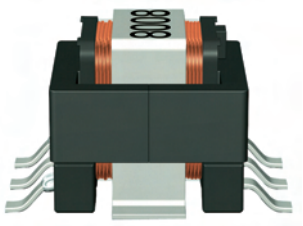
Latest Products from...

PCB Mounting Transformers

See page 685

Current Sense Transformers

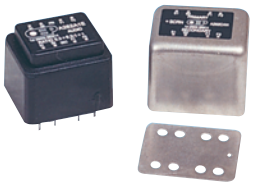


See page 700

Single & Twin Primary Toroidal Transfomers

See page 689

Audio Transfomers



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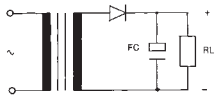
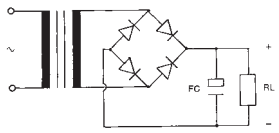
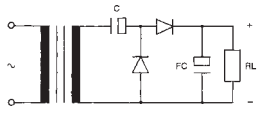
Common Types of Rectifier Configuration



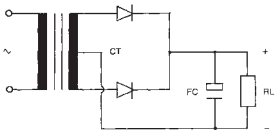
Half Wave



Bridge (Full Wave)



Voltage Doubler (Half Wave)



Full Wave

Notes

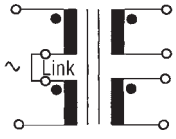
FC = Filter capacitor (omit for unsmoothed output)
RL = Resistive load
CT = Centre tapped secondary
~ = Mains input

Diodes should have a PTRV of four times the secondary rms voltage.
Full wave V out = 0.707 x secondary volts (due to centre tap).
Voltage doubler V out = 1.414 x secondary volts x 2 (Note: C is usually = FC).
Other circuits V out = 1.414 x secondary volts.

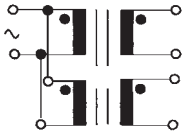
$$\text{Regulation} = \frac{\text{(Off load voltage-full load voltage) x 100}}{\text{off load voltage}}$$

223882

Transformer Connections, Twin Primary



Series



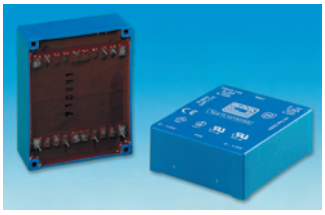
Parallel

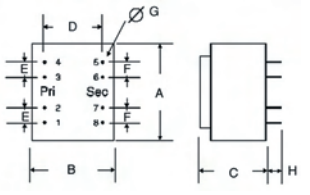
223883

Encapsulated

Low Profile, 115V + 115V Primary FL Series

BLOCK





- Low Profile
- Vacuum epoxy resin moulded (self extinguishing to **UL 94 V0**)
- Two chamber bobbin construction
- Primary/secondary isolation to 5kV. Secondary/secondary to 250V
- Soldering pins for printed circuit board mounting, additional screw mounting possible
- Dual output can be connected in series or in parallel
- Constructed and tested to **VDE 0570/EN 61 558, UL 506, CSA 22.2**

RATING (VA)	Dimension	2	4	6	8	10	14	18	24	30	42	52
Box Length	A	53	53	53	53	68	68	68	68	68	88.6	86.5
Box Width	B	44	44	44	44	57	57	57	57	57	70	70
Box Height	C	17.6	19.8	22.6	28.6	22.8	24.4	27.6	31.4	36.8	39	49
Pin Row Separation	D	35	35	35	35	62.5	45	45	45	45	53.5	53.5
Pin Spacing (Pri)	E	10	10	10	10	15	15	15	15	15	15	15
Pin Spacing (Sec)	F	5	5	5	5	10	10	10	10	10	10	10
Pin Diameter	G	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.45 x 1.1	0.45 x 1.1
Mounting Hole Dia	H	115	145	175	247	280	315	375	445	530	715	980
Efficiency	(%)	66	66	69	76	72	74	77	77	81	81	81

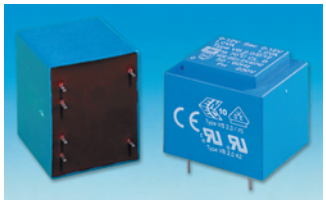
275030

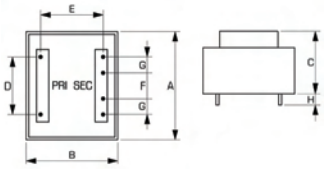
115V + 115V Primary	Mftrs. List No.	Order Code	Price Each 1+	20+	50+
2VA - 1VA per secondary winding					
0-6V, 0-6V @ 0.16A	FL2/6	**113-1513**	7.06	6.76	6.37
0-9V, 0-9V @ 0.11A	FL2/9	**113-1514**	5.57	5.33	5.02
0-12V, 0-12V @ 0.083A	FL2/12	**113-1509**	7.06	6.76	6.37
0-15V, 0-15V @ 0.066A	FL2/15	**113-1510**	6.25	5.99	5.63
0-18V, 0-18V @ 0.055A	FL2/18	**113-1511**	4.93	4.72	4.44
0-24V, 0-24V @ 0.042A	FL2/24	**113-1512**	6.25	5.99	5.63
4VA - 2VA per secondary winding					
0-6V, 0-6V @ 0.33A	FL4/6	**113-1533**	6.70	6.23	5.97
0-9V, 0-9V @ 0.22A	FL4/9	**113-1534**	6.70	6.23	5.97
0-12V, 0-12V @ 0.16A	FL4/12	**113-1529**	6.70	6.23	5.97
0-15V, 0-15V @ 0.13A	FL4/15	**113-1530**	6.70	6.23	5.97
0-18V, 0-18V @ 0.11A	FL4/18	**113-1531**	6.70	6.23	5.97
0-24V, 0-24V @ 0.08A	FL4/24	**113-1532**	6.37	6.03	5.67
6VA - 3VA per secondary winding					
0-6V, 0-6V @ 0.6A	FL6/6	**113-1554**	6.85	6.38	6.11
0-9V, 0-9V @ 0.375A	FL6/9	**113-1555**	6.85	6.38	6.11
0-12V, 0-12V @ 0.25A	FL6/12	**113-1549**	6.85	6.38	6.11

115V + 115V Primary	Mftrs. List No.	Order Code	Price Each 1+	20+	50+
6VA - 3VA per secondary winding					
0-15V, 0-15V @ 0.2A	FL6/15	**113-1550**	6.85	6.38	6.11
0-18V, 0-18V @ 0.166A	FL6/18	**113-1551**	6.85	6.38	6.11
0-24V, 0-24V @ 0.125A	FL6/24	**113-1553**	6.85	6.38	6.11
8VA - 4VA per secondary winding					
0-6V, 0-6V @ 0.66A	FL8/6	**113-1560**	6.87	6.56	6.19
0-9V, 0-9V @ 0.44A	FL8/9	**113-1561**	8.59	8.20	7.74
0-12V, 0-12V @ 0.33A	FL8/12	**113-1556**	8.59	8.20	7.74
0-15V, 0-15V @ 0.26A	FL8/15	**113-1557**	8.59	8.20	7.74
0-18V, 0-18V @ 0.22A	FL8/18	**113-1558**	8.59	8.20	7.74
0-24V, 0-24V @ 0.16A	FL8/24	**113-1559**	8.59	8.20	7.74
10VA - 5VA per secondary winding					
0-6V, 0-6V @ 0.833A	FL10/6	**113-1493**	8.89	8.27	7.91
0-9V, 0-9V @ 0.555A	FL10/9	**113-1494**	8.45	7.86	7.52
0-12V, 0-12V @ 0.416A	FL10/12	**113-1489**	8.89	8.27	7.91
0-15V, 0-15V @ 0.333A	FL10/15	**113-1490**	8.89	8.27	7.91
0-18V, 0-18V @ 0.277A	FL10/18	**113-1491**	8.89	8.27	7.91
0-24V, 0-24V @ 0.208A	FL10/24	**113-1492**	8.89	8.27	7.91
14VA - 7VA per secondary winding					
0-6V, 0-6V @ 1.16A	FL14/6	**113-1500**	9.09	8.45	8.09
0-9V, 0-9V @ 0.77A	FL14/9	**113-1501**	9.09	8.45	8.09
0-12V, 0-12V @ 0.583A	FL14/12	**113-1495**	9.09	8.45	8.09
0-15V, 0-15V @ 0.466A	FL14/15	**113-1496**	9.09	8.45	8.09
0-18V, 0-18V @ 0.38A	FL14/18	**113-1498**	9.09	8.45	8.09
0-24V, 0-24V @ 0.29A	FL14/24	**113-1499**	8.64	8.03	7.69
18VA - 9VA per secondary winding					
0-6V, 0-6V @ 1.5A	FL18/6	**113-1507**	9.85	9.17	8.77
0-9V, 0-9V @ 1A	FL18/9	**113-1508**	9.85	9.17	8.77
0-12V, 0-12V @ 0.75A	FL18/12	**113-1502**	9.85	9.17	8.77
0-15V, 0-15V @ 0.6A	FL18/15	**113-1504**	9.85	9.17	8.77
0-18V, 0-18V @ 0.5A	FL18/18	**113-1505**	9.85	9.17	8.77
0-24V, 0-24V @ 0.375A	FL18/24	**113-1506**	9.85	9.17	8.77
24VA - 12VA per secondary winding					
0-6V, 0-6V @ 2A	FL24/6	**113-1520**	10.90	10.15	9.71
0-9V, 0-9V @ 1.33A	FL24/9	**113-1521**	10.90	10.15	9.71
0-12V, 0-12V @ 1A	FL24/12	**113-1516**	10.90	10.15	9.71
0-15V, 0-15V @ 2A	FL24/15	**113-1517**	10.90	10.15	9.71
0-18V, 0-18V @ 0.66A	FL24/18	**113-1518**	10.90	10.15	9.71
0-24V, 0-24V @ 0.5A	FL24/24	**113-1519**	10.90	10.15	9.71
30VA - 15VA per secondary winding					
0-6V, 0-6V @ 2.5A	FL30/6	**113-1526**	12.69	11.81	11.30
0-9V, 0-9V @ 1.66A	FL30/9	**113-1528**	12.69	11.81	11.30
0-12V, 0-12V @ 1.25A	FL30/12	**113-1522**	12.69	11.81	11.30
0-15V, 0-15V @ 1A	FL30/15	**113-1523**	12.69	11.81	11.30
0-18V, 0-18V @ 0.83A	FL30/18	**113-1524**	12.69	11.81	11.30
0-24V, 0-24V @ 0.625A	FL30/24	**113-1525**	12.69	11.81	11.30
42VA - 21VA per secondary winding					
0-6V, 0-6V @ 3.5A	FL42/6	**113-1541**	16.53	15.84	14.92
0-9V, 0-9V @ 2.33A	FL42/9	**113-1542**	15.50	14.42	13.80
0-12V, 0-12V @ 1.75A	FL42/12	**113-1535**	15.50	14.42	13.80
0-15V, 0-15V @ 1.4A	FL42/15	**113-1536**	15.50	14.42	13.80
0-18V, 0-18V @ 3.5A	FL42/18	**113-1537**	15.50	14.42	13.80
0-24V, 0-24V @ 0.875A	FL42/24	**113-1538**	15.50	14.42	13.80
52VA - 26VA per secondary winding					
0-9V, 0-9V @ 2.88A	FL52/9	**113-1548**	18.55	17.25	16.52
0-12V, 0-12V @ 2.16A	FL52/12	**113-1543**	18.55	17.25	16.52
0-15V, 0-15V @ 1.73A	FL52/15	**113-1544**	18.55	17.25	16.52
0-18V, 0-18V @ 1.44A	FL52/18	**113-1545**	18.55	17.25	16.52
0-24V, 0-24V @ 1.08A	FL52/24	**113-1546**	18.55	17.25	16.52

Short Circuit Proof, VB/AVB Series

BLOCK





- Inherently short-circuit proof
- Vacuum epoxy resin moulded (self extinguishing to **UL 94 V0**)
- Two chamber bobbin construction
- Primary/secondary isolation to 5kV. Secondary/secondary to 250V
- Soldering pins for printed circuit board mounting
- Dual output can be connected in series or in parallel
- Constructed and tested to **VDE 0570/EN 61 558, UL 506, CSA 22.2**

230V Primary

230V Primary (VB Series)

Rating (VA)	Dimension	0.35	0.5	1	1.5	2.3	3.2
Box Length	A	22	22.7	32.3	32.3	32.3	41
Box Width	B	22.7	22	27.3	27.3	27.3	35
Box Height	C	15	19	21.8	23.8	29	30.8
Pin Spacing (Pri) VB series	D	15	15	20	20	20	20
Pin Row Separation	E	15	15	20	20	20	25
Pin Spacing (Sec)	G	5	5	5	5	5	5
Pin Diameter	-	0.6	0.6	0.8	0.8	0.8	0.8
Pin Length	H	5	5	5	5	5	5
Weight		24	35	72	84	110	173
Efficiency (%)		30	40	55	57	59	58
AVB Series							

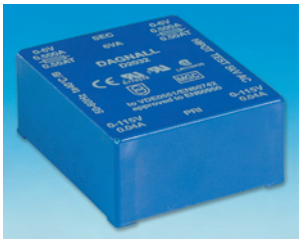
115+115V Primary (AVB Series)
For full specification and dimension details refer to Technical Datasheet

