |
| 820µF | 171-2580 | | | | | |
| 1000µF | 812-6437 | | | | | |
| 2200µF | 812-6445 | | | | | |
| 2200µF | 812-6453 | | | | | |
| 3300µF | 171-2581 | | | | | |

**35 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 47µF | 345 | 11 | 5 | 2 | 35ZLH47MEFC5X11 | 812-6747 |
| 100µF | 540 | 11 | 6.3 | 2.5 | 35ZLH100MEFC6.3X11 | 812-6658 |
| 220µF | 945 | 11.5330 | 8 | 3.5 | 35ZLH220MEFC8X11.5 | 812-6690 |
| 270µF | 1250 | 16 | 8 | 3.5 | 35ZLH270MEFC8X16 | 812-6712 |
| 330µF | 1330 | 12.5 | 10 | 5 | 35ZLH330MEFC10X12.5 | 812-6720 |
| 390µF | 1500 | 20 | 8 | 3.5 | 35ZLH390MEFC8X20 | 812-6739 |
| 470µF | 1760 | 16 | 10 | 5 | 35ZLH470MEFC10X16 | 812-6755 |
| 560µF | 1960 | 20 | 10 | 5 | 35ZLH560MEFC10X20 | 812-6763 |
| 680µF | 2250 | 23 | 10 | 5 | 35ZLH680MEFC10X23 | 812-6771 |
| 1000µF | 2480 | 20 | 12.5 | 5 | 35ZLH1000MEFC12.5X20 | 812-6666 |
| 1200µF | 2900 | 25 | 12.5 | 5 | 35ZLH1200MEFC12.5X25 | 812-6674 |
| 1500µF | 3450 | 30 | 12.5 | 5 | 35ZLH1500MEFC12.5X30 | 812-6682 |
| 2200µF | 3630 | 25 | 16 | 7.5 | 35ZLH2200MEFC16X25 | 812-6704 |

**35 Volt d.c.**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| | | Price Each | | | | |
| 47µF | 812-6747 | | | | | |
| 100µF | 812-6658 | | | | | |
| 220µF | 812-6690 | | | | | |
| 270µF | 812-6712 | | | | | |
| 330µF | 812-6720 | | | | | |
| 390µF | 812-6739 | | | | | |

**35 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 470µF | 812-6755 | | | | | |
| 560µF | 812-6763 | | | | | |
| 680µF | 812-6771 | | | | | |
| 1000µF | 812-6666 | | | | | |
| 1200µF | 812-6674 | | | | | |
| 1500µF | 812-6682 | | | | | |
| 2200µF | 812-6704 | | | | | |

**50 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 100µF | 724 | 11.5 | 8 | 3.5 | 50ZLH100MEFC8X11.5 | 812-7077 |
| 220µF | 1370 | 16 | 10 | 5 | 50ZLH220MEFC10X16 | 812-7093 |
| 470µF | 2050 | 20 | 12.5 | 5 | 50ZLH470MEFC12.5X20 | 812-7107 |
| 1000µF | 3010 | 25 | 16 | 7.5 | 50ZLH1000MEFC16X25 | 812-7085 |

**50 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 100µF | 812-7077 | | | | | |
| 220µF | 812-7093 | | | | | |
| 470µF | 812-7107 | | | | | |
| 1000µF | 812-7085 | | | | | |

**100 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 100µF | 1040 | 20 | 10 | 5 | 100ZLH100MEFC10X20 | 154-7012 |
| 150µF | 1430 | 20 | 12.5 | 5 | 100ZLH150MEFC12.5X20 | 154-7013 |
| 330µF | 2140 | 40 | 12.5 | 5 | 100ZLH330MEFC12.5X40 | 154-7014 |

372156

**100 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 100µF | 154-7012 | | | | | |
| 150µF | 154-7013 | | | | | |
| 330µF | 154-7014 | | | | | |

## ZLJ Series

Rubycon



NEW

- Load Life: 105°C 7000- 10000hours.
- High ripple
- Low impedance

Tolerance ± 20% Operating temperature -40°C to +105°C

**10 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 330µF | 700 | 11 | 6.3 | 2.5 | 10ZLJ330M6.3X11 | 183-1266 |
| 560µF | 1200 | 11.5 | 8 | 3.5 | 10ZLJ560M8X11.5 | 183-1267 |
| 1800µF | 2500 | 20 | 10 | 5 | 10ZLJ1800M10X20 | 183-1268 |

**10 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 2K+ |
|---|---|---|---|---|---|---|
| 330µF | 183-1266 | | | | | |
| 560µF | 183-1267 | | | | | |
| 1800µF | 183-1268 | | | | | |

**16 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 270µF | 700 | 11 | 6.3 | 2.5 | 16ZLJ270M6.3X11 | 183-1269 |
| 470µF | 1200 | 11.5 | 8 | 3.5 | 16ZLJ470M8X11.5 | 183-1270 |
| 1000µF | 2000 | 16 | 10 | 5 | 16ZLJ1000M10X16 | 183-1271 |

**16 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 2K+ |
|---|---|---|---|---|---|---|
| 270µF | 183-1269 | | | | | |
| 470µF | 183-1270 | | | | | |
| 1000µF | 183-1271 | | | | | |

**25 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 150µF | 700 | 11 | 6.3 | 2.5 | 25ZLJ150M6.3X11 | 183-1272 |
| 330µF | 1200 | 11.5 | 8 | 3.5 | 25ZLJ330M8X11.5 | 183-1273 |
| 390µF | 1600 | 16 | 8 | 3.5 | 25ZLJ390M8X16 | 183-1274 |
| 470µF | 1700 | 12.5 | 10 | 5 | 25ZLJ470M10X12.5 | 183-1275 |
| 1000µF | 2500 | 20 | 10 | 5 | 25ZLJ1000M10X20 | 183-1277 |

**25 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 2K+ |
|---|---|---|---|---|---|---|
| 150µF | 183-1272 | | | | | |
| 330µF | 183-1273 | | | | | |
| 390µF | 183-1274 | | | | | |
| 470µF | 183-1275 | | | | | |
| 1000µF | 183-1277 | | | | | |

**35 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 47µF | 450 | 11 | 5 | 2 | 35ZLJ47M5X11 | 183-1278 |
| 100µF | 700 | 11 | 6.3 | 2.5 | 35ZLJ100M6.3X11 | 183-1279 |
| 220µF | 1600 | 16 | 8 | 3.5 | 35ZLJ220M8X16 | 183-1280 |
| 330µF | 1960 | 20 | 8 | 3.5 | 35ZLJ330M8X20 | 183-1281 |

**35 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 3K+ |
|---|---|---|---|---|---|---|
| 47µF | 183-1278 | | | | | |
| 100µF | 183-1279 | | | | | |
| 220µF | 183-1280 | | | | | |
| 330µF | 183-1281 | | | | | |

**50 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 100µF | 950 | 11.5 | 8 | 3.5 | 50ZLJ100M8X11.5 | 183-1282 |
| 220µF | 1650 | 16 | 10 | 5 | 50ZLJ220M10X16 | 210-2453 |
| 470µF | 2300 | 20 | 12.5 | 5 | 50ZLJ470M12.5X20 | 210-2451 |
| 680µF | 2800 | 25 | 12.5 | 5 | 50ZLJ680M12.5X25 | 210-2452 |

**50 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 2K+ |
|---|---|---|---|---|---|---|
| 100µF | 183-1282 | | | | | |
| 220µF | 210-2453 | | | | | |
| 470µF | 210-2451 | | | | | |
| 680µF | 210-2452 | | | | | |

**100 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 33µF | 620 | 11.5 | 8 | 3.5 | 100ZLJ33M8X11.5 | 210-2458 |
| 68µF | 1040 | 20 | 8 | 3.5 | 100ZLJ68M8X20 | 210-2454 |
| 100µF | 1430 | 20 | 10 | 5 | 100ZLJ100M10X20 | 210-2457 |
| 220µF | 2210 | 25 | 12.5 | 5 | 100ZLJ220M12.5X25 | 210-2459 |
| 680µF | 3510 | 35.5 | 18 | 7.5 | 100ZLJ680M18X35.5 | 210-2455 |

612283

**100 Volt d.c.**

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| 68µF | 210-2454 | | | | | |
| 680µF | 210-2455 | | | | | |
| 100µF | 210-2457 | | | | | |
| 33µF | 210-2458 | | | | | |
| 220µF | 210-2459 | | | | | |

## ZT Series – Ultra Low Impedance

Rubycon

**125°C**



- Miniature aluminium electrolytic capacitors
- Ultra low impedance
- High temperature

Tolerance ±20% Operating temperature -40°C to +125°C
Leakage current (max) 0.03 CV or 3µA whichever is greater Ripple current measured at 105°C@ 100kHz

**25 Volt d.c.**

| | Ripple (mA) | Impedance (Ω Max @ 20°C 100kHz) | Dimensions H | Dia. | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 220µF | 995 | 0.073 | 12.5 | 10 | 0.6 | 5 | 25ZT220M10X12.5 | 128-1868 |
| 1000µF | 1900 | 0.024 | 25 | 12.5 | 0.6 | 5 | 25ZT1000M12.5X25 | 128-1866 |

**25 Volt d.c.**

| | Order Code | Price Each 1+ | 10+ | 50+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| 220µF | 128-1868 | | | | | |
| 1000µF | 128-1866 | | | | | |

**35 Volt d.c.**

| | Ripple (mA) | Impedance (Ω Max @ 20°C 100kHz) | Dimensions H | Dia. | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 100µF | 760 | 0.094 | 11.5 | 8 | 0.6 | 3.5 | 35ZT100M8X11.5 | 128-1870 |
| 220µF | 1430 | 0.05 | 16 | 10 | 0.6 | 5 | 35ZT220M10X16 | 128-1871 |
| 470µF | 1720 | 0.028 | 20 | 12.5 | 0.6 | 5 | 35ZT470M12.5X20 | 128-1873 |

451923

**35 Volt d.c.**

| | Order Code | Price Each 1+ | 10+ | 50+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| 100µF | 128-1870 | | | | | |
| 220µF | 128-1871 | | | | | |
| 470µF | 128-1873 | | | | | |

## RX30 Series – 130°C (Miniature Aluminum Electrolytic)

Rubycon



- 1 Load Life of up to 4000 hours
- Low Impedance and high reliability
- Low impedance at 100KHz with selected material
- Ideally suited for Automotive or other high temperature applications
- The highest operating temperature V load life of any electrolytic range

Tolerance ±20% Operating temperature -40°C to +130°C
Leakage current (max) 0.01 CV or 3µA whichever is greater Ripple current measured at 105°C@ 100kHz

**35 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 100µF | 360 | 11.5 | 8 | 3.5 | 35RX30100M8X11.5 | 812-6585 |
| 220µF | 620 | 12.5 | 10 | 5 | 35RX30220M10X12.5 | 812-6607 |
| 330µF | 800 | 16 | 10 | 5 | 35RX30330M10X16 | 812-6623 |
| 470µF | 960 | 20 | 10 | 5 | 35RX30470M10X20 | 812-6640 |
| 1000µF | 1430 | 25 | 12.5 | 5 | 35RX301000M12.5X25 | 812-6593 |
| 3300µF | 2800 | 35.5 | 18 | 7.5 | 35RX303300M18X35.5 | 812-6631 |

# Aluminium Electrolytic - Radial - Rubycon - continued

## RX30 Series – 130°C (Miniature Aluminum Electrolytic) - continued

**35 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 100µF | 812-6585 | | | | | |
| 220µF | 812-6607 | | | | | |
| 330µF | 812-6623 | | | | | |
| 470µF | 812-6640 | | | | | |
| 1000µF | 812-6593 | | | | | |
| 3300µF | 812-6631 | | | | | |

**50 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 1µF | 35 | 11.5 | 8 | 3.5 | 50RX301M8X11.5 | 812-6984 |
| 2.2µF | 50 | 11.5 | 8 | 3.5 | 50RX302R2M8X11.5 | 812-7018 |
| 4.7µF | 100 | 11.5 | 8 | 3.5 | 50RX304R7M8X11.5 | 812-7042 |
| 10µF | 200 | 11.5 | 8 | 3.5 | 50RX3010M8X11.5 | 812-6992 |
| 22µF | 260 | 11.5 | 8 | 3.5 | 50RX3022M8X11.5 | 812-7026 |
| 47µF | 300 | 11.5 | 8 | 3.5 | 50RX3047M8X11.5 | 812-7050 |
| 100µF | 520 | 12.5 | 10 | 5 | 50RX30100M10X12.5 | 812-7000 |
| 220µF | 890 | 20 | 10 | 5 | 50RX30220M10X20 | 812-7034 |
| 470µF | 1200 | 25 | 12.5 | 5 | 50RX30470M12.5X25 | 812-7069 |

**50 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1µF | 812-6984 | | | | | |
| 2.2µF | 812-7018 | | | | | |
| 4.7µF | 812-7042 | | | | | |
| 10µF | 812-6992 | | | | | |
| 22µF | 812-7026 | | | | | |
| 47µF | 812-7050 | | | | | |
| 100µF | 812-7000 | | | | | |
| 220µF | 812-7034 | | | | | |
| 470µF | 812-7069 | | | | | |

**63 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 47µF | 400 | 12.5 | 10 | 5 | 63RX3047M10X12.5 | 812-7220 |
| 100µF | 450 | 16 | 10 | 5 | 63RX30100M10X16 | 812-7204 |
| 220µF | 820 | 20 | 12.5 | 5 | 63RX30220M12.5X20 | 812-7212 |

372155

**63 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 47µF | 812-7220 | | | | | |
| 100µF | 812-7204 | | | | | |
| 220µF | 812-7212 | | | | | |

## TXW Series

Rubycon



NEW

● Load Life: 105°C 10000hours. ● High ripple current

Tolerance ± 20% Operating temperature -25°C to +105°C

**400 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 47µF | 0.44 | 30 | 12.5 | 5 | 400TXW47M12.5X30 | 183-1328 |
| 82µF | 0.61 | 25 | 18 | 7.5 | 400TXW82MEFC18X25 | 183-1329 |
| 180µF | 1.04 | 45 | 18 | 7.5 | 400TXW180MEFC18X45 | 183-1330 |

**400 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|
| 47µF | 183-1328 | | | | |
| 82µF | 183-1329 | | | | |
| 180µF | 183-1330 | | | | |

**450 Volt d.c.**

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 100µF | 740 | 35 | 18 | 7.5 | 450TXW100MEFC18X35 | 183-1332 |
| 150µF | 950 | 45 | 18 | 7.5 | 450TXW150MEFC18X45 | 210-2440 |

612295

**450 Volt d.c.**

| | Order Code | Price Each 1+ | 50+ | 100+ | 200+ |
|---|---|---|---|---|---|
| 100µF | 183-1332 | | | | |
| 150µF | 210-2440 | | | | |

# Aluminium Electrolytic - Radial - Vishay

## 134 RLP Series - 85°C

BC COMPONENTS



● Extremely miniature radial electrolytic capacitors
● Very low profile, 5mm height
● High CV per unit volume

H =5, Lead dia. = 0.4 to 0.45
Supplied loose

| | Ripple (mA) | Dimensions H | Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| **16 Volt d.c.** | | | | | | |
| 10µF | 17 | 5 | 4 | 1.5 | MAL213495105E3 | 116-5535 |
| 22µF | 32 | 5 | 5 | 2 | MAL213455229E3 | 116-5536 |
| 47µF | 50 | 5 | 6.3 | 2.5 | MAL213455479E3 | 116-5538 |
| **35 Volt d.c.** | | | | | | |
| 4.7µF | 15 | 5 | 4 | 1.5 | MAL213450478E3 | 116-5540 |
| 10µF | 25 | 5 | 5 | 2 | MAL213450109E3 | 116-5541 |
| 22µF | 40 | 5 | 6.3 | 2.5 | MAL213450229E3 | 116-5542 |
| **50 Volt dc** | | | | | | |
| 1µF | 6.2 | 5 | 3 | 1 | MAL213491105E3 | 116-5543 |
| 4.7µF | 19 | 5 | 5 | 2 | MAL213451478E3 | 116-5545 |

208602

**Order Multiple=5**

| | Order Code | Price Each 5+ | 25+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **16 Volt dc** | | | | | | |
| 10µF | 116-5535 | | | | | |
| 22µF | 116-5536 | | | | | |
| 47µF | 116-5538 | | | | | |
| **35 Volts dc** | | | | | | |
| 4.7µF | 116-5540 | | | | | |
| 10µF | 116-5541 | | | | | |
| 22µF | 116-5542 | | | | | |
| **50 Volts dc** | | | | | | |
| 1µF | 116-5543 | | | | | |
| 4.7µF | 116-5545 | | | | | |

## 097 RLP Series 7 - 85°C

BC COMPONENTS



● Miniature radial electrolytic capacitors
● Low profile, 7mm height
● High CV per unit volume

H=7, Lead dia.=0.45
Supplied loose.

| | | | |
|---|---|---|---|
| Operating temperature | -40°C to +85°C | DC leakage current | 0.01CV or 3µA |
| Tolerance | ±20% | | whichever is greater |
| Climatic category **(IEC 60068)** | 40/085/56 | Useful life at 85°C | 1500 hours |
| Ripple current measured at | 120Hz 85°C | | |

| | Ripple (mA) | Dimensions H | Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| **10 Volt d.c.** | | | | | | |
| 100µF | 80 | 7 | 6.3 | 2.5 | MAL209754101E6 | 116-5517 |
| **16 Volt d.c.** | | | | | | |
| 10µF | 25 | 7 | 4 | 1.5 | MAL209755109E6 | 116-5518 |
| 22µF | 39 | 7 | 5 | 2 | MAL209755229E6 | 116-5519 |
| 47µF | 59 | 7 | 6.3 | 2.5 | MAL209755479E6 | 116-5520 |
| 100µF | 90 | 7 | 6.3 | 2.5 | MAL209755101E6 | 116-5521 |
| **25 Volt d.c.** | | | | | | |
| 33µF | 53 | 7 | 6.3 | 2.5 | MAL209756339E6 | 116-5522 |
| 47µF | 65 | 7 | 6.3 | 2.5 | MAL209756479E6 | 116-5523 |
| **35 Volt d.c.** | | | | | | |
| 4.7µF | 20 | 7 | 4 | 1.5 | MAL209750478E6 | 116-5524 |
| 10µF | 30 | 7 | 5 | 2 | MAL209750109E6 | 116-5526 |
| 22µF | 47 | 7 | 6.3 | 2.5 | MAL209750229E6 | 116-5527 |
| **63 Volt d.c.** | | | | | | |
| 1µF | 11 | 7 | 4 | 1.5 | MAL209758108E6 | 116-5529 |
| 2.2µF | 17 | 7 | 4 | 1.5 | MAL209758228E6 | 116-5530 |
| 4.7µF | 26 | 7 | 6.3 | 2.5 | MAL209758478E6 | 116-5531 |
| 10µF | 40 | 7 | 6.3 | 2.5 | MAL209758109E6 | 116-5532 |

208603

**Order Multiple=5**

| | Order Code | Price Each 5+ | 25+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **10 Volt d.c.** | | | | | | |
| 100µF | 116-5517 | | | | | |
| **16 Volt d.c.** | | | | | | |
| 10µF | 116-5518 | | | | | |
| 22µF | 116-5519 | | | | | |
| 47µF | 116-5520 | | | | | |
| 100µF | 116-5521 | | | | | |
| **25 Volt d.c.** | | | | | | |
| 33µF | 116-5522 | | | | | |
| 47µF | 116-5523 | | | | | |
| **35 Volt d.c.** | | | | | | |
| 4.7µF | 116-5524 | | | | | |
| 10µF | 116-5526 | | | | | |
| 22µF | 116-5527 | | | | | |


RoHS ● Compliant ▲ Non-compliant

Order Multiple=5

| | Order Code | Price Each 5+ | 25+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **60 Volt d.c.** | | | | | | |
| 1µF | **116-5529** | | | | | |
| 2.2µF | **116-5530** | | | | | |
| 4.7µF | **116-5531** | | | | | |
| 10µF | **116-5532** | | | | | |

## 038 RSU Series - 85°C



- Polarised aluminum electrolytic capacitors, non-solid electrolyte
- Miniaturised, high CV-product per unit volume

NEW

| | Ripple @ 100Hz (mA) | Dimensions (mm) H | Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| **6.3 V** | | | | | | |
| 220µF | 200 | 11 | 5 | 2 | MAL203853221E3 | 183-4093 |
| 330µF | 270 | 11 | 6.3 | 2.5 | MAL203853331E3 | 183-4094 |
| 470µF | 320 | 11 | 6.3 | 2.5 | MAL203853471E3 | 183-4096 |
| 1000µF | 540 | 11.5 | 8 | 3.5 | MAL203853102E3 | 183-4097 |
| 2200µF | 785 | 16 | 10 | 5 | MAL203853222E3 | 183-4098 |
| 3300µF | 1185 | 20 | 10 | 5 | MAL203853332E3 | 183-4099 |
| 4700µF | 1545 | 20 | 13 | 5 | MAL203853472E3 | 183-4100 |
| 6800µF | 1880 | 25 | 13 | 5 | MAL203853682E3 | 183-4102 |
| 10000µF | 2330 | 25 | 16 | 7.5 | MAL203853103E3 | 183-4103 |
| 22000µF | 3320 | 40 | 18 | 7.5 | MAL203853223E3 | 183-4104 |
| **10 V** | | | | | | |
| 100µF | 145 | 11 | 5 | 2 | MAL203854101E3 | 183-4105 |
| 220µF | 160 | 11 | 5 | 2 | MAL203854221E3 | 183-4106 |
| 330µF | 290 | 11 | 6.3 | 2.5 | MAL203854331E3 | 183-4107 |
| 470µF | 350 | 11 | 6.3 | 2.5 | MAL203854471E3 | 183-4108 |
| 1000µF | 650 | 12 | 10 | 5 | MAL203854102E3 | 183-4109 |
| 2200µF | 1070 | 20 | 10 | 5 | MAL203854222E3 | 183-4110 |
| 3300µF | 1420 | 20 | 13 | 5 | MAL203854332E3 | 183-4111 |
| 4700µF | 1780 | 25 | 13 | 5 | MAL203854472E3 | 183-4112 |
| 6800µF | 2220 | 25 | 16 | 7.5 | MAL203854682E3 | 183-4114 |
| 10000µF | 2760 | 35 | 16 | 7.5 | MAL203854103E3 | 183-4115 |
| **16 V** | | | | | | |
| 100µF | 160 | 11 | 5 | 2 | MAL203855101E3 | 183-4116 |
| 220µF | 260 | 11 | 6.3 | 2.5 | MAL203855221E3 | 183-4117 |
| 330µF | 370 | 11.5 | 8 | 3.5 | MAL203855331E3 | 183-4118 |
| 470µF | 440 | 11.5 | 8 | 3.5 | MAL203855471E3 | 183-4119 |
| 1000µF | 785 | 16 | 10 | 5 | MAL203855102E3 | 183-4120 |
| 2200µF | 1295 | 20 | 13 | 5 | MAL203855222E3 | 183-4121 |
| 3300µF | 1655 | 25 | 13 | 5 | MAL203855332E3 | 183-4122 |
| 4700µF | 2090 | 25 | 16 | 7.5 | MAL203855472E3 | 183-4123 |
| 6800µF | 2520 | 31 | 16 | 7.5 | MAL203855682E3 | 183-4124 |
| 10000µF | 2920 | 35 | 18 | 7.5 | MAL203855103E3 | 183-4126 |
| **25 V** | | | | | | |
| 100µF | 190 | 11 | 6.3 | 2.5 | MAL203856101E3 | 183-4127 |
| 220µF | 320 | 11.5 | 8 | 3.5 | MAL203856221E3 | 183-4128 |
| 330µF | 440 | 11.5 | 8 | 3.5 | MAL203856331E3 | 183-4129 |
| 470µF | 545 | 12 | 10 | 5 | MAL203856471E3 | 183-4130 |
| 1000µF | 955 | 20 | 10 | 5 | MAL203856102E3 | 183-4131 |
| 2200µF | 1540 | 25 | 13 | 5 | MAL203856222E3 | 183-4132 |
| 3300µF | 1975 | 25 | 16 | 7.5 | MAL203856332E3 | 183-4133 |
| 4700µF | 2420 | 31 | 16 | 7.5 | MAL203856472E3 | 183-4134 |
| 6800µF | 2880 | 35 | 18 | 7.5 | MAL203856682E3 | 183-4135 |
| **35 V** | | | | | | |
| 47µF | 130 | 11 | 5 | 2 | MAL203850479E3 | 183-4136 |
| 100µF | 210 | 11 | 6.3 | 2.5 | MAL203850101E3 | 183-4138 |
| 220µF | 385 | 11.5 | 8 | 3.5 | MAL203850221E3 | 183-4139 |
| 330µF | 490 | 12 | 10 | 5 | MAL203850331E3 | 183-4140 |
| 470µF | 740 | 16 | 10 | 5 | MAL203850471E3 | 183-4141 |
| 1000µF | 1145 | 20 | 13 | 5 | MAL203850102E3 | 183-4142 |
| 2200µF | 1785 | 25 | 16 | 7.5 | MAL203850222E3 | 183-4143 |
| 3300µF | 2275 | 35 | 16 | 7.5 | MAL203850332E3 | 183-4144 |
| 4700µF | 2700 | 35 | 18 | 7.5 | MAL203850472E3 | 183-4145 |
| **50 V** | | | | | | |
| 22µF | 95 | 11 | 5 | 2 | MAL203851229E3 | 183-4147 |
| 33µF | 125 | 11 | 5 | 2 | MAL203851339E3 | 183-4148 |
| 47µF | 165 | 11 | 6.3 | 2.5 | MAL203851479E3 | 183-4151 |
| 100µF | 260 | 11.5 | 8 | 3.5 | MAL203851101E3 | 183-4152 |
| 220µF | 455 | 12 | 10 | 5 | MAL203851221E3 | 183-4153 |
| 330µF | 585 | 16 | 10 | 5 | MAL203851331E3 | 183-4154 |
| 470µF | 755 | 20 | 10 | 5 | MAL203851471E3 | 183-4155 |
| 1000µF | 1340 | 25 | 13 | 5 | MAL203851102E3 | 183-4156 |
| 2200µF | 1885 | 31 | 16 | 7.5 | MAL203851222E3 | 183-4157 |
| 3300µF | 2500 | 35 | 18 | 7.5 | MAL203851332E3 | 183-4158 |
| **63 V** | | | | | | |
| 0.1µF | 3 | 11 | 5 | 2 | MAL203858107E3 | 183-4159 |
| 0.22µF | 4.5 | 11 | 5 | 2 | MAL203858227E3 | 183-4160 |
| 0.33µF | 7.5 | 11 | 5 | 2 | MAL203858337E3 | 183-4161 |
| 0.47µF | 9.5 | 11 | 5 | 2 | MAL203858477E3 | 183-4163 |
| 1µF | 17 | 11 | 5 | 2 | MAL203858108E3 | 183-4164 |
| 2.2µF | 28 | 11 | 5 | 2 | MAL203858228E3 | 183-4165 |
| 3.3µF | 34 | 11 | 5 | 2 | MAL203858338E3 | 183-4166 |
| 4.7µF | 45 | 11 | 5 | 2 | MAL203858478E3 | 183-4167 |
| 10µF | 70 | 11 | 5 | 2 | MAL203858109E3 | 183-4168 |
| 22µF | 105 | 11 | 5 | 2 | MAL203858229E3 | 183-4169 |
| 33µF | 140 | 11 | 6.3 | 2.5 | MAL203858339E3 | 183-4170 |
| 47µF | 170 | 11 | 6.3 | 2.5 | MAL203858479E3 | 183-4171 |
| 100µF | 320 | 12 | 10 | 5 | MAL203858101E3 | 183-4172 |
| 220µF | 490 | 16 | 10 | 5 | MAL203858221E3 | 183-4173 |
| 330µF | 710 | 20 | 10 | 5 | MAL203858331E3 | 183-4175 |
| 470µF | 900 | 20 | 13 | 5 | MAL203858471E3 | 183-4176 |
| 1000µF | 1560 | 25 | 16 | 7.5 | MAL203858102E3 | 183-4177 |
| 2200µF | 1950 | 35 | 18 | 7.5 | MAL203858222E3 | 183-4178 |
| **100 V** | | | | | | |
| 0.47µF | 12 | 11 | 5 | 2 | MAL203859477E3 | 183-4179 |
| 1µF | 22 | 11 | 5 | 2 | MAL203859108E3 | 183-4180 |
| **100 V** | | | | | | |
| 2.2µF | 33 | 11 | 5 | 2 | MAL203859228E3 | 183-4181 |
| 3.3µF | 40 | 11 | 5 | 2 | MAL203859338E3 | 183-4182 |
| 4.7µF | 48 | 11 | 5 | 2 | MAL203859478E3 | 183-4183 |
| 10µF | 80 | 11 | 6.3 | 2.5 | MAL203859109E3 | 183-4184 |
| 22µF | 115 | 11 | 6.3 | 2.5 | MAL203859229E3 | 183-4185 |
| 33µF | 145 | 11.5 | 8 | 3.5 | MAL203859339E3 | 183-4187 |
| 47µF | 235 | 12 | 10 | 5 | MAL203859479E3 | 183-4188 |
| 100µF | 370 | 20 | 10 | 5 | MAL203859101E3 | 183-4189 |
| 220µF | 675 | 25 | 13 | 5 | MAL203859221E3 | 183-4190 |
| 330µF | 825 | 25 | 13 | 5 | MAL203859331E3 | 183-4191 |
| 470µF | 1070 | 25 | 16 | 7.5 | MAL203859471E3 | 183-4192 |
| 1000µF | 2410 | 40 | 18 | 7.5 | MAL203859102E3 | 183-4193 |

612995

Order Multiple=10

| | Order Code | Price Each 10+ | 100+ | 250+ | 500+ |
|---|---|---|---|---|---|
| **6.3 V** | | | | | |
| 220µF | **183-4093** | | | | |
| 330µF | **183-4094** | | | | |
| 470µF | **183-4096** | | | | |
| 1000µF | **183-4097** | | | | |
| 2200µF | **183-4098** | | | | |
| 3300µF | **183-4099** | | | | |
| 4700µF | **183-4100** | | | | |
| 6800µF | **183-4102** | | | | |
| 10000µF | **183-4103** | | | | |
| 22000µF | **183-4104** | | | | |
| **10 V** | | | | | |
| 100µF | **183-4105** | | | | |
| 220µF | **183-4106** | | | | |
| 330µF | **183-4107** | | | | |
| 470µF | **183-4108** | | | | |
| 1000µF | **183-4109** | | | | |
| 2200µF | **183-4110** | | | | |
| 3300µF | **183-4111** | | | | |
| 4700µF | **183-4112** | | | | |
| 6800µF | **183-4114** | | | | |
| 10000µF | **183-4115** | | | | |
| **16 V** | | | | | |
| 100µF | **183-4116** | | | | |
| 220µF | **183-4117** | | | | |
| 330µF | **183-4118** | | | | |
| 470µF | **183-4119** | | | | |
| 1000µF | **183-4120** | | | | |
| 2200µF | **183-4121** | | | | |
| 3300µF | **183-4122** | | | | |
| 4700µF | **183-4123** | | | | |
| 6800µF | **183-4124** | | | | |
| 10000µF | **183-4126** | | | | |
| **25 V** | | | | | |
| 100µF | **183-4127** | | | | |
| 220µF | **183-4128** | | | | |
| 330µF | **183-4129** | | | | |
| 470µF | **183-4130** | | | | |
| 1000µF | **183-4131** | | | | |
| 2200µF | **183-4132** | | | | |
| 3300µF | **183-4133** | | | | |
| 4700µF | **183-4134** | | | | |
| 6800µF | **183-4135** | | | | |
| **35 V** | | | | | |
| 47µF | **183-4136** | | | | |
| 100µF | **183-4138** | | | | |
| 220µF | **183-4139** | | | | |
| 330µF | **183-4140** | | | | |
| 470µF | **183-4141** | | | | |
| 1000µF | **183-4142** | | | | |
| 2200µF | **183-4143** | | | | |
| 3300µF | **183-4144** | | | | |
| 4700µF | **183-4145** | | | | |
| **50 V** | | | | | |
| 22µF | **183-4147** | | | | |
| 33µF | **183-4148** | | | | |
| 47µF | **183-4151** | | | | |
| 100µF | **183-4152** | | | | |
| 220µF | **183-4153** | | | | |
| 330µF | **183-4154** | | | | |
| 470µF | **183-4155** | | | | |
| 1000µF | **183-4156** | | | | |
| 2200µF | **183-4157** | | | | |
| 3300µF | **183-4158** | | | | |

# Aluminium Electrolytic - Radial - Vishay - continued

## 038 RSU Series - 85°C - continued

**Order Multiple=10**

| | Order Code | Price Each 10+ | 100+ | 250+ | 500+ |
|---|---|---|---|---|---|
| **63 V** | | | | | |
| 0.1µF | 183-4159 | | | | |
| 0.22µF | 183-4160 | | | | |
| 0.33µF | 183-4161 | | | | |
| 0.47µF | 183-4163 | | | | |
| 1µF | 183-4164 | | | | |
| 2.2µF | 183-4165 | | | | |
| 3.3µF | 183-4166 | | | | |
| 4.7µF | 183-4167 | | | | |
| 10µF | 183-4168 | | | | |
| 22µF | 183-4169 | | | | |
| 33µF | 183-4170 | | | | |
| 47µF | 183-4171 | | | | |
| 100µF | 183-4172 | | | | |
| 220µF | 183-4173 | | | | |
| 330µF | 183-4175 | | | | |
| 470µF | 183-4176 | | | | |
| 1000µF | 183-4177 | | | | |
| 2200µF | 183-4178 | | | | |
| **100 V** | | | | | |
| 0.47µF | 183-4179 | | | | |
| 1µF | 183-4180 | | | | |
| 2.2µF | 183-4181 | | | | |
| 3.3µF | 183-4182 | | | | |
| 4.7µF | 183-4183 | | | | |
| 10µF | 183-4184 | | | | |
| 22µF | 183-4185 | | | | |
| 33µF | 183-4187 | | | | |
| 47µF | 183-4188 | | | | |
| 100µF | 183-4189 | | | | |
| 220µF | 183-4190 | | | | |
| 330µF | 183-4191 | | | | |
| 470µF | 183-4192 | | | | |
| 1000µF | 183-4193 | | | | |

## 136 RVI Series – Very low Impedance 105°C



Lead length = 5

- High performance radial electrolytic capacitors
- Very low impedance and ESR
- High ripple current capabilities
- Suitable for high frequency industrial applications, SMPS, DC/DC converters

| | | | |
|---|---|---|---|
| Operating temperature | -55°C to +105°C | Useful life @ | ≥ 4000hrs105°C |
| Tolerance | ±20% | Ripple current measured at | 100kHz @ 20°C |
| Climatic category **(IEC68)** | 55/105/56 | ESR measured at | 120Hz @ 20°C |
| DC Leakage current | 0.01CV (µA) | Impedance measured at | 100kHz @ 20°C |

| | Ripple (mA) | ESR (Ω) | Impedance (Ω) | Dimensions H | Dia. | Lead Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|---|
| **10 Volt d.c.** | | | | | | | | | |
| 1000µF | 1000 | 0.3 | 0.062 | 20 | 10 | 0.6 | 5 | MAL213664102E3 | 116-5601 |
| 2200µF | 1700 | 0.15 | 0.034 | 25 | 12.5 | 0.6 | 5 | MAL213664222E3 | 116-5602 |
| **16 Volt.d.c.** | | | | | | | | | |
| 470µF | 1700 | 0.54 | 0.034 | 16 | 10 | 0.6 | 5 | MAL213665471E3 | 116-5603 |
| 4700µF | 2600 | 0.075 | 0.022 | 35 | 16 | 0.8 | 7.5 | MAL213665472E3 | 116-5605 |
| **25 Volt d.c.** | | | | | | | | | |
| 470µF | 1000 | 0.47 | 0.062 | 20 | 10 | 0.6 | 5 | MAL213666471E3 | 116-5510 |
| 1000µF | 1700 | 0.22 | 0.034 | 25 | 12.5 | 0.6 | 5 | MAL213666102E3 | 116-5606 |
| 3300µF | 2600 | 0.087 | 0.022 | 35 | 16 | 0.8 | 7.5 | MAL213666332E3 | 116-5607 |
| **35 Volt d.c.** | | | | | | | | | |
| 220µF | 830 | 0.87 | 0.084 | 16 | 10 | 0.6 | 5 | MAL213660221E3 | 116-5608 |
| 1000µF | 1700 | 0.19 | 0.038 | 20 | 16 | 0.8 | 7.5 | MAL213660102E3 | 116-5511 |
| 2200µF | 2600 | 0.1 | 0.022 | 35 | 16 | 0.8 | 7.5 | MAL213660222E3 | 116-5609 |
| **50 Volt d.c.** | | | | | | | | | |
| 100µF | 480 | 1.6 | 0.2 | 12 | 10 | 0.6 | 5 | MAL213661101E3 | 116-5512 |
| 470µF | 1500 | 0.34 | 0.044 | 25 | 12.5 | 0.6 | 5 | MAL213661471E3 | 116-5610 |
| 1000µF | 2200 | 0.16 | 0.03 | 31 | 16 | 0.8 | 7.5 | MAL213661102E3 | 116-5611 |
| **63 Volt d.c.** | | | | | | | | | |
| 47µF | 380 | 3.4 | 0.3 | 12 | 10 | 0.6 | 5 | MAL213668479E3 | 116-5612 |
| 100µF | 580 | 1.6 | 0.19 | 16 | 10 | 0.6 | 5 | MAL213668101E3 | 116-5613 |
| 220µF | 870 | 0.72 | 0.11 | 20 | 12.5 | 0.6 | 5 | MAL213668221E3 | 116-5614 |
| 470µF | 1500 | 0.34 | 0.055 | 25 | 16 | 0.8 | 7.5 | MAL213668471E3 | 116-5615 |
| **100 Volt d.c.** | | | | | | | | | |
| 47µF | 450 | 2.4 | 0.32 | 16 | 10 | 0.6 | 5 | MAL213669479E3 | 116-5514 |
| 100µF | 800 | 1.1 | 0.15 | 20 | 12.5 | 0.6 | 5 | MAL213669101E3 | 116-5515 |
| 220µF | 1300 | 0.51 | 0.081 | 25 | 16 | 0.8 | 7.5 | MAL213669221E3 | 116-5516 |

208623

| | Order Code | Price Each 1+ | 100+ | 1K+ | 3K+ |
|---|---|---|---|---|---|
| **10 Volt d.c.** | | | | | |
| 1000µF | 116-5601 | | | | |
| 2200µF | 116-5602 | | | | |
| **16 Volt d.c.** | | | | | |
| 470µF | 116-5603 | | | | |
| 4700µF | 116-5605 | | | | |
| **25 Volt d.c.** | | | | | |
| 470µF | 116-5510 | | | | |
| 1000µF | 116-5606 | | | | |
| 3300µF | 116-5607 | | | | |
| **35 Volt d.c.** | | | | | |
| 220µF | 116-5608 | | | | |
| 1000µF | 116-5511 | | | | |
| 2200µF | 116-5609 | | | | |
| **50 Volt d.c.** | | | | | |
| 100µF | 116-5512 | | | | |
| 470µF | 116-5610 | | | | |
| 1000µF | 116-5611 | | | | |
| **63 Volt d.c.** | | | | | |
| 47µF | 116-5612 | | | | |
| 100µF | 116-5613 | | | | |
| 220µF | 116-5614 | | | | |
| 470µF | 116-5615 | | | | |
| **100 Volt d.c.** | | | | | |
| 47µF | 116-5514 | | | | |
| 100µF | 116-5515 | | | | |
| 220µF | 116-5516 | | | | |

## 152 RMH Series – 105°C



Lead length = 5

- High voltage radial electrolytic
- Long life, high temperature
- Applications include filtering, decoupling high voltages

| | | | | | |
|---|---|---|---|---|---|
| Operating temperature | -40°C to +105°C | Useful life | 105 case 10 and 12.5 | | 3000hrs |
| Tolerance | ±20% | @ 105°C | 16 dia. | | 3000hrs |

| Voltage | | Ripple (mA) | ESR (Ω) | Impedance (Ω) | Dimensions H | Dia. | Lead Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|---|---|
| 200200 | 10µF | 85 | 19.1 | 3.5 | 12 | 10 | 0.6 | 5 | MAL215262109E3 | 116-5453 |
| 200 | 22µF | 120 | 8.7 | 3.2 | 16 | 10 | 0.6 | 5 | MAL215262229E3 | 116-5454 |
| 200 | 47µF | 240 | 4.1 | 0.8 | 20 | 12.5 | 0.6 | 5 | MAL215262479E3 | 116-5455 |
| 200 | 100µF | 340 | 1.9 | 0.4 | 20 | 16 | 0.8 | 7.5 | MAL215262101E3 | 116-5456 |
| 250 | 47µF | 18 | 4.1 | 0.9 | 25 | 12.5 | 0.6 | 5 | MAL215263479E3 | 116-5457 |
| 400 | 4.7µF | 15 | 50.8 | 18 | 16 | 10 | 0.6 | 5 | MAL215266478E3 | 116-5459 |
| 400 | 10µF | 16 | 23.9 | 9 | 20 | 10 | 0.6 | 5 | MAL215266109E3 | 116-5461 |
| 400 | 22µF | 18 | 10.9 | 3.8 | 25 | 12.5 | 0.6 | 5 | MAL215266229E3 | 116-5462 |
| 400 | 10µF | 240 | 5.1 | 2 | 25 | 16 | 0.6 | 7.5 | MAL215266479E3 | 116-5463 |
| 450 | 10µF | 17 | 31.8 | 10 | 20 | 12.5 | 0.6 | 5 | MAL215267109E3 | 116-5464 |
| 450 | 22µF | 19 | 14.5 | 4.6 | 25 | 16 | 0.6 | 7.5 | MAL215267229E3 | 116-5465 |

208600

| Voltage | | Order Code | Price Each 1+ | 50+ | 100+ | 1K+ | 2K+ |
|---|---|---|---|---|---|---|---|
| 200 | 10µF | 116-5453 | | | | | |
| 200 | 22µF | 116-5454 | | | | | |
| 200 | 47µF | 116-5455 | | | | | |
| 200 | 100µF | 116-5456 | | | | | |
| 250 | 47µF | 116-5457 | | | | | |
| 400 | 4.7µF | 116-5459 | | | | | |
| 400 | 10µF | 116-5461 | | | | | |
| 400 | 22µF | 116-5462 | | | | | |
| 400 | 47µF | 116-5463 | | | | | |
| 450 | 10µF | 116-5464 | | | | | |
| 450 | 22µF | 116-5465 | | | | | |

## 165RHT Series – High Temperature – 125°C



- High performance radial electrolytic capacitors
- Extended temperature range + 125°C
- High reliability, stability and long life

| | | | |
|---|---|---|---|
| Operating temperature | -40°C to +125°C | DC Leakage current | 0.02CV+3µA |
| Tolerance | ±20% | Useful life @ 125°C | 1500 hrs125°C |
| Climatic category **(IEC68)** | 40/125/56 | Ripple current measured at | 100kHz @ 125°C |
| ESR measured at | 100Hz @20°C | | |

**16 Volt d.c.**

| | Ripple (mA) | ESR (Ω) | Dimensions H | Dia. | Lead Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 2200µF | 1100 | 0.13 | 35 | 16 | 0.8 | 7.5 | MAL216555222E3 | 116-5349 |

| **16 Volt d.c.** | Order Code | Price Each 1+ | + | + | + | + | + |
|---|---|---|---|---|---|---|---|
| 2200µF | 116-5349 | | | | | | |

**25 Volt d.c.**

| | Ripple (mA) | ESR (Ω) | Dimensions H | Dia. | Lead Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 220µF | 280 | 0.91 | 20 | 10 | 0.6 | 5 | MAL216556221E3 | 116-5351 |
| 1000µF | 830 | 0.2 | 31 | 16 | 0.8 | 7.5 | MAL216556102E3 | 116-5353 |

**25 Volt d.c.** — **Price Each**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ | 3K+ |
|---|---|---|---|---|---|---|---|
| 220µF | **116-5351** | | | | | | |
| 1000µF | **116-5353** | | | | | | |

**35 Volt d.c.**

| | Ripple (mA) | ESR (Ω) | Dimensions H | Dia. | Lead Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 100µF | 200 | 1.7 | 16 | 10 | 0.6 | 5 | MAL216560101E3 | 116-5492 |
| 330µF | 460 | 0.52 | 25 | 12.5 | 0.6 | 5 | MAL216550331E3 | 116-5354 |

**35 Volt d.c.** — **Price Each**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ | 3K+ |
|---|---|---|---|---|---|---|---|
| 100µF | **116-5492** | | | | | | |
| 330µF | **116-5354** | | | | | | |

**40 Volt d.c.**

| | Ripple (mA) | ESR (Ω) | Dimensions H | Dia. | Lead Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 47µF | 130 | 3.7 | 12 | 10 | 0.6 | 5 | MAL216537479E3 | 116-5356 |
| 100µF | 210 | 1.7 | 20 | 10 | 0.6 | 5 | MAL216557101E3 | 116-5357 |
| 220µF | 340 | 0.78 | 20 | 12.5 | 0.6 | 5 | MAL216557221E3 | 116-5358 |

**40 Volt d.c.** — **Price Each**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ | 3K+ |
|---|---|---|---|---|---|---|---|
| 47µF | **116-5356** | | | | | | |
| 100µF | **116-5357** | | | | | | |
| 220µF | **116-5358** | | | | | | |

**50 Volt d.c.**

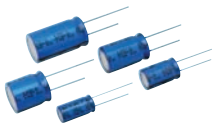
| | Ripple (mA) | ESR (Ω) | Dimensions H | Dia. | Lead Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 33µF | 120 | 4.3 | 12 | 10 | 0.6 | 5 | MAL216551339E3 | 116-5360 |
| 100µF | 260 | 1.4 | 20 | 12.5 | 0.6 | 5 | MAL216551101E3 | 116-5361 |
| 1000µF | 1250 | 0.14 | 35 | 16 | 0.8 | 7.5 | MAL216590506E3 | 116-5617 |

208395

**50 Volt d.c.** — **Price Each**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ | 3K+ |
|---|---|---|---|---|---|---|---|
| 33µF | **116-5360** | | | | | | |
| 100µF | **116-5361** | | | | | | |
| 1000µF | **116-5617** | | | | | | |

## 146RTI Series



- Polarised aluminium electrolytic capacitors, non-solid electrolyte
- Very low ESR
- Excellent ripple current capability

Operating temperature -55°C to +125°C Tolerance ± 20%

| | Ripple (mA) | Imped -ance (Ω) | Dimensions H | Dia. | Lead Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| **16 Volt** | | | | | | | | |
| 470µF | 620 | 0.12 | 12 | 10 | 0.6 | 5 | MAL214635471E3 | 180-0841 |
| 1000µF | 1250 | 0.06 | 20 | 10 | 0.6 | 5 | MAL214635102E3 | 180-0842 |
| **25 Volt** | | | | | | | | |
| 330µF | 620 | 0.12 | 12 | 10 | 0.6 | 5 | MAL214636331E3 | 180-0843 |
| 470µF | 1100 | 0.075 | 16 | 10 | 0.6 | 5 | MAL214636471E3 | 180-0844 |
| 1000µF | 1600 | 0.043 | 20 | 12.5 | 0.6 | 5 | MAL214636102E3 | 180-0845 |
| **35 Volt** | | | | | | | | |
| 220µF | 620 | 0.12 | 12 | 10 | 0.6 | 5 | MAL214630221E3 | 180-0846 |
| 470µF | 1250 | 0.06 | 20 | 10 | 0.6 | 5 | MAL214630471E3 | 180-0847 |
| 1000µF | 2000 | 0.033 | 25 | 12.5 | 0.6 | 5 | MAL214630102E3 | 180-0848 |
| **50 Volt** | | | | | | | | |
| 100µF | 420 | 0.19 | 12 | 10 | 0.6 | 5 | MAL214631101E3 | 180-0849 |
| 470µF | 1250 | 0.065 | 20 | 12.5 | 0.6 | 5 | MAL214631471E3 | 180-0850 |
| 1000µF | 1800 | 0.039 | 20 | 18 | 0.8 | 7.5 | MAL214631102E3 | 180-0852 |
| 1800µF | 2700 | 0.026 | 31 | 18 | 0.8 | 7.5 | MAL214631182E3 | 180-0853 |
| **63 Volt** | | | | | | | | |
| 100µF | 600 | 0.22 | 16 | 10 | 0.6 | 5 | MAL214638101E3 | 180-0854 |
| 330µF | 1300 | 0.076 | 25 | 12.5 | 0.6 | 5 | MAL214638331E3 | 180-0855 |
| 680µF | 2100 | 0.041 | 25 | 18 | 0.8 | 7.5 | MAL214638681E3 | 180-0856 |

605811

**Price Each**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **16 Volt** | | | | | | |
| 470µF | **180-0841** | | | | | |
| 1000µF | **180-0842** | | | | | |
| **25 Volt** | | | | | | |
| 330µF | **180-0843** | | | | | |
| 470µF | **180-0844** | | | | | |
| 1000µF | **180-0845** | | | | | |
| **35 Volt** | | | | | | |
| 220µF | **180-0846** | | | | | |
| 470µF | **180-0847** | | | | | |
| 1000µF | **180-0848** | | | | | |

**Price Each**

| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| **50 Volt** | | | | | | |
| 470µF | **180-0850** | | | | | |
| 1000µF | **180-0852** | | | | | |
| 1800µF | **180-0853** | | | | | |
| 100µF | **180-0854** | | | | | |
| **63 Volt** | | | | | | |
| 100µF | **180-0849** | | | | | |
| 330µF | **180-0855** | | | | | |
| 680µF | **180-0856** | | | | | |

# Aluminium Electrolytic - Bipolar

## NP Series – Non-Polarised



NEW

- Non-Polarized aluminium electrolytic capacitors
- Have excellent frequency characteristic and small deviation of capacitance
- suitable for crossover network for HI-FI equipments and speakers, etc.

Operating temp. -40°C to +85°C DC leakage current I = 0.03CV or 3 (µA) after 5 minutes
Tolerance ±20% Ripple current measured at 120Hz @ 85°C

| **16 Volt d.c.** | Ripple (mA) | Dimensions H | Dia. | Lead Dia. | Lead Pitch | Order Code |
|---|---|---|---|---|---|---|
| 1µF | 15 | 11 | 5 | 0.5 | 2 | 123-6655 |
| 4.7µF | 30 | 11 | 5 | 0.5 | 2 | 123-6656 |
| 10µF | 40 | 11 | 5 | 0.5 | 2 | 123-6657 |
| 22µF | 55 | 11 | 5 | 0.5 | 2 | 123-6658 |
| 47µF | 95 | 11 | 6.3 | 0.5 | 2.5 | 123-6661 |
| 100µF | 160 | 11.5 | 8 | 0.6 | 3.5 | 123-6662 |
| 220µF | 275 | 12.5 | 10 | 0.6 | 5 | 123-6663 |
| 470µF | 485 | 20 | 10 | 0.6 | 5 | 123-6664 |
| 1000µF | 855 | 25 | 13 | 0.6 | 5 | 123-6665 |

**Order Multiple=5**

**16 Volt d.c.** — **Price Each**

| | Order Code | 5+ | 25+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| 1µF | **123-6655** | | | | | | |
| 4.7µF | **123-6656** | | | | | | |
| 10µF | **123-6657** | | | | | | |
| 22µF | **123-6658** | | | | | | |
| 47µF | **123-6661** | | | | | | |
| 100µF | **123-6662** | | | | | | |
| 220µF | **123-6663** | | | | | | |
| 470µF | **123-6664** | | | | | | |
| 1000µF | **123-6665** | | | | | | |

| **35 Volt d.c.** | Ripple (mA) | Dimensions H | Dia. | Lead Dia. | Lead Pitch | Order Code |
|---|---|---|---|---|---|---|
| 1µF | 15 | 11 | 5 | 0.5 | 2 | 123-6666 |
| 2.2µF | 20 | 11 | 5 | 0.5 | 2 | 123-6667 |
| 4.7µF | 30 | 11 | 5 | 0.5 | 2 | 123-6668 |
| 10µF | 40 | 11 | 5 | 0.5 | 2 | 123-6669 |
| 22µF | 70 | 11 | 6.3 | 0.5 | 2.5 | 123-6670 |
| 47µF | 120 | 11.5 | 8 | 0.6 | 3.5 | 123-6671 |
| 100µF | 230 | 16 | 10 | 0.6 | 5 | 123-6673 |
| 220µF | 410 | 20 | 13 | 0.6 | 5 | 123-6674 |
| 470µF | 655 | 25 | 13 | 0.6 | 5 | 123-6675 |

**Order Multiple=5**

**35 Volt d.c.** — **Price Each**

| | Order Code | 5+ | 25+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| 1µF | **123-6666** | | | | | | |
| 2.2µF | **123-6667** | | | | | | |
| 4.7µF | **123-6668** | | | | | | |
| 10µF | **123-6669** | | | | | | |
| 22µF | **123-6670** | | | | | | |
| 47µF | **123-6671** | | | | | | |
| 100µF | **123-6673** | | | | | | |
| 220µF | **123-6674** | | | | | | |
| 470µF | **123-6675** | | | | | | |

| **63 Volt d.c.** | Ripple (mA) | Dimensions H | Dia. | Lead Dia. | Lead Pitch | Order Code |
|---|---|---|---|---|---|---|
| 0.47µF | 13 | 11 | 5 | 0.5 | 2 | 123-6676 |
| 1µF | 19 | 11 | 5 | 0.5 | 2 | 123-6677 |
| 2.2µF | 25 | 11 | 5 | 0.5 | 2 | 123-6678 |
| 4.7µF | 35 | 11 | 6.3 | 0.5 | 2.5 | 123-6679 |
| 10µF | 55 | 11 | 6.3 | 0.5 | 2.5 | 123-6680 |
| 22µF | 90 | 11.5 | 8 | 0.6 | 3.5 | 123-6681 |
| 47µF | 180 | 16 | 10 | 0.6 | 5 | 123-6682 |
| 100µF | 320 | 20 | 13 | 0.6 | 5 | 123-6683 |
| 220µF | 575 | 25 | 16 | 0.8 | 7.5 | 123-6685 |

# Aluminium Electrolytic - Bipolar - continued

## NP Series – Non-Polarised - continued

**Order Multiple=5**

**63 Volt d.c.**

| | Order Code | 5+ | 25+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| 0.47µF | 123-6676 | | | | | | |
| 1µF | 123-6677 | | | | | | |
| 2.2µF | 123-6678 | | | | | | |
| 4.7µF | 123-6679 | | | | | | |
| 10µF | 123-6680 | | | | | | |
| 22µF | 123-6681 | | | | | | |
| 47µF | 123-6682 | | | | | | |
| 100µF | 123-6683 | | | | | | |
| 220µF | 123-6685 | | | | | | |

| 100 Volt d.c. | Ripple (mA) | Dimensions H | Dia. | Lead Dia. | Lead Pitch | Order Code |
|---|---|---|---|---|---|---|
| 1µF | 19 | 11 | 5 | 0.5 | 2 | 123-6686 |
| 2.2µF | 25 | 11 | 6.3 | 0.5 | 2.5 | 123-6687 |
| 3.3µF | 35 | 11 | 6.3 | 0.5 | 2.5 | 123-6688 |
| 4.7µF | 40 | 11 | 6.3 | 0.5 | 2.5 | 123-6689 |
| 10µF | 70 | 11.5 | 8 | 0.6 | 3.5 | 123-6690 |
| 33µF | 220 | 20 | 13 | 0.6 | 5 | 123-6691 |
| 47µF | 240 | 20 | 13 | 0.6 | 5 | 123-6692 |
| 100µF | 425 | 25 | 16 | 0.8 | 7.5 | 123-6693 |

443140

**Order Multiple=5**

**100 Volt d.c.**

| | Order Code | 5+ | 25+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|
| 1µF | 123-6686 | | | | | | |
| 2.2µF | 123-6687 | | | | | | |
| 3.3µF | 123-6688 | | | | | | |
| 4.7µF | 123-6689 | | | | | | |
| 10µF | 123-6690 | | | | | | |
| 33µF | 123-6691 | | | | | | |
| 47µF | 123-6692 | | | | | | |
| 100µF | 123-6693 | | | | | | |

## SU Series – 50 Volt d.c. Bi-polar

Panasonic



- General purpose miniature bi-polar aluminium electrolytic
- Compact version of S series
- Suitable for circuits where polarity is not constant or where reverse voltage may be applied
- AECQ-200 Automotive Approved

| | | | |
|---|---|---|---|
| Operating temperature | -40°C to +85°C | DC leakage current | 0.03CV + 3µA |
| Tolerance | ±20% | Operating life @ 85°C | 2000 hrs |
| Power factor | 0.15 | | |

| | Dimensions H | Dia. | Lead Pitch | Lead Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 1µF | 11 | 5 | 2 | 0.5 | ECEA1HN010U | 969-6601 |
| 2.2µF | 11 | 5 | 2 | 0.5 | ECEA1HN2R2U | 969-6610 |
| 4.7µF | 11 | 5 | 2 | 0.5 | ECEA1HN4R7U | 969-6628 |
| 10µF | 11.2 | 6.3 | 2.5 | 0.5 | ECEA1HN100U | 969-6636 |
| 22µF | 11.5 | 8 | 3.5 | 0.6 | ECEA1HN220U | 969-6644 |
| 47µF | 12.5 | 10 | 5 | 0.6 | ECEA1HN470U | 969-6652 |
| 100µF | 20 | 10 | 5 | 0.6 | ECEA1HN101U | 969-6660 |

234320

**Order Multiple=5**

| | Order Code | 5+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| 1µF | SMD 969-6601 | | | | | |
| 2.2µF | SMD 969-6610 | | | | | |
| 4.7µF | SMD 969-6628 | | | | | |
| 10µF | SMD 969-6636 | | | | | |
| 22µF | SMD 969-6644 | | | | | |
| 47µF | SMD 969-6652 | | | | | |
| 100µF | SMD 969-6660 | | | | | |

# Aluminium Electrolytic - Snap In - Multicomp

## LPR Series - 85°C (PCB Mounting Snap-In)

multicomp



Lead pitch = 10
Mounting hole dia. = 2.0

- General purpose snap-in aluminium electrolytic
- "Self-standing" terminals for easy soldering

| | |
|---|---|
| Operating temperature | -40°C to +85°C (16 to 100V dc)<br>-25°C to +85°C (400V dc) |
| Tolerance | ±20% |
| DC leakage current | 0.02CV or 3000µA max whichever is greater |
| Useful life @ 85°C | 2000 hrs |

| 16 Volt d.c. | Ripple (A) @ 120Hz, 85°C | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 4700µF | 2.3 | 25 | 22 | MCLPR16V478M22X25 | 945-2753 |
| 6800µF | 2.4 | 25 | 22 | MCLPR16V688M22X25 | 190-3075 |
| 8200µF | 2.75 | 30 | 22 | MCLPR16V828M22X30 | 190-3076 |
| 10000µF | 3.32 | 25 | 22 | MCLPR16V109M22X25 | 945-2761 |
| 15000µF | 4.29 | 35 | 22 | MCLPR16V159M22X35 | 945-2770 |
| 12000µF | 3.3 | 40 | 22 | MCLPR16V129M22X40 | 190-3077 |
| 18000µF | 4.2 | 36 | 25 | MCLPR16V189M25X36 | 190-3078 |
| 22000µF | 4.25 | 41 | 22 | MCLPR16V229M22X41 | 190-3079 |
| 27000µF | 6.3 | 32 | 30 | MCLPR16V279M30X32 | 190-3080 |
| 33000µF | 5 | 45 | 30 | MCLPR16V339M30X45 | 190-3082 |
| 39000µF | 7.5 | 50 | 30 | MCLPR16V399M30X50 | 190-3083 |
| 47000µF | 7 | 45 | 35 | MCLPR16V479M35X45 | 190-3084 |
| 56000µF | 9.5 | 50 | 35 | MCLPR16V569M35X50 | 190-3085 |
| 68000µF | 10.05 | 62 | 35 | MCLPR16V689M35X62 | 190-3086 |

**16 Volt d.c.**

| | Order Code | 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|
| 4700µF | 945-2753 | | | | | |
| 6800µF | NEW 190-3075 | | | | | |
| 8200µF | NEW 190-3076 | | | | | |
| 10000µF | 945-2761 | | | | | |
| 15000µF | 945-2770 | | | | | |
| 12000µF | NEW 190-3077 | | | | | |
| 18000µF | NEW 190-3078 | | | | | |
| 22000µF | NEW 190-3079 | | | | | |
| 27000µF | NEW 190-3080 | | | | | |
| 33000µF | NEW 190-3082 | | | | | |
| 39000µF | NEW 190-3083 | | | | | |
| 47000µF | NEW 190-3084 | | | | | |
| 56000µF | NEW 190-3085 | | | | | |
| 68000µF | NEW 190-3086 | | | | | |

| 25 Volt d.c. | Ripple (A) @ 120Hz, 85°C | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 3300µF | 2.1 | 25 | 22 | MCLPR25V338M22X25 | 190-3087 |
| 4700µF | 2.5 | 25 | 22 | MCLPR25V478M22X25 | 945-2788 |
| 5600µF | 2.6 | 31 | 22 | MCLPR25V568M22X31 | 190-3088 |
| 6800µF | 3.06 | 30 | 22 | MCLPR25V688M22X30 | 945-2796 |
| 8200µF | 3.15 | 35 | 22 | MCLPR25V828M22X35 | 190-3089 |
| 10000µF | 3.99 | 25 | 30 | MCLPR25V109M30X25 | 945-2800 |
| 12000µF | 3.8 | 50 | 22 | MCLPR25V129M22X50 | 190-3090 |
| 15000µF | 5.1 | 35 | 30 | MCLPR25V159M30X35 | 945-2818 |
| 18000µF | 4.7 | 41 | 25 | MCLPR25V189M25X41 | 190-3091 |
| 22000µF | 6.22 | 45 | 30 | MCLPR25V229M30X45 | 945-2826 |
| 27000µF | 5.9 | 41 | 30 | MCLPR25V279M30X41 | 190-3092 |
| 33000µF | 8.95 | 51 | 30 | MCLPR25V339M30X51 | 190-3094 |
| 39000µF | 8.8 | 51 | 35 | MCLPR25V399M35X51 | 190-3095 |
| 47000µF | 0.375 | 56 | 35 | MCLPR25V479M35X56 | 190-3096 |

**25 Volt d.c.**

| | Order Code | 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|
| 3300µF | NEW 190-3087 | | | | | |
| 4700µF | 945-2788 | | | | | |
| 5600µF | NEW 190-3088 | | | | | |
| 6800µF | 945-2796 | | | | | |
| 8200µF | NEW 190-3089 | | | | | |
| 10000µF | 945-2800 | | | | | |
| 12000µF | NEW 190-3090 | | | | | |
| 15000µF | 945-2818 | | | | | |
| 18000µF | NEW 190-3091 | | | | | |
| 22000µF | 945-2826 | | | | | |
| 27000µF | NEW 190-3092 | | | | | |
| 33000µF | NEW 190-3094 | | | | | |
| 39000µF | NEW 190-3095 | | | | | |
| 47000µF | NEW 190-3096 | | | | | |

| 35 Volt d.c. | Ripple (A) @ 120Hz, 85°C | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 2200µF | 1.8 | 25 | 22 | MCLPR35V228M22X25 | 945-2834 |
| 3900µF | 2.5 | 30 | 22 | MCLPR35V398M22X30 | 190-3097 |
| 4700µF | 3.06 | 30 | 22 | MCLPR35V478M22X30 | 945-2842 |
| 6800µF | 3.57 | 30 | 26 | MCLPR35V688M26X30 | 945-2850 |
| 8200µF | 3.45 | 41 | 22 | MCLPR35V828M22X41 | 190-3098 |
| 10000µF | 4.58 | 30 | 30 | MCLPR35V109M30X30 | 945-2869 |
| 12000µF | 3.85 | 41 | 25 | MCLPR35V129M25X41 | 190-3099 |
| 15000µF | 4.1 | 40 | 30 | MCLPR35V159M30X40 | 190-3101 |
| 18000µF | 4.8 | 46 | 30 | MCLPR35V189M30X46 | 190-3102 |
| 22000µF | 7.07 | 45 | 35 | MCLPR35V229M35X45 | 945-2877 |
| 27000µF | 5.7 | 50 | 35 | MCLPR35V279M35X50 | 190-3103 |
| 33000µF | 6.45 | 51 | 35 | MCLPR35V339M35X51 | 190-3104 |

**35 Volt d.c.**

| | Order Code | 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|
| 2200µF | 945-2834 | | | | | |
| 3900µF | NEW 190-3097 | | | | | |
| 4700µF | 945-2842 | | | | | |
| 6800µF | 945-2850 | | | | | |
| 8200µF | NEW 190-3098 | | | | | |
| 10000µF | 945-2869 | | | | | |
| 12000µF | NEW 190-3099 | | | | | |
| 15000µF | NEW 190-3101 | | | | | |
| 18000µF | NEW 190-3102 | | | | | |
| 22000µF | 945-2877 | | | | | |
| 27000µF | NEW 190-3103 | | | | | |
| 33000µF | NEW 190-3104 | | | | | |