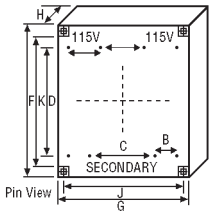
274349

230V Primary (VB Series)	Mftrs. List No.	Order Code	Price Each 1+	20+	50+	100+
0.35VA - 0.175VA per secondary winding						
0-6V, 0-6V @ 0.029A	VB0.35/2/6	**113-1608●**	2.68	2.50	2.42	2.32
0-9V, 0-9V @ 0.019A	VB0.35/2/9	**113-1609●**	2.68	2.50	2.42	2.32
0-12V, 0-12V @ 0.014A	VB0.35/2/12	**113-1603●**	2.68	2.50	2.42	2.32
0-15V, 0-15V @ 0.011A	VB0.35/2/15	**113-1604●**	2.68	2.50	2.42	2.32
0-18V, 0-18V @ 0.009A	VB0.35/2/18	**113-1605●**	2.61	2.48	2.44	2.32
0-24V, 0-24V @ 0.007A	VB0.35/2/24	**113-1607●**	2.61	2.48	2.44	2.32
0.5VA - 0.25VA per secondary winding						
0-6V, 0-6V @ 0.041A	VB0.5/2/6	**113-1614●**	2.78	2.59	2.51	2.43
0-9V, 0-9V @ 0.027A	VB0.5/2/9	**113-1615●**	2.78	2.59	2.51	2.43
0-12V, 0-12V @ 0.02A	VB0.5/2/12	**113-1610●**	2.78	2.59	2.51	2.43
0-15V, 0-15V @ 0.016A	VB0.5/2/15	**113-1611●**	2.78	2.59	2.51	2.43
0-18V, 0-18V @ 0.013A	VB0.5/2/18	**113-1612●**	2.89	2.75	2.69	2.63
0-24V, 0-24V @ 0.007A	VB0.5/2/24	**113-1613●**	2.78	2.59	2.51	2.43
1VA - 0.5VA per secondary winding						
0-6V, 0-6V @ 0.083A	VB1.0/2/6	**113-1622●**	2.53	2.35	2.26	2.18
0-12V, 0-12V @ 0.041A	VB1.0/2/12	**113-1616●**	2.02	1.88	1.81	1.75
0-15V, 0-15V @ 0.033A	VB1.0/2/15	**113-1617●**	1.77	1.67	1.63	1.59
0-18V, 0-18V @ 0.027A	VB1.0/2/18	**113-1619●**	2.49	2.36	2.30	2.24
0-24V, 0-24V @ 0.007A	VB1.0/2/24	**113-1621●**	2.53	2.35	2.26	2.18
1.5VA - 0.75VA per secondary winding						
0-6V, 0-6V @ 0.125A	VB1.5/2/6	**113-1628●**	2.58	2.40	2.31	2.24
0-9V, 0-9V @ 0.083A	VB1.5/2/9	**113-1629●**	2.58	2.40	2.31	2.24
0-12V, 0-12V @ 0.062A	VB1.5/2/12	**113-1624●**	2.58	2.40	2.31	2.24
0-15V, 0-15V @ 0.05A	VB1.5/2/15	**113-1625●**	2.58	2.40	2.31	2.24
0-18V, 0-18V @ 0.041A	VB1.5/2/18	**113-1626●**	2.58	2.40	2.31	2.24
0-24V, 0-24V @ 0.007A	VB1.5/2/24	**113-1627●**	2.58	2.40	2.31	2.24
2.3VA - 1.15VA per secondary winding						
0-6V, 0-6V @ 0.191A	VB2.3/2/6	**113-1635●**	2.98	2.78	2.69	2.60
0-9V, 0-9V @ 0.127A	VB2.3/2/9	**113-1636●**	2.98	2.78	2.69	2.60
0-12V, 0-12V @ 0.095A	VB2.3/2/12	**113-1630●**	2.98	2.78	2.69	2.60
0-15V, 0-15V @ 0.076A	VB2.3/2/15	**113-1632●**	2.98	2.78	2.69	2.60
0-18V, 0-18V @ 0.063A	VB2.3/2/18	**113-1633●**	2.98	2.78	2.69	2.60
0-24V, 0-24V @ 0.007A	VB2.3/2/24	**113-1634●**	2.98	2.78	2.69	2.60
3.2VA - 1.6VA per secondary winding						
0-6V, 0-6V @ 0.266A	VB3.2/2/6	**113-1641●**	3.20	2.96	2.87	2.78
0-9V, 0-9V @ 0.177A	VB3.2/2/9	**113-1642●**	3.20	2.96	2.87	2.78
0-12V, 0-12V @ 0.133A	VB3.2/2/12	**113-1637●**	3.20	2.96	2.87	2.78
0-15V, 0-15V @ 0.106A	VB3.2/2/15	**113-1638●**	3.20	2.96	2.87	2.78
0-18V, 0-18V @ 0.088A	VB3.2/2/18	**113-1639●**	3.20	2.96	2.87	2.78
0-24V, 0-24V @ 0.007A	VB3.2/2/24	**113-1640●**	3.20	2.96	2.87	2.78
115V+115V Primary (AVB Series)						
0.35VA - 0.175VA per secondary winding						
0-6V, 0-6V @ 0.029A	AVB0.35/2/6	**113-1455●**	3.03	2.68	2.57	2.47
0-9V, 0-9V @ 0.019A	AVB0.35/2/9	**113-1456●**	2.93	2.61	2.50	2.41
0-12V, 0-12V @ 0.014A	AVB0.35/2/12	**113-1451●**	2.93	2.61	2.50	2.41
0-18V, 0-18V @ 0.009A	AVB0.35/2/18	**113-1453●**	2.93	2.61	2.50	2.41
0-24V, 0-24V @ 0.007A	AVB0.35/2/24	**113-1454●**	2.93	2.61	2.50	2.41
0.5VA - 0.25VA per secondary winding						
0-6V, 0-6V @ 0.041A	AVB0.5/2/6	**113-1462●**	3.07	2.72	2.61	2.50
0-9V, 0-9V @ 0.027A	AVB0.5/2/9	**113-1463●**	3.07	2.72	2.61	2.50
0-12V, 0-12V @ 0.020A	AVB0.5/2/12	**113-1457●**	3.07	2.72	2.61	2.50
0-24V, 0-24V @ 0.007A	AVB0.5/2/24	**113-1460●**	3.07	2.72	2.61	2.50
1VA - 0.5VA per secondary winding						
0-6V, 0-6V @ 0.083A	AVB1.0/2/6	**113-1468●**	2.91	2.62	2.50	2.40
0-9V, 0-9V @ 0.055A	AVB1.0/2/9	**113-1469●**	2.75	2.47	2.36	2.25
0-12V, 0-12V @ 0.041A	AVB1.0/2/12	**113-1464●**	2.75	2.47	2.36	2.25
0-15V, 0-15V @ 0.033A	AVB1.0/2/15	**113-1465●**	2.75	2.47	2.36	2.25
0-18V, 0-18V @ 0.027A	AVB1.0/2/18	**113-1466●**	2.75	2.47	2.36	2.25
0-24V, 0-24V @ 0.007A	AVB1.0/2/24	**113-1467●**	2.75	2.47	2.36	2.25
1.5VA - 0.75VA per secondary winding						
0-6V, 0-6V @ 0.125A	AVB1.5/2/6	**113-1474●**	2.91	2.62	2.50	2.40
0-9V, 0-9V @ 0.093A	AVB1.5/2/9	**113-1475●**	2.75	2.47	2.36	2.25
0-12V, 0-12V @ 0.062A	AVB1.5/2/12	**113-1470●**	2.91	2.62	2.50	2.40
0-15V, 0-15V @ 0.050A	AVB1.5/2/15	**113-1471●**	2.91	2.62	2.50	2.40
0-18V, 0-18V @ 0.041A	AVB1.5/2/18	**113-1472●**	2.75	2.47	2.36	2.25
2.3VA - 1.15VA per secondary winding						
0-6V, 0-6V @ 0.191A	AVB2.3/2/6	**113-1480●**	3.17	2.81	2.69	2.59
0-9V, 0-9V @ 0.127A	AVB2.3/2/9	**113-1481●**	2.62	2.33	2.23	2.14
0-12V, 0-12V @ 0.095A	AVB2.3/2/12	**113-1476●**	3.33	2.95	2.83	2.72
0-15V, 0-15V @ 0.076A	AVB2.3/2/15	**113-1477●**	3.17	2.81	2.69	2.59
0-18V, 0-18V @ 0.063A	AVB2.3/2/18	**113-1478●**	3.17	2.81	2.69	2.59
0-24V, 0-24V @ 0.007A	AVB2.3/2/24	**113-1479●**	3.33	2.95	2.83	2.72
3.2VA - 1.6VA per secondary winding						
0-6V, 0-6V @ 0.266A	AVB3.2/2/6	**113-1487●**	3.56	3.18	3.04	2.90
0-9V, 0-9V @ 0.177A	AVB3.2/2/9	**113-1488●**	3.56	3.18	3.04	2.90
0-12V, 0-12V @ 0.133A	AVB3.2/2/12	**113-1482●**	3.56	3.18	3.04	2.90
0-15V, 0-15V @ 0.106A	AVB3.2/2/15	**113-1483●**	3.31	2.94	2.82	2.70
0-18V, 0-18V @ 0.088A	AVB3.2/2/18	**113-1484●**	3.56	3.18	3.04	2.90
0-24V, 0-24V @ 0.007A	AVB3.2/2/24	**113-1486●**	3.31	2.94	2.82	2.70

115/230V Primary, Low Profile

Approved to EN60950





- Twin 115V primary - connect in series for 230V operation or parallel for 115V operation
- Low profile
- Encapsulation resin to **UL** recognised - filled under vacuum
- High efficiency, low temperature rise
- Low interwinding capacitance and low radiated noise
- 5kV primary/secondary isolation
- 100% Flash and Electrical tested
- 9VA model has same package size as 6VA
- Designed and manufactured to **VDE0551/EN60742 and EN61558**
- **Approved** and **Independently Certified to EN60950**
- **UL** recognised and **CSA** approved

RATING (VA)		2	4	6	9	10	14	18	24	30
Pin Spacing (PRI)	A	10	10	10	10	15	15	15	15	15
Pin Spacing (PRI)	A1	15	15	15	15	16	16	16	16	16
Pin Spacing (SEC)	B	5	5	5	5	10	10	10	10	10
Pin Spacing (SEC)	C	25	25	25	25	26	26	26	26	26
Pin Row Separation	D	35	35	35	35	45	45	45	45	45
Pin Length (0.8 x 0.6)		4	4	4	4	4	4	4	4	4
Box Length	F	53.4	53.4	53.4	53.4	68	68	68	68	68
Box Width	G	44.4	44.4	44.4	44.4	57.4	57.4	57.4	57.4	57.4
Box Height	H	17.5	19.5	22.5	28.5	22.7	24.8	28.1	31.6	35.6
Fixing Holes (2.5)	J	38	38	38	38	50	50	50	50	50
Fixing Holes (2.5)	K	47.5	47.5	47.5	47.5	62.5	62.5	62.5	62.5	62.5
Weight		120	140	180	250	270	325	380	470	540
TYPICAL REGULATION	%	22	30	24	24	24	22	20	17	15

Note: For VDE 0551/EN60742 conformity reasons, transformers with 2 x 24V outputs should not have their secondaries connected in series.

223918

	Mftrs. List No.	Order Code	Price Each 1+	20+	50+	100+	250+
2VA - 1VA per secondary winding							
0-6,0-6V @ 0.17A	D2085	**116-6211●**	7.47	7.28	6.62	6.29	5.90
0-9V, 0-9V @ 0.11A	D2086	**116-6212●**	7.47	7.28	6.62	6.29	5.90
4VA - 2VA per secondary winding							
0-6V, 0-6V @ 0.33A	D2088	**116-6213●**	7.59	7.42	7.13	6.87	6.54
0-9V, 0-9V @ 0.22A	D2089	**116-6214●**	7.59	7.42	7.13	6.87	6.54
0-12V, 0-12V @ 0.165A	D2090	**116-6215●**	7.59	7.42	7.13	6.87	6.54
6VA - 3VA per secondary winding							
0-6V, 0-6V @ 0.5A	D2032	**116-6216●**	7.75	7.56	7.27	6.99	6.67
0-8V, 0-8V @ 0.375A	D2177	**116-6272●**	7.75	7.56	7.27	6.99	6.67
0-9V, 0-9V @ 0.33A	D2033	**116-6217●**	7.75	7.56	7.27	6.99	6.67
0-12V, 0-12V @ 0.25A	D2034	**116-6218●**	7.75	7.56	7.27	6.99	6.67
0-15V, 0-15V @ 0.2A	D2035	**116-6221●**	7.75	7.56	7.27	6.99	6.67
0-18V, 0-18V @ 0.165A	D2091	**116-6222●**	7.75	7.56	7.27	6.99	6.67
9VA - 4.5VA per secondary winding							
0-6V, 0-6V @ 0.75A	D2201	**116-6273●**	9.37	8.72	8.21	7.83	7.36
0-9V, 0-9V @ 0.5A	D2202	**116-6274●**	9.37	8.72	8.21	7.83	7.36
0-12V, 0-12V @ 0.375A	D2203	**116-6275●**	9.37	8.72	8.21	7.83	7.36
0-15V, 0-15V @ 0.3A	D2204	**116-6277●**	7.35	6.84	6.44	6.14	5.78
0-18V, 0-18V @ 0.25A	D2205	**116-6278●**	9.37	8.72	8.21	7.83	7.36
10VA - 5VA per secondary winding							
0-9V, 0-9V @ 0.55A	D2037	**116-6223●**	9.39	9.16	8.79	8.47	8.07
0-12V, 0-12V @ 0.42A	D2038	**116-6224●**	9.39	9.16	8.79	8.47	8.07
0-15V, 0-15V @ 0.335A	D2039	**116-6225●**	9.39	9.16	8.79	8.47	8.07
0-18V, 0-18V @ 0.28A	D2092	**116-6226●**	9.39	9.16	8.79	8.47	8.07
14VA - 7VA per secondary winding							
0-6V, 0-6V @ 1.166A	D2080	**116-6227●**	9.60	9.39	9.03	8.67	8.29
0-8V, 0-8V @ 0.875A	D2178	**116-6279●**	7.20	7.05	6.77	6.51	6.22
0-9V, 0-9V @ 0.777A	D2081	**116-6228●**	9.60	9.39	9.03	8.67	8.29
0-12V, 0-12V @ 0.583A	D2082	**116-6229●**	9.60	9.39	9.03	8.67	8.29
0-15V, 0-15V @ 0.466A	D2083	**116-6230●**	9.60	9.39	9.03	8.67	8.29
0-18V, 0-18V @ 0.388A	D2084	**116-6231●**	6.59	6.45	6.20	5.95	5.69
18VA - 9VA per secondary winding							
0-6V, 0-6V @ 1.5A	D2040	**116-6233●**	10.61	10.38	9.94	9.57	9.16
0-9V, 0-9V @ 1A	D2041	**116-6234●**	10.61	10.38	9.94	9.57	9.16
0-12V, 0-12V @ 0.75A	D2042	**116-6235●**	10.61	10.38	9.94	9.57	9.16
0-15V, 0-15V @ 0.6A	D2043	**116-6236●**	10.61	10.38	9.94	9.57	9.16
0-18V, 0-18V @ 0.5A	D2093	**116-6237●**	10.61	10.38	9.94	9.57	9.16
24VA - 12VA per secondary winding							
0-6V, 0-6V @ 2A	D2044	**116-6238●**	11.98	11.71	11.21	10.82	10.30
0-9V, 0-9V @ 1.33A	D2045	**116-6239●**	11.98	11.71	11.21	10.82	10.30
0-12V, 0-12V @ 1A	D2046	**116-6240●**	11.98	11.71	11.21	10.82	10.30
0-15V, 0-15V @ 0.8A	D2047	**116-6242●**	11.98	11.71	11.21	10.82	10.30
0-18V, 0-18V @ 0.66A	D2094	**116-6243●**	11.98	11.71	11.21	10.82	10.30
0-2424V, 0-24V @ 0.5A	D2068	**116-6280●**	11.98	11.71	11.21	10.82	10.30
30VA - 15VA per secondary winding							
0-9V, 0-9V @ 1.67A	D2049	**116-6245●**	13.23	12.95	12.37	11.92	11.38
0-12V, 0-12V @ 1.25A	D2050	**116-6246●**	13.23	12.95	12.37	11.92	11.38
0-15V, 0-15V @ 1A	D2051	**116-6247●**	13.23	12.95	12.37	11.92	11.38
0-18V, 0-18V @ 0.83A	D2095	**116-6248●**	13.23	12.95	12.37	11.92	11.38

Troubleshooting tips

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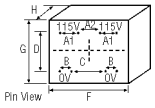
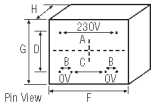
Encapsulated - continued

PCB Mounting

Approved to EN60950





- Choice of 230V or dual 115V primaries
- Double section bobbins
- 100% Flash and Electrical tested
- 0.35VA, 0.5VA, 1.0VA, 1.5VA and 2.3VA are inherently short circuit proof
- Designed and manufactured to **VDE0551/EN60742**
- **Approved** and **Independently Certified to EN60950**
- Approved to **EN61558** (1.5VA, 2.3VA and 3.3VA)
- **UL** Recognised and **CSA** Approved (1.5VA, 2.3VA and 3.3VA)
- Encapsulation resin to **UL94-VO**
- 5KV primary/secondary isolation

Note: For VDE0551/EN60742 conformance reasons, transformers with 2 x 24V outputs should not have their secondaries connected in series.

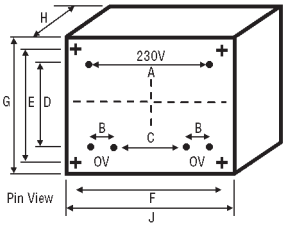
RATING (VA)		0.35	0.5	1.0	1.5	1.5	2.3	3.3	3.3
Pin Spacing (230V PRI)	A	15	15	20	20	—	20	20	—
Pin Spacing (115V PRI)	A1	—	—	—	—	5	—	—	5
Pin Spacing (115V PRI)	A2	—	—	—	—	10	—	—	10
Pin Spacing (SEC)	B	5	5	5	5	5	5	5	5
Pin Spacing (SEC)	C	5	5	10	10	5	10	10	5
Pin Row Separation	D	15	15	20	20	20	25	25	25
Box Length	F	22	22	32.5	32.5	32.5	41	41	35
Box Width	G	22.7	22.7	27.5	27.5	27.5	35	35	41
Box Height	H	15	19	21.3	21.3	21.3	21.1	27.2	30.8
Weight		25	40	65	70	70	95	140	173
TYPICAL REGULATION	(%)	45	45	25	40	40	40	30	30

223921

Single Primary - 230V	Mftrs. List No.	Order Code	Price Each 1+	20+	50+	100+	250+
0.35VA - 0.175VA per secondary winding							
0-6V, 0-6V @ 0.029A	D3500	**116-6296**	3.68	3.31	3.01	2.86	2.80
0-9V, 0-9V @ 0.019A	D3501	**116-6297**	3.68	3.31	3.01	2.86	2.80
0.5VA - 0.25VA per secondary winding							
0-6V, 0-6V @ 0.04A	D3504	**116-6298**	3.81	3.44	3.13	2.97	2.90
0-9V, 0-9V @ 0.03A	D3505	**116-6299**	3.81	3.44	3.13	2.97	2.90
0-12V, 0-12V @ 0.02A	D3506	**116-6301**	2.98	2.70	2.46	2.33	2.27
1VA - 0.5VA per secondary winding							
0-6V, 0-6V @ 0.08A	D3508	**116-6302**	3.50	3.15	2.88	2.71	2.65
0-9V, 0-9V @ 0.06A	D3509	**116-6303**	3.50	3.15	2.88	2.71	2.65
0-12V, 0-12V @ 0.04A	D3510	**116-6304**	3.50	3.15	2.88	2.71	2.65
1.5VA - 0.75VA per secondary winding							
0-6V, 0-6V @ 0.13A	D2005	**116-6255**	4.08	3.82	3.61	3.42	3.20
0-8V, 0-8V @ 0.09A	D2006	**116-6257**	4.08	3.82	3.61	3.42	3.20
0-9V, 0-9V @ 0.08A	D2007	**116-6258**	4.08	3.82	3.61	3.42	3.20
0-12V, 0-12V @ 0.06A	D2008	**116-6259**	2.56	2.39	2.26	2.14	2.01
0-15V, 0-15V @ 0.05A	D2009	**116-6260**	3.20	2.99	2.83	2.68	2.51
2.3VA - 1.15VA per secondary winding							
0-6V, 0-6V @ 0.19A	D2017	**116-6261**	5.74	5.38	5.08	4.84	4.53
0-9V, 0-9V @ 0.13A	D2019	**116-6262**	5.74	5.38	5.08	4.84	4.53
0-12V, 0-12V @ 0.1A	D2020	**116-6263**	5.74	5.38	5.08	4.84	4.53
0-15V, 0-15V @ 0.08A	D2021	**116-6264**	5.74	5.38	5.08	4.84	4.53
3.3VA - 1.65VA per secondary winding							
0-6V, 0-6V @ 0.28A	D2023	**116-6265**	5.91	5.51	5.22	4.94	4.65
0-8V, 0-8V @ 0.21A	D2024	**116-6266**	5.91	5.51	5.22	4.94	4.65
0-9V, 0-9V @ 0.18A	D2025	**116-6267**	5.91	5.51	5.22	4.94	4.65
0-12V, 0-12V @ 0.14A	D2026	**116-6269**	5.91	5.51	5.22	4.94	4.65
0-15V, 0-15V @ 0.11A	D2027	**116-6271**	5.91	5.51	5.22	4.94	4.65
Dual Primary - 115/230V							
1.5VA - 0.75VA per secondary winding							
0-6V, 0-6V @ 0.13A	D2011	**116-6249**	5.11	4.83	4.69	4.44	4.26
0-8V, 0-8V @ 0.09A	D2012	**116-6250**	5.11	4.83	4.69	4.44	4.26
0-9V, 0-9V @ 0.08A	D2013	**116-6251**	5.11	4.83	4.69	4.44	4.26
0-12V, 0-12V @ 0.06A	D2014	**116-6252**	5.11	4.83	4.69	4.44	4.26
0-15V, 0-15V @ 0.05A	D2015	**116-6253**	5.11	4.83	4.69	4.44	4.26
0-24V, 0-24V @ 0.03A	D2016	**116-6254**	5.11	4.83	4.69	4.44	4.26

Short Circuit Proof

Approved to EN60950



- Single 230V primary
- Internal PTC device provides protection against short circuit
- Encapsulation resin to **UL94-VO** - filled under vacuum
- Double section bobbins
- 5KV primary/secondary isolation
- 100% Flash and Electrical tested
- **Approved** and **Independently Certified to EN60950**
- Designed and manufactured to **VDE 0551/EN60742**

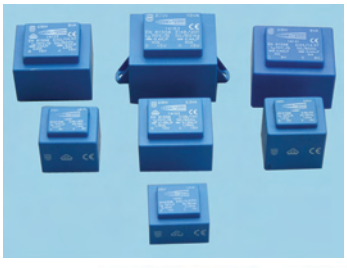
RATING (VA)		4.5	7.5	13
Pin Spacing (230V PRI)	A	25	25	30
Pin Spacing (SEC)	B	5	5	5
Pin Spacing (SEC)	C	15	15	20
Pin Row Separation	D	25	27.5	30
Pin Length (0.635sq)		5	5	4
Box Length	J	45	51	56
Box Width	G	38	43	47
Box Height	H	31.5	34.5	39
Fixing Centres (No. 4 x 8mm screws)	E	28	32	36
Fixing Centres (No. 4 x 8mm screws)	F	35	40	45
Weight		190	280	420
TYPICAL REGULATION	(%)	25	22	19

223923

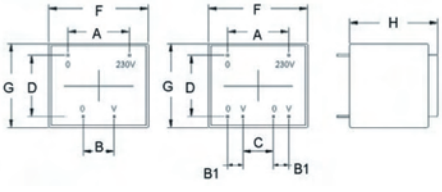
	Mftrs. List No.	Order Code	Price Each 1+	20+	50+	100+	250+
4.5VA - 2.25VA per secondary winding							
0-6V, 0-6V @ 0.375A	D2181	**116-6282**	9.25	8.62	8.14	7.75	7.56
0-9V, 0-9V @ 0.25A	D2182	**116-6283**	9.25	8.62	8.14	7.75	7.56
0-12V, 0-12V @ 0.19A	D2183	**116-6284**	9.25	8.62	8.14	7.75	7.56
0-15V, 0-15V @ 0.15A	D2184	**116-6285**	9.25	8.62	8.14	7.75	7.56
0-18V, 0-18V @ 0.13A	D2185	**116-6286**	9.25	8.62	8.14	7.75	7.56
7.5VA - 3.75VA per secondary winding							
0-6V, 0-6V @ 0.63A	D2186	**116-6287**	10.22	9.55	9.08	8.58	8.34
0-9V, 0-9V @ 0.42A	D2187	**116-6288**	10.22	9.55	9.08	8.58	8.34
0-12V, 0-12V @ 0.31A	D2188	**116-6289**	10.22	9.55	9.08	8.58	8.34
0-15V, 0-15V @ 0.25A	D2189	**116-6290**	8.02	7.49	7.12	6.73	6.54
13VA - 6.5VA per secondary winding							
0-6V, 0-6V @ 1.08A	D2191	**116-6291**	11.29	10.52	9.99	9.47	9.21
0-9V, 0-9V @ 0.72A	D2192	**116-6292**	11.29	10.52	9.99	9.47	9.21
0-12V, 0-12V @ 0.54A	D2193	**116-6294**	8.86	8.25	7.83	7.42	7.22
0-15V, 0-15V @ 0.43A	D2194	**116-6295**	8.86	8.25	7.83	7.42	7.22

230V Primary

0.35VA to 10VA



- Construction process provides protection against aggressive environments
- CE Marked
- UL94-V0 Encapsulation
- Large range of single and dual secondary voltages



RATING (VA)		0.35	0.5	1.5	2.8	3.2	3.5	5	6	10
Pin Spacing (PRI)	A	15	20	20	20	20	20	25	20	25
Pin Spacing (SEC)	B and B1	5	5	5	5	5	5	5	5	5
Pin Spacing (Dual SEC)	C	—	10	10	10	10	10	15	10	15
Pin Row Separation	D	15	20	20	20	20	25.5	25.5	25.5	28
Box Length	F	24	27	27	27	27	36	38.5	40	69.5
Box Width	G	22	32	32	32	32	42	45.5	47	43.5
Box Height	H	15	16	22	29.5	34	32	32	33.5	40
Fixing Holes Distance		—	—	—	—	—	—	—	—	60
Fixing Holes Diameter		—	—	—	—	—	—	—	—	4.2

427285.432687

	Mftrs. List No.	Order Code	Price Each 1+	10+	50+	100+
Single Secondary Winding						
0.35VA						
6V	14000	**115-6076**	2.70	2.57	2.43	2.19
9V	14001	**115-6077**	2.70	2.57	2.43	2.19
12V	14002	**115-6078**	2.70	2.57	2.43	2.19
15V	14003	**115-6079**	2.70	2.57	2.43	2.19
18V	14004	**115-6080**	2.70	2.57	2.43	2.19
24V	14005	**115-6082**	2.70	2.57	2.43	2.19
Dual Secondary Windings						
0.5VA						
2 x 6V	14020	**115-6083**	2.80	2.66	2.52	2.28
2 x 9V	14021	**115-6084**	2.25	2.12	2.02	1.82
	14022	**115-6085**	2.80	2.66	2.52	2.28
2 x 15V	14023	**115-6086**	2.80	2.66	2.52	2.28
2 x 18V	14024	**115-6087**	2.80	2.66	2.52	2.28
1.5VA						
2 x 6V	14040	**115-6088**	2.58	2.44	2.33	2.10
2 x 9V	14041	**115-6089**	2.58	2.44	2.33	2.10
2 x 12V	14042	**115-6090**	2.58	2.44	2.33	2.10
2 x 15V	14043	**115-6091**	2.58	2.44	2.33	2.10

	Mftrs. List No.	Order Code	Price Each 1+	10+	50+	100+
2.8VA						
2 x 6V	14060	**115-6092●**	2.99	2.84	2.71	2.43
2 x 9V	14061	**115-6094●**	2.99	2.84	2.71	2.43
2 x 12V	14062	**115-6095●**	2.99	2.84	2.71	2.43
2 x 15V	14063	**115-6096●**	2.99	2.84	2.71	2.43
3.2VA						
2 x 6V	14080	**115-6097●**	3.07	2.92	2.78	2.49
2 x 9V	14081	**115-6098●**	3.07	2.92	2.78	2.49
2 x 12V	14082	**115-6099●**	3.07	2.92	2.78	2.49
2 x 15V	14083	**115-6101●**	3.07	2.92	2.78	2.49
3.5VA						
2 x 6V	14100	**115-6102●**	3.17	3.01	2.86	2.59
2 x 9V	14101	**115-6103●**	3.17	3.01	2.86	2.59
2 x 12V	14102	**115-6104●**	3.17	3.01	2.86	2.59
2 x 15V	14103	**115-6105●**	3.17	3.01	2.86	2.59
5VA						
2 x 6V	14120	**115-6106●**	3.66	3.47	3.29	2.97
	14121	**115-6107●**	3.66	3.47	3.29	2.97
2 x 12V	14122	**115-6108●**	3.66	3.47	3.29	2.97
2 x 15V	14123	**115-6109●**	3.66	3.47	3.29	2.97
6VA						
2 x 6V	14140	**115-6110●**	4.02	3.82	3.63	3.26
2 x 9V	14141	**115-6112●**	4.02	3.82	3.63	3.26
2 x 12V	14142	**115-6113●**	4.02	3.82	3.63	3.26
2 x 15V	14143	**115-6114●**	4.02	3.82	3.63	3.26
10VA						
2 x 6V	14160	**115-6115●**	3.63	3.45	3.29	2.95
2 x 9V	14161	**115-6116●**	5.35	5.08	4.84	4.34
2 x 12V	14162	**115-6117●**	5.35	5.08	4.84	4.34
2 x 15V	14163	**115-6118●**	5.35	5.08	4.84	4.34

Encapsulated EN Approved Transformer

- Maxim Compatible
- BS EN 60950 Approved
- Isolation to 6kV
- Toroidal Construction
- Industry Standard Pinout
- UL 94V-0 Package Material
- Fully Encapsulated

Mftrs. List No.	Turn Ratio	Inductance	Capacitance	DC Resistance	Order Code
76250ENC	1CT:1	2.0mH	5.0pF	1.0Ω	145-4874
76253/35ENC	1√5	92µH	1.8pF	0.6Ω	145-4875
76253/55ENC	1:1.33	205µH	1.2pF	0.9Ω	145-4876

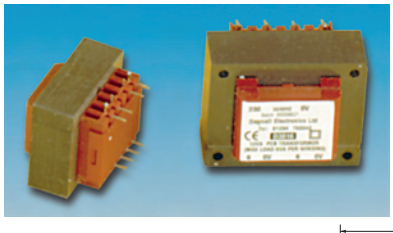
483440

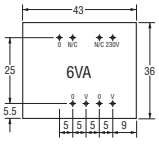
Mftrs List No.	Order Code	Price Each 1+	10+	25+	50+
76250ENC	**145-4874●**	1.60	1.54	1.50	1.45
76253/35ENC	**145-4875●**	4.11	3.99	3.86	3.76
76253/55ENC	**145-4876●**	4.11	3.99	3.86	3.76

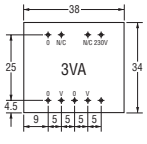
PCB Mounting

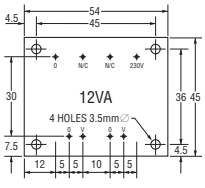
230V or 115+115V Primary

Metric Pitch









- Harmonised European input voltage in single (230V) or dual (115+115V) primary winding
- **UL** recognised flame retardant materials
- Independent secondary windings suitable for connecting in series or parallel giving a wide range of output voltage options
- Double section metric bobbin construction
- Fully shrouded windings
- Additional pins for secure board mounting
- Suitable for 50/60Hz operation
- 100% electrical and 4.8kV flash testing
- Designed, manufactured and tested in accordance with **BS3535, EN60742*** and **EN60950**

*Requires additonal fuse protection

223928

230V Single Primary	Mftrs. List No.	Order Code	Price Each 1+	20+	50+	100+
3VA - 1.5VA per secondary winding						
0-6V, 0-6V @ 0.25A	D3000	**116-6152●**	3.70	3.47	3.26	3.11
0-9V, 0-9V @ 0.167A	D3001	**116-6154●**	3.70	3.47	3.26	3.11
0-12V, 0-12V @ 0.125A	D3002	**116-6155●**	3.70	3.47	3.26	3.11
6VA - 3VA per secondary winding						
0-6V, 0-6V @ 0.5A	D3008	**116-6156●**	3.99	3.74	3.54	3.35
0-9V, 0-9V @ 0.33A	D3009	**116-6157●**	3.99	3.74	3.54	3.35
0-12V, 0-12V @ 0.25A	D3010	**116-6158●**	3.99	3.74	3.54	3.35
0-15V, 0-15V @ 0.2A	D3011	**116-6159●**	3.99	3.74	3.54	3.35
12VA - 6VA per secondary winding						
0-6V, 0-6V @ 1A	D3016	**116-6160●**	4.87	4.52	4.27	4.07
0-9V, 0-9V @ 0.66A	D3017	**116-6161●**	4.87	4.52	4.27	4.07
0-12V, 0-12V @ 0.5A	D3018	**116-6162●**	4.87	4.52	4.27	4.07
0-15V, 0-15V @ 0.4A	D3019	**116-6163●**	4.87	4.52	4.27	4.07
115V + 115V Primary						
3VA - 1.5VA per secondary winding						
0-6V, 0-6V @ 0.25A	D3004	**116-6164●**	4.11	4.02	3.86	3.69
0-9V, 0-9V @ 0.167A	D3005	**116-6166●**	4.11	4.02	3.86	3.69
0-12V, 0-12V @ 0.125A	D3006	**116-6167●**	4.11	4.02	3.86	3.69
6VA - 3VA per secondary winding						
0-6V, 0-6V @ 0.5A	D3012	**116-6168●**	4.40	4.29	4.14	3.97
0-9V, 0-9V @ 0.33A	D3013	**116-6169●**	4.40	4.29	4.14	3.97
0-12V, 0-12V @ 0.25A	D3014	**116-6170●**	4.40	4.29	4.14	3.97
0-15V, 0-15V @ 0.2A	D3015	**116-6171●**	4.40	4.29	4.14	3.97
12VA - 6VA per secondary winding						
0-6V, 0-6V @ 1A	D3020	**116-6173●**	5.39	5.25	5.04	4.89
0-9V, 0-9V @ 0.66A	D3021	**116-6174●**	5.39	5.25	5.04	4.89
0-12V, 0-12V @ 0.5A	D3022	**116-6175●**	5.39	5.25	5.04	4.89
0-15V, 0-15V @ 0.4A	D3023	**116-6176●**	4.22	4.12	3.95	3.83

230V or 115+115V Primary

Designed and manufactured according to international safety standard EN61558 this series of Clairtronic PCB mounting transformers is the result of consultation with engineers and the solution to continual demands for reduced board space whilst maximising power transformer output.

The range consists of 5 power ratings from 1.6VA up to 11VA. The main feature is that, for powers of 4VA up to and including 7.5VA the same board footprint may be used, whereas traditionally this size has been recognised as a 3VA board layout.