RoHS ● Compliant ▲ Non-compliant

| 50 Volt d.c. | Ripple (A) @ 120Hz, 85°C | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 1500µF | 1.4 | 26 | 22 | MCLPR50V158M22X26 | 190-3105 |
| 2200µF | 2.3 | 25 | 22 | MCLPR50V228M22X25 | 945-2885 |
| 2700µF | 2.3 | 31 | 22 | MCLPR50V278M22X31 | 190-3106 |
| 3300µF | 2.5 | 31 | 22 | MCLPR50V338M22X31 | 190-3107 |
| 4700µF | 3.86 | 25 | 30 | MCLPR50V478M30X25 | 945-2893 |
| 5600µF | 2.8 | 40 | 25 | MCLPR50V568M25X40 | 190-3108 |
| 6800µF | 2.85 | 41 | 25 | MCLPR50V688M25X41 | 190-3109 |
| 8200µF | 3.8 | 46 | 30 | MCLPR50V828M30X46 | 190-3110 |
| 10000µF | 5.97 | 35 | 35 | MCLPR50V109M35X35 | 945-2907 |
| 12000µF | 4.55 | 45 | 30 | MCLPR50V129M30X45 | 190-3112 |
| 15000µF | 5.3 | 51 | 30 | MCLPR50V159M30X51 | 190-3113 |
| 18000µF | 5.3 | 55 | 35 | MCLPR50V189M35X55 | 190-3114 |
| 22000µF | 5.8 | 52 | 35 | MCLPR50V229M35X52 | 190-3115 |

| 50 Volt d.c. | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|
| 1500µF | NEW 190-3105 | | | | | |
| 2200µF | 945-2885 | | | | | |
| 2700µF | NEW 190-3106 | | | | | |
| 3300µF | NEW 190-3107 | | | | | |
| 4700µF | 945-2893 | | | | | |
| 5600µF | NEW 190-3108 | | | | | |
| 6800µF | NEW 190-3109 | | | | | |
| 8200µF | NEW 190-3110 | | | | | |
| 10000µF | 945-2907 | | | | | |
| 12000µF | NEW 190-3112 | | | | | |
| 15000µF | NEW 190-3113 | | | | | |
| 18000µF | NEW 190-3114 | | | | | |
| 22000µF | NEW 190-3115 | | | | | |

| 63 Volt d.c. | Ripple (A) @ 120Hz, 85°C | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 1000µF | 1.45 | 25 | 22 | MCLPR63V108M22X25 | 190-3116 |
| 2200µF | 2.58 | 25 | 26 | MCLPR63V228M26X25 | 945-2915 |
| 4700µF | 4.19 | 40 | 26 | MCLPR63V478M26X40 | 945-2923 |
| 6800µF | 5.16 | 40 | 30 | MCLPR63V688M30X40 | 945-2931 |
| 1500µF | 1.8 | 30 | 22 | MCLPR63V158M22X30 | 190-3117 |
| 2700µF | 2.8 | 31 | 25 | MCLPR63V278M25X31 | 190-3118 |
| 3300µF | 2.76 | 35 | 25 | MCLPR63V338M25X35 | 190-3119 |
| 3900µF | 3.1 | 40 | 25 | MCLPR63V398M25X40 | 190-3120 |
| 5600µF | 3.6 | 40 | 30 | MCLPR63V568M30X40 | 190-3121 |
| 8200µF | 3.99 | 46 | 30 | MCLPR63V828M30X46 | 190-3122 |
| 10000µF | 6.32 | 50 | 30 | MCLPR63V109M30X50 | 945-2940 |

| 63 Volt d.c. | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|
| 1000µF | NEW 190-3116 | | | | | |
| 1500µF | NEW 190-3117 | | | | | |
| 2200µF | 945-2915 | | | | | |
| 2700µF | NEW 190-3118 | | | | | |
| 3300µF | NEW 190-3119 | | | | | |
| 3900µF | NEW 190-3120 | | | | | |
| 4700µF | 945-2923 | | | | | |
| 5600µF | NEW 190-3121 | | | | | |
| 6800µF | 945-2931 | | | | | |
| 8200µF | NEW 190-3122 | | | | | |
| 10000µF | 945-2940 | | | | | |

| 100 Volt d.c. | Ripple (A) @ 120Hz, 85°C | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 470µF | 1.15 | 25 | 22 | MCLPR100V477M22X25 | 190-3124 |
| 680µF | 1.53 | 30 | 22 | MCLPR100V687M22X30 | 190-3125 |
| 820µF | 1.54 | 30 | 25 | MCLPR100V827M25X30 | 190-3126 |
| 1000µF | 2.3 | 30 | 22 | MCLPR100V108M22X30 | 945-2958 |
| 1200µF | 2.2 | 35 | 25 | MCLPR100V128M25X35 | 190-3127 |
| 1500µF | 2.38 | 40 | 25 | MCLPR100V158M25X40 | 190-3128 |
| 1800µF | 2.05 | 41 | 25 | MCLPR100V188M25X41 | 190-3129 |
| 2200µF | 3.74 | 40 | 26 | MCLPR100V228M26X40 | 945-2966 |
| 2700µF | 3.00 | 35 | 35 | MCLPR100V278M35X35 | 190-3130 |
| 3300µF | 3.27 | 41 | 30 | MCLPR100V338M30X41 | 190-3131 |
| 3900µF | 3.3 | 45 | 35 | MCLPR100V398M35X45 | 190-3132 |
| 4700µF | 5.86 | 50 | 30 | MCLPR100V478M30X50 | 945-2974 |
| 5600µF | 3.9 | 50 | 35 | MCLPR100V568M35X50 | 190-3133 |
| 6800µF | 4.85 | 58 | 35 | MCLPR100V688M35X58 | 190-3134 |
| 8200µF | 5.3 | 60 | 35 | MCLPR100V828M35X60 | 190-3136 |
| 10000µF | 5.49 | 64 | 40 | MCLPR100V109M40X64 | 190-3137 |

| 100 Volt d.c. | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|
| 470µF | NEW 190-3124 | | | | | |
| 680µF | NEW 190-3125 | | | | | |
| 820µF | NEW 190-3126 | | | | | |
| 1000µF | 945-2958 | | | | | |
| 1200µF | NEW 190-3127 | | | | | |
| 1500µF | NEW 190-3128 | | | | | |
| 1800µF | NEW 190-3129 | | | | | |
| 2200µF | 945-2966 | | | | | |
| 2700µF | NEW 190-3130 | | | | | |
| 3300µF | NEW 190-3131 | | | | | |
| 3900µF | NEW 190-3132 | | | | | |
| 4700µF | 945-2974 | | | | | |
| 5600µF | NEW 190-3133 | | | | | |
| 6800µF | NEW 190-3134 | | | | | |
| 8200µF | NEW 190-3136 | | | | | |
| 10000µF | NEW 190-3137 | | | | | |

| 250 Volt d.c. | Ripple (A) @ 120Hz, 85°C | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 120µF | 0.75 | 25 | 22 | MCLPR250V127M22X25 | 190-3138 |
| 150µF | 0.97 | 25 | 22 | MCLPR250V157M22X25 | 190-3139 |
| 180µF | 1.1 | 26 | 25 | MCLPR250V187M22X26 | 190-3140 |
| 220µF | 1.35 | 32 | 22 | MCLPR250V227M22X32 | 190-3141 |
| 270µF | 1.11 | 32 | 22 | MCLPR250V277M22X32 | 190-3142 |
| 330µF | 1.58 | 40 | 22 | MCLPR250V337M22X40 | 190-3143 |
| 390µF | 2 | 41 | 22 | MCLPR250V397M22X41 | 190-3144 |
| 470µF | 1.93 | 41 | 25 | MCLPR250V477M25X41 | 190-3145 |
| 560µF | 2.22 | 40 | 30 | MCLPR250V567M30X40 | 190-3146 |
| 680µF | 2.46 | 40 | 30 | MCLPR250V687M30X40 | 190-3148 |
| 820µF | 2.86 | 45 | 35 | MCLPR250V827M35X45 | 190-3149 |
| 1000µF | 3.35 | 45 | 35 | MCLPR250V108M35X45 | 190-3150 |
| 1200µF | 4.00 | 46 | 35 | MCLPR250V128M35X46 | 190-3151 |
| 1500µF | 5.00 | 62 | 35 | MCLPR250V158M35X62 | 190-3152 |

| 250 Volt d.c. | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|
| 120µF | NEW 190-3138 | | | | | |
| 150µF | NEW 190-3139 | | | | | |
| 180µF | NEW 190-3140 | | | | | |
| 220µF | NEW 190-3141 | | | | | |
| 270µF | NEW 190-3142 | | | | | |
| 330µF | NEW 190-3143 | | | | | |
| 390µF | NEW 190-3144 | | | | | |
| 470µF | NEW 190-3145 | | | | | |
| 560µF | NEW 190-3146 | | | | | |
| 680µF | NEW 190-3148 | | | | | |
| 820µF | NEW 190-3149 | | | | | |
| 1000µF | NEW 190-3150 | | | | | |
| 1200µF | NEW 190-3151 | | | | | |
| 1500µF | NEW 190-3152 | | | | | |

| 400 Volt d.c. | Ripple (A) @ 120Hz, 85°C | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 47µF | 0.4 | 25 | 22 | MCLPR400V476M22X25 | 190-3153 |
| 68µF | 0.51 | 25 | 22 | MCLPR400V686M22X25 | 190-3154 |
| 82µF | 0.6 | 25 | 22 | MCLPR400V826M22X25 | 190-3155 |
| 100µF | 0.78 | 30 | 22 | MCLPR400V107M22X30 | 945-2990 |
| 120µF | 0.87 | 30 | 25 | MCLPR400V127M25X30 | 190-3156 |
| 150µF | 0.85 | 31 | 25 | MCLPR400V157M25X31 | 190-3157 |
| 220µF | 1.41 | 40 | 26 | MCLPR400V227M26X40 | 945-3008 |
| 270µF | 1.65 | 46 | 25 | MCLPR400V277M25X46 | 190-3158 |
| 330µF | 1.9 | 41 | 30 | MCLPR400V337M30X41 | 190-3161 |
| 390µF | 2.19 | 45 | 30 | MCLPR400V397M30X45 | 190-3162 |
| 470µF | 2.4 | 40 | 35 | MCLPR400V477M35X40 | 945-3016 |
| 560µF | 2.79 | 52 | 35 | MCLPR400V567M35X52 | 190-3163 |

337873

| 400 Volt d.c. | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|
| 47µF | NEW 190-3153 | | | | | |
| 68µF | NEW 190-3154 | | | | | |
| 82µF | NEW 190-3155 | | | | | |
| 100µF | 945-2990 | | | | | |
| 120µF | NEW 190-3156 | | | | | |
| 150µF | NEW 190-3157 | | | | | |
| 220µF | 945-3008 | | | | | |
| 270µF | NEW 190-3158 | | | | | |
| 330µF | NEW 190-3161 | | | | | |
| 390µF | NEW 190-3162 | | | | | |
| 470µF | 945-3016 | | | | | |
| 560µF | NEW 190-3163 | | | | | |

## Aluminium Electrolytic - Snap In - Epcos

### B41231 Series

EPCOS



- Switch-mode power supplies in industrial and entertainment electronics
- High ripple current capability
- Useful life of 2000 h at 85 °C

NEW

Operating Temperature -40°C to +85°C
Tolerance ± 20%

| | Ripple (A) @ 120Hz, 85°C | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| **16 Volt d.c.** | | | | | |
| 10000µF | 3.32 | 25 | 22 | B41231A4109M000 | 183-9273 |
| 22000µF | 5.39 | 30 | 30 | B41231C4229M000 | 183-9274 |
| 47000µF | 7.54 | 40 | 35 | B41231B4479M000 | 183-9276 |
| 68000µF | 8.53 | 50 | 35 | B41231A4689M000 | 183-9277 |
| **25 Volt d.c.** | | | | | |
| 5600µF | 2.65 | 25 | 22 | B41231A5568M000 | 183-9278 |
| 10000µF | 3.89 | 30 | 25.4 | B41231B5109M000 | 183-9279 |
| 22000µF | 5.51 | 30 | 35 | B41231B5229M000 | 183-9280 |
| 33000µF | 6.82 | 50 | 30 | B41231A5339M000 | 183-9281 |
| **35 Volt d.c.** | | | | | |
| 4700µF | 2.98 | 25 | 25.4 | B41231B7478M000 | 183-9282 |
| 6800µF | 3.67 | 30 | 25.4 | B41231B7688M000 | 183-9283 |
| 10000µF | 4.58 | 30 | 30 | B41231C7109M000 | 183-9284 |
| 15000µF | 5.72 | 40 | 30 | B41231A7159M000 | 183-9285 |
| 22000µF | 7.07 | 45 | 35 | B41231A7229M000 | 183-9286 |

# Aluminium Electrolytic - Snap In - Epcos - continued

## B41231 Series - continued

| | Ripple (A) @ 120Hz, 85°C | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| **63 Volt dc** | | | | | |
| 2200µF | 2.5 | 30 | 22 | B41231A8228M000 | 183-9288 |
| 4700µF | 4.1 | 35 | 30 | B41231C8478M000 | 183-9289 |
| 6800µF | 5.16 | 40 | 30 | B41231B8688M000 | 183-9290 |
| 12000µF | 6.83 | 45 | 35 | B41231A8129M000 | 183-9291 |
| **100 Volt dc** | | | | | |
| 1200µF | 2.39 | 30 | 22 | B41231A9128M000 | 183-9292 |
| 2200µF | 3.66 | 30 | 30 | B41231C9228M000 | 183-9293 |
| 3300µF | 4.72 | 40 | 30 | B41231B9338M000 | 183-9294 |
| 4700µF | 5.8 | 40 | 35 | B41231B9478M000 | 183-9295 |
| 5600µF | 6.34 | 45 | 35 | B41231A9568M000 | 183-9296 |

614488

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|
| **16 Volt dc** | | | | | | |
| 10000µF | 183-9273 | | | | | |
| 22000µF | 183-9274 | | | | | |
| 47000µF | 183-9276 | | | | | |
| 68000µF | 183-9277 | | | | | |
| **25 Volt dc** | | | | | | |
| 5600µF | 183-9278 | | | | | |
| 10000µF | 183-9279 | | | | | |
| 22000µF | 183-9280 | | | | | |
| 33000µF | 183-9281 | | | | | |
| **35 Volt dc** | | | | | | |
| 4700µF | 183-9282 | | | | | |
| 6800µF | 183-9283 | | | | | |
| 10000µF | 183-9284 | | | | | |
| 15000µF | 183-9285 | | | | | |
| 22000µF | 183-9286 | | | | | |
| **63 Volt dc** | | | | | | |
| 2200µF | 183-9288 | | | | | |
| 4700µF | 183-9289 | | | | | |
| 6800µF | 183-9290 | | | | | |
| 12000µF | 183-9291 | | | | | |
| **100 Volt dc** | | | | | | |
| 1200µF | 183-9292 | | | | | |
| 2200µF | 183-9293 | | | | | |
| 3300µF | 183-9294 | | | | | |
| 4700µF | 183-9295 | | | | | |
| 5600µF | 183-9296 | | | | | |

## B43501 Series



- Long useful life
- High reliability
- High ripple current capability
- Low ESR
- High CV product, compact

NEW

Operating Temperature -40°C to +85°C
Tolerance ± 20%

| | Ripple (A) @ 100Hz, 85°C | $ESR_{typ}$ 100 Hz (mΩ) | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| **200 Volt d.c.** | | | | | | |
| 470µF | 1.81 | 0.21 | 35 | 22 | B43501E2477M000 | 183-9313 |
| 1500µF | 4.09 | 0.065 | 50 | 30 | B43501E2158M000 | 183-9314 |
| 2200µF | 5.46 | 0.045 | 50 | 35 | B43501E2228M000 | 183-9315 |
| **250 Volt d.c.** | | | | | | |
| 1000µF | 3.21 | 0.1 | 45 | 30 | B43501C2108M000 | 183-9316 |
| 1500µF | 4.34 | 0.065 | 45 | 35 | B43501B2158M000 | 183-9318 |
| **400 Volt d.c.** | | | | | | |
| 270µF | 1.62 | 0.25 | 35 | 30 | B43501A9277M000 | 183-9319 |
| 330µF | 2 | 0.2 | 45 | 30 | B43501A9337M000 | 183-9320 |
| **450 Volt d.c.** | | | | | | |
| 100µF | 0.9 | 1.33 | 25 | 30 | B43501C5107M000 | 183-9321 |
| 150µF | 1.14 | 0.88 | 30 | 30 | B43501B5157M000 | 183-9322 |
| 220µF | 1.5 | 0.6 | 50 | 25 | B43501A5227M000 | 183-9323 |
| 330µF | 2.1 | 0.4 | 40 | 35 | B43501A5337M000 | 183-9324 |
| 470µF | 2.7 | 0.28 | 50 | 35 | B43501A5477M000 | 183-9325 |
| **500 Volt d.c.** | | | | | | |
| 100µF | 0.86 | 1.33 | 35 | 25 | B43501A6107M000 | 183-9326 |
| 150µF | 1.1 | 0.88 | 30 | 30 | B43501A6157M000 | 183-9327 |
| 220µF | 1.5 | 0.6 | 40 | 30 | B43501A6227M000 | 183-9328 |
| 270µF | 1.7 | 0.49 | 50 | 30 | B43501A6277M000 | 183-9331 |
| 330µF | 2.04 | 0.4 | 55 | 30 | B43501A6337M000 | 183-9332 |
| 470µF | 2.7 | 0.28 | 55 | 35 | B43501A6477M000 | 183-9333 |

614490

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|
| **200 Volt dc** | | | | | | |
| 470µF | 183-9313 | | | | | |
| 1500µF | 183-9314 | | | | | |
| 2200µF | 183-9315 | | | | | |
| **250 Volt dc** | | | | | | |
| 1000µF | 183-9316 | | | | | |
| 1500µF | 183-9318 | | | | | |
| **400 Volt dc** | | | | | | |
| 270µF | 183-9319 | | | | | |
| 330µF | 183-9320 | | | | | |
| 100µF | 183-9321 | | | | | |
| 150µF | 183-9322 | | | | | |
| 220µF | 183-9323 | | | | | |
| 330µF | 183-9324 | | | | | |
| 470µF | 183-9325 | | | | | |
| **450 Volt dc** | | | | | | |
| 100µF | 183-9326 | | | | | |
| 150µF | 183-9327 | | | | | |
| 220µF | 183-9328 | | | | | |
| 270µF | 183-9331 | | | | | |
| 330µF | 183-9332 | | | | | |
| 470µF | 183-9333 | | | | | |

## B43511 Series - 85°C (PCB Mounting 4 Pin Snap-In)



- 4 pin snap-in electrolytic
- Compact size, high capacitance per unit volume
- For frequency converters and switch mode power supplies in industrial and consumer electronics applications

Operating temperature -40°C to +85°C (400V)
Useful life @ 85°C 12000 hrs
Climatic category 40/085/56 (400V)
Tolerance ±20%

| | Ripple Current (A) | Impedance max (mΩ) @10kHz, 20°C | ESR (mΩ) @ 100Hz | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **400 Volt d.c.** | | | | | | | |
| 1000µF | 4.8 | 110 | 0.13 | 60 | 45 | B43511B9108M | 121-9089 |
| 1500µF | 7.2 | 70 | 90 | 100 | 40 | B43511A9158M | 121-9088 |
| 1800µF | 7.8 | 60 | 0.05 | 100 | 45 | B43511A9188M000 | 183-9334 |

234196

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|
| **400 Volt d.c.** | | | | | | |
| 1000µF | 121-9089 | | | | | |
| 1500µF | 121-9088 | | | | | |
| 1800µF | NEW 183-9334 | | | | | |

## B43504 Series - 105°C (PCB Mounting Snap-In)



- High performance snap-in electrolytic
- Temperature rating 105°C
- Low ESR, high capacitance per unit volume
- Aluminum case, fully insulated
- Negative terminal not insulated and marked on case

Operating temperature -40°C to +105°C
-25°C to +105°C (450V)
Useful life @ 105°C 2000 hrs
Climatic category 25/105/56 (450V)
Tolerance ±20%

| | Ripple Current (A) | Impedance max (mΩ) @10kHz, 20°C | ESR (mΩ) @ 100Hz | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **250 Volt d.c.** | | | | | | | |
| 220µF | 0.89 | 700 | 0.58 | 30 | 22 | B43504A2227M | 121-9073 |
| 330µF | 1.2 | 470 | 0.39 | 30 | 25 | B43504C2337M | 121-9085 |
| 470µF | 1.6 | 330 | 0.28 | 30 | 30 | B43504B2477M | 121-9084 |
| 1000µF | 2.8 | 160 | 0.13 | 40 | 35 | B43504A2108M | 121-9072 |
| **400 Volts d.c.** | | | | | | | |
| 47µF | 0.39 | 2310 | 1.87 | 25 | 22 | B43504A9476M | 121-9082 |
| 100µF | 0.64 | 1090 | 0.88 | 35 | 22 | B43504A9107M | 121-9077 |
| 150µF | 0.82 | 730 | 0.59 | 40 | 22 | B43504A9157M | 121-9079 |
| 220µF | 1.2 | 500 | 0.4 | 30 | 35 | B43504C9227M | 121-9087 |
| 330µF | 1.5 | 330 | 0.27 | 45 | 30 | B43504A9337M | 121-9081 |
| 470µF | 2 | 240 | 0.19 | 45 | 35 | B43504A9477M | 121-9083 |
| **450 Volts d.c.** | | | | | | | |
| 220µF | 1.2 | 730 | 0.62 | 30 | 35 | B43504C5227M | 121-9086 |
| 330µF | 1.6 | 490 | 0.41 | 50 | 30 | B43504A5337M | 121-9075 |
| 470µF | 2.1 | 340 | 0.29 | 50 | 35 | B43504A5477M | 121-9076 |

234197


RoHS ● Compliant ▲ Non-compliant

| 250 Volt d.c. | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|
| 220µF | 121-9073 | | | | | |
| 330µF | 121-9085 | | | | | |
| 470µF | 121-9084 | | | | | |
| 1000µF | 121-9072 | | | | | |
| **400 Volts d.c.** | | | | | | |
| 47µF | 121-9082 | | | | | |
| 100µF | 121-9077 | | | | | |
| 150µF | 121-9079 | | | | | |
| 220µF | 121-9087 | | | | | |
| 330µF | 121-9081 | | | | | |
| 470µF | 121-9083 | | | | | |
| **450 Volts d.c.** | | | | | | |
| 220µF | 121-9086 | | | | | |
| 330µF | 121-9075 | | | | | |
| 470µF | 121-9076 | | | | | |

## B43505 Series



- Professional power supplies in industrial electronics and in data processing equipment
- Long useful life
- High reliability
- Excellent performance - 105 °C
- Outstanding ripple current capability
- Low ESR

NEW

Operating Temperature -40°C to +105°C
Tolerance ± 20%

| | Ripple (A) @ 100Hz, 85°C | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| **250 Volt d.c.** | | | | | |
| 220µF | 2.1 | 30 | 25 | B43505A2227M000 | 183-9298 |
| 330µF | 2.8 | 40 | 25 | B43505A2337M000 | 183-9300 |
| 470µF | 3.5 | 35 | 30 | B43505A2477M000 | 183-9302 |
| 680µF | 4.6 | 45 | 30 | B43505A2687M000 | 183-9304 |
| 1000µF | 6.2 | 45 | 35 | B43505A2108M000 | 183-9306 |
| **400 Volt d.c.** | | | | | |
| 100µF | 1.4 | 30 | 25 | B43505A9107M000 | 183-9297 |
| 150µF | 1.9 | 30 | 30 | B43505C9157M000 | 183-9307 |
| 220µF | 2.5 | 30 | 35 | B43505C9227M000 | 183-9308 |
| 330µF | 3.4 | 40 | 35 | B43505C9337M000 | 183-9309 |
| 470µF | 4.4 | 50 | 35 | B43505A9477M000 | 183-9303 |
| **450 Volt d.c.** | | | | | |
| 100µF | 1.5 | 30 | 30 | B43505C5107M000 | 183-9310 |
| 150µF | 2 | 35 | 30 | B43505C5157M000 | 183-9311 |
| 220µF | 2.7 | 35 | 35 | B43505C5227M000 | 183-9312 |
| 330µF | 3.7 | 50 | 35 | B43505A5337M000 | 183-9301 |

614489

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|
| **250 Volt dc** | | | | | | |
| 220µF | 183-9298 | | | | | |
| 330µF | 183-9300 | | | | | |
| 470µF | 183-9302 | | | | | |
| 680µF | 183-9304 | | | | | |
| 1000µF | 183-9306 | | | | | |
| **400 Volt dc** | | | | | | |
| 100µF | 183-9297 | | | | | |
| 150µF | 183-9307 | | | | | |
| 220µF | 183-9308 | | | | | |
| 330µF | 183-9309 | | | | | |
| 470µF | 183-9303 | | | | | |
| **450 Volt dc** | | | | | | |
| 100µF | 183-9310 | | | | | |
| 150µF | 183-9311 | | | | | |
| 220µF | 183-9312 | | | | | |
| 330µF | 183-9301 | | | | | |

## B43514 Series - 105°C (PCB Mounting 4 Pin Snap-In)



- High performance 4 pin snap-in electrolytic
- Temperature rating 105°C
- Compact size, high capacitance per unit volume
- For frequency converters and switch mode power supplies in industrial and consumer electronics applications

| | |
|---|---|
| Operating temperature | -40°C to +105°C (400V)<br>-25°C to +105°C (450V) |
| Tolerance | ±20% |
| Useful life @ 85°C | 3000 hrs |
| Climatic category | 40/105/56<br>25/105/56 (450V) |

| | Ripple Current (A) | Impedance max (mΩ) @10kHz, 20°C | ESR (mΩ) @ 100Hz | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **400 Volt d.c.** | | | | | | | |
| 470µF | 2.4 | 220 | 280 | 60 | 35 | B43514A9477M | 121-9090 |
| 680µF | 2.8 | 150 | 190 | 60 | 40 | B43514C9687M | 121-9094 |
| 1000µF | 3.8 | 110 | 130 | 80 | 40 | B43514C9108M | 121-9093 |
| **450 Volt d.c.** | | | | | | | |
| 680µF | 3 | 240 | 300 | 70 | 40 | B43514A5687M | 121-9135 |

333324

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|
| **400 Volt d.c.** | | | | | | |
| 470µF | 121-9090 | | | | | |
| 680µF | 121-9094 | | | | | |
| 1000µF | 121-9093 | | | | | |
| **450 Volt d.c.** | | | | | | |
| 680µF | 121-9135 | | | | | |

# Aluminium Electrolytic - Snap In - Panasonic

## TSHD Series - 105°C (PCB Mounting Snap-In)



- Endurance : 105°C 3000 h
- 30 % smaller than series TS-HC

Operating temperature -25°C to +105°C (200 to 250V d.c.)
Tolerance ± 20% (120 Hz/+20°C)
DC leakage current 3√CV µA

| 400 Volt d.c. | Ripple (A rms) @ 120Hz 105°C | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 120µF | 0.75mA | 25mm | 22 | EETHD2G121HJ | 197-3390 |
| 180µF | 0.95mA | 25mm | 25 | EETHD2G181JJ | 197-3391 |
| 220µF | 1.10mA | 35mm | 22 | EETHD2G221HJ | 197-3392 |
| 220µF | 1.10mA | 30mm | 25 | EETHD2G221JJ | 197-3394 |
| 270µF | 1.22mA | 35mm | 25 | EETHD2G271JJ | 197-3395 |
| 270µF | 1.22mA | 25mm | 30 | EETHD2G271KJ | 197-3396 |
| 330µF | 1.44mA | 50mm | 22 | EETHD2G331HJ | 197-3397 |
| 330µF | 1.44mA | 40mm | 25 | EETHD2G331JJ | 197-3398 |
| 330µF | 1.44mA | 25mm | 35 | EETHD2G331LJ | 197-3399 |
| 390µF | 1.55mA | 45mm | 25 | EETHD2G391JJ | 197-3401 |
| 390µF | 1.55mA | 25mm | 35 | EETHD2G391LJ | 197-3402 |
| 470µF | 1.68mA | 50mm | 25 | EETHD2G471JJ | 197-3403 |
| 470µF | 1.68mA | 35mm | 30 | EETHD2G471KJ | 197-3404 |
| 470µF | 1.68mA | 30mm | 35 | EETHD2G471LJ | 197-3405 |
| 560µF | 1.90mA | 40mm | 30 | EETHD2G561KJ | 197-3406 |
| 560µF | 1.90mA | 35mm | 35 | EETHD2G561LJ | 197-3407 |
| 680µF | 2.12mA | 50mm | 30 | EETHD2G681KJ | 197-3408 |
| 680µF | 2.12mA | 40mm | 35 | EETHD2G681LJ | 197-3409 |
| **420 Volt d.c.** | Ripple (A rms) @ 120Hz 105°C | Dimensions H | Dia. | Mftrs. List No. | Order Code |
| 120µF | 0.74mA | 25mm | 22 | EETHD2S121HJ | 197-3410 |
| 150µF | 0.84mA | 30mm | 22 | EETHD2S151HJ | 197-3412 |
| 150µF | 0.84mA | 25mm | 25 | EETHD2S151JJ | 197-3413 |
| 180µF | 0.91mA | 35mm | 22 | EETHD2S181HJ | 197-3414 |
| 180µF | 0.91mA | 30mm | 25 | EETHD2S181JJ | 197-3415 |
| 220µF | 1.05mA | 40mm | 22 | EETHD2S221HJ | 197-3416 |
| 220µF | 1.05mA | 35mm | 25 | EETHD2S221JJ | 197-3417 |
| 270µF | 1.20mA | 50mm | 22 | EETHD2S271HJ | 197-3418 |
| 270µF | 1.20mA | 40mm | 25 | EETHD2S271JJ | 197-3419 |
| 270µF | 1.20mA | 30mm | 30 | EETHD2S271KJ | 197-3420 |
| 270µF | 1.20mA | 25mm | 35 | EETHD2S271LJ | 197-3421 |
| 330µF | 1.42mA | 45mm | 25 | EETHD2S331JJ | 197-3422 |
| 330µF | 1.42mA | 35mm | 30 | EETHD2S331KJ | 197-3424 |
| 390µF | 1.55mA | 50mm | 25 | EETHD2S391JJ | 197-3425 |
| 390µF | 1.55mA | 40mm | 30 | EETHD2S391KJ | 197-3426 |
| 390µF | 1.55mA | 30mm | 35 | EETHD2S391LJ | 197-3427 |
| 470µF | 1.71mA | 45mm | 30 | EETHD2S471KJ | 197-3428 |
| 470µF | 1.71mA | 35mm | 35 | EETHD2S471LJ | 197-3429 |
| 560µF | 1.90mA | 50mm | 30 | EETHD2S561KJ | 197-3430 |
| 560µF | 1.90mA | 40mm | 35 | EETHD2S561LJ | 197-3431 |
| **450 Volt d.c.** | Ripple (A rms) @ 120Hz 105°C | Dimensions H | Dia. | Mftrs. List No. | Order Code |
| 120µF | 0.72mA | 30mm | 22 | EETHD2W121HJ | 197-3432 |
| 120µF | 0.72mA | 25mm | 25 | EETHD2W121JJ | 197-3433 |
| 180µF | 0.87mA | 35mm | 22 | EETHD2W181HJ | 197-3434 |
| 180µF | 0.87mA | 30mm | 25 | EETHD2W181JJ | 197-3436 |
| 220µF | 1.00mA | 45mm | 22 | EETHD2W221HJ | 197-3437 |
| 220µF | 1.00mA | 35mm | 25 | EETHD2W221JJ | 197-3438 |
| 220µF | 1.00mA | 25mm | 30 | EETHD2W221KJ | 197-3439 |
| 270µF | 1.19mA | 50mm | 22 | EETHD2W271HJ | 197-3440 |
| 270µF | 1.19mA | 40mm | 25 | EETHD2W271JJ | 197-3441 |
| 270µF | 1.19mA | 30mm | 30 | EETHD2W271KJ | 197-3442 |
| 270µF | 1.19mA | 25mm | 35 | EETHD2W271LJ | 197-3443 |
| 330µF | 1.38mA | 45mm | 25 | EETHD2W331JJ | 197-3444 |
| 330µF | 1.38mA | 35mm | 30 | EETHD2W331KJ | 197-3445 |
| 390µF | 1.55mA | 40mm | 30 | EETHD2W391KJ | 197-3446 |
| 390µF | 1.55mA | 30mm | 35 | EETHD2W391LJ | 197-3448 |
| 470µF | 1.74mA | 45mm | 30 | EETHD2W471KJ | 197-3449 |
| 470µF | 1.74mA | 35mm | 35 | EETHD2W471LJ | 197-3450 |
| 560µF | 1.90mA | 50mm | 30 | EETHD2W561KJ | 197-3451 |
| 560µF | 1.90mA | 40mm | 35 | EETHD2W561LJ | 197-3452 |

# Aluminium Electrolytic - Snap In - Panasonic - continued

## TSHD Series - 105°C (PCB Mounting Snap-In) - continued

659475

| 400 Volt | | Price Each | | | | |
|---|---|---|---|---|---|---|
| | Order Code | 1+ | 10+ | 50+ | 100+ | 200+ |
| 120µF | 197-3390 | | | | | |
| 180µF | 197-3391 | | | | | |
| 220µF | 197-3392 | | | | | |
| 220µF | 197-3394 | | | | | |
| 270µF | 197-3395 | | | | | |
| 270µF | 197-3396 | | | | | |
| 330µF | 197-3397 | | | | | |
| 330µF | 197-3398 | | | | | |
| 330µF | 197-3399 | | | | | |
| 390µF | 197-3401 | | | | | |
| 390µF | 197-3402 | | | | | |
| 470µF | 197-3403 | | | | | |
| 470µF | 197-3404 | | | | | |
| 470µF | 197-3405 | | | | | |
| 560µF | 197-3406 | | | | | |
| 560µF | 197-3407 | | | | | |
| 680µF | 197-3408 | | | | | |
| 680µF | 197-3409 | | | | | |

| 420 Volt | | Price Each | | | | |
|---|---|---|---|---|---|---|
| | Order Code | 1+ | 10+ | 50+ | 100+ | 200+ |
| 120µF | 197-3410 | | | | | |
| 150µF | 197-3412 | | | | | |
| 150µF | 197-3413 | | | | | |
| 180µF | 197-3414 | | | | | |
| 180µF | 197-3415 | | | | | |
| 220µF | 197-3416 | | | | | |
| 220µF | 197-3417 | | | | | |
| 270µF | 197-3418 | | | | | |
| 270µF | 197-3419 | | | | | |
| 270µF | 197-3420 | | | | | |
| 270µF | 197-3421 | | | | | |
| 330µF | 197-3422 | | | | | |
| 330µF | 197-3424 | | | | | |
| 390µF | 197-3425 | | | | | |
| 390µF | 197-3426 | | | | | |
| 390µF | 197-3427 | | | | | |
| 470µF | 197-3428 | | | | | |
| 470µF | 197-3429 | | | | | |
| 560µF | 197-3430 | | | | | |
| 560µF | 197-3431 | | | | | |

| 450 Volt | | Price Each | | | | |
|---|---|---|---|---|---|---|
| | Order Code | 1+ | 10+ | 50+ | 100+ | 200+ |
| 120µF | 197-3432 | | | | | |
| 120µF | 197-3433 | | | | | |
| 180µF | 197-3434 | | | | | |
| 180µF | 197-3436 | | | | | |
| 220µF | 197-3437 | | | | | |
| 220µF | 197-3438 | | | | | |
| 220µF | 197-3439 | | | | | |
| 270µF | 197-3440 | | | | | |
| 270µF | 197-3441 | | | | | |
| 270µF | 197-3442 | | | | | |
| 270µF | 197-3443 | | | | | |
| 330µF | 197-3444 | | | | | |
| 330µF | 197-3445 | | | | | |
| 390µF | 197-3446 | | | | | |
| 390µF | 197-3448 | | | | | |
| 470µF | 197-3449 | | | | | |
| 470µF | 197-3450 | | | | | |
| 560µF | 197-3451 | | | | | |
| 560µF | 197-3452 | | | | | |

## TSUP Series -85°C (PCB Mounting Snap-In)

Panasonic



- General purpose wide CV range

Lead pitch=10
Mounting hole dia.=2.0

| | | | |
|---|---|---|---|
| Operating temperature | -40°C to +85°C (16 to 250V d.c.)<br>-25°C to +85°C (400 to 450V d.c.) | Tolerance | ±20% |
| | | DC leakage current | 3√CV µA |

| 16 Volt d.c. | Ripple (A rms) @ 120Hz 85°C | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 4700µF | 1.6 | 20 | 22 | ECOS1CP472BL | 119-8569 |
| 10000µF | 3.78 | 30 | 22 | ECOS1CP103BA | 119-8710 |
| 15000µF | 3.2 | 20 | 35 | ECOS1CP153EL | 119-8570 |
| 22000µF | 6.1 | 35 | 25 | ECOS1CP223CA | 119-8711 |
| 47000µF | 7.47 | 50 | 30 | ECOS1CP473DA | 119-8712 |
| 68000µF | 9.05 | 50 | 35 | ECOS1CP683EA | 119-8714 |

| 16 Volt d.c. | | Price Each | | | | |
|---|---|---|---|---|---|---|
| | Order Code | 1+ | 10+ | 50+ | 100+ | 250+ |
| 4700µF | 119-8569 | | | | | |
| 10000µF | 119-8710 | | | | | |
| 15000µF | 119-8570 | | | | | |
| 22000µF | 119-8711 | | | | | |
| 47000µF | 119-8712 | | | | | |
| 68000µF | 119-8714 | | | | | |

| 35 Volt d.c. | Ripple (A rms) @ 120Hz 85°C | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 4700µF | 3.26 | 30 | 22 | ECOS1VP472BA | 119-8715 |
| 6800µF | 3.68 | 30 | 25 | ECOS1VP682CA | 119-8716 |
| 10000µF | 4.42 | 40 | 25 | ECOS1VP103CA | 119-8717 |
| 22000µF | 6.1 | 50 | 30 | ECOS1VP223DA | 119-8718 |
| 33000µF | 7.15 | 50 | 35 | ECOS1VP333EA | 119-8719 |

| 35 Volt d.c. | | Price Each | | | | |
|---|---|---|---|---|---|---|
| | Order Code | 1+ | 10+ | 50+ | 100+ | 250+ |
| 4700µF | 119-8715 | | | | | |
| 6800µF | 119-8716 | | | | | |
| 10000µF | 119-8717 | | | | | |
| 22000µF | 119-8718 | | | | | |
| 33000µF | 119-8719 | | | | | |

| 63 Volt d.c. | Ripple (A rms) @ 120Hz 85°C | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 1000µF | 1.2 | 20 | 22 | ECOS1JP102BL | 119-8571 |
| 1500µF | 1.3 | 20 | 25 | ECOS1JP152CL | 119-8573 |
| 2200µF | 2.52 | 30 | 22 | ECOS1JP222BA | 119-8720 |
| 3300µF | 4.1 | 30 | 25 | ECOS1JP332CA | 119-8721 |
| 4700µF | 4.86 | 40 | 25 | ECOS1JP472CA | 119-8722 |
| 6800µF | 5.84 | 40 | 30 | ECOS1JP682DA | 119-8723 |
| 10000µF | 6.52 | 40 | 35 | ECOS1JP103EA | 119-8724 |

| 63 Volt d.c. | | Price Each | | | | |
|---|---|---|---|---|---|---|
| | Order Code | 1+ | 10+ | 50+ | 100+ | 250+ |
| 1000µF | 119-8571 | | | | | |
| 1500µF | 119-8573 | | | | | |
| 2200µF | 119-8720 | | | | | |
| 3300µF | 119-8721 | | | | | |
| 4700µF | 119-8722 | | | | | |
| 6800µF | 119-8723 | | | | | |
| 10000µF | 119-8724 | | | | | |

| 100 Volt d.c. | Ripple (A rms) @ 120Hz 85°C | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 470µF | 1 | 20 | 22 | ECOS2AP471BL | 119-8574 |
| 2200 | 3.14 | 40 | | ECOS2AP222CA | 119-8726 |
| 4700µF | 5.13 | 50 | 30 | ECOS2AP472DA | 119-8728 |
| 6800µF | 6.6 | 50 | 35 | ECOS2AP682EA | 119-8729 |

| 100 Volt d.c. | | Price Each | | | | |
|---|---|---|---|---|---|---|
| | Order Code | 1+ | 10+ | 50+ | 100+ | 250+ |
| 470µF | 119-8574 | | | | | |
| 2200 | 119-8726 | | | | | |
| 4700µF | 119-8728 | | | | | |
| 6800µF | 119-8729 | | | | | |

| 200 Volt d.c. | Ripple (A rms) @ 120Hz 85°C | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 220µF | 0.87 | 20 | 25 | ECOS2DP221CL | 119-8575 |
| 330µF | 1.56 | 30 | 22 | ECOS2DP331BA | 119-8576 |
| 470µF | 1.85 | 30 | 25 | ECOS2DP471CA | 119-8577 |
| 680µF | 2.68 | 35 | 25 | ECOS2DP681CA | 119-8578 |
| 1000µF | 3.25 | 40 | 30 | ECOS2DP102DA | 119-8581 |
| 1500µF | 3.87 | 40 | 35 | ECOS2DP152EA | 119-8582 |
| 2200µF | 4.92 | 50 | 35 | ECOS2DP222EA | 119-8583 |

| 200 Volt d.c. | | Price Each | | | | |
|---|---|---|---|---|---|---|
| | Order Code | 1+ | 10+ | 50+ | 100+ | 250+ |
| 220µF | 119-8575 | | | | | |
| 330µF | 119-8576 | | | | | |
| 470µF | 119-8577 | | | | | |
| 680µF | 119-8578 | | | | | |
| 1000µF | 119-8581 | | | | | |
| 1500µF | 119-8582 | | | | | |
| 2200µF | 119-8583 | | | | | |

| 250 Volt d.c. | Ripple (A rms) @ 120Hz 85°C | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 220µF | 1.17 | 30 | 22 | ECOS2EP221BA | 119-8730 |
| 470µF | 2.11 | 40 | 25 | ECOS2EP471CA | 119-8732 |

| 250 Volt d.c. | | Price Each | | | | |
|---|---|---|---|---|---|---|
| | Order Code | 1+ | 10+ | 50+ | 100+ | 250+ |
| 220µF | 119-8730 | | | | | |
| 470µF | 119-8732 | | | | | |


RoHS ● Compliant ▲ Non-compliant

| 400 Volt d.c. | Ripple (A rms) @ 120Hz 85°C | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 47µF | 0.25 | 20 | 22 | ECOS2GP470BL | 119-8585 |
| 68µF | 0.76 | 25 | 22 | ECOS2GP680BA | 119-8736 |
| 100µF | 0.92 | 30 | 22 | ECOS2GP101BA | 119-8738 |
| 150µF | 1.16 | 30 | 25 | ECOS2GP151CA | 119-8586 |
| 220µF | 1.49 | 40 | 25 | ECOS2GP221CA | 119-8739 |
| 560µF | 2.69 | 50 | 35 | ECOS2GP561EA | 119-8741 |

| 400 Volt d.c. | | Price Each | | | | |
|---|---|---|---|---|---|---|
| | Order Code | 1+ | 10+ | 50+ | 100+ | 250+ |
| 47µF | 119-8585 | | | | | |
| 68µF | 119-8736 | | | | | |
| 100µF | 119-8738 | | | | | |
| 150µF | 119-8586 | | | | | |
| 220µF | 119-8739 | | | | | |
| 560µF | 119-8741 | | | | | |

| 450 Volt d.c. | Ripple (A rms) @ 120Hz 85°C | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 47µF | 0.29 | 20 | 25 | ECOS2WP470CL | 119-8588 |
| 68µF | 0.76 | 30 | 22 | ECOS2WP680BA | 119-8742 |
| 100µF | 0.93 | 30 | 25 | ECOS2WP101CA | 119-8743 |

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| 450 Volt d.c. | | Price Each | | | | |
|---|---|---|---|---|---|---|
| | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
| 47µF | 119-8588 | | | | | |
| 68µF | 119-8742 | | | | | |
| 100µF | 119-8743 | | | | | |

## TSUQ Series - 85°C (PCB Mounting Snap-In) Miniature Can Size

Panasonic



- General purpose snap-in electrolytic
- Highly miniaturised can size
- 30% smaller than TSUP series
- 2000 hrs life expectancy @ 85°C

Lead pitch=10
Mounting hole dia.=2.0

Operating temperature -40°C to +85°C (160 to 250V d.c.)
-40°C to +85°C (400 to 450V d.c.)
Tolerance ±20%
DC leakage current 3√CV µA

| 160 Volt d.c. | Ripple (A rms) @ 120Hz 85°C | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 1000µF | 3 | 30 | 25 | EETUQ2C102CA | 119-8665 |
| 1500µF | 3.73 | 40 | 25 | EETUQ2C152CA | 119-8666 |
| 2200µF | 4.78 | 40 | 30 | EETUQ2C222DA | 119-8667 |
| 2700µF | 5.45 | 40 | 35 | EETUQ2C272EA | 119-8668 |
| 3900µF | 6 | 50 | 35 | EETUQ2C392EA | 119-8669 |

| 160 Volt d.c. | | Price Each | | | | |
|---|---|---|---|---|---|---|
| | Order Code | 1+ | 10+ | 50+ | 200+ | 600+ |
| 1000µF | 119-8665 | | | | | |
| 1500µF | 119-8666 | | | | | |
| 2200µF | 119-8667 | | | | | |
| 2700µF | 119-8668 | | | | | |
| 3900µF | 119-8669 | | | | | |

| 250 Volt d.c. | Ripple (A rms) @ 120Hz 85°C | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 330µF | 1.75 | 30 | 22 | EETUQ2E331BA | 119-8670 |
| 470µF | 2.11 | 30 | 25 | EETUQ2E471CA | 119-8672 |
| 680µF | 2.5 | 35 | 25 | EETUQ2E681CA | 119-8673 |
| 820µF | 2.77 | 40 | 25 | EETUQ2E821CA | 119-8674 |
| 1000µF | 3.32 | 35 | 30 | EETUQ2E102DA | 119-8675 |
| 1500µF | 4.04 | 40 | 35 | EETUQ2E152EA | 119-8676 |

| 250 Volt d.c. | | Price Each | | | | |
|---|---|---|---|---|---|---|
| | Order Code | 1+ | 10+ | 50+ | 200+ | 600+ |
| 330µF | 119-8670 | | | | | |
| 470µF | 119-8672 | | | | | |
| 680µF | 119-8673 | | | | | |
| 820µF | 119-8674 | | | | | |
| 1000µF | 119-8675 | | | | | |
| 1500µF | 119-8676 | | | | | |

| 400 Volt d.c. | Ripple (A rms) @ 120Hz 85°C | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 150µF | 1.16 | 30 | 22 | EETUQ2G151BA | 119-8677 |
| 220µF | 1.49 | 30 | 25 | EETUQ2G221CA | 119-8678 |
| 270µF | 1.67 | 35 | 25 | EETUQ2G271CA | 119-8679 |
| 330µF | 1.9 | 40 | 25 | EETUQ2G331CA | 119-8680 |
| 470µF | 2.39 | 40 | 30 | EETUQ2G471DA | 119-8681 |
| 680µF | 2.96 | 45 | 35 | EETUQ2G681EA | 119-8682 |
| 820µF | 3.25 | 50 | 35 | EETUQ2G821EA | 119-8684 |

| 400 Volt d.c. | | Price Each | | | | |
|---|---|---|---|---|---|---|
| | Order Code | 1+ | 10+ | 50+ | 200+ | 600+ |
| 150µF | 119-8677 | | | | | |
| 220µF | 119-8678 | | | | | |
| 270µF | 119-8679 | | | | | |
| 330µF | 119-8680 | | | | | |
| 470µF | 119-8681 | | | | | |
| 680µF | 119-8682 | | | | | |
| 820µF | 119-8684 | | | | | |

| 450 Volt d.c. | Ripple (A rms) @ 120Hz 85°C | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 100µF | 0.93 | 25 | 22 | EETUQ2W101BA | 119-8685 |
| 150µF | 1.19 | 30 | 25 | EETUQ2W151CA | 119-8686 |
| 220µF | 1.55 | 40 | 25 | EETUQ2W221CA | 119-8687 |
| 330µF | 2.01 | 40 | 30 | EETUQ2W331DA | 119-8688 |
| 470µF | 2.53 | 40 | 35 | EETUQ2W471EA | 119-8689 |
| 560µF | 2.82 | 50 | 30 | EETUQ2W561DA | 119-8690 |

311595

| 450 Volt d.c. | | Price Each | | | | |
|---|---|---|---|---|---|---|
| | Order Code | 1+ | 10+ | 50+ | 200+ | 600+ |
| 100µF | 119-8685 | | | | | |
| 150µF | 119-8686 | | | | | |
| 220µF | 119-8687 | | | | | |
| 330µF | 119-8688 | | | | | |
| 470µF | 119-8689 | | | | | |
| 560µF | 119-8690 | | | | | |

## TSHA Series – 105°C (PCB Mounting Snap-In)

Panasonic



- High temperature snap-in capacitors offering high performance in a compact size

Lead pitch=10
Mounting hole dia.=2.0

Operating temperature -40°C to +105°C (10 to 200V)
-25°C to + 105°C (400V)
Tolerance ±20%
Operating life @ 105°C 2000 hrs

DC leakage current ≤3 √CV µA
Power factor 16V 0.45
35V 0.30
63V 0.20
100-400V 0.15

| Volt d.c. | | Ripple (A) @ 120Hz, 105°C | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 16 | 10000µF | 2.6 | 30 | 22 | ECOS1CA103BA | 119-8691 |
| 16 | 15000µF | 3.2 | 35 | 25 | ECOS1CA153CA | 119-8539 |
| 16 | 22000µF | 3.8 | 45 | 25 | ECOS1CA223CA | 119-8692 |
| 16 | 47000µF | 5.5 | 45 | 35 | ECOS1CA473EA | 119-8540 |
| 25 | 10000µF | 3 | 35 | 25 | ECOS1EA103CA | 119-8541 |
| 25 | 15000µF | 3.6 | 35 | 30 | ECOS1EA153DA | 119-8542 |
| 25 | 22000µF | 4.3 | 35 | 35 | ECOS1EA223EA | 119-8544 |
| 35 | 3300µF | 1.9 | 25 | 22 | ECOS1VA332BA | 119-8545 |
| 35 | 4700µF | 2.2 | 25 | 25 | ECOS1VA472CA | 119-8547 |
| 35 | 6800µF | 2.6 | 40 | 22 | ECOS1VA682BA | 119-8693 |
| 35 | 22000µF | 5 | 50 | 35 | ECOS1VA223EA | 119-8548 |
| 35 | 10000µF | 3.2 | 45 | 25 | ECOS1VA103CA | 119-8694 |
| 50 | 2700µF | 1.8 | 30 | 22 | ECOS1HA272BA | 119-8549 |
| 50 | 4700µF | 2.5 | 30 | 30 | ECOS1HA472DA | 119-8550 |
| 50 | 6800µF | 3.3 | 50 | 25 | ECOS1HA682CA | 119-8551 |
| 50 | 10000µF | 4 | 40 | 35 | ECOS1HA103EA | 119-8552 |
| 63 | 2200µF | 2 | 35 | 22 | ECOS1JA222BA | 119-8697 |
| 63 | 3300µF | 2.5 | 40 | 25 | ECOS1JA332CA | 119-8553 |
| 63 | 4700µF | 3 | 50 | 25 | ECOS1JA472CA | 119-8699 |
| 63 | 6800µF | 3.6 | 40 | 35 | ECOS1JA682EA | 119-8554 |
| 63 | 10000µF | 4.4 | 50 | 35 | ECOS1JA103EA | 119-8556 |
| 100 | 560µF | 1.1 | 25 | 22 | ECOS2AA561BA | 119-8557 |
| 100 | 1000µF | 1.7 | 35 | 22 | ECOS2AA102BA | 119-8700 |
| 100 | 1000µF | 1.7 | 30 | 25 | ECOS2AA102CA | 119-8558 |
| 100 | 1500µF | 2.1 | 45 | 22 | ECOS2AA152BA | 119-8559 |
| 100 | 2200µF | 2.6 | 50 | 25 | ECOS2AA222CA | 119-8702 |
| 100 | 4700µF | 3.8 | 50 | 35 | ECOS2AA472EA | 119-8560 |
| 160 | 470µF | 1.4 | 35 | 22 | ECOS2CA471BA | 119-8561 |
| 200 | 220 | 1 | 25 | | ECOS2DA221BA | 119-8703 |
| 200 | 330µF | 1.2 | 30 | 22 | ECOS2DA331BA | 119-8704 |
| 200 | 470µF | 1.4 | 35 | 25 | ECOS2DA471CA | 119-8705 |
| 200 | 680µF | 1.7 | 40 | 25 | ECOS2DA681CA | 119-8706 |
| 400 | 68µF | 0.56 | 30 | 22 | ECOS2GA680BA | 119-8707 |
| 400 | 100µF | 0.69 | 35 | 22 | ECOS2GA101BA | 119-8708 |
| 400 | 220µF | 1 | 50 | 25 | ECOS2GA221CA | 119-8709 |

208643

| Volt d.c. | | | Price Each | | | | |
|---|---|---|---|---|---|---|---|
| | | Order Code | 1+ | 10+ | 50+ | 100+ | 250+ |
| 16 | 10000µF | 119-8691 | | | | | |
| 16 | 15000µF | 119-8539 | | | | | |
| 16 | 22000µF | 119-8692 | | | | | |
| 16 | 47000µF | 119-8540 | | | | | |
| 25 | 10000µF | 119-8541 | | | | | |
| 25 | 15000µF | 119-8542 | | | | | |
| 25 | 22000µF | 119-8544 | | | | | |
| 35 | 3300µF | 119-8545 | | | | | |
| 35 | 4700µF | 119-8547 | | | | | |
| 35 | 6800µF | 119-8693 | | | | | |
| 35 | 22000µF | 119-8548 | | | | | |
| 35 | 10000µF | 119-8694 | | | | | |
| 50 | 2700µF | 119-8549 | | | | | |
| 50 | 4700µF | 119-8550 | | | | | |
| 50 | 6800µF | 119-8551 | | | | | |
| 50 | 10000µF | 119-8552 | | | | | |
| 63 | 2200µF | 119-8697 | | | | | |
| 63 | 3300µF | 119-8553 | | | | | |
| 63 | 4700µF | 119-8699 | | | | | |
| 63 | 6800µF | 119-8554 | | | | | |
| 63 | 10000µF | 119-8556 | | | | | |
| 100 | 560µF | 119-8557 | | | | | |
| 100 | 1000µF | 119-8700 | | | | | |
| 100 | 1000µF | 119-8558 | | | | | |
| 100 | 1500µF | 119-8559 | | | | | |

# Aluminium Electrolytic - Snap In - Panasonic - continued

## TSHA Series – 105°C (PCB Mounting Snap-In) - continued

| Volt d.c. | | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|---|
| 100 | 2200µF | 119-8702● | | | | | |
| 100 | 4700µF | 119-8560● | | | | | |
| 160 | 470µF | 119-8561● | | | | | |
| 200 | 220µF | 119-8703● | | | | | |
| 200 | 330 | 119-8704● | | | | | |
| 200 | 470µF | 119-8705● | | | | | |
| 200 | 680µF | 119-8706● | | | | | |
| 400 | 68µF | 119-8707● | | | | | |
| 400 | 100µF | 119-8708● | | | | | |
| 400 | 220µF | 119-8709● | | | | | |

## TSHC Series - 105°C (PCB Mounting Snap-In) Miniature Can Size

Panasonic



- High performance snap-in electrolytic
- Temperature rating 105°C
- Highly miniaturised can size
- 2000 hrs life expectancy @ 105°C

Lead pitch=10, Mounting hole dia.=2.0

Operating temperature -40°C to +105°C (160 to 250V d.c.)
-40°C to +105°C (400 to 450V d.c.)

Tolerance ±20%
DC leakage current 3√CV µA

**160 Volt d.c.**

| | Ripple (A rms) @ 120Hz 105°C | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 1000µF | 2.2 | 35 | 25 | EETHC2C102CA | 119-8640 |
| 2200µF | 2.9 | 45 | 30 | EETHC2C222DA | 119-8642 |

**160 Volt d.c.**

| | Order Code | Price Each 1+ | 10+ | 50+ | 200+ | 600+ |
|---|---|---|---|---|---|---|
| 1000µF | 119-8640● | | | | | |
| 2200µF | 119-8642● | | | | | |

**250 Volt d.c.**

| | Ripple (A rms) @ 120Hz 105°C | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 330µF | 1.2 | 30 | 22 | EETHC2E331BA | 119-8644 |
| 470µF | 1.4 | 30 | 25 | EETHC2E471CA | 119-8645 |
| 680µF | 1.7 | 40 | 25 | EETHC2E681CA | 119-8647 |
| 1000µF | 2.2 | 40 | 30 | EETHC2E102DA | 119-8648 |
| 1200µF | 2.3 | 45 | 30 | EETHC2E122DA | 119-8649 |

**250 Volt d.c.**

| | Order Code | Price Each 1+ | 10+ | 50+ | 200+ | 600+ |
|---|---|---|---|---|---|---|
| 330µF | 119-8644● | | | | | |
| 470µF | 119-8645● | | | | | |
| 680µF | 119-8647● | | | | | |
| 1000µF | 119-8648● | | | | | |
| 1200µF | 119-8649● | | | | | |

**400 Volt d.c.**

| | Ripple (A rms) @ 120Hz 105°C | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 100µF | 0.7 | 25 | 22 | EETHC2G101BA | 119-8650 |
| 150µF | 0.88 | 30 | 22 | EETHC2G151BA | 119-8651 |
| 220µF | 1.1 | 35 | 25 | EETHC2G221CA | 119-8652 |
| 270µF | 1.22 | 40 | 25 | EETHC2G271CA | 119-8653 |
| 330µF | 1.44 | 35 | 30 | EETHC2G331DA | 119-8654 |
| 470µF | 1.68 | 45 | 30 | EETHC2G471DA | 119-8655 |
| 680µF | 2.12 | 45 | 35 | EETHC2G681EA | 119-8656 |

**400 Volt d.c.**

| | Order Code | Price Each 1+ | 10+ | 50+ | 200+ | 600+ |
|---|---|---|---|---|---|---|
| 100µF | 119-8650● | | | | | |
| 150µF | 119-8651● | | | | | |
| 220µF | 119-8652● | | | | | |
| 270µF | 119-8653● | | | | | |
| 330µF | 119-8654● | | | | | |
| 470µF | 119-8655● | | | | | |
| 680µF | 119-8656● | | | | | |

**450 Volt d.c.**

| | Ripple (A rms) @ 120Hz 105°C | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 100µF | 0.64 | 30 | 22 | EETHC2W101BA | 119-8657 |
| 150µF | 0.79 | 30 | 25 | EETHC2W151CA | 119-8659 |
| 220µF | 1 | 45 | 25 | EETHC2W221CA | 119-8661 |
| 270µF | 1.19 | 40 | 30 | EETHC2W271DA | 119-8662 |
| 470µF | 1.74 | 45 | 35 | EETHC2W471EA | 119-8663 |
| 560µF | 1.9 | 50 | 35 | EETHC2W561EA | 119-8664 |

311834

**450 Volt d.c.**

| | Order Code | Price Each 1+ | 10+ | 50+ | 200+ | 600+ |
|---|---|---|---|---|---|---|
| 100µF | 119-8657● | | | | | |
| 150µF | 119-8659● | | | | | |
| 220µF | 119-8661● | | | | | |
| 270µF | 119-8662● | | | | | |
| 470µF | 119-8663● | | | | | |
| 560µF | 119-8664● | | | | | |

## EE Series

NEW

Panasonic ideas for life



- High performance snap-in electrolytic
- 3000 hrs life expectancy @ 105°C

Operating temperature -40°C to +105°C (200 to 250V d.c.)
-25°C to +105°C (400 to 450V d.c.)

Tolerance ± 20%
DC leakage current 3√CV µA

**200 Volt d.c.**

| | Ripple (A rms) @ 120Hz 105°C | Dimensions (mm) H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 300µF | 1.7 | 25 | 22 | EETEE2D301HJ | 182-8611 |
| 390µF | 2.17 | 30 | 22 | EETEE2D391HJ | 182-8612 |
| 470µF | 2.22 | 35 | 22 | EETEE2D471HJ | 182-8613 |
| 590µF | 2.3 | 40 | 22 | EETEE2D591HJ | 182-8614 |
| 590µF | 2.3 | 30 | 25 | EETEE2D591JJ | 182-8615 |
| 590µF | 3.08 | 25 | 30 | EETEE2D591KJ | 182-8616 |
| 700µF | 2.65 | 45 | 22 | EETEE2D701HJ | 182-8618 |
| 700µF | 2.65 | 35 | 25 | EETEE2D701JJ | 182-8619 |
| 800µF | 3.08 | 50 | 22 | EETEE2D801HJ | 182-8620 |
| 800µF | 3.08 | 40 | 25 | EETEE2D801JJ | 182-8621 |
| 800µF | 3.48 | 30 | 30 | EETEE2D801KJ | 182-8622 |
| 800µF | 3.48 | 25 | 35 | EETEE2D801LJ | 182-8623 |
| 1000µF | 3.48 | 50 | 25 | EETEE2D102JJ | 182-8624 |
| 1000µF | 3.98 | 35 | 30 | EETEE2D102KJ | 182-8625 |
| 1000µF | 4.2 | 30 | 35 | EETEE2D102LJ | 182-8626 |
| 1200µF | 4.2 | 40 | 30 | EETEE2D122KJ | 182-8627 |
| 1300µF | 4.62 | 45 | 30 | EETEE2D132KJ | 182-8628 |
| 1500µF | 5.22 | 50 | 30 | EETEE2D152KJ | 182-8631 |
| 1500µF | 4.62 | 40 | 35 | EETEE2D152LJ | 182-8632 |
| 1800µF | 5.22 | 45 | 35 | EETEE2D182LJ | 182-8633 |

**200 Volt d.c.**

| | Order Code | Price Each 1+ | 10+ | 50+ | 200+ |
|---|---|---|---|---|---|
| 300µF | 182-8611● | | | | |
| 390µF | 182-8612● | | | | |
| 470µF | 182-8613● | | | | |
| 590µF | 182-8614● | | | | |
| 590µF | 182-8615● | | | | |
| 590µF | 182-8616● | | | | |
| 700µF | 182-8618● | | | | |
| 700µF | 182-8619● | | | | |
| 800µF | 182-8620● | | | | |
| 800µF | 182-8621● | | | | |
| 800µF | 182-8622● | | | | |
| 800µF | 182-8623● | | | | |
| 1000µF | 182-8624● | | | | |
| 1000µF | 182-8625● | | | | |
| 1000µF | 182-8626● | | | | |
| 1200µF | 182-8627● | | | | |
| 1300µF | 182-8628● | | | | |
| 1500µF | 182-8631● | | | | |
| 1500µF | 182-8632● | | | | |
| 1800µF | 182-8633● | | | | |

**250 Volt d.c.**

| | Ripple (A rms) @ 120Hz 105°C | Dimensions (mm) H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 220µF | 1.43 | 25 | 22 | EETEE2E221HJ | 182-8634 |
| 300µF | 1.56 | 30 | 22 | EETEE2E301HJ | 182-8635 |
| 300µF | 1.7 | 25 | 25 | EETEE2E301JJ | 182-8636 |
| 370µF | 1.7 | 35 | 22 | EETEE2E371HJ | 182-8637 |
| 420µF | 1.82 | 40 | 22 | EETEE2E421HJ | 182-8638 |
| 420µF | 1.82 | 30 | 25 | EETEE2E421JJ | 182-8639 |
| 420µF | 2.2 | 25 | 30 | EETEE2E421KJ | 182-8640 |
| 520µF | 2 | 45 | 22 | EETEE2E521HJ | 182-8641 |
| 520µF | 2 | 35 | 25 | EETEE2E521JJ | 182-8643 |
| 590µF | 2.3 | 50 | 22 | EETEE2E591HJ | 182-8644 |
| 590µF | 2.3 | 40 | 25 | EETEE2E591JJ | 182-8645 |
| 590µF | 2.5 | 30 | 30 | EETEE2E591KJ | 182-8646 |
| 590µF | 2.5 | 25 | 35 | EETEE2E591LJ | 182-8647 |
| 730µF | 2.7 | 45 | 25 | EETEE2E731JJ | 182-8648 |
| 730µF | 3 | 35 | 30 | EETEE2E731KJ | 182-8649 |
| 730µF | 3 | 30 | 35 | EETEE2E731LJ | 182-8650 |
| 860µF | 3.3 | 40 | 30 | EETEE2E861KJ | 182-8651 |
| 1000µF | 3.45 | 45 | 30 | EETEE2E102KJ | 182-8652 |
| 1300µF | 3.75 | 45 | 35 | EETEE2E132LJ | 182-8653 |
| 1500µF | 4.05 | 50 | 35 | EETEE2E152LJ | 182-8655 |