This not only gives engineers the option to utilise less board space in new design, it offers the opportunity to uprate current designs to provide higher power transformers without major product change.

The range is available in a single 230V primary and a dual 115V primary version. All power ratings are available in a combination of dual secondary configurations.

RATING (VA)	**1.6**	**4**	**5.5**	**7.5**	**11**
Length (mm)	32	34	34	34	40
Width (mm)	30	40	40	40	48
Height (mm)	28.2	34	36	41	44

491373

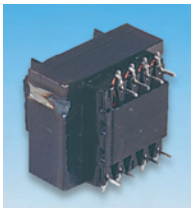
230V Single Primary	Mftrs. List No.	Order Code	Price Each 1+	20+	50+	100+
1.6VA						
0-6V, 0-6V	10-5637	**150-4297●**	2.99	2.83	2.69	2.55
0-9V, 0-9V	10-5638	**150-4298●**	2.99	2.83	2.69	2.55
0-12V, 0-12V	10-5639	**150-4299●**	2.99	2.83	2.69	2.55
0-15V, 0-15V	10-5640	**150-4300●**	2.99	2.83	2.69	2.55
4VA						
0-6V, 0-6V	10-5649	**150-4305●**	3.70	3.50	3.33	3.16
0-9V, 0-9V	10-5650	**150-4306●**	3.70	3.50	3.33	3.16
0-12V, 0-12V	10-5651	**150-4308●**	3.70	3.50	3.33	3.16
0-15V, 0-15V	10-5652	**150-4309●**	3.70	3.50	3.33	3.16
5.5VA						
0-6V, 0-6V	10-5657	**150-4314●**	3.97	3.77	3.57	3.40
0-9V, 0-9V	10-5658	**150-4315●**	3.97	3.77	3.57	3.40
0-12V, 0-12V	10-5659	**150-4316●**	3.97	3.77	3.57	3.40
0-15V, 0-15V	10-5660	**150-4317●**	3.97	3.77	3.57	3.40
7.5VA						
0-6V, 0-6V	10-5665	**150-4325●**	4.28	4.07	3.86	3.67
0-9V, 0-9V	10-5666	**150-4326●**	4.28	4.07	3.86	3.67
0-12V, 0-12V	10-5667	**150-4327●**	4.28	4.07	3.86	3.67
0-15V, 0-15V	10-5668	**150-4328●**	4.28	4.07	3.86	3.67
11VA						
0-6V, 0-6V	10-5670	**150-4334●**	4.99	4.74	4.49	4.26
0-9V, 0-9V	10-5671	**150-4335●**	4.99	4.74	4.49	4.26
0-12V, 0-12V	10-5672	**150-4336●**	4.99	4.74	4.49	4.26
0-15V, 0-15V	10-5673	**150-4337●**	4.99	4.74	4.49	4.26
115V + 115V Primary						
1.6VA						
0-6V, 0-6V	10-5641	**150-4301●**	3.19	3.03	2.87	2.73
0-9V, 0-9V	10-5642	**150-4302●**	3.19	3.03	2.87	2.73
0-12V, 0-12V	10-5643	**150-4303●**	3.19	3.03	2.87	2.73
0-15V, 0-15V	10-5644	**150-4304●**	3.19	3.03	2.87	2.73

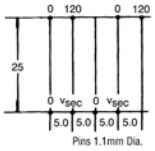
PCB Mounting - continued

230V or 115+115V Primary - continued

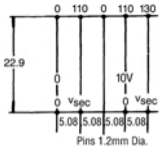
230V Single Primary	Mftrs. List No.	Order Code	Price Each 1+	20+	50+	100+
4VA						
0-6V, 0-6V	10-5645	**150-4310**	4.11	3.90	3.71	3.51
0-9V, 0-9V	10-5646	**150-4311**	4.11	3.90	3.71	3.51
0-12V, 0-12V	10-5647	**150-4312**	4.11	3.90	3.71	3.51
0-15V, 0-15V	10-5648	**150-4313**	4.11	3.90	3.71	3.51
5.5VA						
0-6V, 0-6V	10-5653	**150-4318**	4.35	4.13	3.92	3.73
0-9V, 0-9V	10-5654	**150-4321**	4.35	4.13	3.92	3.73
0-12V, 0-12V	10-5655	**150-4322**	4.35	4.13	3.92	3.73
0-15V, 0-15V	10-5656	**150-4324**	4.35	4.13	3.92	3.73
7.5VA						
0-6V, 0-6V	10-5661	**150-4329**	4.65	4.41	4.19	3.99
0-9V, 0-9V	10-5662	**150-4330**	4.65	4.41	4.19	3.99
0-12V, 0-12V	10-5663	**150-4331**	4.65	4.41	4.19	3.99
0-15V, 0-15V	10-5664	**150-4333**	4.65	4.41	4.19	3.99
11VA						
0-6V, 0-6V	10-5674	**150-4338**	5.32	5.05	4.80	4.55
0-9V, 0-9V	10-5675	**150-4339**	5.32	5.05	4.80	4.55
0-12V, 0-12V	10-5676	**150-4341**	5.32	5.05	4.80	4.55
0-15V, 0-15V	10-5677	**150-4342**	5.32	5.05	4.80	4.55

3VA to 12VA

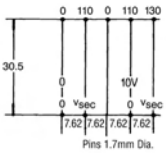




3VA: H = 30 (above PCB), W = 38, D = 36



6VA: H = 35 (above PCB), W = 35.5, D = 43



12VA: H = 45.5 (above PCB), W = 47.5 D = 57 FC = 47.6 x 38.1 x 4BA

PCB Pin-outs (underside view)

A range of low voltage mains transformers with independent primary windings.

The primary windings of the 3VA transformers may be connected in series for 240V or in parallel for 120V. 6VA and 12VA transformer primary windings may be connected in series for 220V and 240V or in parallel for 110V operation. The double bobbin construction eliminates the need for an interwinding screen and gives double insulation between primary and secondary winding.

All transformers are manufactured to **BS415** and are 4kV flash tested.

224562

3VA - 20% Typical Regulation	Mftrs. List No.	Order Code	Price Each 1+	20+	50+	100+
0-4.5V, 0-4.5V @ 0.33A	D3606	**116-6305**	4.22	3.76	3.57	3.48
0-6V, 0-6V @ 0.25A	D3607	**116-6306**	4.22	3.76	3.57	3.48
0-9V, 0- @ 0.16A	D3608	**116-6307**	4.22	3.76	3.57	3.48
0-12V, 0-12V @ 0.12A	D3609	**116-6308**	4.22	3.76	3.57	3.48
0-15V, 0-15V @ 0.1A	D3610	**116-6309**	4.22	3.76	3.57	3.48
0-20V, 0-20V @ 0.07A	D3611	**116-6310**	4.22	3.76	3.57	3.48
6VA - 28% Typical Regulation						
0-4.5V, 0-4.5V @ 0.6A	D3613	**116-6312**	7.06	5.49	4.79	4.05
0-6V, 0-6V @ 0.5A	D3614	**116-6313**	7.06	5.49	4.79	4.05
0-9V, 0-9V @ 0.33A	D3615	**116-6314**	7.06	5.49	4.79	4.05
0-12V, 0-12V @ 0.25A	D3617	**116-6316**	7.06	5.49	4.79	4.05
0-15V, 0-15V @ 0.2A	D3618	**116-6317**	7.06	5.49	4.79	4.05
0-20V, 0-20V @ 0.15A	D3619	**116-6318**	4.08	3.17	2.76	2.34
0-24V, 0-24V @ 0.125A	D3620	**116-6319**	4.08	3.17	2.76	2.34
12VA - 12% Typical Regulation						
0-6V, 0-6V @ 1A	D3621	**116-6320**	6.78	5.75	5.24	4.96
0-9V, 0-9V @ 0.6A	D3622	**116-6321**	6.78	5.75	5.24	4.96
0-12V, 0-12V @ 0.5A	D3624	**116-6322**	6.78	5.75	5.24	4.96
0-15V, 0-15V @ 0.4A	D3625	**116-6324**	6.78	5.75	5.24	4.96
0-20V, 0-20V @ 0.3A	D3626	**116-6325**	6.78	5.75	5.24	4.96
0-24V, 0-24V @ 0.25A	D3627	**116-6326**	6.78	5.75	5.24	4.96

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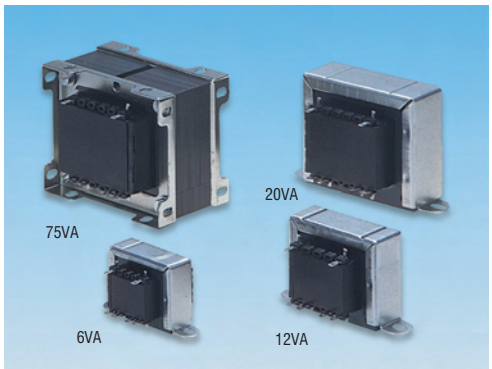
Clamp Mounting

230V Single Primary

6VA to 200VA



- Chassis mounting low voltage mains transformers with 230V ac primary
- 2 secondary winding to be connected in series or parallel
- Double section bobbins on interleaved lamination provide 3.75kV isolation
- Fixing by clamp on models up to 50VA, and frame construction above
- Tested to meet **EN60065** and **EN60742***

*Requires additional fuse protection

VA	Dimensions W	D	H	FC	Fixing Style	Weight (kg)	Typical Regulation %
6	45	40	37	54	Clamp	0.2	25
12	59	50	50	72	Clamp	0.4	12
20	59	56	50	72	Clamp	0.55	10
50	79	62	65	92	Clamp	1	10
75	79	75	67	54 x 54	Frame	1.5	10
100	89	68	75	57 x 44	Frame	1.6	10
150	100	78	85	72 x 58	Frame	2.2	10
200	100	90	85	72 x 68	Frame	2.8	7

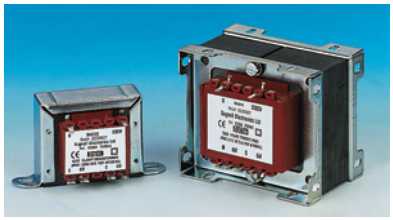
223909

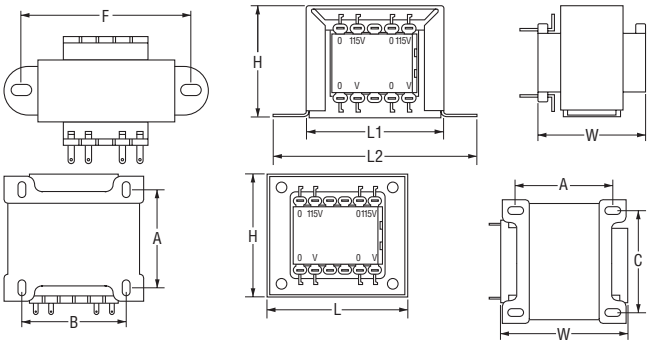
	Order Code	Price Each 1+	20+	50+	100+	250+	500+
6VA - 25% Typical Regulation							
0-5V, 0-5V @ 0.6A	**117-2352**	6.140	5.700	5.260	4.810	4.610	4.380
0-6V, 0-6V @ 0.5A	**117-2353**	6.140	5.700	5.260	4.810	4.610	4.380
0-9V, 0-9V @ 0.33A	**117-2354**	6.140	5.700	5.260	4.990	4.860	4.730
0-12V, 0-12V @ 0.25A	**117-2355**	6.140	5.700	5.260	4.810	4.610	4.380
0-15V, 0-15V @ 0.2A	**117-2356**	6.140	5.700	5.260	4.810	4.610	4.380
0-18V, 0-18V @ 0.17A	**117-2357**	6.140	5.700	5.260	4.810	4.610	4.380
0-20V, 0-20V @ 0.15A	**117-2358**	6.140	5.700	5.260	4.810	4.610	4.380
0-24V, 0-24V @ 0.12A	**117-2361**	6.140	5.700	5.260	4.810	4.610	4.380
Terminal shroud for 6VA transformers	**177-221**	0.164	– –	– –	– –	– –	– –
12VA - 12% Typical Regulation							
0-5V, 0-5V @ 1.2A	**117-2362**	9.350	8.690	8.010	7.340	7.020	6.680
0-6V, 0-6V @ 1A	**117-2363**	8.600	7.980	7.360	6.750	6.440	6.140
0-9V, 0-9V @ 0.67A	**117-2364**	8.600	7.980	7.360	6.750	6.440	6.140
0-12V, 0-12V @ 0.5A	**117-2365**	8.600	7.980	7.360	6.750	6.440	6.140
0-15V, 0-15V @ 0.4A	**117-2366**	8.600	7.980	7.360	6.750	6.440	6.140
0-18V, 0-18V @ 0.33A	**117-2367**	8.600	7.980	7.360	6.750	6.440	6.140
0-20V, 0-20V @ 0.3A	**117-2368**	8.600	7.980	7.360	6.750	6.440	6.140
0-24V, 0-24V @ 0.25A	**117-2369**	6.740	6.260	5.780	5.300	5.050	4.820
Terminal shroud for 12VA transformers	**177-222**	0.280	– –	– –	– –	– –	– –
20VA - 10% Typical Regulation							
0-5V, 0-5V @ 2A	**117-2370**	9.960	9.250	8.540	7.830	7.470	7.120
0-6V, 0-6V @ 1.67A	**117-2371**	9.960	9.250	8.540	7.830	7.470	7.120
0-9V, 0-9V @ 1.1A	**117-2373**	9.960	9.250	8.540	7.830	7.470	7.120
0-12V, 0-12V @ 0.83A	**117-2374**	9.960	9.250	8.540	7.830	7.470	7.120
0-18V, 0-18V @ 0.55A	**117-2375**	9.960	9.250	8.540	7.830	7.470	7.120
0-20V, 0-20V @ 0.5A	**117-2376**	9.960	9.250	8.540	7.830	7.470	7.120
0-24V, 0-24V @ 0.42A	**117-2377**	9.960	9.250	8.540	7.830	7.470	7.120
Terminal shroud for 20VA transformers	**177-222**	0.280	– –	– –	– –	– –	– –
50VA - 10% Typical Regulation							
0-6V, 0-6V @ 4.17A	**117-2378**	14.950	13.880	12.810	11.740	11.210	10.680
0-9V, 0-9V @ 2.78A	**117-2379**	14.950	13.880	12.810	11.740	11.210	10.680
0-12V, 0-12V @ 2.08A	**117-2380**	14.950	13.880	12.810	11.740	11.210	10.680
0-15V, 0-15V @ 1.67A	**117-2381**	14.100	13.100	12.080	11.080	10.570	10.070
0-18V, 0-18V @ 1.39A	**117-2382**	14.100	13.100	12.080	11.080	10.570	10.070
0-20V, 0-20V @ 1.25A	**117-2383**	14.950	13.880	12.810	11.740	11.210	10.680
0-24V, 0-24V @ 1.04A	**117-2385**	14.950	13.880	12.810	11.740	11.210	10.680
Terminal shroud for 50VA transformers	**177-223**	0.280	– –	– –	– –	– –	– –
75VA - 10% Typical Regulation							
0-6V, 0-6V @ 6.25A	**117-2386**	21.830	20.260	18.710	17.140	16.370	15.590
0-12V, 0-12V @ 3.12A	**117-2388**	21.830	20.260	18.710	17.140	16.370	15.590
0-15V, 0-15V @ 2.5A	**117-2389**	21.830	20.260	18.710	17.140	16.370	15.590
0-18V, 0-18V @ 2.08A	**117-2390**	21.830	20.260	18.710	17.140	16.370	15.590
0-24V, 0-24V @ 1.56A	**117-2391**	21.830	20.260	18.710	17.140	16.370	15.590
0-50V, 0-50V @ 0.75A	**117-2392**	21.830	20.260	18.710	17.140	16.370	15.590
Terminal shroud for 75VA transformers	**177-223**	0.280	– –	– –	– –	– –	– –
100VA - 10% Typical Regulation							
0-6V, 0-6V @ 8.33A	**117-2393**	25.380	23.550	21.760	19.930	19.030	18.130
0-9V, 0-9V @ 5.55A	**117-2394**	25.380	23.550	21.760	19.930	19.030	18.130
0-12V, 0-12V @ 4.17A	**117-2395**	25.380	23.550	21.760	19.930	19.030	18.130
0-15V, 0-15V @ 3.33A	**117-2397**	25.380	23.550	21.760	19.930	19.030	18.130
0-18V, 0-18V @ 2.78A	**117-2398**	25.380	23.550	21.760	19.930	19.030	18.130
0-20V, 0-20V @ 2.5A	**117-2399**	25.380	23.550	21.760	19.930	19.030	18.130