**250 Volt d.c.**

| | Order Code | Price Each 1+ | 10+ | 50+ | 200+ |
|---|---|---|---|---|---|
| 220µF | 182-8634● | | | | |
| 300µF | 182-8635● | | | | |
| 300µF | 182-8636● | | | | |
| 370µF | 182-8637● | | | | |
| 420µF | 182-8638● | | | | |
| 420µF | 182-8639● | | | | |
| 420µF | 182-8640● | | | | |
| 520µF | 182-8641● | | | | |
| 520µF | 182-8643● | | | | |
| 590µF | 182-8644● | | | | |
| 590µF | 182-8645● | | | | |
| 590µF | 182-8646● | | | | |
| 590µF | 182-8647● | | | | |
| 730µF | 182-8648● | | | | |
| 730µF | 182-8649● | | | | |



RoHS ● Compliant ▲ Non-compliant

| 250 Volt d.c. | | Price Each | | | |
|---|---|---|---|---|---|
| | Order Code | 1+ | 10+ | 50+ | 200+ |
| 730µF | 182-8650 | | | | |
| 860µF | 182-8651 | | | | |
| 1000µF | 182-8652 | | | | |
| 1300µF | 182-8653 | | | | |
| 1500µF | 182-8655 | | | | |

| 400 Volt d.c. | Ripple (A rms) @ 120Hz 105°C | Dimensions (mm) H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 100µF | 0.95 | 25 | 22 | EETEE2G101HJ | 182-8656 |
| 120µF | 1.22 | 30 | 22 | EETEE2G121HJ | 182-8657 |
| 150µF | 1.33 | 35 | 22 | EETEE2G151HJ | 182-8658 |
| 180µF | 1.33 | 30 | 25 | EETEE2G181JJ | 182-8659 |
| 180µF | 1.68 | 25 | 30 | EETEE2G181KJ | 182-8660 |
| 220µF | 1.55 | 45 | 22 | EETEE2G221HJ | 182-8661 |
| 220µF | 1.55 | 35 | 25 | EETEE2G221JJ | 182-8662 |
| 220µF | 1.79 | 30 | 30 | EETEE2G221KJ | 182-8663 |
| 220µF | 1.79 | 25 | 35 | EETEE2G221LJ | 182-8664 |
| 270µF | 1.68 | 50 | 22 | EETEE2G271HJ | 182-8665 |
| 270µF | 1.68 | 40 | 25 | EETEE2G271JJ | 182-8667 |
| 270µF | 2.12 | 35 | 30 | EETEE2G271KJ | 182-8668 |
| 320µF | 1.9 | 45 | 25 | EETEE2G321JJ | 182-8669 |
| 330µF | 2.33 | 40 | 30 | EETEE2G331KJ | 182-8670 |
| 330µF | 2.33 | 30 | 35 | EETEE2G331LJ | 182-8671 |
| 370µF | 2.12 | 50 | 25 | EETEE2G371JJ | 182-8672 |
| 390µF | 2.52 | 45 | 30 | EETEE2G391KJ | 182-8673 |
| 390µF | 2.52 | 35 | 35 | EETEE2G391LJ | 182-8674 |
| 470µF | 2.85 | 50 | 30 | EETEE2G471KJ | 182-8675 |
| 470µF | 2.85 | 40 | 35 | EETEE2G471LJ | 182-8676 |
| 560µF | 3.18 | 45 | 35 | EETEE2G561LJ | 182-8677 |

| 400 Volt d.c. | | Price Each | | | |
|---|---|---|---|---|---|
| | Order Code | 1+ | 10+ | 50+ | 200+ |
| 100µF | 182-8656 | | | | |
| 120µF | 182-8657 | | | | |
| 150µF | 182-8658 | | | | |
| 180µF | 182-8659 | | | | |
| 180µF | 182-8660 | | | | |
| 220µF | 182-8661 | | | | |
| 220µF | 182-8662 | | | | |
| 220µF | 182-8663 | | | | |
| 220µF | 182-8664 | | | | |
| 270µF | 182-8665 | | | | |
| 270µF | 182-8667 | | | | |
| 270µF | 182-8668 | | | | |
| 320µF | 182-8669 | | | | |
| 330µF | 182-8670 | | | | |
| 330µF | 182-8671 | | | | |
| 370µF | 182-8672 | | | | |
| 390µF | 182-8673 | | | | |
| 390µF | 182-8674 | | | | |
| 470µF | 182-8675 | | | | |
| 470µF | 182-8676 | | | | |
| 560µF | 182-8677 | | | | |

| 450 Volt d.c. | Ripple (A rms) @ 120Hz 105°C | Dimensions (mm) H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 75µF | 0.83 | 25 | 22 | EETEE2W750HJ | 182-8679 |
| 100µF | 0.95 | 30 | 22 | EETEE2W101HJ | 182-8681 |
| 100µF | 0.95 | 25 | 25 | EETEE2W101JJ | 182-8682 |
| 120µF | 1.15 | 35 | 22 | EETEE2W121HJ | 182-8683 |
| 120µF | 1.22 | 30 | 25 | EETEE2W121JJ | 182-8684 |
| 120µF | 1.22 | 25 | 30 | EETEE2W121KJ | 182-8685 |
| 150µF | 1.22 | 40 | 22 | EETEE2W151HJ | 182-8686 |
| 180µF | 1.38 | 45 | 22 | EETEE2W181HJ | 182-8687 |
| 180µF | 1.38 | 40 | 25 | EETEE2W181JJ | 182-8688 |
| 180µF | 1.6 | 30 | 30 | EETEE2W181KJ | 182-8689 |
| 180µF | 1.6 | 25 | 35 | EETEE2W181LJ | 182-8690 |
| 220µF | 1.55 | 45 | 25 | EETEE2W221JJ | 182-8692 |
| 250µF | 1.9 | 30 | 35 | EETEE2W251LJ | 182-8693 |
| 270µF | 1.74 | 50 | 25 | EETEE2W271JJ | 182-8694 |
| 270µF | 1.9 | 40 | 30 | EETEE2W271KJ | 182-8695 |
| 300µF | 2.2 | 35 | 35 | EETEE2W301LJ | 182-8696 |
| 330µF | 2.2 | 45 | 30 | EETEE2W331KJ | 182-8697 |
| 330µF | 2.4 | 40 | 35 | EETEE2W331LJ | 182-8698 |
| 390µF | 2.4 | 50 | 30 | EETEE2W391KJ | 182-8699 |
| 390µF | 2.61 | 45 | 35 | EETEE2W391LJ | 182-8700 |
| 470µF | 2.85 | 50 | 35 | EETEE2W471LJ | 182-8701 |

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| 450 Volt d.c. | | Price Each | | | |
|---|---|---|---|---|---|
| | Order Code | 1+ | 10+ | 50+ | 200+ |
| 75µF | 182-8679 | | | | |
| 100µF | 182-8681 | | | | |
| 100µF | 182-8682 | | | | |
| 120µF | 182-8683 | | | | |
| 120µF | 182-8684 | | | | |
| 120µF | 182-8685 | | | | |
| 150µF | 182-8686 | | | | |
| 180µF | 182-8687 | | | | |
| 180µF | 182-8688 | | | | |
| 180µF | 182-8689 | | | | |
| 180µF | 182-8690 | | | | |
| 220µF | 182-8692 | | | | |
| 250µF | 182-8693 | | | | |

| 450 Volt d.c. | | Price Each | | | |
|---|---|---|---|---|---|
| | Order Code | 1+ | 10+ | 50+ | 200+ |
| 270µF | 182-8694 | | | | |
| 270µF | 182-8695 | | | | |
| 300µF | 182-8696 | | | | |
| 330µF | 182-8697 | | | | |
| 330µF | 182-8698 | | | | |
| 390µF | 182-8699 | | | | |
| 390µF | 182-8700 | | | | |
| 470µF | 182-8701 | | | | |

## TSED Series - 105°C (PCB Mounting Snap-In)

Panasonic



- High performance snap-in electrolytic
- Temperature rating 105°C
- Very high ripple current capability for demanding inverter applications
- Operates cooler to give longer life
- 3000 hrs life expectancy @ 105°C

Lead pitch = 10
Mounting hole dia. = 2.0

Operating temperature -40°C to +105°C (200 to 250V d.c.)
-40°C to +105°C (400 to 450V d.c.)

Tolerance ±20%
DC leakage current 3√CV µA

| 200 Volt d.c. | Ripple (A rms) @ 120Hz 105°C | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 270µF | 1.42 | 25 | 22 | EETED2D271BA | 119-8608 |
| 330µF | 1.56 | 30 | 22 | EETED2D331BA | 119-8611 |
| 470µF | 1.85 | 30 | 25 | EETED2D471CA | 119-8612 |
| 680µF | 2.42 | 35 | 25 | EETED2D681CA | 119-8613 |
| 1000µF | 2.84 | 45 | 25 | EETED2D102CA | 119-8614 |
| 1800µF | 3.84 | 45 | 35 | EETED2D182EA | 119-8615 |
| 2200µF | 4.12 | 50 | 35 | EETED2D222EA | 119-8616 |

| 200 Volt d.c. | | Price Each | | | | |
|---|---|---|---|---|---|---|
| | Order Code | 1+ | 10+ | 50+ | 200+ | 600+ |
| 270µF | 119-8608 | | | | | |
| 330µF | 119-8611 | | | | | |
| 470µF | 119-8612 | | | | | |
| 680µF | 119-8613 | | | | | |
| 1000µF | 119-8614 | | | | | |
| 1800µF | 119-8615 | | | | | |
| 2200µF | 119-8616 | | | | | |

| 250 Volt d.c. | Ripple (A rms) @ 120Hz 105°C | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 220µF | 1.28 | 30 | 22 | EETED2E221BA | 119-8617 |
| 560µF | 2.14 | 40 | 25 | EETED2E561CA | 119-8618 |
| 820µF | 2.63 | 40 | 30 | EETED2E821DA | 119-8619 |
| 1000µF | 2.84 | 40 | 35 | EETED2E102EA | 119-8620 |
| 1200µF | 3.13 | 45 | 35 | EETED2E122EA | 119-8621 |
| 1500µF | 3.56 | 50 | 35 | EETED2E152EA | 119-8623 |

| 250 Volt d.c. | | Price Each | | | | |
|---|---|---|---|---|---|---|
| | Order Code | 1+ | 10+ | 50+ | 200+ | 600+ |
| 220µF | 119-8617 | | | | | |
| 560µF | 119-8618 | | | | | |
| 820µF | 119-8619 | | | | | |
| 1000µF | 119-8620 | | | | | |
| 1200µF | 119-8621 | | | | | |
| 1500µF | 119-8623 | | | | | |

| 400 Volt d.c. | Ripple (A rms) @ 120Hz 105°C | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 100µF | 0.91 | 30 | 22 | EETED2G101BA | 119-8624 |
| 150µF | 1.07 | 30 | 25 | EETED2G151CA | 119-8625 |
| 220µF | 1.42 | 40 | 25 | EETED2G221CA | 119-8626 |
| 330µF | 1.71 | 40 | 30 | EETED2G331DA | 119-8627 |
| 470µF | 2.01 | 40 | 35 | EETED2G471EA | 119-8628 |
| 560µF | 2.35 | 45 | 35 | EETED2G561EA | 119-8629 |

| 400 Volt d.c. | | Price Each | | | | |
|---|---|---|---|---|---|---|
| | Order Code | 1+ | 10+ | 50+ | 200+ | 600+ |
| 100µF | 119-8624 | | | | | |
| 150µF | 119-8625 | | | | | |
| 220µF | 119-8626 | | | | | |
| 330µF | 119-8627 | | | | | |
| 470µF | 119-8628 | | | | | |
| 560µF | 119-8629 | | | | | |

| 450 Volt d.c. | Ripple (A rms) @ 120Hz 105°C | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 56µF | 714 | 25 | 22 | EETED2W560BA | 119-8630 |
| 68µF | 0.76 | 30 | 22 | EETED2W680BA | 119-8631 |
| 100µF | 0.91 | 30 | 25 | EETED2W101CA | 119-8632 |
| 120µF | 1.02 | 35 | 25 | EETED2W121CA | 119-8633 |
| 180µF | 1.12 | 40 | 25 | EETED2W181CA | 119-8635 |
| 220µF | 1.42 | 35 | 30 | EETED2W221DA | 119-8636 |
| 330µF | 1.85 | 50 | 30 | EETED2W331DA | 119-8637 |
| 390µF | 1.97 | 40 | 35 | EETED2W391EA | 119-8638 |
| 470µF | 2.47 | 50 | 35 | EETED2W471EA | 119-8639 |

# Aluminium Electrolytic - Snap In - Panasonic - continued

## TSED Series - 105°C (PCB Mounting Snap-In) - continued

311835

**450 Volt d.c.**

| | Order Code | Price Each 1+ | 10+ | 50+ | 200+ | 600+ |
|---|---|---|---|---|---|---|
| 56µF | 119-8630 | | | | | |
| 68µF | 119-8631 | | | | | |
| 100µF | 119-8632 | | | | | |
| 120µF | 119-8633 | | | | | |
| 180µF | 119-8635 | | | | | |
| 220µF | 119-8636 | | | | | |
| 330µF | 119-8637 | | | | | |
| 390µF | 119-8638 | | | | | |
| 470µF | 119-8639 | | | | | |

# Aluminium Electrolytic - Snap In - Rubycon

## HXC Series – Higher Ripple – 105°C



- Load life: 105°C 2000 hours
- High ripple current endurance

| | |
|---|---|
| Operating temperature | -25°C to 105°C |
| Tolerance | ±20% |
| Useful life @105°C | 2000h |
| Ripple current measured at | 120Hz @ 105°C |
| Leakage Current (µA) | 3√CV |

Pin Length = 4mm

| | Ripple (mA) | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| **400 Volt d.c.** | | | | | |
| 330µF | 2.29 | 35 | 35 | 400HXC330MEFCSN35X35 | 141-5834 |

| | Order Code | Price Each 1+ | 10+ | 50+ | 200+ | 500+ |
|---|---|---|---|---|---|---|
| **400 Volt d.c.** | | | | | | |
| 330µF | 141-5834 | | | | | |

| | Ripple (mA) | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| **450 Volt d.c.** | | | | | |
| 68µF | 0.67 | 30 | 22 | 450HXC68MEFCSN22X30 | 141-5836 |
| 470µF | 2.97 | 50 | 35 | 450HXC470MEFCSN35X50 | 141-5838 |

477740

| | Order Code | Price Each 1+ | 10+ | 50+ | 200+ | 500+ |
|---|---|---|---|---|---|---|
| **450 Volt d.c.** | | | | | | |
| 68µF | 141-5836 | | | | | |
| 470µF | 141-5838 | | | | | |

## USG Series



- Load Life: 85°C 2000 hours.
- Snap-in Terminals

NEW

Tolerance ± 20% Operating temperature -40°C to +85°C

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| **200 Volt d.c.** | | | | | | |
| 2200µF | 4920 | 40 | 35 | 10 | 200USG2200MEFCSN35X40 | 210-2441 |

659164

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 400+ |
|---|---|---|---|---|---|---|
| **200 Volt d.c.** | | | | | | |
| 2200µF | 210-2441 | | | | | |

## VXG Series

**105°C - Long Life**



- Snap-in aluminium electrolytic capacitors
- High ripple current endurance
- Small can size

| | | | |
|---|---|---|---|
| Tolerance | ±20% | Operating temperature | -25°C to +105°C |
| Leakage | 3√CV | Ripple current measured at | 105°C@ 100kHz |

| | Ripple (mA) | Dimensions H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| **200 Volt d.c.** | | | | | | |
| 270µF | 1.09 | 25 | 22 | 10 | 200VXG270MEFCSN22X25 | 128-1827 |
| 470µF | 1.54 | 30 | 25 | 10 | 200VXG470MEFCSN25X30 | 128-1828 |
| 1000µF | 2.06 | 35 | 30 | 10 | 200VXG1000MEFCSN30X35 | 128-1825 |
| 2200µF | 3.14 | 50 | 35 | 10 | 200VXG2200MEFCSN35X50 | 128-1826 |

| | Order Code | Price Each 1+ | 10+ | 50+ | 200+ | 500+ |
|---|---|---|---|---|---|---|
| **200 Volt d.c.** | | | | | | |
| 270µF | 128-1827 | | | | | |
| 470µF | 128-1828 | | | | | |
| 1000µF | 128-1825 | | | | | |
| 2200µF | 128-1826 | | | | | |

| | Ripple (mA) | Dimensions H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| **400 Volt d.c.** | | | | | | |
| 220µF | 1.12 | 35 | 25 | 10 | 400VXG220MEFCSN25X35 | 128-1829 |
| 470µF | 1.78 | 40 | 35 | 10 | 400VXG470MEFCSN35X40 | 128-1830 |
| 560µF | 1.98 | 45 | 35 | 10 | 400VXG560MEFCSN35X45 | 128-1831 |

| | Order Code | Price Each 1+ | 10+ | 50+ | 200+ | 500+ |
|---|---|---|---|---|---|---|
| **400 Volt d.c.** | | | | | | |
| 220µF | 128-1829 | | | | | |
| 470µF | 128-1830 | | | | | |
| 560µF | 128-1831 | | | | | |

| | Ripple (mA) | Dimensions H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| **450 Volt d.c.** | | | | | | |
| 150µF | 0.9 | 25 | 30 | 10 | 450VXG150MEFCSN30X25 | 128-1832 |
| 220µF | 1.1 | 30 | 30 | 10 | 450VXG220MEFCSN30X30 | 128-1833 |

451905

| | Order Code | Price Each 1+ | 10+ | 50+ | 200+ | 500+ |
|---|---|---|---|---|---|---|
| **450 Volt d.c.** | | | | | | |
| 150µF | 128-1832 | | | | | |
| 220µF | 128-1833 | | | | | |

## VXH Series



- Load Life: 105°C 5000 hours.
- Ultra Miniaturised
- Snap-in Terminals

NEW

Tolerance ± 20% Operating temperature -25°C to +105°C

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| **250 Volt d.c.** | | | | | | |
| 390µF | 1560 | 35 | 22 | 10 | 250VXH390MEFCSN22X35 | 210-2443 |
| 1800µF | 3040 | 50 | 35 | 10 | 250VXH1800MEFCSN35X50 | 210-2442 |

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 200+ |
|---|---|---|---|---|---|---|
| **250 Volt d.c.** | | | | | | |
| 390µF | 210-2443 | | | | | |
| 1800µF | 210-2442 | | | | | |

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| **400 Volt d.c.** | | | | | | |
| 270µF | 1400 | 35 | 25 | 10 | 400VXH270MEFCSN25X35 | 210-2447 |
| 680µF | 2190 | 45 | 35 | 10 | 400VXH680MEFCSN35X45 | 210-2446 |
| 820µF | 2420 | 50 | 35 | 10 | 400VXH820MEFCSN35X50 | 210-2445 |

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 200+ |
|---|---|---|---|---|---|---|
| **400 Volt d.c.** | | | | | | |
| 270µF | 210-2447 | | | | | |
| 680µF | 210-2446 | | | | | |
| 820µF | 210-2445 | | | | | |

| | Ripple (mA) | Dimensions (mm) H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| **450 Volt d.c.** | | | | | | |
| 100µF | 730 | 25 | 22 | 10 | 450VXH100MEFCSN22X25 | 210-2450 |
| 220µF | 1170 | 35 | 25 | 10 | 450VXH220MEFCSN25X35 | 210-2449 |
| 470µF | 1850 | 50 | 30 | 10 | 450VXH470MEFCSN30X50 | 210-2448 |

659156

| | Order Code | Price Each 1+ | 50+ | 100+ | 250+ | 1K+ |
|---|---|---|---|---|---|---|
| **450 Volt d.c.** | | | | | | |
| 100µF | 210-2450 | | | | | |
| 220µF | 210-2449 | | | | | |
| 470µF | 210-2448 | | | | | |

**TROUBLESHOOTING TIPS**
Chat online to one of our technical engineers at **farnell.com**

## VXR Series – Long Life

**105°C**



- Load Life : 105°C 7000hours

Tolerance ± 20% Operating temperature -25°C to +105°C

| 200 Volt d.c. | Dimensions H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 330µF | 25 | 25 | 10 | 200VXR330MEFCSN25X25 | 171-2596 |

| 200 Volt d.c. | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|
| 330µF | 171-2596● | | | | | |

| 450 Volt d.c. | Dimensions H | Dia. | Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| 100µF | 30 | 30 | 10 | 450VXR100MEFCSN30X30 | 171-2598 |
| 220µF | 40 | 35 | 10 | 450VXR220MEFCSN35X40 | 171-2599 |
| 330µF | 50 | 35 | 10 | 450VXR330MEFCSN35X50 | 171-2600 |

536226

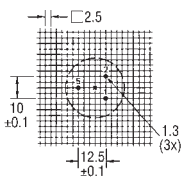
| 450 Volt d.c. | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|
| 100µF | 171-2598● | | | | | |
| 220µF | 171-2599● | | | | | |
| 330µF | 171-2600● | | | | | |

# Aluminium Electrolytic - Snap In - Vishay

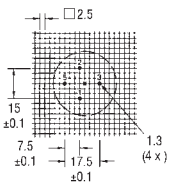
## 051/053 PEC-PW Series – 85°C High Capacitance



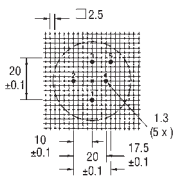
- Long life, high capitance aluminium electrolytic
- PCB Mounting
- Low ESR and ESL
- Printed wire terminals marked 1 for positive and 5 for negative




25.6mm can diameter




35.6mm can diameter
Drilling plans




40.6 can diameter

| | | | |
|---|---|---|---|
| Operating temperature | -40 to +85 °C | Climatic category **(IEC68)** | 40/085/56 |
| Tolerance | ±20% | DC leakage current | 0.006CV + 4µA |
| Basic specification | **IEC60384**, long life grade | Useful life @ 85°C | 1200012000 hrs |
| PCB footprint to | **DIN 45910-T192** | | |

| | Ripple (A) @ 100Hz 85°C | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| **16 Volt d.c.** | | | | | |
| 10000µF | 4 | 40 | 25 | MAL205155103E3 | 116-6598 |
| 22000µF | 5.5 | 40 | 35 | MAL205155223E3 | 116-6599 |
| **40 Volt d.c.** | | | | | |
| 4700µF | 3.8 | 40 | 25 | MAL205157472E3 | 116-6565 |
| 10000µF | 5.2 | 40 | 35 | MAL205157103E3 | 116-6567 |
| 22000µF | 5.5 | 50 | 40 | MAL205157223E3 | 116-6600 |
| 47000µF | 10.4 | 100 | 40 | MAL205157473E3 | 116-6601 |
| **63 Volts d.c.** | | | | | |
| 2200µF | 2.5 | 30 | 25 | MAL205158222E3 | 116-6568 |
| 10000µF | 5.4 | 50 | 35 | MAL205158103E3 | 116-6569 |
| 22000µF | 10 | 100 | 40 | MAL205158223E3 | 116-6570 |
| **400 Volt d.c.** | | | | | |
| 100µF | 0.73 | 40 | 25 | MAL205356101E3 | 116-6605 |
| 220µF | 1.28 | 40 | 35 | MAL205356221E3 | 116-6606 |
| 470µF | 2.12 | 50 | 40 | MAL205356471E3 | 116-6607 |
| 1000µF | 4.05 | 100 | 40 | MAL205356102E3 | 116-6609 |

208660

| | Order Code | Price Each 1+ | 50+ | 100+ |
|---|---|---|---|---|
| **16 Volt d.c.** | | | | |
| 10000µF | 116-6598● | | | |
| 22000µF | 116-6599● | | | |
| **40 Volt d.c.** | | | | |
| 4700µF | 116-6565● | | | |
| 10000µF | 116-6567● | | | |
| 22000µF | 116-6600● | | | |
| 47000µF | 116-6601● | | | |
| **63 Volt d.c.** | | | | |
| 2200µF | 116-6568● | | | |
| 10000µF | 116-6569● | | | |
| 22000µF | 116-6570● | | | |

| | Order Code | Price Each 1+ | 50+ | 100+ |
|---|---|---|---|---|
| **400 Volt d.c.** | | | | |
| 100µF | 116-6605● | | | |
| 220µF | 116-6606● | | | |
| 470µF | 116-6607● | | | |
| 1000µF | 116-6609● | | | |

## 056/057 PSM-SI Series – 85°C (PCB Mounting Snap-In)



- General purpose snap-in electrolytic

| | |
|---|---|
| Operating Temperature | -40°C to +85°C |
| Useful Life @ 85°C | 12000 hrs |
| Tolerance | ±20% |
| Climatic category (IEC) | 40/085/56 |
| Long life grade | **IEC 60384-4** |

Lead pitch=10, Mounting hole dia.=2.0

| Volt d.c. | | Ripple (A) 100Hz @ 85°C | ESR max mΩ @ 20°C 100Hz | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 16 | 6800µF | 2.54 | 0.057 | 30 | 22 | MAL205655682E3 | 116-5493 |
| 16 | 10000µF | 3.02 | 0.047 | 30 | 25 | MAL205655103E3 | 116-5568 |
| 16 | 15000µF | 4 | 0.034 | 40 | 25 | MAL205645153E3 | 116-5494 |
| 16 | 22000µF | 4.51 | 0.033 | 40 | 30 | MAL205655223E3 | 116-5569 |
| 16 | 47000µF | 5.34 | 0.034 | 50 | 35 | MAL205655473E3 | 116-5570 |
| 25 | 4700µF | 2.37 | 0.065 | 30 | 22 | MAL205656472E3 | 116-5571 |
| 25 | 6800µF | 2.81 | 0.054 | 30 | 25 | MAL205656682E3 | 116-5572 |
| 25 | 10000µF | 3.73 | 0.039 | 40 | 25 | MAL205646103E3 | 116-5573 |
| 25 | 15000µF | 4.73 | 0.03 | 40 | 30 | MAL205656153E3 | 116-5575 |
| 25 | 22000µF | 4.96 | 0.036 | 50 | 30 | MAL205646223E3 | 116-5497 |
| 25 | 33000µF | 4.98 | 0.039 | 50 | 35 | MAL205656333E3 | 116-5576 |
| 40 | 3300µF | 2.09 | 0.067 | 30 | 22 | MAL205657332E3 | 116-5577 |
| 40 | 4700µF | 2.28 | 0.082 | 30 | 25 | MAL205657472E3 | 116-5578 |
| 40 | 6800µF | 3.06 | 58 | 40 | 25 | MAL205647682E3 | 116-5498 |
| 40 | 10000µF | 4.2 | 0.038 | 40 | 30 | MAL205657103E3 | 116-5579 |
| 40 | 15000µF | 4.45 | 0.041 | 50 | 30 | MAL205647153E3 | 116-5499 |
| 40 | 22000µF | 4.86 | 0.04 | 50 | 35 | MAL205657223E3 | 116-5580 |
| 63 | 1500µF | 1.87 | 0.105 | 30 | 22 | MAL205658152E3 | 116-5581 |
| 63 | 2200µF | 2.32 | 0.079 | 30 | 25 | MAL205658222E3 | 116-5582 |
| 63 | 3300µF | 3.14 | 0.055 | 40 | 25 | MAL205648332E3 | 116-5583 |
| 63 | 4700µF | 3.67 | 0.05 | 40 | 30 | MAL205658472E3 | 116-5584 |
| 63 | 6800µF | 4.75 | 0.042 | 50 | 30 | MAL205648682E3 | 116-5500 |
| 63 | 10000µF | 5.26 | 0.035 | 50 | 35 | MAL205658103E3 | 116-5503 |
| 100 | 1000µF | 1.27 | 0.265 | 30 | 25 | MAL205659102E3 | 116-5585 |
| 100 | 2200µF | 2.27 | 0.13 | 40 | 30 | MAL205659222E3 | 116-5587 |
| 100 | 4700µF | 3.59 | 0.075 | 50 | 35 | MAL205659472E3 | 116-5505 |
| 200 | 220µF | 1 | 0.65 | 30 | 22 | MAL205752221E3 | 116-5588 |
| 200 | 330µF | 1.36 | 430 | 30 | 25 | MAL205752331E3 | 116-5589 |
| 200 | 470µF | 1.8 | 310 | 40 | 25 | MAL205742471E3 | 116-5590 |
| 250 | 680µF | 2.6 | 240 | 50 | 35 | MAL205743681E3 | 116-5506 |
| 250 | 1000µF | 3.12 | 0.16 | 50 | 35 | MAL205753102E3 | 116-5507 |
| 385 | 68µF | 0.63 | 2.1 | 30 | 22 | MAL205758689E3 | 116-5591 |
| 385 | 220µF | 1.57 | 650 | 40 | 30 | MAL205758221E3 | 116-5593 |
| 385 | 470µF | 2.76 | 0.34 | 50 | 35 | MAL205758471E3 | 116-5594 |
| 400 | 68µF | 0.63 | 2.1 | 30 | 22 | MAL205756689E3 | 116-5595 |
| 400 | 470µF | 2.76 | 340 | 50 | 35 | MAL205756471E3 | 116-5597 |
| 400 | 330µF | 1.85 | 0.48 | 50 | 35 | MAL205746331E3 | 210-2700 |
| 400 | 150µF | 1.16 | 0.95 | 40 | 30 | MAL205746151E3 | 210-2701 |
| 450 | 47µF | 0.26 | 5.6 | 30 | 22 | MAL205767479E3 | 210-2695 |
| 450 | 68µF | 0.33 | 3.9 | 30 | 22 | MAL205757689E3 | 116-5599 |
| 450 | 100µF | 0.46 | 2.6 | 35 | 25 | MAL205737101E3 | 116-5508 |
| 450 | 330µF | 1.26 | 0.7 | 50 | 35 | MAL205757331E3 | 116-5600 |

208457

| Volt d.c. | | Order Code | Price Each 1+ | 50+ | 100+ |
|---|---|---|---|---|---|
| 16 | 6800µF | 116-5493● | | | |
| 16 | 10000µF | 116-5568● | | | |
| 16 | 15000µF | 116-5494● | | | |
| 16 | 22000µF | 116-5569● | | | |
| 16 | 47000µF | 116-5570● | | | |
| 25 | 4700µF | 116-5571● | | | |
| 25 | 6800µF | 116-5572● | | | |
| 25 | 10000µF | 116-5573● | | | |
| 25 | 15000µF | 116-5575● | | | |
| 25 | 22000µF | 116-5497● | | | |
| 25 | 33000µF | 116-5576● | | | |
| 40 | 3300µF | 116-5577● | | | |
| 40 | 4700µF | 116-5578● | | | |
| 40 | 6800µF | 116-5498● | | | |
| 40 | 10000µF | 116-5579● | | | |
| 40 | 15000µF | 116-5499● | | | |
| 40 | 22000µF | 116-5580● | | | |
| 63 | 1500µF | 116-5581● | | | |
| 63 | 2200µF | 116-5582● | | | |
| 63 | 3300µF | 116-5583● | | | |
| 63 | 4700µF | 116-5584● | | | |
| 63 | 6800µF | 116-5500● | | | |
| 63 | 10000µF | 116-5503● | | | |
| 100 | 1000µF | 116-5585● | | | |
| 100 | 2200µF | 116-5587● | | | |
| 100 | 4700µF | 116-5505● | | | |
| 200 | 220µF | 116-5588● | | | |
| 200 | 330µF | 116-5589● | | | |
| 200 | 470µF | 116-5590● | | | |

# Aluminium Electrolytic - Snap In - Vishay - continued

## 056/057 PSM-SI Series – 85°C (PCB Mounting Snap-In) - continued

| Volt d.c. | | Order Code | Price Each 1+ | 50+ | 100+ |
|---|---|---|---|---|---|
| 250 | 680µF | 116-5506 | | | |
| 250 | 1000µF | 116-5507 | | | |
| 385 | 68µF | 116-5591 | | | |
| 385 | 220µF | 116-5593 | | | |
| 385 | 470µF | 116-5594 | | | |
| 400 | 68µF | 116-5595 | | | |
| 400 | 330µF | 210-2700 | | | |
| 400 | 150µF | 210-2701 | | | |
| 400 | 470µF | 116-5597 | | | |
| 450 | 47µF | 210-2695 | | | |
| 450 | 68µF | 116-5599 | | | |
| 450 | 100µF | 116-5508 | | | |
| 450 | 330µF | 116-5600 | | | |

## 058/059 PLL-SI Series – 105°C Long Life PCB Mounting Snap-In



- High performance snap-in aluminium electrolytic
- Low ESR high ripple current capability
- Useful life up to 10,000 hrs at 105°C

Lead pitch = 10, Mounting hole dia = 2.0

| | | | |
|---|---|---|---|
| Operating temperature | -40°C to +105°C | Useful life | 5000 hrs ≤50V |
| Tolerance | ±20% | @ 105°C | 10000 hrs ≥63V |
| Climatic category **(IEC68)** | 40/105/56 | Long life grade | **IEC60384-4, CECC30300** |
| DC leakage current | 0.006CV+4µA | | |

| Volt d.c. | | Ripple (A) @ 100Hz 105°C | ESR max. mΩ @ 20°C Ripple (A) | Impedance mΩ @ 20°C Ripple (A) | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|---|
| 16 | 10000µF | 3.66 | 0.04 | 30 | 40 | 25 | MAL205845103E3 | 116-5509 |
| 16 | 33000µF | 6.23 | 0.025 | 21 | 50 | 35 | MAL205855333E3 | 116-5289 |
| 25 | 4700µF | 2.6 | 0.062 | 42 | 30 | 25 | MAL205856472E3 | 116-5441 |
| 25 | 10000µF | 4.37 | 0.035 | 25 | 40 | 30 | MAL205856103E3 | 116-5291 |
| 25 | 22000µF | 6.07 | 0.027 | 21 | 50 | 35 | MAL205856223E3 | 116-5292 |
| 40 | 3300µF | 2.43 | 0.071 | 45 | 30 | 25 | MAL205857332E3 | 116-5442 |
| 40 | 4700µF | 2.96 | 0.059 | 40 | 30 | 30 | MAL205857472E3 | 116-5293 |
| 40 | 6800µF | 3.94 | 0.042 | 29 | 40 | 30 | MAL205857682E3 | 116-5294 |
| 40 | 10000µF | 4.18 | 0.049 | 29 | 40 | 35 | MAL205857103E3 | 116-5295 |
| 63 | 2200µF | 2.27 | 0.101 | 70 | 30 | 30 | MAL205858222E3 | 116-5296 |
| 63 | 3300µF | 3.07 | 0.07 | 50 | 40 | 30 | MAL205858332E3 | 116-5297 |
| 63 | 4700µF | 3.07 | 0.06 | 50 | 40 | 35 | MAL205858472E3 | 116-5298 |
| 63 | 6800µF | 4.58 | 0.046 | 35 | 50 | 35 | MAL205858682E3 | 116-5299 |
| 100 | 330µF | 0.92 | 0.37 | 250 | 25 | 22 | MAL205859331E3 | 116-5443 |
| 100 | 1000 | 1.85 | 0.158 | 115 | 40 | | MAL205849102E3 | 116-5300 |
| 100 | 2200 | 3.05 | 0.086 | 65 | 40 | | MAL205859222E3 | 116-5301 |
| 100 | 3300µF | 3.84 | 0.064 | 50 | 50 | 35 | MAL205859332E3 | 116-5302 |
| 400 | 47µF | 0.3 | 4.26 | 3490 | 30 | 22 | MAL205956479E3 | 116-5447 |
| 400 | 100µF | 0.55 | 2.02 | 1660 | 40 | 25 | MAL205946101E3 | 116-5449 |
| 400 | 150µF | 0.78 | 1.35 | 1110 | 50 | 25 | MAL205946151E3 | 116-5450 |
| 400 | 220µF | 0.94 | 0.93 | 760 | 50 | 30 | MAL205946221E3 | 116-5451 |
| 400 | 330µF | 1.25 | 0.62 | 510 | 50 | 35 | MAL205956331E3 | 116-5452 |

219634

| Volt d.c. | | Order Code | Price Each 1+ | 50+ | 100+ |
|---|---|---|---|---|---|
| 16 | 10000µF | 116-5509 | | | |
| 16 | 33000µF | 116-5289 | | | |
| 25 | 4700µF | 116-5441 | | | |
| 25 | 10000µF | 116-5291 | | | |
| 25 | 22000µF | 116-5292 | | | |
| 40 | 3300µF | 116-5442 | | | |
| 40 | 4700µF | 116-5293 | | | |
| 40 | 6800µF | 116-5294 | | | |
| 40 | 10000µF | 116-5295 | | | |
| 63 | 2200µF | 116-5296 | | | |
| 63 | 3300µF | 116-5297 | | | |
| 63 | 4700µF | 116-5298 | | | |
| 63 | 6800µF | 116-5299 | | | |
| 100 | 330µF | 116-5443 | | | |
| 100 | 3300µF | 116-5302 | | | |
| 400 | 47µF | 116-5447 | | | |
| 400 | 100µF | 116-5449 | | | |
| 400 | 150µF | 116-5450 | | | |
| 400 | 220µF | 116-5451 | | | |
| 400 | 330µF | 116-5452 | | | |

## 157 PUM-SI Series – 85°C (PCB Mounting Miniature Snap-In)



- General purpose, industrial and audio/video systems
- Standard and switched mode power supplies
- Energy storage in pulse systems

Lead pitch = 10, Mounting hole dia = 2.0

| | | | |
|---|---|---|---|
| Operating Temperature | -25°C to +85°C to | Useful life @ 85°C | 2500 hrs |
| Tolerance | ±20% | Climatic category (IEC) | 25/085/56 |

| **200 Volt d.c.** | Ripple (A) 120Hz @ 85°C | ESR (mΩ 100Hz | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 330µF | 1.36 | 0.26 | 30 | 22 | MAL215752331E3 | 116-5655 |
| 470µF | 1.68 | 0.19 | 35 | 22 | MAL215732471E3 | 116-5656 |
| 680µF | 2.18 | 0.17 | 40 | 25 | MAL215742681E3 | 116-5657 |
| 1000µF | 2.66 | 0.12 | 40 | 30 | MAL215752102E3 | 116-5658 |
| 2200µF | 3.68 | 0.26 | 60 | 35 | MAL215752222E3 | 116-5660 |

| **200 Volt d.c.** | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|
| 330µF | 116-5655 | | | | | |
| 470µF | 116-5656 | | | | | |
| 680µF | 116-5657 | | | | | |
| 1000µF | 116-5658 | | | | | |
| 2200µF | 116-5660 | | | | | |

| **250 Volt d.c.** | Ripple (A) 120Hz @ 85°C | ESR (mΩ 100Hz | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 220µF | 1.23 | 0.34 | 30 | 22 | MAL215753221E3 | 116-5661 |
| 470µF | 1.87 | 0.18 | 35 | 25 | MAL215733471E3 | 116-5663 |
| 1500µF | 3.49 | 0.09 | 50 | 35 | MAL215753152E3 | 116-5667 |

| **250 Volt d.c.** | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|
| 220µF | 116-5661 | | | | | |
| 470µF | 116-5663 | | | | | |
| 1500µF | 116-5667 | | | | | |

| **400 Volt d.c.** | Ripple (A) 120Hz @ 85°C | ESR (mΩ 100Hz | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 100µF | 0.84 | 0.93 | 30 | 22 | MAL215756101E3 | 116-5668 |
| 150µF | 1.13 | 0.7 | 35 | 22 | MAL215736151E3 | 116-5669 |
| 220µF | 1.54 | 0.52 | 40 | 25 | MAL215746221E3 | 116-5670 |
| 270µF | 1.74 | 0.43 | 35 | 30 | MAL215736271E3 | 210-2694 |
| 330µF | 1.97 | 0.32 | 40 | 30 | MAL215756331E3 | 116-5671 |
| 470µF | 2.4 | 0.24 | 50 | 30 | MAL215746471E3 | 116-5672 |
| 680µF | 2.79 | 0.19 | 50 | 35 | MAL215756681E3 | 116-5673 |

| **400 Volt d.c.** | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|
| 100µF | 116-5668 | | | | | |
| 150µF | 116-5669 | | | | | |
| 220µF | 116-5670 | | | | | |
| 270µF | 210-2694 | | | | | |
| 330µF | 116-5671 | | | | | |
| 470µF | 116-5672 | | | | | |
| 680µF | 116-5673 | | | | | |

| **450 Volt d.c.** | Ripple (A) 120Hz @ 85°C | ESR @ 100Hz | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 100µF | 1 | 0.84 | 35 | 22 | MAL215737101E3 | 116-5675 |
| 120µF | 1.09 | 0.8 | 30 | 25 | MAL215757121E3 | 210-2696 |
| 150µF | 1.35 | 0.57 | 40 | 25 | MAL215747151E3 | 116-5676 |
| 220µF | 1.73 | 0.4 | 50 | 25 | MAL215747221E3 | 116-5678 |
| 330µF | 2.19 | 0.28 | 50 | 30 | MAL215747331E3 | 116-5679 |
| 470µF | 2.6 | 0.21 | 50 | 35 | MAL215757471E3 | 210-2697 |
| 680µF | 3.15 | 0.15 | 60 | 35 | MAL215757681E3 | 210-2698 |

208502

| **450 Volt d.c.** | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|
| 100µF | 116-5675 | | | | | |
| 120µF | 210-2696 | | | | | |
| 150µF | 116-5676 | | | | | |
| 220µF | 116-5678 | | | | | |
| 330µF | 116-5679 | | | | | |
| 470µF | 210-2697 | | | | | |
| 680µF | 210-2698 | | | | | |

## 096 PLL-4TSI Series

**Power Long Life - 4 Terminal Snap-In**



- Application Includes Switched mode power supplies and Solar Power Converters
- Low ESR and high ripple current capability

NEW

| | |
|---|---|
| Operating Temperature | -40°C to +85°C |
| Tolerance | ± 20% |
| Voltage Rating | 500V |

| Capacitance | Ripple Current (A) | ESR @ 100 Hz (Ω) | Dimensions in mm H | Dia. | Mftrs List No. | Order Code |
|---|---|---|---|---|---|---|
| 390µF | 2.9 | 0.475 | 60 | 35 | MAL209619391E3 | 186-2387 |
| 470µF | 3.3 | 0.395 | 70 | 35 | MAL209619471E3 | 186-2389 |
| 560µF | 3.6 | 0.333 | 70 | 35 | MAL209619561E3 | 186-2391 |
| 560µF | 3.7 | 0.336 | 60 | 40 | MAL209629561E3 | 186-2392 |
| 680µF | 4.1 | 0.275 | 80 | 35 | MAL209619681E3 | 186-2393 |
| 680µF | 4.2 | 0.277 | 70 | 40 | MAL209629681E3 | 186-2394 |

| Capacitance | Ripple Current (A) | ESR @ 100 Hz (Ω) | Dimensions in mm H | Dia. | Mftrs List No. | Order Code |
|---|---|---|---|---|---|---|
| 820µF | 5.1 | 0.229 | 100 | 35 | MAL209619821E3 | 186-2395 |
| 820µF | 4.7 | 0.231 | 80 | 40 | MAL209629821E3 | 186-2396 |
| 1000µF | 5.6 | 0.189 | 100 | 40 | MAL209629102E3 | 186-2397 |
| 1000µF | 5.3 | 0.195 | 70 | 45 | MAL209639102E3 | 186-2398 |
| 1200µF | 6.4 | 0.16 | 100 | 45 | MAL209639122E3 | 186-2399 |
| 1500µF | 7 | 0.131 | 100 | 45 | MAL209639152E3 | 186-2400 |

620635

| Capacitance | Mftrs. List No. | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|---|
| 390µF | MAL209619391E3 | **186-2387** | | | | | |
| 470µF | MAL209619471E3 | **186-2389** | | | | | |
| 560µF | MAL209619561E3 | **186-2391** | | | | | |
| 560µF | MAL209629561E3 | **186-2392** | | | | | |
| 680µF | MAL209619681E3 | **186-2393** | | | | | |
| 680µF | MAL209629681E3 | **186-2394** | | | | | |
| 820µF | MAL209619821E3 | **186-2395** | | | | | |
| 820µF | MAL209629821E3 | **186-2396** | | | | | |
| 1000µF | MAL209629102E3 | **186-2397** | | | | | |
| 1000µF | MAL209639102E3 | **186-2398** | | | | | |
| 1200µF | MAL209639122E3 | **186-2399** | | | | | |
| 1500µF | MAL209639152E3 | **186-2400** | | | | | |

## 159 PUL-SI Series – 105°C (PCB Mounting Snap-In)



- Miniature snap-in
- General purpose, industrial and audio/video systems
- Smoothing and filtering
- Standard and switched mode power supplies
- Energy storage in pulse systems

Lead pitch = 10, Mounting hole dia. = 2.0

| | | | |
|---|---|---|---|
| Operating temperature | -25°C to +105°C | Useful life @ 85° C | 3000 hrs |
| Tolerance | ±20% | Climatic category | 25/105/56 |

| **200 Volt d.c.** | Ripple (A) 120Hz @ 105°C | ESR (mΩ) 100Hz | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 330µF | 1.08 | 0.45 | 30 | 22 | MAL215952331E3 | 116-6635 |
| 470µF | 1.37 | 0.32 | 40 | 22 | MAL215932471E3 | 116-6636 |
| 680µF | 1.82 | 0.23 | 45 | 25 | MAL215942681E3 | 116-6637 |
| 1000µF | 2.23 | 0.17 | 45 | 30 | MAL215942102E3 | 116-6638 |
| 1500µF | 2.56 | 0.13 | 45 | 35 | MAL215952152E3 | 116-6639 |

| **200 Volt d.c.** | **Order Code** | Price Each 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|
| 330µF | **116-6635** | | | | | |
| 470µF | **116-6636** | | | | | |
| 680µF | **116-6637** | | | | | |
| 1000µF | **116-6638** | | | | | |
| 1500µF | **116-6639** | | | | | |

| **250 Volt d.c.** | Ripple (A) 120Hz @ 105°C | ESR (mΩ) 100Hz | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 220µF | 0.9 | 0.54 | 30 | 22 | MAL215943221E3 | 116-6640 |
| 330µF | 1.2 | 0.36 | 40 | 22 | MAL215933331E3 | 210-2692 |
| 330µF | 1.21 | 0.36 | 30 | 25 | MAL215943331E3 | 210-2693 |
| 470µF | 1.58 | 0.27 | 40 | 25 | MAL215933471E3 | 116-6642 |
| 680µF | 1.93 | 0.21 | 40 | 30 | MAL215943681E3 | 116-6643 |
| 1000µF | 2.22 | 0.17 | 40 | 35 | MAL215953102E3 | 116-6644 |

| **250 Volt d.c.** | **Order Code** | Price Each 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|
| 220µF | **116-6640** | | | | | |
| 470µF | **116-6642** | | | | | |
| 680µF | **116-6643** | | | | | |
| 1000µF | **116-6644** | | | | | |
| 330µF | **210-2692** | | | | | |
| 330µF | **210-2693** | | | | | |

| **315 Volt d.c.** | Ripple (A) 120Hz @ 105°C | ESR (mΩ) 100Hz | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 1000µF | 2.9 | 220 | 50 | 35 | MAL215990125E3 | 210-2702 |

| **315 Volt d.c.** | **Order Code** | Price Each 1+ | 10+ | 100+ | 250+ | 500+ |
|---|---|---|---|---|---|---|
| 1000µF | **210-2702** | | | | | |

| **400 Volt d.c.** | Ripple (A) 120Hz @ 105°C | ESR (mΩ) 100Hz | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 100µF | 0.69 | 0.99 | 35 | 22 | MAL215946101E3 | 116-6646 |
| 120µF | 0.76 | 0.8 | 35 | 22 | MAL215946121E3 | 210-2684 |
| 150µF | 0.86 | 0.82 | 40 | 22 | MAL215936151E3 | 116-6647 |
| 220µF | 1.15 | 0.46 | 45 | 25 | MAL215946221E3 | 116-6648 |
| 330µF | 1.47 | 0.32 | 45 | 30 | MAL215956331E3 | 116-6649 |
| 470µF | 1.72 | 0.24 | 45 | 35 | MAL215956471E3 | 116-6650 |
| 560µF | 1.84 | 0.21 | 50 | 35 | MAL215956561E3 | 210-2685 |

| **400 Volt d.c.** | **Order Code** | Price Each 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|
| 100µF | **116-6646** | | | | | |
| 120µF | **210-2684** | | | | | |
| 150µF | **116-6647** | | | | | |
| 220µF | **116-6648** | | | | | |
| 330µF | **116-6649** | | | | | |
| 470µF | **116-6650** | | | | | |
| 560µF | **210-2685** | | | | | |

| **450 Volt d.c.** | Ripple (A) 120Hz @ 105°C | ESR (mΩ) 100Hz | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 56µF | 0.48 | 1.6 | 25 | 22 | MAL215957569E3 | 210-2686 |
| 68µF | 0.56 | 1.28 | 30 | 22 | MAL215947689E3 | 116-6651 |
| 100µF | 0.74 | 0.87 | 40 | 22 | MAL215937101E3 | 116-6652 |
| 150µF | 0.95 | 0.59 | 40 | 25 | MAL215947151E3 | 116-6653 |
| 220µF | 1.21 | 0.42 | 40 | 30 | MAL215947221E3 | 116-6654 |
| 270µF | 1.32 | 0.35 | 35 | 35 | MAL215957271E3 | 210-2688 |
| 330µF | 1.49 | 0.3 | 50 | 30 | MAL215947331E3 | 210-2689 |
| 330µF | 1.61 | 0.3 | 40 | 35 | MAL215957331E3 | 210-2690 |
| 390µF | 1.61 | 0.25 | 45 | 35 | MAL215957391E3 | 210-2691 |
| 470µF | 1.72 | 0.22 | 50 | 35 | MAL215957471E3 | 116-6656 |

208528

| **450 Volt d.c.** | **Order Code** | Price Each 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|
| 56µF | **210-2686** | | | | | |
| 68µF | **116-6651** | | | | | |
| 100µF | **116-6652** | | | | | |
| 150µF | **116-6653** | | | | | |
| 220µF | **116-6654** | | | | | |
| 270µF | **210-2688** | | | | | |
| 330µF | **210-2689** | | | | | |
| 330µF | **210-2690** | | | | | |
| 390µF | **210-2691** | | | | | |
| 470µF | **116-6656** | | | | | |

## 193 PUR-SI Series

NEW



| | |
|---|---|
| Operating Temperature | -25°C to +105°C |
| Tolerance | ± 20% |
| Voltage Rating | 500V |

| Capacitance | Ripple Current (A) | ESR @ 100 Hz (Ω) | Dimensions in mm H | Dia. | Mftrs List No. | Order Code |
|---|---|---|---|---|---|---|
| 330 | 2.25 | 0.6 | 40 | 35 | MAL219390102E3 | 186-2423 |
| 330 | 2.25 | 0.6 | 40 | 35 | MAL219390102E3 | 186-2423 |
| 330 | 2.25 | 0.6 | 40 | 35 | MAL219390102E3 | 186-2423 |
| 470 | 2.8 | 0.45 | 50 | 35 | MAL219390104E3 | 186-2425 |
| 330 | 2.25 | 0.6 | 40 | 35 | MAL219390102E3 | 186-2423 |

620821

| Capacitance | Mftrs. List No. | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|---|
| 220µF | MAL219390101E3 | **186-2422** | | | | | |
| 330µF | MAL219390102E3 | **186-2423** | | | | | |
| 390µF | MAL219390103E3 | **186-2424** | | | | | |
| 470µF | MAL219390104E3 | **186-2425** | | | | | |
| 560µF | MAL219390105E3 | **186-2426** | | | | | |

## 198 PHR-SI Series — 85°C (PCB Mounting Snap-In)



- High performance snap-in electrolytic
- High ripple current capability
- Charge and discharge proof
- Motor control and industrial systems
- Smoothing and filtering
- Standard and switched mode power supplies
- Energy storage in pulse systems

Lead pitch = 10
Mounting hole dia = 2.0

| | | | |
|---|---|---|---|
| Operating temperature | -25°C to +85°C | Useful life @ 85°C | 15000 hrs |
| Tolerance | ±20% | Climatic category **IEC60 068** | 25/085/56 |

| **400 Volt d.c.** | Ripple (A) @ 100Hz 85°C | ESR (mΩ) @ 100Hz 20°C | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 100µF | 0.96 | 2.389 | 30 | 22 | MAL219856101E3 | 116-5362 |
| 150µF | 1.21 | 1.592 | 35 | 25 | MAL219836151E3 | 116-5363 |
| 220µF | 1.59 | 1.086 | 45 | 25 | MAL219836221E3 | 116-5364 |
| 330µF | 2.03 | 0.724 | 45 | 30 | MAL219836331E3 | 116-5365 |
| 470µF | 2.51 | 0.508 | 45 | 35 | MAL219836471E3 | 116-5366 |
| **450 Volt d.c.** | | | | | | |
| 68µF | 0.82 | 3.513 | 30 | 22 | MAL219857689E3 | 116-5369 |
| 150µF | 1.36 | 1.592 | 40 | 25 | MAL219847151E3 | 116-5371 |
| 330µF | 2.22 | 0.724 | 50 | 30 | MAL219847331E3 | 116-5373 |
| 680µF | 3.3 | 0.14 | 60 | 35 | MAL219857681E3 | 116-5375 |

# Aluminium Electrolytic - Snap In - Vishay - continued

## 198 PHR-SI Series — 85°C (PCB Mounting Snap-In) - continued

208588

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|
| **400 Volt d.c.** | | | | | | |
| 100µF | **116-5362** | | | | | |
| 150µF | **116-5363** | | | | | |
| 220µF | **116-5364** | | | | | |
| 330µF | **116-5365** | | | | | |
| 470µF | **116-5366** | | | | | |
| **450 Volt d.c.** | | | | | | |
| 68µF | **116-5369** | | | | | |
| 150µF | **116-5371** | | | | | |
| 330µF | **116-5373** | | | | | |
| 680µF | **116-5375** | | | | | |

# Aluminium Electrolytic - Solder Tag

## 052 PED-PW Series – Long Life



- Long life 85°C
- Solder tags 10mm pitch
- Marked with 1 for positive and 5 for negative

| | |
|---|---|
| Operating temperature | -40°C to +85°C |
| Useful life @ 85°C | 15000 hrs |
| Tolerance | 10% to +30% |
| Power factor | 0.38 max |
| Climatic category **(IEC68)** | 40/085/56 |
| Long life grade | **IEC 384-4, DIN 41240** |
| DC leakage current | 0.006CV+4µA |

| Volt d.c. | µF | Ripple (A) @ 20kHz 70°C | 100kHz 85°C | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 25 | 4700 | 3.7 | 3.7 | 46.3 | 30.6 | MAL205016472E3 | 116-6572 |
| 25 | 10000 | 5 | 5 | 56.3 | 35.6 | MAL205016103E3 | 116-6574 |
| 40 | 2200 | 2.7 | 2.7 | 46.3 | 25.6 | MAL205017222E3 | 116-6576 |
| 40 | 4700 | 3.8 | 3.8 | 46.3 | 35.6 | MAL205017472E3 | 116-6579 |
| 40 | 6800 | 4.7 | 4.7 | 56.3 | 35.6 | MAL205017682E3 | 116-6581 |
| 40 | 10000 | 4.9 | 4.9 | 56.3 | 40.6 | MAL205017103E3 | 116-6582 |
| 40 | 15000 | 6.6 | 6.6 | 76.3 | 40.6 | MAL205017153E3 | 116-6583 |
| 40 | 22000 | 9 | 9 | 100 | 40 | MAL205017223E3 | 116-6611 |
| 63 | 1000 | 1.8 | 1.8 | 36.3 | 25.6 | MAL205018102E3 | 116-6584 |
| 63 | 1500 | 2.5 | 2.5 | 46.3 | 25.6 | MAL205018152E3 | 116-6585 |
| 63 | 2200 | 3.1 | 3.1 | 46.3 | 30.6 | MAL205018222E3 | 116-6586 |
| 63 | 3300 | 3.6 | 3.6 | 46.3 | 35.6 | MAL205018332E3 | 116-6587 |
| 63 | 4700 | 4.4 | 4.4 | 50 | 35 | MAL205018472E3 | 116-6588 |
| 63 | 10000 | 6.2 | 6.2 | 76.3 | 40.6 | MAL205018103E3 | 116-6590 |
| 100 | 470 | 1.4 | 1.4 | 36.3 | 25.6 | MAL205019471E3 | 116-6592 |
| 100 | 2200 | 3.9 | 3.9 | 56.3 | 35.6 | MAL205019222E3 | 116-6594 |

219641

| Volt d.c. | µF | Order Code | Price Each 1+ | 50+ | 100+ |
|---|---|---|---|---|---|
| 25 | 4700 | **116-6572** | | | |
| 25 | 10000 | **116-6574** | | | |
| 40 | 2200 | **116-6576** | | | |
| 40 | 4700 | **116-6579** | | | |
| 40 | 6800 | **116-6581** | | | |
| 40 | 10000 | **116-6582** | | | |
| 40 | 15000 | **116-6583** | | | |
| 40 | 22000 | **116-6611** | | | |
| 63 | 1000 | **116-6584** | | | |
| 63 | 1500 | **116-6585** | | | |
| 63 | 2200 | **116-6586** | | | |
| 63 | 3300 | **116-6587** | | | |
| 63 | 4700 | **116-6588** | | | |
| 63 | 10000 | **116-6590** | | | |
| 100 | 470 | **116-6592** | | | |
| 100 | 2200 | **116-6594** | | | |

# Aluminium Electrolytic - Screw Terminal

## 101/102 PHR-ST Series – Computer Grade



- Long life grade
- Low ESR and high ripple current capabilities
- Polarized aluminum electrolytic capacitors, non-solid electrolyte

| | | | |
|---|---|---|---|
| Operating temperature | -40°C to +85°C | DC leakage current | 0.006CV + 4µA |
| Tolerance | ±20% | Useful life @ 85°C | 10000hrs |
| Climatic category **(IEC68)** | 40/085/86 | Long life grade | **IEC 60 384-4/EN130300** |

| | Ripple (A) @ 20Hz 85°C | ESR max. mΩ @ 20°C 100kHz | Dia. | Length | Case | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **25 Volt d.c.** | | | | | | | |
| 33000µF | 23 | 0.019 | 35 | 80 | ST | MAL210116333E3 | 882-0660 |
| 68000µF | 13 | 15 | 50 | 80 | ST | MAL210116683E3 | 882-0678 |
| 0.1F | 11 | 0.012 | 50 | 105 | ST | MAL210116104E3 | 882-0686 |
| **40 Volt d.c.** | | | | | | | |
| 10000µF | 23 | 0.031 | 35 | 60 | ST | MAL210117103E3 | 882-0694 |
| 15000µF | 17 | 22 | 35 | 80 | ST | MAL210127153E3 | 882-0708 |
| 22000µF | 17 | 0.02 | 35 | 80 | ST | MAL210117223E3 | 882-0716 |
| 33000µF | 10 | 0.013 | 50 | 80 | ST | MAL210127333E3 | 882-0724 |
| 47000µF | 10 | 0.012 | 50 | 80 | ST | MAL210117473E3 | 882-0740 |
| 0.1F | 6 | 0.007 | 65 | 105 | ST | MAL210117104E3 | 882-0759 |
| 0.15F | 6 | 0.007 | 76 | 105 | ST | MAL210117154E3 | 882-0767 |
| 0.22F | 5 | 0.005 | 76 | 146 | ST | MAL210127224E3 | 882-0775 |
| **63 Volt d.c.** | | | | | | | |
| 4700µF | 25 | 0.042 | 35 | 60 | ST | MAL210118472E3 | 882-0783 |
| 6800µF | 25 | 0.038 | 35 | 60 | ST | MAL210118682E3 | 882-0791 |
| 10000µF | 19 | 0.027 | 35 | 80 | ST | MAL210118103E3 | 882-0805 |
| 15000µF | 11 | 0.016 | 35 | 105 | ST | MAL210118153E3 | 882-0821 |
| 33000µF | 12 | 0.014 | 50 | 105 | ST | MAL210118333E3 | 882-0830 |
| 47000µF | 8 | 0.01 | 65 | 105 | ST | MAL210118473E3 | 882-0848 |
| 0.1F | 5 | 0.005 | 76 | 146 | ST | MAL210128104E3 | 882-0864 |
| **100 Volt d.c.** | | | | | | | |
| 3300µF | 27 | 0.042 | 35 | 60 | ST | MAL210119332E3 | 882-0880 |
| 4700µF | 20 | 0.032 | 35 | 80 | ST | MAL210119472E3 | 882-0899 |
| 6800µF | 15 | 0.023 | 35 | 105 | ST | MAL210119682E3 | 882-0910 |
| 10000µF | 15 | 0.021 | 50 | 80 | ST | MAL210119103E3 | 882-0929 |
| 15000µF | 12 | 0.016 | 50 | 105 | ST | MAL210119153E3 | 882-0937 |
| 22000µF | 8 | 0.011 | 65 | 105 | ST | MAL210119223E3 | 882-0945 |
| **200 Volt d.c.** | | | | | | | |
| 1500µF | 67 | 100 | 50 | 80 | ST | MAL210222152E3 | 882-0953 |
| 4700µF | 74 | 0.037 | 65 | 105 | ST | MAL210222472E3 | 882-0970 |
| 4700µF | 26 | 37 | 65 | 105 | STB | MAL210262472E3 | 882-0988 |
| 10000µF | 13 | 0.018 | 76 | 105 | ST | MAL210212103E3 | 882-1003 |
| **250 Volt d.c.** | | | | | | | |
| 1000µF | 82 | 128 | 35 | 80 | ST | MAL210213102E3 | 882-1011 |

386934

| µF | Order Code | Price Each 1+ | 10+ | 50+ | 100+ |
|---|---|---|---|---|---|
| **25 Volt d.c.** | | | | | |
| 33000µF | **882-0660** | | | | |
| 68000µF | **882-0678** | | | | |
| 0.1F | **882-0686** | | | | |
| **40 Volt d.c.** | | | | | |
| 10000µF | **882-0694** | | | | |
| 15000µF | **882-0708** | | | | |
| 22000µF | **882-0716** | | | | |
| 33000µF | **882-0724** | | | | |
| 47000µF | **882-0740** | | | | |
| 0.1F | **882-0759** | | | | |
| 0.15F | **882-0767** | | | | |
| 0.22F | **882-0775** | | | | |
| **63 Volt d.c.** | | | | | |
| 4700µF | **882-0783** | | | | |
| 6800µF | **882-0791** | | | | |
| 10000µF | **882-0805** | | | | |
| 15000µF | **882-0821** | | | | |
| 33000µF | **882-0830** | | | | |
| 68000µF | **882-0856** | | | | |
| 0.1F | **882-0864** | | | | |
| **100 Volt d.c.** | | | | | |
| 3300µF | **882-0880** | | | | |
| 4700µF | **882-0899** | | | | |
| 6800µF | **882-0910** | | | | |
| 10000µF | **882-0929** | | | | |
| 15000µF | **882-0937** | | | | |
| 22000µF | **882-0945** | | | | |
| **200 Volt d.c.** | | | | | |
| 1500µF | **882-0953** | | | | |
| 4700µF | **882-0970** | | | | |
| 4700µF | **882-0988** | | | | |
| 10000µF | **882-1003** | | | | |
| **250 Volt d.c.** | | | | | |
| 1000µF | **882-1011** | | | | |

## 106 PED-ST Series – Computer Grade



- Long life grade
- Charge and discharge proof
- High resistance to shock and vibration
- Extremely low ESR and ESL allowing very high ripple current load

**Application includes:** Smoothing and filtering; Energy storage in pulse systems.

| | | | |
|---|---|---|---|
| Operating temperature | -40°C to +85°C | Useful life @ 85°C | 20000hrs |
| Tolerance | ±30% | Long life grade | IEC 60384-4/EN130300 |
| Climatic category (IEC68) | 40/085/56 | | |

| | Ripple (A) @ 20Hz 85°C | ESR max. mΩ @ 20°C 100kHz | Dia. | Length | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| **25 Volt d.c.** | | | | | | |
| 10000µF | 7.7 | 0.04 | 35 | 80 | MAL210616103E3 | 185-7200 |
| 22000µF | 13.5 | 0.019 | 50 | 80 | MAL210616223E3 | 185-7201 |
| 68000µF | 23 | 0.01 | 65 | 105 | MAL210616683E3 | 185-7202 |
| **40 Volt d.c.** | | | | | | |
| 15000µF | 12.5 | 0.02 | 50 | 80 | MAL210617153E3 | 185-7203 |
| 22000µF | 14.5 | 0.016 | 50 | 105 | MAL210617223E3 | 185-7205 |
| 33000µF | 21 | 0.011 | 65 | 105 | MAL210617333E3 | 185-7206 |
| 47000µF | 24.5 | 0.008 | 65 | 105 | MAL210617473E3 | 185-7207 |
| **63 Volt d.c.** | | | | | | |
| 4700µF | 8.8 | 0.029 | 35 | 80 | MAL210618472E3 | 185-7211 |
| 10000µF | 17 | 0.012 | 50 | 80 | MAL210618103E3 | 185-7208 |
| 15000µF | 14.5 | 0.016 | 50 | 105 | MAL210618153E3 | 185-7209 |
| 33000µF | 23.5 | 0.008 | 65 | 105 | MAL210618333E3 | 185-7210 |
| **100 Volt d.c.** | | | | | | |
| 1000µF | 96 | 48 | 35 | 60 | MAL210619102E3 | 882-1186 |
| 1500µF | 59 | 27 | 35 | 60 | MAL210619152E3 | 882-1194 |
| 2200µF | 42 | 20 | 35 | 80 | MAL210619222E3 | 882-1208 |
| 3300µF | 29 | 15 | 35 | 105 | MAL210619332E3 | 882-1216 |
| 4700µF | 22 | 12 | 50 | 80 | MAL210619472E3 | 882-1224 |
| 6800µF | 16 | 9 | 50 | 105 | MAL210619682E3 | 882-1232 |
| 10000µF | 11 | 7 | 65 | 105 | MAL210619103E3 | 882-1240 |
| 15000µF | 10 | 6 | 65 | 105 | MAL210619153E3 | 882-1259 |