	Order Code	Price Each 1+	20+	50+	100+	250+	500+
100VA - 10% Typical Regulation							
0-24V, 0-24V @ 2.08A	**117-2400●**	25.380	23.550	21.760	19.930	19.030	18.130
0-50V, 0-50V @ 1A	**117-2401●**	25.380	23.550	21.760	19.930	19.030	18.130
Terminal shroud for 100VA transformers	**177-223●**	0.280	– –	– –	– –	– –	– –
150VA - 10% Typical Regulation							
0-12V, 0-12V @ 6.25A	**117-2405●**	33.650	31.240	28.840	26.440	25.250	23.990
0-18V, 0-18V @ 4.17A	**117-2407●**	33.650	31.240	28.840	26.440	25.250	23.990
0-24V, 0-24V @ 3.12A	**117-2408●**	26.390	24.500	22.620	20.740	19.800	18.820
200VA - 7% Typical Regulation							
0-9V, 0-9V @ 11.1A	**117-2411●**	40.350	37.470	34.590	31.700	30.250	28.820
0-12V, 0-12V @ 8.3A	**117-2412●**	40.380	37.500	34.610	31.720	30.270	28.840
0-15V, 0-15V @ 6.67A	**117-2413●**	40.350	37.470	34.590	31.700	30.250	28.820
0-18V, 0-18V @ 5.55A	**117-2415●**	40.350	37.470	34.590	31.700	30.250	28.820
0-24V, 0-24V @ 4.17A	**117-2417●**	40.350	37.470	34.590	31.700	30.250	28.820
0-50V, 0-50V @ 2A	**117-2418●**	40.350	37.470	34.590	31.700	30.250	28.820

Single 230V or Dual 115+115V Primary

6VA to 200VA





Rated VA	REG %	Dimensions L1/L2	W.#	H	Fixings F	Size	Weight (kg)
6	24	45/68	35.5	37.5	55	4BA	0.17
20	12	60/90	52	50	74	2BA	0.53
50	10	79/106	60	66	93.9	2BA	0.98

Excludes Tags

Rated VA	REG %	Dimensions L	W.#	H	A	Fixings B	C	Weight (kg)
100	10	89	65	75	44	57	57	1.55
200	8	102	85	85	68	72	56	2.75

Excludes Tags

- Harmonised European input voltage in single (230V) or dual (115V) primary winding
- **UL** recognised flame retardant materials
- Terminations suitable for solder or 'push on' connections (6VA solder tag only)
- Double section bobbin construction
- Fully shrouded windings
- Suitable for 50/60Hz operation
- 100% electrical & 4.8kV flash testing
- Two hole fixing wrap-over clamp up to and including 50VA, multi hole frame fixing for 75VA and above
- Optional terminal shroud up to 100VA
- Designed, manufactured and tested in accordance with **BS3535, EN60742*** and **EN60950**

* Requires additional fuse protection

223926

230V Single Primary	Mftrs. List No.	Order Code	Price Each 1+	20+	50+	100+
6VA - 3VA Per Secondary Winding						
0-6V, 0-6V @ 0.5A	D3024	**116-6178●**	4.360	4.090	3.860	3.670
0-9V, 0-9V @ 0.33A	D3025	**116-6179●**	4.360	4.090	3.860	3.670
0-12V, 0-12V @ 0.25A	D3026	**116-6180●**	4.360	4.090	3.860	3.670
Terminal shroud		**177-221●**	0.164	– –	– –	– –
20VA - 10VA Per Secondary Winding						
0-9V, 0-9V @ 1.1A	D3041	**116-6181●**	6.000	5.560	5.300	5.020
0-12V, 0-12V @ 1A	D3042	**116-6182●**	6.000	5.560	5.300	5.020
0-15V, 0-15V @ 0.8A	D3043	**116-6183●**	6.000	5.560	5.300	5.020
Terminal shroud		**177-222●**	0.280	– –	– –	– –

Over 480,000 products online

230V Single Primary	Mftrs. List No.	Order Code	Price Each 1+	20+	50+	100+
50VA - 25VA Per Secondary Winding						
0-6V, 0-6V @ 4.17A	D3048	**116-6184●**	9.050	8.420	8.000	7.590
0-9V, 0-9V @ 2.78A	D3049	**116-6185●**	9.050	8.420	8.000	7.590
0-12V, 0-12V @ 2A	D3050	**116-6186●**	9.050	8.420	8.000	7.590
0-15V, 0-15V @ 1.6A	D3051	**116-6187●**	9.050	8.420	8.000	7.590
Terminal shroud		**177-223●**	0.280	– –	– –	– –
100VA - 50VA Per Secondary Winding						
0-9V, 0-9V @ 5.55A	D3066	**116-6188●**	16.080	14.990	14.220	13.530
0-12V, 0-12V @ 4.17A	D3067	**116-6191●**	16.080	14.990	14.220	13.530
Terminal shroud	S07900/GNN/BLK	**177-223●**	0.280	– –	– –	– –

115V+115V Dual Primary	Mftrs. List No.	Order Code	Price Each 1+	20+	50+	100+
6VA - 3VA Per Secondary Winding						
0-6V, 0-6V @ 0.5A	D3028	**116-6193●**	4.810	4.480	4.240	4.020
0-9V, 0-9V @ 0.33A	D3029	**116-6194●**	4.810	4.480	4.240	4.020
0-12V, 0-12V @ 0.25A	D3030	**116-6195●**	4.810	4.480	4.240	4.020
Terminal shroud		**177-221●**	0.164	– –	– –	– –
20VA - 10VA Per Secondary Winding						
0-9V, 0-9V @ 1.1A	D3045	**116-6196●**	6.570	6.120	5.780	5.510
0-12V, 0-12V @ 1A	D3046	**116-6197●**	6.570	6.120	5.780	5.510
0-15V, 0-15V @ 0.8A	D3047	**116-6198●**	5.250	4.900	4.630	4.410
Terminal shroud		**177-222●**	0.280	– –	– –	– –
50VA - 25VA Per Secondary Winding						
0-6V, 0-6V @ 4.17A	D3052	**116-6199●**	10.100	9.420	8.920	8.440
0-9V, 0-9V @ 2.78A	D3053	**116-6200●**	10.100	9.420	8.920	8.440
0-12V, 0-12V @ 2A	D3054	**116-6201●**	10.100	9.420	8.920	8.440
0-15V, 0-15V @ 1.6A	D3055	**116-6202●**	10.100	9.420	8.920	8.440
Terminal shroud		**177-223●**	0.280	– –	– –	– –
100VA - 50VA Per Secondary Winding						
0-9V, 0-9V @ 5.55A	D3070	**116-6206●**	18.020	16.790	15.850	15.080
0-12V, 0-12V @ 4.17A	D3071	**116-6208●**	18.020	16.790	15.850	15.080
Terminal shroud		**177-223●**	0.280	– –	– –	– –
200VA - 100VA Per Secondary Winding						
0-12V, 0-12V @ 8.3A	D3079	**116-6210●**	30.810	28.460	27.130	25.810
Terminal shroud		**177-223●**	0.280	– –	– –	– –

110/220/240V Primary

6VA to 330VA

6VA:	H = 37.5	W = 45	D = 40	FC = 53 x 4BA
12VA:	H = 50	W = 59	D = 51	FC = 74 x 4BA
20VA:	H = 57	W = 69	D = 52	FC = 84 x 4BA
50VA:	H = 60	W = 79	D = 62	FC = 94 x 4BA
75VA:	H = 73	W = 88	D = 88	FC = 101.6 x 2BA
100VA:	H = 75	W = 89	D = 75	FC = 57 x 43.5 x 2BA
200VA:	H = 84	W = 96	D = 85	FC = 68 x 60 x 2BA

Note: Connections to the 330VA clamp (not shown) is via input and output terminal blocks.

A range of low voltage mains transformers with independent primary windings, which can be connected in series for 220V or 240V, or in parallel for 110V operation. Primary and secondary connections are 0.1" pitch. The double bobbin construction eliminates the need for an interwinding screen and gives double insulation between primary and secondary winding. All transformers are manufactured to **BS415** and are 4kV flash tested. Terminal shrouds are available for each VA rating up to and including 100VA, two shrouds required per transformer.

223886

	Mftrs. List No.	Order Code	Price Each 1+	20+	50+	100+	250+
6VA - 28% Typical Regulation							
0-4.5V, 0-4.5V @ 0.66A	D3628	**116-6327●**	5.290	4.660	4.430	4.320	3.970
0-9V, 0-9V @ 0.33A	D3630	**116-6328●**	4.660	4.520	4.340	4.200	3.990
0-12V, 0-12V @ 0.25A	D3631	**116-6329●**	4.660	4.520	4.340	4.200	3.990
0-15V, 0-15V @ 0.2A	D3632	**116-6330●**	4.660	4.520	4.340	4.200	3.990
Terminal shroud (for above)		**177-221●**	0.164	– –	– –	– –	– –
12VA - 12% Typical Regulation							
0-9V, 0-9V @ 0.66A	D3639	**116-6331●**	6.590	5.810	5.510	5.370	5.240
0-12V, 0-12V @ 0.5A	D3641	**116-6332●**	5.630	5.540	5.290	5.100	4.890
0-15V, 0-15V @ 0.4A	D3642	**116-6333●**	5.630	5.540	5.290	5.100	4.890
0-18V, 0-18V @ 0.33A	D3643	**116-6334●**	6.590	5.810	5.510	5.370	5.240
0-20V, 0-20V @ 0.3A	D3644	**116-6336●**	6.590	5.810	5.510	5.370	5.240
0-24V, 0-24V @ 0.25A	D3645	**116-6337●**	6.590	5.810	5.510	5.370	5.240
Terminal shroud (for above)		**177-222●**	0.280	– –	– –	– –	– –
20VA - 7.5% Typical Regulation							
0-9V, 0-9V @ 1.1A	D3649	**116-6338●**	8.630	7.630	7.190	7.050	6.660
0-12V, 0-12V @ 0.8A	D3651	**116-6339●**	8.630	7.630	7.190	7.050	6.660
0-15V, 0-15V @ 0.6A	D3652	**116-6340●**	8.590	7.630	7.230	7.050	6.660
0-18V, 0-18V @ 1.1A	D3653	**116-6341●**	8.630	7.630	7.230	7.050	6.660
0-20V, 0-20V @ 0.5A	D3654	**116-6342●**	8.630	7.630	7.230	7.050	6.660
0-24V, 0-24V @ 0.42A	D3655	**116-6343●**	8.630	7.630	7.190	7.050	6.660
Terminal shroud (for above)		**177-222●**	0.280	– –	– –	– –	– –
50VA - 9% Typical Regulation							
0-9V, 0-9V @ 2.7A	D3659	**116-6344●**	9.680	9.450	9.100	8.740	8.380
0-10V @ 5A	D3660	**116-6345●**	9.950	8.780	8.180	7.990	7.830
0-12V, 0-12V @ 2A	D3661	**116-6346●**	9.680	9.450	9.100	8.740	8.380
0-15V, 0-15V @ 1.6A	D3662	**116-6348●**	9.680	9.450	9.100	8.740	8.380

Clamp Mounting - continued

110/220/240V Primary - continued

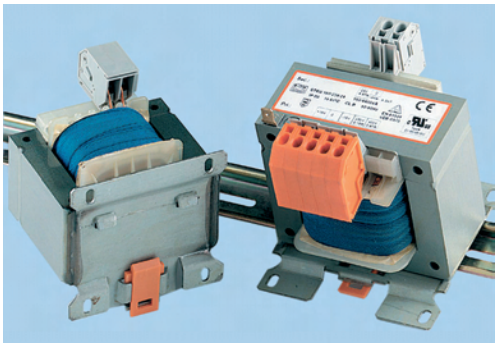
6VA to 330VA - continued

	Mftrs. List No.	Order Code	Price Each 1+	20+	50+	100+	250+
50VA - 9% Typical Regulation							
0-18V, 0-18V @ 1.38A	D3663	**116-6349●**	9.950	8.780	8.270	8.080	7.930
0-20V, 0-20V @ 1.25A	D3664	**116-6351●**	9.950	8.780	8.270	8.080	7.930
0-24V, 0-24V @ 1A	D3665	**116-6352●**	9.680	9.450	9.100	8.740	8.380
Terminal shroud (for above)		**177-223●**	0.280	– –	– –	– –	– –
75VA - 9% Typical Regulation							
0-9V, 0-9V @ 4.17A	D3668	**116-6353●**	17.330	13.840	12.260	11.370	11.170
0-12V, 0-12V @ 3.13A	D3669	**116-6354●**	17.330	13.840	12.260	11.370	11.170
0-15V, 0-15V @ 2.5A	D3670	**116-6355●**	17.330	13.840	12.260	11.370	11.170
0-18V, 0-18V @ 2.08A	D3671	**116-6356●**	17.330	13.840	12.260	11.370	11.170
0-20V, 0-20V @ 1.88A	D3672	**116-6357●**	17.330	13.840	12.260	11.370	11.170
0-24V, 0-24V @ 1.56A	D3673	**116-6358●**	17.270	16.890	16.250	15.590	14.860
Terminal shroud (for above)		**177-223●**	0.280	– –	– –	– –	– –
100VA - 8% Typical Regulation							
0-12V, 0-12V @ 4.1A	D3679	**116-6361●**	17.250	16.870	16.240	15.600	14.860
0-15V, 0-15V @ 3.3A	D3680	**116-6362●**	17.250	16.870	16.240	15.600	14.860
0-18V, 0-18V @ 2.7A	D3681	**116-6363●**	22.900	20.260	19.160	18.710	17.700
0-20V, 0-20V @ 2.5A	D3682	**116-6364●**	22.900	20.260	19.160	18.710	17.700
0-24V, 0-24V @ 2A	D3683	**116-6365●**	22.900	20.260	19.160	18.710	17.700
Terminal shroud (for above)		**177-223●**	0.280	– –	– –	– –	– –
200VA - 5% Typical Regulation							
0-9V, 0-9V @ 11A	D3687	**116-6366●**	46.030	41.090	35.800	32.840	30.850
0-12V, 0-12V @ 8.3A	D3688	**116-6367●**	46.030	41.090	35.800	32.840	30.850
0-15V, 0-15V @ 6.6A	D3689	**116-6368●**	46.030	41.090	35.800	32.840	30.850
0-20V, 0-20V @ 5A	D3691	**116-6369●**	36.100	32.220	28.080	25.760	24.190
0-24V, 0-24V @ 4.1A	D3692	**116-6370●**	46.030	41.090	35.800	32.840	30.850

Control Panel

STEU Series - Control Panel Transformer

BLOCK



- Control panel safety isolating transformer
- Input voltage 230V and 400V
- CAGE-CLAMP terminals
- Up to 250V ac with dual purpose foot plate
- Low inrush current control
- Manufactured to **IEC 61558-2-2, 2-4, 2-6, DIN EN 61558-2-2, 2-4, 2-6, VDE part 2-2, 2-4, 2-6, UL 506**

VA Rating	Dimensions (mm) Length	Width	Depth	Fixing Centres	Order Code
63	88	84	85	64 x 64	113-1591
100	88	84	85	64 x 64	113-1571
160	104	96	102	84 x 87	113-1577
250	104	96	102	84 x 87	113-1580
320	121	120	92	90 x 74	113-1583
500	121	120	124	90 x 106	113-1586
800	143	150	130	122 x 107.5	113-1594
1000	143	150	156	122 x 134	113-1574
1600	180.5	192	161	156 x 133	117-7110
2000	180.5	192	184	156 x 155	117-7111
2500	180.5	192	190	156 x 161	117-7112