387005

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ |
|---|---|---|---|---|---|
| **25 Volt d.c.** | | | | | |
| 10000µF | NEW 185-7200 | | | | |
| 22000µF | NEW 185-7201 | | | | |
| 68000µF | NEW 185-7202 | | | | |
| **40 Volt d.c.** | | | | | |
| 15000µF | NEW 185-7203 | | | | |
| 22000µF | NEW 185-7205 | | | | |
| 33000µF | NEW 185-7206 | | | | |
| 47000µF | NEW 185-7207 | | | | |
| **63 Volt d.c.** | | | | | |
| 4700µF | NEW 185-7211 | | | | |
| 10000µF | NEW 185-7208 | | | | |
| 15000µF | NEW 185-7209 | | | | |
| 33000µF | NEW 185-7210 | | | | |
| **100 Volt d.c.** | | | | | |
| 1000µF | 882-1186 | | | | |
| 1500µF | 882-1194 | | | | |
| 2200µF | 882-1208 | | | | |
| 3300µF | 882-1216 | | | | |
| 4700µF | 882-1224 | | | | |
| 6800µF | 882-1232 | | | | |
| 10000µF | 882-1240 | | | | |
| 15000µF | 882-1259 | | | | |

## B41456/43456 Series - 12000 hrs @ 85°C

EPCOS



- High performance long life

| | |
|---|---|
| Operating temperature | -40°C to +85°C<br>-25°C to +85°C (450V) |
| Tolerance | ±20% |
| Useful life @ 85°C | 12000 hrs |
| Climatic category | 40/085/56<br>25/085/56 (450V) |

| | Ripple Current (A) | Impedance (mΩ) @10kHz, 20°C | ESR max(mΩ) @ 100Hz | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **16 Volt d.c.** | | | | | | | |
| 22000µF | 7.1 | 23 | 0.028 | 55.7 | 35.7 | B41456B4229M | 470-4617 |
| 47000µF | 11 | 13 | 0.016 | 80.7 | 35.7 | B41456B4479M | 470-4629 |
| 0.1F | 14 | 8.2 | 0.01 | 80.7 | 51.6 | B41456B4100M | 470-4630 |
| **25 Volt d.c.** | | | | | | | |
| 68000µF | 13 | 9.3 | 0.012 | 80.7 | 51.6 | B41456B5689M | 470-4654 |
| 0.47F | 31 | 4.8 | 0.006 | 220.7 | 76.9 | B41456B5470M | 470-4666 |
| **40 Volt d.c.** | | | | | | | |
| 10000µF | 6.3 | 34 | 0.037 | 55.7 | 35.7 | B41456B7109M | 470-4678 |
| 22000µF | 9.6 | 18 | 0.02 | 80.7 | 35.7 | B41456B7229M | 470-4680 |
| 47000µF | 13 | 10 | 0.012 | 80.7 | 51.6 | B41456B7479M. | 387-8090 |
| 0.1F | 19 | 7 | 0.0082 | 105.7 | 64.3 | B41456B7100M | 470-4708 |
| 0.22F | 25 | 5.4 | 0.0065 | 143.2 | 76.9 | B41456B7220M | 470-4710 |
| **63 Volt d.c.** | | | | | | | |
| 4700µF | 4.9 | 58 | 0.06 | 55.7 | 35.7 | B41456B8478M | 470-4721 |
| 10000µF | 7.7 | 30 | 0.031 | 80.7 | 35.7 | B41456B8109M | 470-4733 |
| 22000µF | 11 | 16 | 0.016 | 80.7 | 51.6 | B41456B8229M | 387-8107 |
| 68000µF | 20 | 7.8 | 0.0079 | 105.7 | 76.9 | B41456B8689M. | 387-8119 |
| 0.15F | 31 | 5.7 | 0.0058 | 220.7 | 76.9 | B41456B8150M | 470-4769 |
| **100 Volt d.c.** | | | | | | | |
| 2200µF | 4.3 | 70 | 0.08 | 55.7 | 35.7 | B41456B9228M. | 387-8120 |
| 4700µF | 6.7 | 35 | 0.04 | 80.7 | 35.7 | B41456B9478M. | 387-8132 |
| 10000µF | 10 | 18 | 0.022 | 80.7 | 51.6 | B41456B9109M. | 387-8144 |
| 22000µF | 17 | 11 | 0.013 | 105.7 | 64.3 | B41456B9229M | 470-4800 |
| 47000µF | 24 | 7.1 | 0.0085 | 143.2 | 76.9 | B41456B9479M. | 387-8156 |
| **350 Volt d.c.** | | | | | | | |
| 8200µF | 20 | 20 | 0.02 | 143.2 | 76.9 | B43456A4828M | 470-4824 |
| **400 Volt d.c.** | | | | | | | |
| 1500µF | 13* | 93 | 0.11 | 80.7 | 51.6 | B43456A9158M | 387-8168 |
| 3300µF | 20* | 44 | 0.049 | 105.7 | 64.3 | B43456A9338M | 470-4836 |
| 4700µF | 29* | 32 | 0.034 | 105.7 | 76.9 | B43456A9478M | 387-8170 |
| 6800µF | 33* | 24 | 0.024 | 143.2 | 76.9 | B43456A9688M | 387-8181 |
| 10000µF | 48* | 16 | 0.016 | 144.5 | 91 | B43456A9109M | 470-4848 |
| **450 Volt d.c.** | | | | | | | |
| 1000µF | 9.6* | 190 | 0.22 | 80.7 | 51.6 | B43456A5108M | 387-8200 |
| 1500µF | 12* | 130 | 0.15 | 105.7 | 51.6 | B43456A5158M | 470-4861 |
| 2200µF | 15* | 85 | 0.1 | 105.7 | 64.3 | B43456A5228M | 387-8211 |
| 5600µF | 31* | 35 | 0.038 | 143.2 | 76.9 | B43456-A5568M | 387-8235 |
| 12000µF | 51* | 18 | 0.018 | 221 | 91 | B43456A5129M | 470-4897 |

*With base cooling

234198

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|
| **16 Volt d.c.** | | | | | | |
| 22000µF | 470-4617 | | | | | |
| 47000µF | 470-4629 | | | | | |
| 0.1F | 470-4630 | | | | | |
| **25 Volt d.c.** | | | | | | |
| 68000µF | 470-4654 | | | | | |
| 0.47F | 470-4666 | | | | | |
| **40 Volt d.c.** | | | | | | |
| 10000µF | 470-4678 | | | | | |
| 22000µF | 470-4680 | | | | | |
| 47000µF | 387-8090 | | | | | |
| 0.1F | 470-4708 | | | | | |
| 0.22F | 470-4710 | | | | | |
| **63 Volt d.c.** | | | | | | |
| 4700µF | 470-4721 | | | | | |
| 10000µF | 470-4733 | | | | | |
| 22000µF | 387-8107 | | | | | |
| 68000µF | 387-8119 | | | | | |
| 0.15F | 470-4769 | | | | | |
| **100 Volt d.c.** | | | | | | |
| 2200µF | 387-8120 | | | | | |
| 4700µF | 387-8132 | | | | | |
| 10000µF | 387-8144 | | | | | |
| 22000µF | 470-4800 | | | | | |
| 47000µF | 387-8156 | | | | | |
| **350 Volt d.c.** | | | | | | |
| 8200µF | 470-4824 | | | | | |
| **400 Volt d.c.** | | | | | | |
| 1500µF | 387-8168 | | | | | |
| 3300µF | 470-4836 | | | | | |
| 4700µF | 387-8170 | | | | | |
| 6800µF | 387-8181 | | | | | |
| 10000µF | 470-4848 | | | | | |
| **450 Volt d.c.** | | | | | | |
| 1000µF | 387-8200 | | | | | |
| 1500µF | 470-4861 | | | | | |
| 2200µF | 387-8211 | | | | | |
| 5600µF | 387-8235 | | | | | |
| 12000µF | 470-4897 | | | | | |

## PEH200 Series

EVOX RIFA A KEMET Company



- PEH 200 series has a polarized, all-welded design, heavy duty screw terminals, extended cathode construction, safety vent and plastic insulation
- The sealing systems designed for electrolyte leakage free operation and a very low gas-diffusion rate of electrolyte
- Mechanical contact between the winding and the aluminium case allows excellent heat transfer from the winding hot spot to the ambient, which means cooler operation and very high current ratings

Operating Temperature -40°C to +85°C

| | Voltage | Dimensions H | Dia | Lead Pitch | Tolerance | Mftrs. LIst No. | Order Code |
|---|---|---|---|---|---|---|---|
| **25 Volt** | | | | | | | |
| 15000µF | 25V | 51 | 35 | 13 | ± 20% | PEH200HA5150MU2 | 167-9503 |
| 0.22F | 25V | 105 | 75 | 32 | ± 20% | PEH200HT6220MU2 | 167-9505 |
| **40 Volt** | | | | | | | |
| 6800µF | 40V | 51 | 35 | 13 | ± 20% | PEH200KA4680MU2 | 167-9506 |
| 10000µF | 40V | 60 | 35 | 13 | ± 20% | PEH200KB5100MB2 | 167-9507 |
| 10000µF | 40V | 60 | 35 | 13 | ± 20% | PEH200KB5100MU2 | 167-9509 |
| 22000µF | 40V | 95 | 35 | 13 | ± 20% | PEH200KD5220MB2 | 167-9512 |
| 47000µF | 40V | 95 | 50 | 22 | ± 20% | PEH200KJ5470MB2 | 167-9513 |
| 0.1F | 40V | 105 | 65 | 28.5 | ± 20% | PEH200KO6100MU2 | 167-9515 |
| **63 Volt** | | | | | | | |
| 4700µF | 63V | 51 | 35 | 13 | ± 20% | PEH200MA4470MU2 | 167-9476 |
| 22000µF | 63V | 95 | 50 | 22 | ± 20% | PEH200MJ5220MB2 | 167-9477 |
| 47000µF | 63V | 105 | 65 | 28.5 | ± 20% | PEH200MO5470MB2 | 167-9479 |
| 4700µF | 63V | 51 | 35 | 13 | ± 20% | PEH200MA4470MB2 | 167-9516 |
| 10000µF | 63V | 95 | 35 | 13 | ± 20% | PEH200MD5100MB2 | 167-9517 |
| 22000µF | 63V | 95 | 50 | 22 | ± 20% | PEH200MJ5220MU2 | 167-9519 |

# Aluminium Electrolytic - Screw Terminal - continued

## PEH200 Series - continued

| | Voltage | Dimensions H | Dia | Lead Pitch | Tolerance | Mftrs. LIst No. | Order Code |
|---|---|---|---|---|---|---|---|
| **100 Volt** | | | | | | | |
| 10000µF | 100V | 95 | 50 | 22 | ± 20% | PEH200PJ5100MU2 | 167-9482 |
| 22000µF | 100V | 105 | 65 | 28.5 | ± 20% | PEH200PO5220MU2 | 167-9483 |
| 15000µF | 100V | 105 | 50 | 22 | ± 20% | PEH200PK5150MU2 | 167-9524 |
| 47000µF | 100V | 145 | 75 | 32 | ± 20% | PEH200PV5470MU2 | 167-9525 |
| **250 Volt** | | | | | | | |
| 4700µF | 250V | 105 | 65 | 28.5 | ± 20% | PEH200SO4470MU2 | 167-9484 |
| 10000µF | 250V | 145 | 75 | 32 | ± 20% | PEH200SV5100MU2 | 167-9485 |
| 15000µF | 250V | 220 | 75 | 32 | ± 20% | PEH200SX5150MU2 | 167-9486 |
| **350 Volt** | | | | | | | |
| 1000µF | 350V | 75 | 50 | 22 | ± 20% | PEH200UH4100MU2 | 167-9526 |
| 2200µF | 350V | 105 | 65 | 28.5 | ± 20% | PEH200UO4220MU2 | 167-9527 |
| **385 Volt** | | | | | | | |
| 2200µF | 385V | 105 | 65 | 28.5 | ± 20% | PEH200XO4220MU2 | 167-9487 |
| 6800µF | 385V | 220 | 75 | 32 | ± 20% | PEH200XX4680MU2 | 167-9488 |
| **400 Volt** | | | | | | | |
| 1000µF | 400V | 95 | 50 | 22 | ± 20% | PEH200VJ4100MU2 | 167-9528 |
| **450 Volt** | | | | | | | |
| 2200µF | 450V | 105 | 75 | 32 | ± 20% | PEH200YT4220MU2 | 167-9490 |
| 4700µF | 450V | 220 | 75 | 32 | ± 20% | PEH200YX4470MU2 | 167-9492 |
| 6000µF | 450V | 220 | 75 | 32 | -10%, +30% | PEH200YX460BQU2 | 167-9493 |
| **500 Volt** | | | | | | | |
| 3300µF | 500V | 220 | 75 | 32 | ± 20% | PEH200ZX4330MB2 | 167-9494 |
| 470µF | 500V | 75 | 50 | 22 | ± 20% | PEH200ZH3470MU2 | 167-9534 |

527558

| | Order Code | Price Each 1+ | 10+ | 25+ | 50+ | 100+ |
|---|---|---|---|---|---|---|
| **25 Volt** | | | | | | |
| 15000µF | 167-9503 | | | | | |
| 0.22F | 167-9505 | | | | | |
| **40 Volt** | | | | | | |
| 6800µF | 167-9506 | | | | | |
| 10000µF | 167-9507 | | | | | |
| 10000µF | 167-9509 | | | | | |
| 22000µF | 167-9512 | | | | | |
| 47000µF | 167-9513 | | | | | |
| 0.1F | 167-9515 | | | | | |
| **63 Volt** | | | | | | |
| 4700µF | 167-9476 | | | | | |
| 22000µF | 167-9477 | | | | | |
| 47000µF | 167-9479 | | | | | |
| 4700µF | 167-9516 | | | | | |
| 10000µF | 167-9517 | | | | | |
| 22000µF | 167-9519 | | | | | |
| **100 Volt** | | | | | | |
| 10000µF | 167-9482 | | | | | |
| 22000µF | 167-9483 | | | | | |
| 15000µF | 167-9524 | | | | | |
| 47000µF | 167-9525 | | | | | |
| **250 Volt** | | | | | | |
| 4700µF | 167-9484 | | | | | |
| 10000µF | 167-9485 | | | | | |
| 15000µF | 167-9486 | | | | | |
| **350 Volt** | | | | | | |
| 1000µF | 167-9526 | | | | | |
| 2200µF | 167-9527 | | | | | |
| **385 Volt** | | | | | | |
| 2200µF | 167-9487 | | | | | |
| 6800µF | 167-9488 | | | | | |
| **400 Volt** | | | | | | |
| 1000µF | 167-9528 | | | | | |
| **450 Volt** | | | | | | |
| 2200µF | 167-9490 | | | | | |
| 4700µF | 167-9492 | | | | | |
| 6000µF | 167-9493 | | | | | |
| **500 Volt** | | | | | | |
| 3300µF | 167-9494 | | | | | |
| 470µF | 167-9534 | | | | | |

## B41560 Series - 105°C

EPCOS



- High performance long life
- Temperature rating 105°C
- Compact size, high capacitance per unit volume
- High ripple current capability

| | | | |
|---|---|---|---|
| Operating temperature | -40°C to +105°C | Useful life @ 105°C | 3000 hrs |
| Tolerance | ±20% | Climatic category | 40/105/56 |

| | Ripple Current (A) | Impedance (mΩ) @10kHz, 20°C | ESR max(mΩ) @ 100Hz | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| **40 Volt d.c.** | | | | | | | |
| 47000µF | 14 | 10 | 0.012 | 105.7 | 51.6 | B41560A7479M | 470-4903 |
| **63 Volt d.c.** | | | | | | | |
| 10000µF | 8.1 | 33 | 0.03 | 105.7 | 35.7 | B41560A8109M | 470-4939 |
| 22000µF | 12 | 16 | 0.016 | 105.7 | 51.6 | B41560A8229M | 470-4940 |
| 47000µF | 17 | 9.4 | 0.01 | 105.7 | 64.3 | B41560A8479M | 470-4952 |
| 0.1F | 23 | 6.6 | 0.0066 | 143.2 | 76.9 | B41560A8100M | 470-4964 |
| **100 Volt d.c.** | | | | | | | |
| 4700µF | 7.5 | 39 | 0.035 | 105.7 | 35.7 | B41560A9478M | 470-4988 |
| 10000µF | 11 | 18 | 0.017 | 105.7 | 51.6 | B41560A9109M | 470-4990 |
| 22000µF | 17 | 11 | 0.01 | 105.7 | 76.9 | B41560A9229M | 470-5002 |

333323

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|
| **40 Volt d.c.** | | | | | | |
| 47000µF | 470-4903 | | | | | |
| **63 Volt d.c.** | | | | | | |
| 10000µF | 470-4939 | | | | | |
| 22000µF | 470-4940 | | | | | |
| 47000µF | 470-4952 | | | | | |
| 0.1F | 470-4964 | | | | | |
| **100 Volt d.c.** | | | | | | |
| 4700µF | 470-4988 | | | | | |
| 10000µF | 470-4990 | | | | | |
| 22000µF | 470-5002 | | | | | |

## 104 PHL-ST Series

NEW

VISHAY



- Applications include Standard and switched mode power supplies and Energy storage in pulse systems
- Long useful life

| | |
|---|---|
| Operating Temperature | -40°C to +105°C |
| Tolerance | ± 20% |

| Capacitance (µF) | Ripple Current (A) | ESR @ 100 Hz (Ω) | Dimensions in mm H | Dia. | Mftrs List No. | Order Code |
|---|---|---|---|---|---|---|
| **350V** | | | | | | |
| 2200 | 8.4 | 0.061 | 105 | 65 | MAL210435222E3 | 186-2401 |
| 3300 | 10.1 | 0.042 | 105 | 65 | MAL210435332E3 | 186-2402 |
| 3300 | 11.2 | 0.042 | 105 | 76 | MAL210445332E3 | 186-2403 |
| 4700 | 12.6 | 0.032 | 105 | 76 | MAL210435472E3 | 186-2404 |
| 4700 | 13.7 | 0.03 | 146 | 76 | MAL210445472E3 | 186-2405 |
| 6800 | 15.4 | 0.022 | 146 | 76 | MAL210435682E3 | 186-2407 |
| **400V** | | | | | | |
| 1500 | 6.9 | 0.083 | 105 | 65 | MAL210446152E3 | 186-2408 |
| 2200 | 8.4 | 0.056 | 105 | 65 | MAL210436222E3 | 186-2409 |
| 2200 | 9.4 | 0.056 | 105 | 76 | MAL210446222E3 | 186-2410 |
| 3300 | 11.3 | 0.038 | 105 | 76 | MAL210436332E3 | 186-2411 |
| 3300 | 11.6 | 0.038 | 146 | 76 | MAL210446332E3 | 186-2412 |
| 4700 | 13.8 | 0.027 | 146 | 76 | MAL210436472E3 | 186-2413 |
| **450V** | | | | | | |
| 1000 | 5.9 | 0.116 | 105 | 65 | MAL210447102E3 | 186-2414 |
| 1500 | 7.3 | 0.077 | 105 | 65 | MAL210437152E3 | 186-2415 |
| 1500 | 8.1 | 0.077 | 105 | 76 | MAL210447152E3 | 186-2416 |
| 2200 | 9.7 | 0.053 | 105 | 76 | MAL210437222E3 | 186-2417 |
| 2200 | 10 | 0.051 | 146 | 76 | MAL210447222E3 | 186-2419 |
| 3300 | 12.1 | 0.036 | 146 | 76 | MAL210437332E3 | 186-2421 |

620646

| Capacitance (µF) | Mftrs. List No. | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|---|
| **350V** | | | | | | | |
| 2200 | MAL210435222E3 | 186-2401 | | | | | |
| 3300 | MAL210435332E3 | 186-2402 | | | | | |
| 3300 | MAL210445332E3 | 186-2403 | | | | | |
| 4700 | MAL210435472E3 | 186-2404 | | | | | |
| 4700 | MAL210445472E3 | 186-2405 | | | | | |
| 6800 | MAL210435682E3 | 186-2407 | | | | | |
| **400V** | | | | | | | |
| 1500 | MAL210446152E3 | 186-2408 | | | | | |
| 2200 | MAL210436222E3 | 186-2409 | | | | | |
| 2200 | MAL210446222E3 | 186-2410 | | | | | |
| 3300 | MAL210436332E3 | 186-2411 | | | | | |
| 3300 | MAL210446332E3 | 186-2412 | | | | | |
| 4700 | MAL210436472E3 | 186-2413 | | | | | |
| **450V** | | | | | | | |
| 1000 | MAL210447102E3 | 186-2414 | | | | | |
| 1500 | MAL210437152E3 | 186-2415 | | | | | |
| 1500 | MAL210447152E3 | 186-2416 | | | | | |
| 2200 | MAL210437222E3 | 186-2417 | | | | | |
| 2200 | MAL210447222E3 | 186-2419 | | | | | |
| 3300 | MAL210437332E3 | 186-2421 | | | | | |


RoHS Compliant Non-compliant

## B41550/B41570 Series

NEW

EPCOS



Stud Mount Screw Terminal

- Outstanding reliability
- High ripple current capability
- Long useful life
- B41550 - Screw Terminal
- B41570 - Stud Mount

| | |
|---|---|
| Operating temperature | -55°C to +105°C |
| Tolerance | -10/+30% |
| Useful life | 15000 hours @ 85°C hrs |

| | Ripple Current (A) @ 100Hz | ESR typ(mΩ) @ 100Hz | Dimensions H | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| **Screw Terminal** | | | | | | |
| **40 Volt d.c.** | | | | | | |
| 22000µF | 15 | 0.006 | 80.7 | 51.6 | B41550E7229Q000 | 183-9367 |
| 47000µF | 17 | 0.005 | 105 | 64.3 | B41550E7479Q000 | 183-9368 |
| 0.1F | 26 | 0.004 | 143.2 | 76.9 | B41550A7100Q000 | 183-9369 |
| **63 Volt d.c.** | | | | | | |
| 2200µF | 4.7 | 0.026 | 55.7 | 35.7 | B41550E8228Q000 | 183-9370 |
| 4700µF | 8.7 | 0.013 | 80.7 | 35.7 | B41550E8478Q000 | 183-9371 |
| 33000µF | 21 | 0.004 | 105 | 76.9 | B41550E8339Q000 | 183-9372 |
| 47000µF | 26 | 0.003 | 143.2 | 76.9 | B41550A8479Q000 | 183-9373 |
| **100 Volt d.c.** | | | | | | |
| 4700µF | 10 | 0.015 | 80.7 | 51.6 | B41550E9478Q000 | 183-9374 |
| 22000µF | 19 | 0.006 | 105 | 76.9 | B41550A9229Q000 | 183-9375 |
| 33000µF | 23 | 0.005 | 143.2 | 76.9 | B41550A9339Q000 | 183-9376 |
| **Stud Mount** | | | | | | |
| **40 Volt d.c.** | | | | | | |
| 4700µF | 7.2 | 0.014 | 55.7 | 35.7 | B41570E7478Q000 | 183-9377 |
| **100 Volt d.c.** | | | | | | |
| 4700µF | 10 | 0.015 | 80.7 | 51.6 | B41570E9478Q000 | 183-9379 |
| 22000µF | 19 | 0.006 | 105 | 76.9 | B41570A9229Q000 | 183-9381 |

614682

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|
| **Screw Terminal** | | | | | | |
| **40 Volt d.c.** | | | | | | |
| 22000µF | 183-9367 | | | | | |
| 47000µF | 183-9368 | | | | | |
| 0.1F | 183-9369 | | | | | |
| **63 Volt d.c.** | | | | | | |
| 2200µF | 183-9370 | | | | | |
| 4700µF | 183-9371 | | | | | |
| 33000µF | 183-9372 | | | | | |
| 47000µF | 183-9373 | | | | | |
| **100 Volt d.c.** | | | | | | |
| 4700µF | 183-9374 | | | | | |
| 22000µF | 183-9375 | | | | | |
| 33000µF | 183-9376 | | | | | |
| **Stud Mount** | | | | | | |
| **40 Volt d.c.** | | | | | | |
| 4700µF | 183-9377 | | | | | |
| **100 Volt d.c.** | | | | | | |
| 4700µF | 183-9379 | | | | | |
| 22000µF | 183-9381 | | | | | |

## B41560/B41580 Series

NEW

EPCOS



Stud Mount Screw Terminal

- High reliability, extremely good electrical characteristics
- High CV product, i.e. extremely compact
- High ripple current capability
- B41560 - Screw Terminal
- B41580 - Stud Mount

| | |
|---|---|
| Operating temperature | -40°C to +105°C |
| Tolerance | ± 20% |
| Useful life | 3000 hours @ 105°C hrs |

| µF | Ripple Current (A) @ 100Hz | ESR typ(mΩ) @ 100Hz | Dimensions H/mm | Dimensions Dia/mm | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| **Screw Terminal** | | | | | | |
| **25 Volt d.c.** | | | | | | |
| 220000 | 20 | 0.0035 | 76.9 | 105 | B41560A5220M000 | 183-9335 |
| 330000 | 24 | 0.003 | 76.9 | 143.2 | B41560A5330M000 | 183-9336 |
| **40 Volt d.c.** | | | | | | |
| 15000 | 7.4 | 0.012 | 35.7 | 80.7 | B41560A7159M000 | 183-9337 |
| 33000 | 11 | 0.006 | 51.6 | 80.7 | B41560A7339M000 | 183-9338 |
| 68000 | 15 | 0.0045 | 51.6 | 105 | B41560A7689M000 | 183-9339 |
| 150000 | 20 | 0.0036 | 76.9 | 105 | B41560A7150M000 | 183-9340 |
| 220000 | 24 | 0.0033 | 76.9 | 143.2 | B41560A7220M000 | 183-9341 |
| **63 Volt d.c.** | | | | | | |
| 100000 | 23 | 0.0033 | 76.9 | 143.2 | B41560A8100M000 | 183-9343 |
| **100 Volt d.c.** | | | | | | |
| 22000 | 17 | 0.004 | 35.7 | 105 | B41560A9229M000 | 183-9344 |
| 33000 | 21 | 0.0033 | 76.9 | 143.2 | B41560A9339M000 | 183-9345 |
| **Stud Mount** | | | | | | |
| **25 Volt d.c.** | | | | | | |
| 22000 | 7.4 | 0.021 | 35.7 | 80.7 | B41580A5229M000 | 183-9346 |
| 47000 | 11 | 0.008 | 35.7 | 105 | B41580A5479M000 | 183-9347 |
| 100000 | 15 | 0.0047 | 51.6 | 105 | B41580A5100M000 | 183-9348 |
| 220000 | 20 | 0.0035 | 76.9 | 105 | B41580A5220M000 | 183-9349 |
| 330000 | 24 | 0.003 | 76.9 | 143.2 | B41580A5330M000 | 183-9350 |
| **40 Volt d.c.** | | | | | | |
| 15000 | 7.4 | 0.012 | 35.7 | 80.7 | B41580A7159M000 | 183-9351 |
| 33000 | 11 | 0.006 | 51.6 | 80.7 | B41580A7339M000 | 183-9352 |
| 68000 | 15 | 0.0045 | 51.6 | 105 | B41580A7689M000 | 183-9353 |
| 150000 | 20 | 0.0036 | 76.9 | 105 | B41580A7150M000 | 183-9355 |
| 220000 | 24 | 0.0033 | 76.9 | 143.2 | B41580A7220M000 | 183-9356 |
| **63 Volt d.c.** | | | | | | |
| 4700 | 4.4 | 0.03 | 35.7 | 55.7 | B41580A8478M000 | 183-9357 |
| 22000 | 12 | 0.007 | 51.6 | 105 | B41580A8229M000 | 183-9358 |
| 33000 | 15 | 0.0055 | 64.3 | 105 | B41580A8339M000 | 183-9359 |
| 100000 | 23 | 0.0033 | 76.9 | 143.2 | B41580A8100M000 | 183-9360 |
| **100 Volt d.c.** | | | | | | |
| 2200 | 4.7 | 0.035 | 35.7 | 80.7 | B41580A9228M000 | 183-9361 |
| 4700 | 7.5 | 0.018 | 35.7 | 105 | B41580A9478M000 | 183-9362 |
| 10000 | 11 | 0.007 | 51.6 | 105 | B41580A9109M000 | 183-9363 |
| 22000 | 17 | 0.004 | 76.9 | 105 | B41580A9229M000 | 183-9364 |
| 33000 | 21 | 0.0033 | 76.9 | 143.2 | B41580A9339M000 | 183-9365 |

614568

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|
| **Screw Terminal** | | | | | | |
| **25 Volt d.c.** | | | | | | |
| 220000µF | 183-9335 | | | | | |
| 330000µF | 183-9336 | | | | | |
| **40 Volt d.c.** | | | | | | |
| 15000µF | 183-9337 | | | | | |
| 33000µF | 183-9338 | | | | | |
| 68000µF | 183-9339 | | | | | |
| 150000µF | 183-9340 | | | | | |
| 220000µF | 183-9341 | | | | | |
| **63 Volt d.c.** | | | | | | |
| 100000µF | 183-9343 | | | | | |
| **100 Volt d.c.** | | | | | | |
| 22000µF | 183-9344 | | | | | |
| 33000µF | 183-9345 | | | | | |
| **Stud Mount** | | | | | | |
| **25 Volt d.c.** | | | | | | |
| 22000µF | 183-9346 | | | | | |
| 47000µF | 183-9347 | | | | | |
| 100000µF | 183-9348 | | | | | |
| 220000µF | 183-9349 | | | | | |
| 330000µF | 183-9350 | | | | | |
| **40 Volt d.c.** | | | | | | |
| 15000µF | 183-9351 | | | | | |
| 33000µF | 183-9352 | | | | | |
| 68000µF | 183-9353 | | | | | |
| 150000µF | 183-9355 | | | | | |
| 220000µF | 183-9356 | | | | | |
| **63 Volt d.c.** | | | | | | |
| 4700µF | 183-9357 | | | | | |
| 22000µF | 183-9358 | | | | | |
| 33000µF | 183-9359 | | | | | |
| 100000µF | 183-9360 | | | | | |
| **100 Volt d.c.** | | | | | | |
| 2200µF | 183-9361 | | | | | |
| 4700µF | 183-9362 | | | | | |
| 10000µF | 183-9363 | | | | | |
| 22000µF | 183-9364 | | | | | |
| 33000µF | 183-9365 | | | | | |

## 10 Watt - YP Series

**Capacitor Discharge Resistors**

Tyco Electronics




- Flameproof silicone coating
- Stainless steel mounting terminals
- Power rating 10W continuous @ 70°C
- Tolerance of ±5%
- Maximum voltage of 825V dc or ac RMS
- Operating temperature -55°C to +105°C

Used on capacitors with 31.8mm pitch terminals.

Mftrs List No YP10xxxJ where xxx is the resistance value

234789

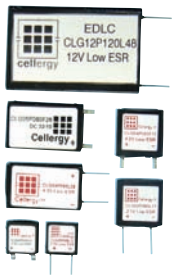
| Resistance (KΩ) | Mftrs. List No. | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|---|
| 2 | YP102K0J | 360-9431 | | | | | |
| 10 | YP1010KJ | 360-9443 | | | | | |
| 18 | YP1018KJ | 360-9455 | | | | | |
| 27 | YP1027KJ | 360-9467 | | | | | |
| 47 | YP1047KJ | 360-9479 | | | | | |

# Aluminium Electrolytic - Double Layer - Cellergy

## Super Capacitors

NEW

Cellergy




- Extending secondary battery operation - Reducing voltage drop at low temperatures (-40°C).
- Backup or current booster for mechanical applications such as a DC motor.
- Extending the battery lifetime of digital cameras.
- Rechargeable backup power source for microprocessors, static RAM's and DAT.
- Pulse Management for GSM, GPRS, 3G, HSUPA, Active RFI, Bluetooth, ZigBee etc
- Excellent in cold Environments down to -40°c where batteries struggle to operate
- **Not suitable for re-flow soldering**

Developed to Extend Battery life up to 300% by reducing Pulse stress.
Cellergy's Super Capacitor technology extends battery lifetimes - by connecting a primary battery in parallel to Cellergy's capacitor, the designer can reduce the voltage drop during a high current pulse.

| | Voltage (V) | Dimensions | Mftrs.List No. | Order Code |
|---|---|---|---|---|
| **Radial** | | | | |
| 10000µF | 4.2 | 12mm x 12.5mm | CLC04P010L12 | 210-2471 |
| 12000µF | 3.5 | 12mm x 12.5mm | CLG03P012L12 | 184-5258 |
| 20000µF | 4.2 | 17mm x 17.5mm | CLG04P020L17 | 184-5260 |
| 25000µF | 3.5 | 12mm x 12.5mm | CLG03P025L12 | 184-5259 |
| 30000µF | 5.5 | 17mm x 17.5mm | CLG05P030L17 | 184-5262 |
| 40000µF | 4.2 | 17mm x 17.5mm | CLG04P040L17 | 184-5261 |
| 40000µF | 5.5 | 28mm x 17.5mm | CLG05P040L28 | 184-5266 |
| 50000µF | 4.2 | 28mm x 17.5mm | CLG04P050L28 | 184-5265 |
| 50000µF | 3.5 | 17mm x 17.5mm | CLG03P050L17 | 210-2467 |
| 70000µF | 6.3 | 28mm x 17.5mm | CLG06P070L28 | 184-5268 |
| 80000µF | 5.5 | 28mm x 17.5mm | CLG05P080L28 | 184-5267 |
| 0.1F | 4.2 | 28mm x 17.5mm | CLG04P100L28 | 210-2465 |
| 0.12F | 3.5 | 28mm x 17.5mm | CLG03P120L28 | 184-5264 |
| 0.24F | 3.5 | 28mm x 17.5mm | CLK03P240L28 | 210-2473 |
| **SMD** | | | | |
| 10000µF | 4.2 | 12mm x 12.5mm | CLC04P010F12 | 210-2472 |
| 12000µF | 3.5 | 12mm x 12.5mm | CLG03P012F12 | 184-5269 |
| 20000µF | 4.2 | 17mm x 17.5mm | CLG04P020F17 | 184-5271 |
| 25000µF | 3.5 | 12mm x 12.5mm | CLG03P025F12 | 184-5270 |
| 30000µF | 5.5 | 17mm x 17.5mm | CLG05P030F17 | 184-5273 |
| 40000µF | 4.2 | 17mm x 17.5mm | CLG04P040F17 | 184-5272 |
| 40000µF | 5.5 | 28mm x 17.5mm | CLG05P040F28 | 184-5277 |
| 50000µF | 4.2 | 28mm x 17.5mm | CLG04P050F28 | 184-5276 |
| 50000µF | 3.5 | 17mm x 17.5mm | CLG03P050F17 | 210-2469 |
| 70000µF | 6.3 | 28mm x 17.5mm | CLG06P070F28 | 184-5279 |
| 80000µF | 5.5 | 28mm x 17.5mm | CLG05P080F28 | 184-5278 |
| 0.1F | 4.2 | 28mm x 17.5mm | CLG04P100F28 | 210-2466 |
| 0.12F | 3.5 | 28mm x 17.5mm | CLG03P120F28 | 184-5274 |
| 0.24F | 3.5 | 28mm x 17.5mm | CLK03P240F28 | 210-2474 |

618523

Price Each

| | Order Code | 1+ | 10+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| **Radial** | | | | | | |
| 10000µF | **210-2471** | | | | | |
| 12000µF | **184-5258** | | | | | |
| 20000µF | **184-5260** | | | | | |
| 25000µF | **184-5259** | | | | | |
| 30000µF | **184-5262** | | | | | |
| 40000µF | **184-5261** | | | | | |
| 40000µF | **184-5266** | | | | | |
| 50000µF | **184-5265** | | | | | |
| 50000µF | **210-2467** | | | | | |
| 70000µF | **184-5268** | | | | | |
| 80000µF | **184-5267** | | | | | |
| 0.1F | **210-2465** | | | | | |
| 0.12F | **184-5264** | | | | | |
| 0.24F | **210-2473** | | | | | |
| **SMD** | | | | | | |
| 10000µF | **210-2472** | | | | | |
| 12000µF | **184-5269** | | | | | |
| 20000µF | **184-5271** | | | | | |
| 25000µF | **184-5270** | | | | | |
| 30000µF | **184-5273** | | | | | |
| 40000µF | **184-5272** | | | | | |
| 40000µF | **184-5277** | | | | | |
| 50000µF | **184-5276** | | | | | |
| 50000µF | **210-2469** | | | | | |
| 70000µF | **184-5279** | | | | | |
| 80000µF | **184-5278** | | | | | |
| 0.1F | **210-2466** | | | | | |
| 0.12F | **184-5274** | | | | | |
| 0.24F | **210-2474** | | | | | |

# Aluminium Electrolytic - Double Layer - Panasonic

Wet type double layer electrolytic construction featuring a very high capacitance, in a small case size. Excellent charge/discharge characteristics and very low leakage current give superior performance to nickel cadmium batteries in memory retention circuits for CMOS and other circuitry where memory back-up is required.

208423

## EN Series - Gold

Panasonic

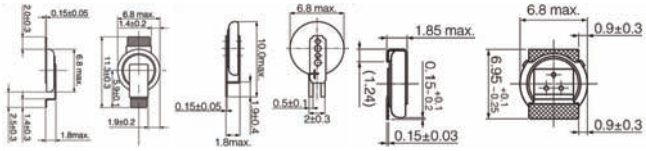
**3.3 Volt d.c.**

SMD



- Surface mount memory back-up capacitors
- Applications include memory cards, mobile phones, palmtop computers, digital cameras

Operating temperature -10°C to +60°C
Working voltage 3.3V d.c.
Capacitance 0.2F




Type AK Type RK Type J2

Dimensions

| Farads | H | Dia | Mftrs. List No. | Order Code |
|---|---|---|---|---|
| 0.2 | 1.8 | 6.8 | EECEN0F204A | 969-6598 |
| 0.2 | 1.8 | 6.8 | EECEN0F204AK | 130-5070 |
| 0.2 | 10 | 6.8 | EECEN0F204RK | 130-5071 |
| 0.2 | 1.85 | 6.8 | EECEN0F204J2 | 175-1935 |

451873

Price Each

| Mftrs. List No. | Order Code | 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|
| EECEN0F204A | SMD **969-6598** | | | | | |
| EECEN0F204AK | SMD **130-5070** | | | | | |
| EECEN0F204RK | SMD **130-5071** | | | | | |
| EECEN0F204J2 | SMD **175-1935** | | | | | |

## EP Series - Gold

Panasonic



- Electric Double Layer Capacitors
- Recommended Applications: Mobile phones, PDAs & RTC backup

Operating temperature -10°C to +60°C
Capacitance 33000µF
Capacitance Tolerance -20%, +80%

H=1.5, W=3.8, D=5.3mm

| Farads | Voltage | Mftrs. List No. | Order Code |
|---|---|---|---|
| 33000 | 2.6 | EECEP0E333A | 175-1936 |
| 33000 | 3.3 | EECEP0F333A | 175-1937 |

544801

Price Each

| Mftrs. List No. | Order Code | 1+ | 50+ | 100+ | 500+ | 4K+ |
|---|---|---|---|---|---|---|
| EECEP0E333A | SMD **175-1936** | | | | | |
| EECEP0F333A | SMD **175-1937** | | | | | |

## SD Series — Gold

Panasonic

**5.5 Volt d.c.**




- 30% smaller than SG series
- Ideally suited for use in CMOS memory back-up
- Longer life than a secondary battery
- Vertical or horizontal mounting

Operating temperature -25°C to +70°C
Working voltage 5.5V d.c.
Tolerance @ 20°C -20% to +80%

Dimensions

| | H | Dia. | Lead Size | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 22000µF | 5.5 | 10.5 | 3 x 0.8 | 10 | EECS0HD223H | 130-5054 |
| 47000µF | 11.5 | 10.5 | 3 x 0.8 | 5 | EECS0HD473V | 130-5057 |
| 47000µF | 5.5 | 10.5 | 3 x 0.8 | 10 | EECS0HD473H | 130-5056 |
| 0.1F | 11.5 | 10.5 | 3 x 0.8 | 5 | EECS0HD104V | 969-2665 |
| 0.1F | 5.5 | 10.5 | 3 x 0.8 | 10 | EECS0HD104H | 969-2673 |
| 0.22F | 11.5 | 10.5 | 3 x 0.8 | 5 | EECS0HD224V | 969-2681 |
| 0.22F | 6 | 10.5 | 3 x 0.8 | 10 | EECS0HD224H | 969-2690 |
| 0.33F | 11.5 | 10.5 | 3 x 0.8 | 5 | EECS0HD334V | 130-5058 |
| 0.33F | 11.5 | 10.5 | 3 x 0.8 | 10 | EECS0HD334H | 175-1930 |

451875

Price Each

| | Mounting | Order Code | 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|---|
| 22000µF | Horizontal | **130-5054** | | | | | |
| 47000µF | Vertical | **130-5057** | | | | | |
| 47000µF | Horizontal | **130-5056** | | | | | |
| 0.1F | Vertical | **969-2665** | | | | | |
| 0.1F | Horizontal | **969-2673** | | | | | |
| 0.22F | Vertical | **969-2681** | | | | | |
| 0.22F | Horizontal | **969-2690** | | | | | |
| 0.33F | Vertical | **130-5058** | | | | | |
| 0.33F | Horizontal | **175-1930** | | | | | |


RoHS ● Compliant ▲ Non-compliant

## SG Series – Gold Capacitor

Panasonic

**5.5 Volt d.c.**



Horizontal Vertical

- Ideally suited for use in CMOS memory back-up
- Can also be used for real time clock backup
- Vertical or horizontal mounting

Operating temperature -25°C to +70°C
Working voltage 5.5V d.c.
Tolerance @ 20°C 20% to +80%

| Farads | Dimensions H | Dia. | Lead Size | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 0.47 | 20 | 19 | 1 x 0.2 | 5 | EECS5R5V474 | 969-6717 |
| 0.47 | 6 | 19 | 1 x 0.2 | 20 | EECS5R5H474 | 969-6725 |
| 1 | 20 | 19 | 1 x 0.2 | 5 | EECS5R5V105 | 969-7489 |
| 1 | 6 | 19 | 1 x 0.2 | 20 | EECS5R5H105 | 969-7497 |
| 1.5 | 20 | 19 | 1 x 0.2 | 5 | EECS5R5V155 | 969-6733 |
| 1.5 | 6 | 19 | 1 x 0.2 | 20 | EECS5R5H155 | 969-6741 |

208479

| Farads | Mounting | Order Code | Price Each 1+ | 10+ | 50+ |
|---|---|---|---|---|---|
| 0.47 | Vertical | SMD 969-6717 | | | |
| 0.47 | Horizontal | SMD 969-6725 | | | |
| 1 | Vertical | SMD 969-7489 | | | |
| 1 | Horizontal | SMD 969-7497 | | | |
| 1.5 | Vertical | SMD 969-6733 | | | |
| 1.5 | Horizontal | SMD 969-6741 | | | |

## RF/RG Series - Gold Capacitors

Panasonic

**Stacked Coin Type**



RG Series RF Series

- Ideally suited for use in CMOS memory back-up
- 2000h endurance
- Radial, vertical or horizontal case styles

Operating temperature -25°C to +85°C Tolerance @ 20°C -20%, +80%

| Farads | Voltage d.c. | Dimensions H | Dia. | Lead Size | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 0.1 | 5.5 | 9.5 | 13.5 | 6 x 1.2 | 5 | EECRF0H104 | 180-0773 |
| 0.22 | 3.6 | 11.5 | 10.5 | 3 x 1.7 | 5 | EECRG0V224V | 180-0770 |
| 0.22 | 3.6 | 6 | 10.5 | 3 x 0.2 | 10 | EECRG0V224H | 180-0771 |
| 0.68 | 3.6 | 9.5 | 21.5 | 6 x 1.2 | 5 | EECRF0V684 | 155-0075 |
| 0.68 | 5.5 | 9.5 | 21.5 | 6 x 1.2 | 5 | EECRF0H684 | 155-0076 |
| 1 | 3.6 | 5 | 21 | 5 x 1 | 5 | EECRG0V105H | 155-0077 |
| 1 | 3.6 | 6 | 19 | 3.5 x 1 | 20 | EECRG0V105V | 155-0078 |

527083

| Farads | Mounting | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|---|
| 0.1 | Radial | 180-0773 | | | | | |
| 0.22 | Vertical | 180-0770 | | | | | |
| 0.22 | Horizontal | 180-0771 | | | | | |
| 0.68 | Radial | 155-0075 | | | | | |
| 0.68 | Radial | 155-0076 | | | | | |
| 1 | Horizontal | 155-0077 | | | | | |
| 1 | Vertical | 155-0078 | | | | | |

## NF & F Series – Gold

Panasonic

**5.5 Volt d.c.**



- Ideally suited for use in CMOS memory back-up
- Large capacitance for long time back-up
- Low profile horizontal mounting

Operating temperature NF Series -25°C to +70°C
Operating temperature F Series -25°C to +80°C
Working voltage 5.5V d.c.
Tolerance @ 20°C -20% to +80%

| | Dimensions H | Dia. | Lead Size | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| **NF Series** | | | | | | |
| 47000µF | 7.5 | 13.5 | 6 x 1.2 | 5 | EECF5R5U473 | 175-1932 |
| 0.1F | 7.5 | 13.5 | 6 x 1.2 | 5 | EECF5R5U104 | 969-2703 |
| 0.22F | 7.5 | 13.5 | 6 x 1.2 | 5 | EECF5R5U224 | 130-5064 |
| 0.47F | 8 | 21.5 | 6 x 1.2 | 5 | EECF5R5U474 | 969-2711 |
| 1F | 8 | 21.5 | 6 x 1.2 | 5 | EECF5R5U105 | 969-2720 |
| 1.5F | 8 | 21.5 | 6 x 1.2 | 5 | EECF5R5U155 | 130-5065 |
| **F Series** | | | | | | |
| 33000µF | 9.5 | 13.5 | 6 x 1.2 | 5 | EECF5R5H333 | 175-1933 |
| 47000µF | 9.5 | 13.5 | 6 x 1.2 | 5 | EECF5R5H473 | 175-1934 |
| 0.1F | 7.5 | 13.5 | 6 x 1.2 | 5 | EECF5R5H104 | 130-5059 |
| 0.47F | 8 | 21.5 | 6 x 1.2 | 5 | EECF5R5H474 | 130-5060 |
| 0.68F | 8 | 21.5 | 6 x 1.2 | 5 | EECF5R5H684 | 130-5061 |
| 1F | 8 | 21.5 | 6 x 1.2 | 5 | EECF5R5H105 | 130-5063 |

451876

| | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|
| **NF Series** | | | | | | |
| 47000µF | 175-1932 | | | | | |
| 0.1F | 969-2703 | | | | | |
| 0.22F | 130-5064 | | | | | |
| 0.47F | 969-2711 | | | | | |
| 1F | 969-2720 | | | | | |
| 1.5F | 130-5065 | | | | | |
| **F Series** | | | | | | |
| 33000µF | 175-1933 | | | | | |
| 47000µF | 175-1934 | | | | | |
| 0.1F | 130-5059 | | | | | |
| 0.47F | 130-5060 | | | | | |
| 0.68F | 130-5061 | | | | | |
| 1F | 130-5063 | | | | | |

## HW Series – Gold

Panasonic



- Miniature radial leaded memory back-up capacitors
- High capacitance rating - up to 50 Farads
- Low internal resistance
- Longer life than secondary batteries
- Applications include solar battery circuits, quick charge motor drives, UPS power supplies

Operating temperature -25°C to +70°C (70 F = 2.1 V d.c.) Tolerance @ 20°C -20% to +40%
Working voltage 2.3V d.c.

| Farads | Max. Internal Res. (Ω) @ 1kHz | Dimensions H | Dia. | Lead Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 22 | 8 | 0.7 | 3.5 | EECHW0D105 | 130-5073 |
| 3.3 | 0.3 | 23 | 12.5 | 0.8 | 5 | EECHW0D335 | 130-5075 |
| 4.7 | 0.3 | 23 | 12.5 | 0.8 | 5 | EECHW0D475 | 969-6679 |
| 10 | 0.1 | 35 | 12.5 | 0.8 | 5 | EECHW0D106 | 969-6695 |
| 22 | 0.1 | 35 | 18 | 0.8 | 7.5 | EECHW0D226 | 119-8519 |
| 30 | 0.1 | 35 | 18 | 0.8 | 7.5 | EECHW0D306 | 130-5076 |
| 50 | 0.3 | 40 | 18 | 0.8 | 7.5 | EECHW0D506 | 969-6709 |
| 70 | 0.1 | 50 | 18 | 0.8 | 7.5 | EECHW0D706 | 130-5077 |

451874

| Farads | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|
| 1 | 130-5073 | | | | | |
| 3.3 | 130-5075 | | | | | |
| 4.7 | 969-6679 | | | | | |
| 10 | 969-6695 | | | | | |
| 22 | 119-8519 | | | | | |
| 30 | 130-5076 | | | | | |
| 50 | 969-6709 | | | | | |
| 70 | 130-5077 | | | | | |

## HZ Series – Gold

Panasonic



- High withstand voltage
- Low internal resistance
- Longer life than secondary batteries
- Applications include solar battery circuits and UPS power supplies

Operating temperature -25°C to +60°C Tolerance @ 20°C -20%, +40%
Working voltage 2.5V

| Farads | Max. Internal Res. (Ω) @ 1kHz | Dimensions H | Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 3.3 | 0.3 | 20 | 8 | 3.5 | EECHZ0E335 | 167-3325 |
| 10 | 0.2 | 30 | 10 | 5 | EECHZ0E106 | 167-3323 |

527433

| Farads | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|
| 3.3 | 167-3325 | | | | | |
| 10 | 167-3323 | | | | | |

## R Series

WIMA



NEW

- Storage capacitors with high capacitance
- Discharge current up to 3000 A
- Double layer with rectangular metal case
- Possible to connect in series

Operating temperature -30°C to +65°C
Working voltage 2.5 V
Tolerance ± 20%

| Capacitance | Dimensions (mm) L | W | D | Lead Pitch (mm) | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 200 F | 59 | 48 | 16.5 | 36 | SCSRA1B200RB00MV00 | 189-0296 |
| 300 F | 59 | 48 | 26.5 | 36 | SCSRA1B300RC00MV00 | 189-0297 |
| 400 F | 59 | 48 | 26.5 | 36 | SCSRA1B400RC00MV00 | 189-0298 |
| 600 F | 80 | 48 | 26.5 | 36 | SCSRA1B600RD00MV00 | 189-0299 |

630880

| Capacitance | Mftrs. List No. | Order Code | Price Each 1+ | 3+ | 5+ |
|---|---|---|---|---|---|
| 200 F | SCSRA1B200RB00MV00 | 189-0296 | | | |
| 300 F | SCSRA1B300RC00MV00 | 189-0297 | | | |
| 400 F | SCSRA1B400RC00MV00 | 189-0298 | | | |
| 600 F | SCSRA1B600RD00MV00 | 189-0299 | | | |

# Aluminium Electrolytic - Double Layer - Panasonic - continued

## C Series

NEW



- Storage capacitors with high capacitance
- Discharge current up to 5000 A
- Double layer with Cylindrical metal case
- Possible to connect in series

Operating temperature -30°C to +65°C Working voltage 2.5 V
Tolerance ± 20%

| Capacitance | Dimensions (mm) L | Dia. | Mftrs. List No. | Order Code |
|---|---|---|---|---|
| 110 F | 67.5 | 25 | SCSCA1B110ZA00MV00 | 189-0301 |
| 200 F | 67.5 | 30 | SCSCA1B200ZB00MV00 | 189-0302 |

630881

| Capacitance | Mftrs. List No. | Order Code | Price Each 1+ | 3+ | 5+ |
|---|---|---|---|---|---|
| 110 F | SCSCA1B110ZA00MV00 | 189-0301 | | | |
| 200 F | SCSCA1B200ZB00MV00 | 189-0302 | | | |

# Aluminium Electrolytic - Double Layer - Rubycon

## DMB Series



NEW

- Load Life: 70°C 1000hours
- Double Layer

Operating temperature -25°C to +70°C Tolerance ± 20%
Working voltage 2.5V

| Farads | ESR (Ω) @ 1kHz | Dimensions H | Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|---|
| 15 | 0.1 | 30 | 12.5 | 5 | 2.5DMB15M12.5X30 | 183-1333 |
| 22 | 0.1 | 31.5 | 16 | 7.5 | 2.5DMB22M16X31.5 | 183-1334 |
| 100 | 0.1 | 65 | 22 | 10 | 2.5DMB100M22X65 | 183-1335 |

612296

| Farads | Order Code | Price Each 1+ | 10+ | 50+ | 500+ |
|---|---|---|---|---|---|
| 15 | 183-1333 | | | | |
| 22 | 183-1334 | | | | |
| 100 | 183-1335 | | | | |

# Aluminium Electrolytic - Double Layer - Vishay

## 196 Series – Double Layer Capacitors



- Polarised capacitor with high charge density, alternative product to rechargeable backup batteries
- Unlimited charge and discharge cycle numbers
- Maintenance-free, no periodic replacement or service necessary

Category temperature range:
Standard -25°C to +70°C
High Voltage -25°C to +85°C
High Temperature -25°C to +70°C
Vertical -25°C to +70°C
Tolerance on $C_R$ at 20°C -20 to + 80%

| | Dimensions (mm) H | Dia. | Lead Pitch | Mftrs. List No. | Order Code |
|---|---|---|---|---|---|
| **Standard - 5.5V** | | | | | |
| 0.1F | 7 | 13 | 5 | MAL219612104E3 | 169-5323 |
| 0.22F | 7 | 13 | 5 | MAL219612224E3 | 169-5324 |
| 0.33F | 7 | 13 | 5 | MAL219612334E3 | 169-5325 |
| 1F | 7.5 | 21 | 5 | MAL219612105E3 | 169-5327 |
| **Vertical - 5.5V** | | | | | |
| 47000µF | 13 | 11.5 | 5 | MAL219632473E3 | 169-5333 |
| 0.1F | 13 | 11.5 | 5 | MAL219632104E3 | 169-5334 |
| 0.33F | 13 | 11.5 | 5 | MAL219632334E3 | 169-5336 |
| **High Voltage - 6.3V** | | | | | |
| 47000µF | 9 | 13 | 5 | MAL219613473E3 | 169-5337 |
| 0.47F | 9 | 21 | 5 | MAL219613474E3 | 169-5339 |

530649

| Capacitance | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|
| **Standard - 5.5V** | | | | | | |
| 0.1F | 169-5323 | | | | | |
| 0.22F | 169-5324 | | | | | |
| 0.33F | 169-5325 | | | | | |
| 1F | 169-5327 | | | | | |

| Capacitance | Order Code | Price Each 1+ | 10+ | 50+ | 100+ | 250+ |
|---|---|---|---|---|---|---|
| **Vertical - 5.5V** | | | | | | |
| 47000µF | 169-5333 | | | | | |
| 0.1F | 169-5334 | | | | | |
| 0.33F | 169-5336 | | | | | |
| **High Voltage - 6.3V** | | | | | | |
| 47000µF | 169-5337 | | | | | |
| 0.47F | 169-5339 | | | | | |

# Aluminium Electrolytic - Accessories

## Cap Fastners

**M8 / M12**



Plain Stepped

604501

| | Order Code | Price Each 1+ | 10+ | 50+ |
|---|---|---|---|---|
| Plain poly washer M8 | 179-3856 | | | |
| Stepped poly washer M8 | 179-3857 | | | |
| Plain poly washer M12 | 179-3859 | | | |
| Stepped poly washer M12 | 179-3861 | | | |
| | | Price Per Pack | | |
| M5 Screws & Washers (PK20) | 179-3862 | | | |

## Nylon Cap Nuts

**M8 / M12**



| Dimensions table PYR (mm) | H | W | D | Pitch | Fits cap. diameter |
|---|---|---|---|---|---|
| PYR 5008 | 15 | 40 | 21 | 22 | 50-65 |
| PYR 7511 | 15 | 50 | 21 | 32 | 75-90 |

604486

| Order Multiple= | Order Code | Price Each 2+ | 10+ | 50+ |
|---|---|---|---|---|
| M8 | 179-3845 | | | |
| M12 | 179-3847 | | | |
| M12 | 179-3848 | | | |
| M12 | 179-3849 | | | |

## Voltage Balancing Resistors

**PYR Series**



- For voltage balancing and/or discharge of electrolytic capacitors
- Fits capacitor diameters 50-90 mm
- Easy to mount
- Temperature Range: -55 to +105°C

| Dimensions table PYR (mm) | H | W | D | Pitch | Fits cap. diameter |
|---|---|---|---|---|---|
| PYR 5008 | 15 | 40 | 21 | 22 | 50-65 |
| PYR 7511 | 15 | 50 | 21 | 32 | 75-90 |

604484

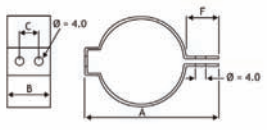
| Resistance (KΩ) | Mftrs. List No. | Order Code | Price Each 1+ | 10+ | 50+ |
|---|---|---|---|---|---|
| 47 | PYR5008-47 | 179-3840 | | | |
| 10 | PYR7511-10 | 179-3841 | | | |
| 18 | PYR7511-18 | 179-3842 | | | |
| 27 | PYR7511-27 | 179-3843 | | | |
| 47 | PYR7511-47 | 179-3844 | | | |

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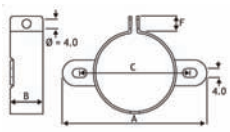
## Vertical Metal Cap Clamps

KEMET CHARGED.

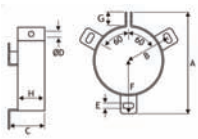




Style A



Style B



Style C

| TYPE | CAN DIA | A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|---|
| **Horizontal Mounting** (Style A) | | | | | | | | | |
| H1 | 25 | 40 | 22.3 | 12.8 | — | — | 10 | — | — |
| H2 | 35 | 52 | 22.3 | 12.8 | — | — | 10 | — | — |
| **Vertical Mounting** (Style B) | | | | | | | | | |
| V2 | 25 | 49 | 19 | 37 | — | — | 10 | — | — |
| V3 | 35 | 58 | 19 | 45 | — | — | 9 | — | — |
| V4 | 40 | 65 | 19 | 52.4 | — | — | 9.5 | — | — |
| **Vertical Mounting** (Style C) | | | | | | | | | |
| V10 | 65 | 90 | 40 | 30 | 5 | 4.5 | — | 10 | 20 |
| V11 | 76 | 103 | 45 | 30 | 5 | 4.5 | — | 10 | 20 |
| PYC6042 | 50 | 78 | 32.5 | 30 | 5.5 | 4.5 | 39 | 12 | 19 |
| PYC6043 | 65 | 90.5 | 38 | 36 | 5.5 | 4.5 | 44 | 12 | 25 |
| PYC6044 | 75 | 100.5 | 43 | 36 | 5.5 | 4.5 | 49 | 12 | 25 |
| PYC6045 | 90 | 115.5 | 50.5 | 36 | 5.5 | 4.5 | 56.5 | 12 | 25 |

604497

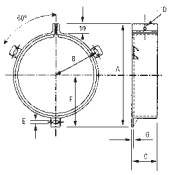
| Order Code | Mftr List No. | Price Each 1+ | 10+ | 50+ |
|---|---|---|---|---|
| **306-484** | H1 | | | |
| **306-496** | H2 | | | |
| **306-514** | V2 | | | |
| **306-526** | V3 | | | |
| **306-551** | V4 | | | |
| **179-3850** | V10 | | | |
| **179-3851** | V11 | | | |
| **179-3852** | PYC6042 | | | |
| **179-3853** | PYC6043 | | | |
| **179-3854** | PYC6044 | | | |
| **179-3855** | PYC6045 | | | |

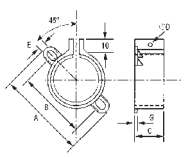
## Plastic Mounting Clamps

LCR Components



- Nylon mounting clamps for can type electrolytic capacitors.
- Fully insulated two or three lug mounting.
- Available with or without flange





* The diameter is approximate as it is possible for the clip to expand or compress slightly to allow for small variations in can size.

208468

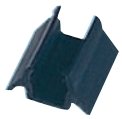
| Can Dia.* | Mounting | Order Code | Order Multiple=5 Price Each 5+ | 50+ | 100+ | 500+ |
|---|---|---|---|---|---|---|
| **With flange** | | | | | | |
| 25 | 2 lug | **653-470** | | | | |
| 30 | 2 lug | **388-5379** | | | | |
| 35 | 2 lug | **653-482** | | | | |
| 40 | 2 lug | **653-494** | | | | |
| 45 | 2 lug | **653-500** | | | | |
| 50 | 3 lug | **653-512** | | | | |
| 63.5 | 3 lug | **653-524** | | | | |
| 76 | 3 lug | **653-536** | | | | |
| **Without flange** | | | | | | |
| 25 | 2 lug | **388-5290** | | | | |
| 30 | 2 lug | **388-5306** | | | | |
| 35 | 2 lug | **388-5318** | | | | |
| 40 | 2 lug | **388-5320** | | | | |
| 50 | 3 lug | **388-5343** | | | | |
| 63.5 | 3 lug | **388-5355** | | | | |
| 76 | 3 lug | **388-5367** | | | | |



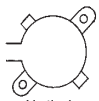
Horizontal Metal Clamps



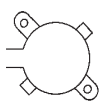
Vertical Metal Clamps



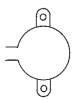
Plastic Clips



Vertical Style A



Vertical Style B



Vertical Style C

*The diameter is approximate as it possible for the clip to expand or compress slightly to allow for small variations in can size

227216

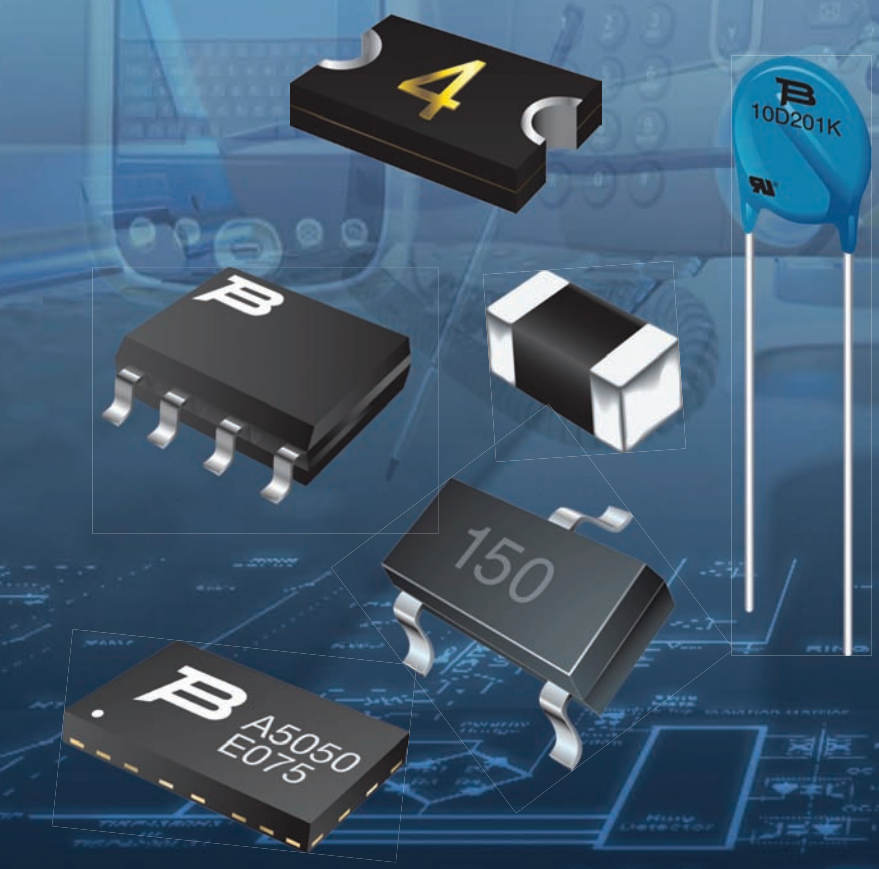
| Dia.* | H | FC (Style) | Order Code | Price Each 1+ | 50+ | 100+ | 500+ | 1K+ |
|---|---|---|---|---|---|---|---|---|
| **Horizontal Metal Clamps** | | | | | | | | |
| 25 | 22 | 13 | **306-484** | | | | | |
| 35 | 22 | 13 | **306-496** | | | | | |
| **Vertical Metal Clamps** | | | | | | | | |
| 25 | 19 | 35 (C) | **306-514** | | | | | |
| 35 | 18 | 54 (A) | **118-7275** | | | | | |
| 35 | 19 | 48 (C) | **306-526** | | | | | |
| 40 | 14 | 57 (A) | **118-7276** | | | | | |
| 51 | 26 | 65 (B) | **306-551** | | | | | |
| | | Hole Dia. | | 1+ | 100+ | 1K+ | | |
| **Plastic Clips** | | | | | | | | |
| 5-6.3 | 7.54 | 2.5 | **146-091** | | | | | |
| 12.5 | 13.1 | 2.5 | **146-094** | | | | | |
| 18 | 17.07 | 3.7 | **146-096** | | | | | |

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