347681/405609

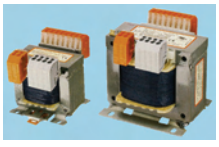
	Regulation %	Mftrs. List No.	Order Code	Price Each 1+	4+	12+
12V Twin Secondary						
63VA	86	STEU63/24	**113-1592●**	23.21	21.83	20.72
100VA	86	STEU100/24	**113-1572●**	25.73	24.20	22.99
160VA	86	STEU160/24	**113-1578●**	27.08	25.45	24.18
250VA	88	STEU250/24	**113-1581●**	42.03	39.51	37.54
320VA	90	STEU320/24	**113-1584●**	38.41	36.09	34.30
500VA	92	STEU500/24	**113-1587●**	49.95	46.94	44.60
800VA	94	STEU800/24	**113-1595●**	90.83	85.37	81.11
24V Twin Secondary						
63VA	86	STEU63/48	**113-1593●**	22.78	21.41	20.34
100VA	86	STEU100/48	**113-1573●**	24.50	23.04	21.89
160VA	86	STEU160/48	**113-1579●**	30.74	28.89	27.45
250VA	88	STEU250/48	**113-1582●**	40.04	37.64	35.76
320VA	90	STEU320/48	**113-1585●**	48.27	45.36	43.11
500VA	90	STEU500/48	**113-1589●**	60.64	57.00	54.15
800VA	94	STEU800/48	**113-1596●**	86.47	81.28	77.21
1000VA	94	STEU1000/48	**113-1575●**	82.60	77.65	73.77

	Regulation %	Mftrs. List No.	Order Code	Price Each 1+	4+	12+
115V Twin Secondary						
63VA	86	STEU63/23	**113-1591●**	23.90	22.47	21.36
100VA	86	STEU100/23	**113-1571●**	25.73	24.20	22.99
160VA	86	STEU160/23	**113-1577●**	25.45	23.91	22.72
250VA	88	STEU250/23	**113-1580●**	42.03	39.51	37.54
320VA	90	STEU320/23	**113-1583●**	48.78	45.84	43.55
500VA	92	STEU500/23	**113-1586●**	63.18	59.40	56.42
800VA	94	STEU800/23	**113-1594●**	90.83	85.37	81.11
1000VA	94	STEU1000/23	**113-1574●**	106.73	100.31	95.31
1600W	94	STEU1600/23	**117-7110●**	138.70	138.35	125.18
2000W	94	STEU2000/23	**117-7111●**	155.00	149.46	139.89
2500W	94	STEU2500/23	**117-7112●**	204.25	203.74	184.29

USTE Series - Control Panel Transformer

BLOCK

Input Voltages 208V - 600V



- Control panel safety isolating transformer
- Worldwide Input Voltages 208V up to 600V
- CAGE-CLAMP terminals
- Up to 250VA with dual purpose foot plate
- Low inrush current control
- Manufactured to **IEC 61558-2-2, 2-4, 2-6, DIN EN 61558-2-2, 2-4, 2-6, VDE part 2-2, 2-4, 2-6, UL 506**

VA Rating	Dimensions (mm) Length	Width	Depth	Fixing Centres	Order Code
100	86	84	85	64 x 64	117-7116
250	104	96	102	87 x 84	117-7117
100	96	84	85	64 x 64	117-7119
250	104	96	102	87 x 84	117-7120
400	121	120	104	86 x 90	117-7121
630	143	150	113	91 x 122	117-7122
1000	143	150	156	134 x 122	117-7123

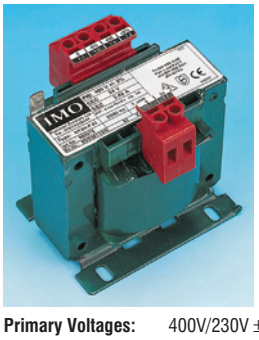
443265

	Output Voltages	Mftrs. List No.	Order Code	Price Each 1+	4+	12+
Dual Purpose Footplate Mounting						
100VA	2 X 12V	USTE100/2X12	**117-7116●**	29.50	27.73	26.55
250VA	2 X 12V	USTE250/2X12	**117-7117●**	41.10	38.63	36.99
100VA	2 X 115V	USTE100/2X115	**117-7119●**	29.50	27.73	26.55
250VA	2 X 115V	USTE250/2X115	**117-7120●**	41.10	38.63	36.99
Base Plate Mounting						
400VA	2 X 115V	USTE400/2X115	**117-7121●**	51.50	48.93	46.36
630VA	2 X 115V	USTE630/2X115	**117-7122●**	71.25	66.97	64.12
1000VA	2 X 115V	USTE1000/2X115	**117-7123●**	95.50	89.77	85.95

Single 230V/400V Primary

IMO

MTSNP Series



- Single phase control transformer manufactured to **VDE0551**
- Can be used as an isolating or safety transformer to **EN60742**
- **UL** and **CUL** recognised
- Fully dip impregnated
- Isolation to **T40/B**

Rating	H	W	D	Rating	H	W	D
50VA	79	66	79	400VA	131	120	138
63VA	85	78	76	500VA	131	120	158
100VA	90	84	80	800VA	153	150	150
160VA	101	96	94	1000VA	153	150	176
250VA	101	96	144				

Primary Voltages: 400V/230V ±5% **Secondary Voltages:** 24V/110V/230V

223856

Rating	Mftrs. List No.	Order Code	Price Each 1+	5+	10+	25+	50+
230/24V ac							
50VA	MTSNP05023024	**993-8354●**	21.37	20.07	18.90	17.93	16.71
63VA	MTSNP06323024	**993-8362●**	22.39	20.99	19.79	18.79	17.50
100VA	MTSNP10023024	**993-8370●**	25.43	23.85	22.48	21.33	19.87
160VA	MTSNP16023024	**993-8389●**	31.87	29.90	28.17	26.74	24.92
250VA	MTSNP25023024	**993-8397●**	39.34	38.32	36.11	34.28	31.94
400VA	MTSNP40023024	**993-8400●**	53.29	51.89	48.91	46.43	43.26
500VA	MTSNP50023024	**993-8419●**	65.70	63.99	60.30	57.25	53.35
1000VA	MTSNP100023024	**993-8680●**	78.51	76.46	72.08	68.41	63.76
230/110V ac							
50VA	MTSNP050230110	**993-8427●**	21.37	20.07	18.90	17.93	16.71
63VA	MTSNP063230110	**993-8435●**	22.39	20.99	19.79	18.79	17.50
100VA	MTSNP100230110	**993-8443●**	20.35	19.08	17.99	17.06	15.90
160VA	MTSNP160230110	**993-8451●**	31.87	29.90	28.17	26.74	24.92
250VA	MTSNP250230110	**993-8460●**	39.45	38.32	36.11	34.28	31.94
400VA	MTSNP400230110	**993-8478●**	53.29	51.89	48.91	46.43	43.26
500VA	MTSNP500230110	**993-8486●**	65.70	63.99	60.30	57.25	53.35
800VA	MTSNP800230110	**993-8494●**	99.53	96.95	91.36	86.73	80.83
1000VA	MTSNP1000230110	**993-8508●**	92.01	89.60	84.47	80.17	74.72
400/110V ac							
50VA	MTSNP050400110	**993-8516●**	21.37	20.07	18.90	17.93	16.71
100VA	MTSNP100400110	**993-8532●**	25.43	23.85	22.48	21.33	19.87
160VA	MTSNP160400110	**993-8540●**	31.87	29.90	28.17	26.74	24.92
250VA	MTSNP250400110	**993-8559●**	39.34	38.32	36.11	34.28	31.94
400VA	MTSNP400400110	**993-8567●**	53.29	51.89	48.91	46.43	43.26
1000VA	MTSNP1000400110	**993-8591●**	128.81	125.44	118.26	112.24	104.60

Rating	Mftrs. List No.	Order Code	Price Each 1+	5+	10+	25+	50+
400/230V ac							
50VA	MTSNP050400230	**993-8605**●	21.37	20.07	18.90	17.93	16.71
100VA	MTSNP100400230	**993-8613**●	25.43	23.85	22.48	21.33	19.87
160VA	MTSNP160400230	**993-8621**●	31.87	29.90	28.17	26.74	24.92
250VA	MTSNP250400230	**993-8630**●	39.34	38.32	36.11	34.28	31.94
400VA	MTSNP400400230	**993-8648**●	53.29	51.89	48.91	46.43	43.26
500VA	MTSNP500400230	**993-8656**●	65.70	63.99	60.30	57.25	53.35
800VA	MTSNP800400230	**993-8664**●	99.53	96.95	91.36	86.73	80.83
1000VA	MTSNP1000400230	**993-8672**●	128.81	125.44	118.26	112.24	104.60

110/240V Primary/60-55-0-55-60V Twin Secondary

100VA Rated

H = 75, W = 89, D = 68,
Fixing centres = 57 x 43.5 x 2BA

A fixed 100VA transformer having primary windings of 0-110V, 0-110-130V and twin secondary windings, each of 60-55-0-55-60V rated at 50VA each winding. Output voltages of 55, 60, 110, 115, 120, 220, 225, 230, 235 and 240V can be obtained from primary input voltages of 110V or 240V. Double bobbin construction eliminates the need for an interwinding screen and gives double insulation between primary and secondary windings.

This transformer is manufactured to **BS415** and has been 4kV flash tested. Suitable terminal shrouds are available, three required per transformer.

223889

	Mftrs. List No.	Order Code	Price Each 1+	10+	20+	50+
100VA transformer	D3699	**116-6371**●	27.94	25.14	21.45	20.24
Terminal shroud (each)		**177-223**●	0.28	– –	– –	– –

240/380/415V Primary/60-55-0-55-60V Twin Secondaries

250, 500 and 1000VA Rated

A range of 3 isolation transformers manufactured to **BS415** and flash tested to 4kV. Three ratings are available either 250, 500 or 1000VA. Primary windings cater for input voltages of either 240, 380 or 415V ac. Twin secondaries of 60-55-0-55-60V each winding allow output voltages of 55, 60, 110, 115, 120, 220, 225, 230, 235 and 240V to be achieved.

All transformers have fully screened primary windings.

Rating	Weight	Dimensions H	W	D	Fixing Centres	Order Code
250VA	5.5kg	135	113	161	92 x 75 x 6 dia	116-6373
500VA	9.5kg	135	113	200	92 x 115 x 6 dia	116-6374
1000VA	15kg	135	113	250	92 x 164 x 6 dia	116-6375

223890

Rating	Mftrs. List No.	Order Code	Price Each 1+	5+	10+	20+	50+
250VA	D3701	**116-6373**●	63.05	58.82	54.04	47.84	45.32
500VA	D3702	**116-6374**●	99.99	93.81	85.83	76.10	72.12
1000VA	D3703	**116-6375**●	130.61	121.93	111.43	99.04	94.09

Auto

AIM Series Autotransformer

115/220/230/240 V ac

- Common input and output windings without electrical isolation
- Designated input and output voltages 115V, 220V, 230V and 240V ac
- Integrated overload protection and short circuit proof
- Encapsulated in resin
- Screw type terminals
- Manufactured to **IEC 61558-2-13, DIN EN 61558-2-13, VDE 0570 part 2-13**

Short circuit proof encapsulated autowound transformers for step up or step down of mains voltage at 50/60Hz.

Dimensions H	W	D	Fixing Centres	Mftrs. List No.
76	166	77	135 x 58	AIM1.6/0.8
97	223	43	167 x 76	AIM3.2/1.6
97	223	43	167 x 76	AIM5.0/2.5
166	283	200	245 x 148	AIM10/5
166	283	200	245 x 148	AIM16/8

Note: This unit does not provide mains isolation.

347676

Output Current	Mftrs. List No.	Order Code	Price Each 1+	4+	8+
1.6A (0.8A at V_{in}=115)	AIM1.6/0.8	**113-1444**●	28.59	26.88	25.27
3.2A (1.6A at V_{in}=115)	AIM3.2/1.6	**113-1447**●	47.19	44.37	41.71
5A (2.5A at V_{in}=115)	AIM5.0/2.5	**113-1449**●	54.09	50.84	47.80
10A (5A at V_{in}=115)	AIM10/5	**113-1445**●	94.00	90.64	84.84
16A (8A at V_{in}=115)	AIM16/8	**113-1446**●	112.00	108.00	101.08

50 - 1000VA

A range of auto transformers manufactured to **BS2234** and **BS171.** They are fully shrouded and have tappings for 0-110-220-240V, except 50VA model which has taps at 0-115-230V. These transformers step-up or step-down mains voltages at 50/60Hz. They do **not** provide isolation from the mains.

VA Rating	Dimensions H	W	D	Fixing Centres	Mftrs. List No.	Order Code
50	69	56	77	45 x 40 x 4 dia	AUTO 50	116-6376
100	97	80	106	64 x 50 x 4 dia	AUTO 100	116-6377
150	97	80	118	64 x 64 x 4 dia	AUTO 150	116-6379
250	116	96	116	77 x 66 x 6.5 dia	AUTO 250	116-6380
500	135	113	137	92 x 70 x 6.5 dia	AUTO 500	116-6381
1000	135	113	181	92 x 112 x 6.5 dia	AUTO 1000	116-6382

223919

VA Rating	Mftrs. List No.		Order Code	Price Each 1+	5+	10+	25+	50+
50	AUTO 50	D3704	**116-6376**●	22.90	21.49	19.67	18.67	17.65
100	AUTO 100	D3705	**116-6377**●	27.05	26.45	25.34	24.36	23.26
150	AUTO 150	D3706	**116-6379**●	35.86	33.64	31.83	30.30	28.51
250	AUTO 250	D3707	**116-6380**●	40.23	39.05	36.35	34.33	32.50
500	AUTO 500	D3708	**116-6381**●	47.44	45.89	43.02	40.94	38.59
1000	AUTO 1000	D3709	**116-6382**●	86.45	83.84	79.09	74.78	70.44

Toroidal - Single Primary

Installation Recommendations

* Each transformer is supplied with a dished washer, protection pads and bolt for easy single hole fixing. The protection pads should be fitted one above and one below the transformer with the dished washer on top of the upper pad. Tighten the bolt firmly but do not overtighten as this will cause crushing of the windings and possibly shorting turns.

* = With exception of the miniature and enclosed ranges of toroidals.

Note: Under no circumstances should both ends of the fixing bolt be allowed to come simultaneously into contact with metal chassis or framework so that an electrical path is formed through the bolt in the centre of the transformer via the external framework. This would constitute a shorting and would cause irreparable damage.

223905

Miniature Toroids

Lead L=150, stripped and tinned ends.

A high quality range of miniature open style toroidal transformers with flying leads. Featuring a single primary winding tapped at 115 and 230v 50/60Hz, and dual secondary windings. Secondary windings can be connected in series or parallel or used independently.

- High quality construction
- Extremely low radiated magnetic field, suitable for sensitive electronics
- Double insulated primary leads
- Resin filled centre with M4 clear mounting hole
- Flexible lead outs can be trimmed to any length without the need of enamel removal
- Suitable for use in low power equipment
- Designed, tested and manufactured in accordance with **EN60742**, **EN60065** and **EN60950**.
- 100% electrical and flash tested

Load VA	Regulation %	Temperature rise °C	Dimensions Dia	H	Weight kg
1.6	21	10	42	23	0.13
3.2	20	16	43	24	0.14
5	18	18	50	24	0.17
7	19	25	51	24	0.195

Max. ambient temperature 40°C.
Overall temperature rating Class A (105°C).
Secondary voltage tolerance ±1% at nom. input and full resistive load
No mounting screw supplied.

Toroidal - Single Primary - continued

Miniature Toroids - continued

249225

	Order Code	Price Each 1+	10+	50+	100+	250+
1.6VA						
0-7V, 0-7V @ 0.114A	**953-1270**	8.66	8.02	7.68	7.37	7.02
0-9V, 0-9V @ 0.089A	**953-1297**	8.66	8.02	7.68	7.37	7.02
0-12V, 0-12V @ 0.067A	**953-1319**	8.66	8.02	7.68	7.37	7.02
0-15V, 0-15V @ 0.053A	**953-1343**	8.49	7.87	7.54	7.22	6.87
0-22V, 0-22V @ 0.036A	**953-1360**	8.66	8.02	7.68	7.37	7.02
3.2VA						
0-7V, 0-7V @ 0.229A	**953-1386**	8.78	8.09	7.80	7.45	7.11
0-9V, 0-9V @ 0.178A	**953-1408**	8.78	8.09	7.80	7.45	7.11
0-12V, 0-12V @ 0.133A	**953-1424**	8.78	8.09	7.80	7.45	7.11
0-15V, 0-15V @ 0.2107A	**953-1440**	8.78	8.09	7.80	7.45	7.11
0-18V, 0-18V @ 0.089A	**953-1467**	8.60	7.93	7.63	7.30	6.96
5VA						
0-7V, 0-7V @ 0.357A	**953-1475**	9.22	8.53	8.19	7.85	7.47
0-9V, 0-9V @ 0.278A	**953-1491**	9.22	8.53	8.19	7.85	7.47
0-12V, 0-12V @ 0.208A	**953-1513**	9.22	8.53	8.19	7.85	7.47
0-15V, 0-15V @ 0.167A	**953-1530**	9.22	8.53	8.19	7.85	7.47
0-18V, 0-18V @ 0.139A	**953-1548**	9.22	8.53	8.19	7.85	7.47
0-22V, 0-22V @ 0.114A	**953-1564**	9.04	8.36	8.02	7.69	7.34
7VA						
0-7V, 0-7V @ 0.5A	**953-1572**	9.86	9.10	8.75	8.36	8.01
0-9V, 0-9V @ 0.389A	**953-1580**	7.02	6.47	6.22	5.96	5.70
0-12V, 0-12V @ 0.292A	**953-1599**	9.86	9.10	8.75	8.36	8.01
0-15V, 0-15V @ 0.233A	**953-1602**	9.86	9.10	8.75	8.36	8.01
0-18V, 0-18V @ 0.194A	**953-1610**	9.66	8.91	8.56	8.21	7.85
0-22V, 0-22V @ 0.159A	**953-1629**	9.86	9.10	8.75	8.36	8.01

230V ac Single Primary

multicomp

A high quality range of open style toroidal transformers with flying leads. Featuring a single primary winding rated at 230V 50/60Hz, and dual secondary windings. Secondary windings can be connected in series or parallel or used independently.

Lead L=150, stripped and tinned ends.

- High Quality Open Style Toroidal Transformer
- Single Primary/ Dual Secondary windings
- Very low level radiated magnetic fi eld
- Supplied with mounting Kit
- 100% electrical and fl ash tested.
- Manufactured and tested in accordance to EN61558 and EN60950

Load VA	Regulation %	Temperature rise °C	Dimensions Dia	H	Weight kg
15	16	26	60	28	0.3
30	14	40	74	31	0.48
50	14	42	81	34	0.6
80	11	50	90	40	1
120	10	55	98	44	1.32
160	8	55	105	46	1.6
225	7	60	110	50	2.2
300	6	60	125	54	2.8
500	6	68	135	59	4.3
625	5	70	139	71	5.2
800	5	72	163	65	6.3
1000	4	75	167	71	7.5

249250

	Order Code	Price Each 1+	10+	25+	50+	100+
15VA						
0-6V, 0-6V @ 1.25A	**167-5043**	10.68	9.75	8.93	8.48	8.05
0-9V, 0-9V @ 0.833A	**167-5044**	10.68	9.75	8.93	8.48	8.05
0-12V, 0-12V @ 0.625A	**167-5045**	10.68	9.75	8.93	8.48	8.05
0-15V, 0-15V @ 0.5A	**167-5046**	10.68	9.75	8.93	8.48	8.05
0-18V, 0-18V @ 0.417A	**167-5048**	10.68	9.75	8.93	8.48	8.05
30VA						
0-6V, 0-6V @ 2.5A	**167-5049**	12.08	11.06	10.16	9.65	9.17
0-9V, 0-9V @ 1.67A	**167-5050**	12.08	11.06	10.16	9.65	9.17
0-12V, 0-12V @ 1.25A	**167-5051**	12.08	11.06	10.16	9.65	9.17
0-15V, 0-15V @ 1A	**167-5052**	12.08	11.06	10.16	9.65	9.17
0-18V, 0-18V @ 0.83A	**167-5053**	12.08	11.06	10.16	9.65	9.17
0-25V, 0-25V @ 0.6A	**167-5054**	12.08	11.06	10.16	9.65	9.17
50VA						
0-6V, 0-6V @ 4.16A	**167-5055**	14.99	13.75	12.39	11.77	11.18
0-9V, 0-9V @ 2.78A	**167-5056**	14.99	13.75	12.39	11.77	11.18
0-12V, 0-12V @ 2.08A	**167-5057**	14.99	13.75	12.39	11.77	11.18
0-15V, 0-15V @ 1.67A	**167-5058**	14.99	13.75	12.39	11.77	11.18
0-18V, 0-18V @ 1.38A	**167-5061**	14.99	13.75	12.39	11.77	11.18
0-25V, 0-25V @ 1A	**167-5062**	14.99	13.75	12.39	11.77	11.18
0-55V, 0-55V @ 0.45A	**167-5063**	14.99	13.75	12.39	11.77	11.18
80VA						
0-9V, 0-9V @ 4.44A	**167-5064**	17.02	15.56	13.77	13.09	12.43
0-12V, 0-12V @ 3.33A	**167-5065**	17.02	15.56	13.77	13.09	12.43
0-15V, 0-15V @ 2.67A	**167-5066**	17.02	15.56	13.77	13.09	12.43
80VA						
0-18V, 0-18V @ 2.22A	**167-5067**	17.02	15.56	13.77	13.09	12.43
0-25V, 0-25V @ 1.6A	**167-5068**	17.02	15.56	13.77	13.09	12.43
0-55V, 0-55V @ 0.73A	**167-5069**	17.02	15.56	13.77	13.09	12.43
120VA						
0-12V, 0-12V @ 5A	**167-5070**	20.77	19.01	16.24	15.42	14.65
0-15V, 0-15V @ 4A	**167-5071**	20.77	19.01	16.24	15.42	14.65
0-18V, 0-18V @ 3.33A	**167-5073**	20.77	19.01	16.24	15.42	14.65
0-25V, 0-25V @ 2.4A	**167-5074**	20.77	19.01	16.24	15.42	14.65
0-55V, 0-55V @ 1.09A	**167-5075**	20.77	19.01	16.24	15.42	14.65
160VA						
0-12V, 0-12V @ 6.66A	**167-5076**	25.66	23.51	19.90	18.90	17.95
0-15V, 0-15V @ 5.33A	**167-5077**	25.66	23.51	19.90	18.90	17.95
0-18V, 0-18V @ 4.44A	**167-5078**	25.66	23.51	19.90	18.90	17.95
0-25V, 0-25V @ 3.2A	**167-5079**	25.66	23.51	19.90	18.90	17.95
0-30V, 0-30V @ 2.66A	**167-5080**	25.66	23.51	19.90	18.90	17.95
0-55V, 0-55V @ 1.45A	**167-5081**	25.66	23.51	19.90	18.90	17.95
225VA						
0-12V, 0-12V @ 9.38A	**167-5082**	31.30	28.83	25.60	24.33	23.11
0-15V, 0-15V @ 7.5A	**167-5083**	31.30	28.83	25.60	24.33	23.11
0-18V, 0-18V @ 6.25A	**167-5085**	31.30	28.83	25.60	24.33	23.11
0-25V, 0-25V @ 4.5A	**167-5086**	31.30	28.83	25.60	24.33	23.11
0-30V, 0-30V @ 3.75A	**167-5087**	31.30	28.83	25.60	24.33	23.11
0-55V, 0-55V @ 2.05A	**167-5088**	31.30	28.83	25.60	24.33	23.11
300VA						
0-25V, 0-25V @ 6A	**167-5089**	35.77	32.73	29.71	28.22	26.82
0-30V, 0-30V @ 5A	**167-5090**	35.77	32.73	29.71	28.22	26.82
0-35V, 0-35V @ 4.28A	**167-5091**	35.77	32.73	29.71	28.22	26.82
0-55V, 0-55V @ 2.73A	**167-5092**	35.77	32.73	29.71	28.22	26.82
500VA						
0-25V, 0-25V @ 10A	**167-5093**	51.52	48.24	45.35	43.09	40.93
0-30V, 0-30V @ 8.33A	**167-5094**	51.52	48.24	45.35	43.09	40.93
0-35V, 0-35V @ 7.14A	**167-5095**	51.52	48.24	45.35	43.09	40.93
0-40V, 0-40V @ 6.25A	**167-5097**	51.52	48.24	45.35	43.09	40.93
0-45V, 0-45V @ 5.55A	**167-5098**	51.52	48.24	45.35	43.09	40.93
0-50V, 0-50V @ 5A	**167-5099**	51.52	48.24	45.35	43.09	40.93
0-55V, 0-55V @ 4.54A	**167-5100**	51.52	48.24	45.35	43.09	40.93
625VA						
0-45V, 0-45V @ 6.94A	**167-5101**	68.39	65.53	62.95	59.80	56.81
0-55V, 0-55V @ 5.68A	**167-5103**	68.39	65.53	62.95	59.80	56.81
800VA						
0-40V, 0-40V @ 10A	**167-5104**	85.39	81.87	78.64	74.72	70.98
0-55V, 0-55V @ 8A	**167-5105**	85.39	81.87	78.64	74.72	70.98
0-55V, 0-55V @ 7.27A	**167-5106**	85.39	81.87	78.64	74.72	70.98
1000VA						
0-40V, 0-40V @ 12.5A	**167-5107**	104.55	100.23	96.29	91.47	86.90
0-45V, 0-45V @ 11.11A	**167-5108**	104.55	100.23	96.29	91.47	86.90
0-50V, 0-50V @ 10A	**167-5109**	104.55	100.23	96.29	91.47	86.90
0-55V, 0-55V @ 9.09A	**167-5110**	104.55	100.23	96.29	91.47	86.90

Encapsulated Toroids

multicomp

Lead L=150, stripped and tinned ends

A high quality range of fully encapsulated toroidal transformers with flying leads. Featuring a single primary winding rated at 230V 50/60Hz, and dual secondary windings. Secondary windings can be connected in series or parallel or used independently

- High quality construction
- High efficiency and smaller size compared to conventional EI transformers
- Extremely low radiated magnetic field, suitable for sensitive electronics
- Double insulated primary leads
- Flexible lead outs can be trimmed to any length without the need of enamel removal
- Fully resin encapsulated in case
- Designed, tested and manufactured in accordance with **EN60742**, **EN60065** and **EN60950**.
- **UL** Recognised
- 100% electrical and flash tested

Load VA	Regulation %	Temperature rise °C	Dimensions Dia	H	Fixing Hole Dia. mm	Weight kg
15	16	35	62.4	34.5	5.1	0.3
30	12	36	81.5	39.1	5.1	0.6
50	11	40	87.3	42	5.1	0.8
80	10	47	96.7	44	6.1	1.1
120	7	42	104.2	52.1	6.1	1.6
160	7	45	115	53.2	6.1	2.0
225	6	48	125.4	52.4	6.1	2.5
300	5	50	125.4	65.3	6.1	3.2
500	5	55	147.1	64.7	8.2	4.6

Max. ambient temperature 40°C
Overall temperature rating Class A (105°C)
Secondary voltage tolerance ±1% at nom. input and full resistive load
No mounting screw supplied

249243

	Order Code	Price Each 1+	10+	25+	50+	100+
15VA						
0-6V, 0-6V @ 1.25A	**953-1645**	12.94	11.94	11.49	10.98	10.47
0-9V, 0-9V @ 0.83A	**953-1653**	12.94	11.94	11.49	10.98	10.47
0-12V, 0-12V @ 0.63A	**953-1661**	12.94	11.94	11.49	10.98	10.47
0-15V, 0-15V @ 0.5A	**953-1670**	12.94	11.94	11.49	10.98	10.47
0-18V, 0-18V @ 4.2A	**953-1688**	12.94	11.94	11.49	10.98	10.47
0-25V, 0-25V @ 0.3A	**953-1696**	12.94	11.94	11.49	10.98	10.47

	Order Code	Price Each 1+	10+	25+	50+	100+
30VA						
0-6V, 0-6V @ 2.5A	**953-1700**	16.05	14.82	14.24	13.62	12.99
0-9V, 0-9V @ 1.67A	**953-1718**	16.05	14.82	14.24	13.62	12.99
0-15V, 0-15V @ 1A	**953-1726**	16.05	14.82	14.24	13.62	12.99
0-18V, 0-18V @ 0.83A	**953-1742**	16.05	14.82	14.24	13.62	12.99
0-25V, 0-25V @ 0.6A	**953-1750**	16.05	14.82	14.24	13.62	12.99
50VA						
0-9V, 0-9V @ 2.78A	**953-1769**	17.21	15.89	15.29	14.60	13.92
0-12V, 0-12V @ 2.08A	**953-1777**	17.21	15.89	15.29	14.60	13.92
0-15V, 0-15V @ 1.67A	**953-1785**	17.21	15.89	15.29	14.60	13.92
0-18V, 0-18V @ 1.39A	**953-1793**	17.21	15.89	15.29	14.60	13.92
0-25V, 0-25V @ 1A	**953-1807**	17.21	15.89	15.29	14.60	13.92
80VA						
0-9V, 0-9V @ 4.44A	**953-1815**	22.79	20.99	20.19	19.30	18.44
0-12V, 0-12V @ 3.33A	**953-1823**	17.22	15.85	15.26	14.57	13.94
0-18V, 0-18V @ 2.22A	**953-1831**	16.55	15.24	14.66	14.02	13.39
0-25V, 0-25V @ 1.6A	**953-1840**	22.79	20.99	20.19	19.30	18.44
120VA						
0-12V, 0-12V @ 5A	**953-1858**	29.55	25.63	22.63	21.31	20.29
0-15V, 0-15V @ 4A	**953-1874**	29.55	25.63	22.63	21.31	20.29
0-18V, 0-18V @ 3.33A	**953-1882**	31.27	27.14	23.96	22.56	21.49
0-25V, 0-25V @ 2.4A	**953-1890**	22.71	19.71	17.40	16.38	15.61
160VA						
0-18V, 0-18V @ 4.44A	**953-1912**	34.47	31.73	28.93	27.87	26.73
0-25V, 0-25V @ 3.2A	**953-1920**	34.47	31.73	28.93	27.87	26.73
0-30V, 0-30V @ 2.67A	**953-1939**	34.47	31.73	28.93	27.87	26.73
225VA						
0-12V, 0-12V @ 9.38A	**953-1947**	37.37	34.48	33.15	31.72	30.23
0-15V, 0-15V @ 7.5A	**953-1955**	37.37	34.48	33.15	31.72	30.23
0-18V, 0-18V @ 6.25A	**953-1963**	37.37	34.48	33.15	31.72	30.23
0-25V, 0-25V @ 4.5A	**953-1971**	37.37	34.48	33.15	31.72	30.23
0-30V, 0-30V @ 3.75A	**953-1980**	37.37	34.48	33.15	31.72	30.23
300VA						
0-25V, 0-25V @ 6A	**953-1998**	49.16	45.74	43.57	41.69	39.71
0-30V, 0-30V @ 5A	**953-2005**	49.16	45.74	43.57	41.69	39.71
0-35V, 0-35V @ 4.29A	**953-2013**	46.43	43.19	41.15	39.37	37.51
500VA						
0-25V, 0-25V @ 10A	**953-2021**	65.94	63.09	60.69	58.03	55.37
0-35V, 0-35V @ 7.14A	**953-2030**	57.57	55.16	53.09	50.75	48.42
0-40V, 0-40V @ 6.25A	**953-2048**	65.94	63.09	60.69	58.03	55.37

Toroidal - Twin Primary

Installation Recommendations

* Each transformer is supplied with a dished washer, protection pads and bolt for easy single hole fixing. The protection pads should be fitted one above and one below the transformer with the dished washer on top of the upper pad. Tighten the bolt firmly but do not overtighten as this will cause crushing of the windings and possibly shorting turns.

* = With exception of the miniature and enclosed ranges of toroidals.

Note: Under no circumstances should both ends of the fixing bolt be allowed to come simultaneously into contact with metal chassis or framework so that an electrical path is formed through the bolt in the centre of the transformer via the external framework. This would constitute a shorting and would cause irreparable damage.

223905

115V/230V ac Twin Primary

multicomp

New

- High Quality Open Style Toroidal Transformer
- Dual Primary/Secondary windings
- Very low level radiated magnetic fi eld
- Supplied with mounting Kit
- 100% electrical and fl ash tested.
- Manufactured and tested in accordance to EN61558 and EN60950

Lead L=150mm, stripped and tinned ends

Load VA	Regulation %	Temperature rise °C	Dimensions Dia	H	Weight kg
15	16	26	65	36	0.33
30	14	40	74	32	0.5
50	14	42	81	35	0.6
60	15	50	85	34	0.8
80	11	50	90	39	1
100	11	53	91	45	1.1
120	10	55	98	45	1.32
160	8	55	105	47	1.6
225	7	60	110	51	2.2
250	7	60	119	50	2.4
300	6	60	125	54	2.78
500	6	68	136	60	4.3
625	5	70	139	71	5.2
800	5	72	163	65	6.34
1000	5	72	167	71	7.48

249266

	Order Code	Price Each 1+	10+	20+	50+	100+
15VA						
0-6V, 0-6V @ 1.25A	**167-4959**	10.35	9.83	9.01	8.56	8.13
0-9V, 0-9V @ 0.833A	**167-4960**	10.35	9.83	9.01	8.56	8.13
0-12V, 0-12V @ 0.625A	**167-4962**	10.35	9.83	9.01	8.56	8.13
0-15V, 0-15V @ 0.5A	**167-4963**	10.35	9.83	9.01	8.56	8.13
0-18V, 0-18V @ 0.417A	**167-4964**	10.35	9.83	9.01	8.56	8.13
30VA						
0-6V, 0-6V @ 2.5A	**167-4965**	11.74	11.14	10.22	9.71	9.22
0-9V, 0-9V @ 1.67A	**167-4966**	11.74	11.14	10.22	9.71	9.22
0-12V, 0-12V @ 1.25A	**167-4967**	11.74	11.14	10.22	9.71	9.22
0-15V, 0-15V @ 1A	**167-4968**	11.74	11.14	10.22	9.71	9.22
0-18V, 0-18V @ 0.83A	**167-4969**	11.74	11.14	10.22	9.71	9.22
0-25V, 0-25V @ 0.6A	**167-4970**	11.74	11.14	10.22	9.71	9.22
50VA						
0-6V, 0-6V @ 4.16A	**167-4971**	13.64	12.96	11.77	11.18	10.62
0-9V, 0-9V @ 2.78A	**167-4974**	13.64	12.96	11.77	11.18	10.62
0-12V, 0-12V @ 2.08A	**167-4975**	13.64	12.96	11.77	11.18	10.62
0-15V, 0-15V @ 1.67A	**167-4976**	13.64	12.96	11.77	11.18	10.62
0-18V, 0-18V @ 1.38A	**167-4977**	13.64	12.96	11.77	11.18	10.62
0-25V, 0-25V @ 1A	**167-4978**	13.64	12.96	11.77	11.18	10.62
0-55V, 0-55V @ 0.45A	**167-4979**	13.64	12.96	11.77	11.18	10.62
60VA						
0-9V, 0-9V @ 3.3A	**167-4980**	14.93	14.19	12.80	12.16	11.55
0-12V, 0-12V @ 2.5A	**167-4981**	14.93	14.19	12.80	12.16	11.55
0-15V, 0-15V @ 2A	**167-4982**	14.93	14.19	12.80	12.16	11.55
0-18V, 0-18V @ 1.66A	**167-4983**	14.93	14.19	12.80	12.16	11.55
0-25V, 0-25V @ 1.2A	**167-4984**	14.93	14.19	12.80	12.16	11.55
80VA						
0-9V, 0-9V @ 4.44A	**167-4986**	15.99	15.21	13.50	12.82	12.18
0-12V, 0-12V @ 3.33A	**167-4987**	15.99	15.21	13.50	12.82	12.18
0-15V, 0-15V @ 2.67A	**167-4988**	15.99	15.21	13.50	12.82	12.18
0-18V, 0-18V @ 2.22A	**167-4989**	15.99	15.21	13.50	12.82	12.18
0-25V, 0-25V @ 1.6A	**167-4990**	15.99	15.21	13.50	12.82	12.18
0-55V, 0-55V @ 0.73A	**167-4991**	15.99	15.21	13.50	12.82	12.18
100VA						
0-12V, 0-12V @ 4.16A	**167-4992**	18.43	17.50	15.34	14.58	13.85
0-15V, 0-15V @ 3.33A	**167-4993**	18.43	17.50	15.34	14.58	13.85
0-18V, 0-18V @ 2.77A	**167-4994**	18.43	17.50	15.34	14.58	13.85
0-25V, 0-25V @ 2A	**167-4995**	18.43	17.50	15.34	14.58	13.85
120VA						
0-12V, 0-12V @ 5A	**167-4996**	20.94	19.90	17.02	16.18	15.37
0-15V, 0-15V @ 4A	**167-4998**	20.94	19.90	17.02	16.18	15.37
0-18V, 0-18V @ 3.33A	**167-4999**	20.94	19.90	17.02	16.18	15.37
0-25V, 0-25V @ 2.4A	**167-5001**	20.94	19.90	17.02	16.18	15.37
0-55V, 0-55V @ 1.09A	**167-5002**	20.94	19.90	17.02	16.18	15.37
160VA						
0-12V, 0-12V @ 6.66A	**167-5003**	25.94	24.62	20.85	19.81	18.82
0-15V, 0-15V @ 5.33A	**167-5004**	25.94	24.62	20.85	19.81	18.82
0-18V, 0-18V @ 4.44A	**167-5005**	25.94	24.62	20.85	19.81	18.82
0-25V, 0-25V @ 3.2A	**167-5006**	25.94	24.62	20.85	19.81	18.82
0-30V, 0-30V @ 2.66A	**167-5007**	25.94	24.62	20.85	19.81	18.82
0-55V, 0-55V @ 1.45A	**167-5008**	25.94	24.62	20.85	19.81	18.82
225VA						
0-12V, 0-12V @ 9.38A	**167-5009**	32.33	30.72	29.18	27.72	26.34
0-15V, 0-15V @ 7.5A	**167-5010**	32.33	30.72	29.18	27.72	26.34
0-18V, 0-18V @ 6.25A	**167-5012**	32.33	30.72	29.18	27.72	26.34
0-25V, 0-25V @ 4.5A	**167-5013**	32.33	30.72	29.18	27.72	26.34
0-30V, 0-30V @ 3.75A	**167-5014**	32.33	30.72	29.18	27.72	26.34
0-55V, 0-55V @ 2.05A	**167-5015**	32.33	30.72	29.18	27.72	26.34
250VA						
0-12V, 0-12V @ 10.4A	**167-5016**	35.56	33.78	32.09	30.49	28.97
0-18V, 0-18V @ 6.94A	**167-5017**	35.56	33.78	32.09	30.49	28.97
0-25V, 0-25V @ 5A	**167-5018**	35.56	33.78	32.09	30.49	28.97
0-30V, 0-30V @ 4.16A	**167-5019**	35.56	33.78	32.09	30.49	28.97
0-35V, 0-35V @ 3.57A	**167-5020**	35.56	33.78	32.09	30.49	28.97
0-40V, 0-40V @ 3.12A	**167-5021**	35.56	33.78	32.09	30.49	28.97
0-45V, 0-45V @ 2.77A	**167-5022**	35.56	33.78	32.09	30.49	28.97
0-50V, 0-50V @ 2.5A	**167-5024**	35.56	33.78	32.09	30.49	28.97
300VA						
0-25V, 0-25V @ 6A	**167-5025**	38.24	36.33	34.52	32.79	31.15
0-30V, 0-30V @ 5A	**167-5026**	38.24	36.33	34.52	32.79	31.15
0-35V, 0-35V @ 4.28A	**167-5027**	38.24	36.33	34.52	32.79	31.15
0-55V, 0-55V @ 2.73A	**167-5028**	38.24	36.33	34.52	32.79	31.15
500VA						
0-25V, 0-25V @ 10A	**167-5029**	55.26	52.50	49.88	47.39	45.02
0-30V, 0-30V @ 8.33A	**167-5030**	55.26	52.50	49.88	47.39	45.02
0-35V, 0-35V @ 7.14A	**167-5031**	55.26	52.50	49.88	47.39	45.02
0-45V, 0-45V @ 5.55A	**167-5032**	55.26	52.50	49.88	47.39	45.02
0-50V, 0-50V @ 5A	**167-5033**	55.26	52.50	49.88	47.39	45.02
0-55V, 0-55V @ 4.54A	**167-5034**	55.26	52.50	49.88	47.39	45.02
625VA						
0-40V, 0-40V @ 7.81A	**167-5036**	66.40	63.09	59.94	56.94	54.09
0-50V, 0-50V @ 6.25A	**167-5037**	66.40	63.09	59.94	56.94	54.09
0-55V, 0-55V @ 5.68A	**167-5038**	66.40	63.09	59.94	56.94	54.09
800VA						
0-55V, 0-55V @ 7.27A	**167-5039**	76.68	72.85	69.21	65.75	62.47
1000VA						
0-40V, 0-40V @ 12.5A	**167-5040**	91.25	86.69	82.36	78.23	74.33
0-50V, 0-50V @ 10A	**167-5041**	91.25	86.69	82.36	78.23	74.33
0-55V, 0-55V @ 9.09A	**167-5042**	91.25	86.69	82.36	78.23	74.33

Over 480,000 products online QGO

Farnell

Toroidal - Twin Primary - continued

115V / 230V AC Primary

RK Series

- Twin windings for series or parallel connection
- Reinforced insulation between PRI and SEC
- Very low magnetic field radiation
- UL, CUL, EN61-558, VDE0570 Approved
- Install using a fixing kit (Care must be taken not to over tighten or that both ends of the bolt are connected to the metalwork)

Load VA	Efficiency %	Dimensions Dia	H	Fixing Hole Dia. mm	Weight kg
15	83	62	29	5	0.30
25	82	68	29	5	0.40
40	84	80	33	5	0.45
63	86	90	35	5	0.75
100	89	93	43	5	1.00
120	89	100	43	5	1.25
160	90	108	42	5	1.50

Max. ambient temperature 40°C
Insulation system Class A

477033

	Order Code	Price Each 1+	10+	25+	50+	100+
15VA						
0-6V, 0-6V @ 0.08A	**141-9526**	14.24	13.81	13.11	12.46	11.84
0-9V, 0-9V @ 0.08A	**141-9527**	11.22	10.89	10.34	9.82	9.33
0-12V, 0-12V @ 0.08A	**141-9528**	14.24	13.81	13.11	12.46	11.84
0-15V, 0-15V @ 0.08A	**141-9529**	14.24	13.81	13.11	12.46	11.84
0-18V, 0-18V @ 0.08A	**141-9530**	14.24	13.81	13.11	12.46	11.84
25VA						
0-6V, 0-6V @ 0.14A	**141-9531**	16.45	15.96	15.15	14.40	13.67
0-9V, 0-9V @ 0.14A	**141-9532**	16.45	15.96	15.15	14.40	13.67
0-12V, 0-12V @ 0.14A	**141-9533**	16.45	15.96	15.15	14.40	13.67
0-15V, 0-15V @ 0.14A	**141-9534**	16.45	15.96	15.15	14.40	13.67
0-18V, 0-18V @ 0.14A	**141-9536**	16.45	15.96	15.15	14.40	13.67
0-22V, 0-22V @ 0.14A	**141-9537**	16.45	15.96	15.15	14.40	13.67
40VA						
0-6V, 0-6V @ 0.22A	**141-9538**	17.97	17.42	16.55	15.72	14.94
0-9V, 0-9V @ 0.22A	**141-9539**	17.97	17.42	16.55	15.72	14.94
0-12V, 0-12V @ 0.22A	**141-9540**	17.97	17.42	16.55	15.72	14.94
0-15V, 0-15V @ 0.22A	**141-9541**	17.97	17.42	16.55	15.72	14.94
0-18V, 0-18V @ 0.22A	**141-9542**	14.16	13.73	13.04	12.39	11.78
0-22V, 0-22V @ 0.22A	**141-9543**	17.97	17.42	16.55	15.72	14.94
63VA						
0-6V, 0-6V @ 0.34A	**141-9544**	20.93	20.29	19.27	18.31	17.39
0-9V, 0-9V @ 0.34A	**141-9545**	20.93	20.29	19.27	18.31	17.39
0-12V, 0-12V @ 0.34A	**141-9546**	20.93	20.29	19.27	18.31	17.39
0-15V, 0-15V @ 0.34A	**141-9548**	16.50	15.99	15.18	14.43	13.70
0-18V, 0-18V @ 0.34A	**141-9549**	20.93	20.29	19.27	18.31	17.39
0-22V, 0-22V @ 0.34A	**141-9550**	20.93	20.29	19.27	18.31	17.39
0-25V, 0-25V @ 0.34A	**141-9551**	16.50	15.99	15.18	14.43	13.70
0-30V, 0-30V @ 0.34A	**141-9552**	20.93	20.29	19.27	18.31	17.39
100VA						
0-9V, 0-9V @ 0.51A	**141-9553**	25.39	24.62	23.39	22.22	21.10
0-12V, 0-12V @ 0.51A	**141-9554**	25.01	24.26	23.04	21.89	20.79
0-15V, 0-15V @ 0.51A	**141-9555**	20.01	19.41	18.43	17.51	16.63
0-18V, 0-18V @ 0.51A	**141-9556**	25.39	24.62	23.39	22.22	21.10
0-22V, 0-22V @ 0.51A	**141-9557**	25.39	24.62	23.39	22.22	21.10
0-25V, 0-25V @ 0.51A	**141-9558**	25.01	24.26	23.04	21.89	20.79
0-30V, 0-30V @ 0.51A	**141-9561**	25.39	24.62	23.39	22.22	21.10
120VA						
0-9V, 0-9V @ 0.64A	**141-9562**	29.16	28.27	26.85	25.52	24.24
0-12V, 0-12V @ 0.64A	**141-9563**	22.98	22.28	21.16	20.11	19.10
0-15V, 0-15V @ 0.64A	**141-9564**	22.98	22.28	21.16	20.11	19.10
0-22V, 0-22V @ 0.64A	**141-9566**	29.16	28.27	26.85	25.52	24.24
0-30V, 0-30V @ 0.64A	**141-9568**	29.16	28.27	26.85	25.52	24.24
160VA						
0-12V, 0-12V @ 0.80A	**141-9569**	33.63	32.62	30.98	29.44	27.96
0-18V, 0-18V @ 0.80A	**141-9571**	33.13	32.14	30.52	29.00	27.55
0-22V, 0-22V @ 0.80A	**141-9573**	33.63	32.62	30.98	29.44	27.96
0-30V, 0-30V @ 0.80A	**141-9575**	33.63	32.62	30.98	29.44	27.96
0-35V, 0-35V @ 0.80A	**141-9576**	33.63	32.62	30.98	29.44	27.96

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Mains Voltage Changers

E-JET Series Autotransformer

250VA

- Step down transformer 230V to 110V
- Electronic potential control
- Manufactured to **IEC 61558-2-13, DIN EN 61558-2-13, VDE 0570 part 2-13**
- Overload condition is protected by a fuse in the input circuit

Input Voltage	Output Voltage	Regulation	Dimensions H	W	D	Mftrs. List No.	Order Code
230V	110V	94%	155	95	160	E-JET250	113-1441
230V	110V	94%	192	126	180	E-JET500	113-1442
230V	110V	96%	197	146	244	E-JET1000	113-1443

Note: This unit does not provide mains isolation.

347680

Mftrs. List No.	Order Code	Price Each 1+	4+	8+
E-JET250	**113-1441**	98.95	94.99	91.04
E-JET500	**113-1442**	138.91	133.36	127.79
E-JET1000	**113-1443**	161.76	155.29	148.81

SAT Series - Auto Transformer

230V ac Input, 115V ac Output

- Short circuit proof auto transformer
- Fully encapsulated in plastic
- Integrated fuse protection against short circuit and overload
- Manufactured to **VDE 0570**, **EN 61558** with **EN 61558-2-13**

VA rating	Output Current	Dimensions H	W	D	Mftrs. List No.	Order Code
100	0.87A	76	166	77	SAT100	113-1562
200	1.74A	76	166	77	SAT200	113-1563
300	2.6A	97	223	117	SAT300	113-1565
500	4.34A	117	223	117	SAT500	113-1566
600	5.21A	117	223	117	SAT600	113-1567

Note: This unit does not provide mains isolation.

347679

Mftrs. List No.	Order Code	Price Each 1+	8+	24+	48+
SAT100	**113-1562**	26.53	24.94	23.88	22.86
SAT200	**113-1563**	30.70	28.86	27.64	26.48
SAT300	**113-1565**	40.39	37.96	36.35	34.80
SAT500	**113-1566**	61.71	58.02	55.54	53.17
SAT600	**113-1567**	67.48	63.43	60.74	58.17

150VA

A 150VA auto transformer designed to supply 110V ac from the 240V ac mains. Output is via an American style 2 pin socket and input is via 2 metres of mains cable fitted with a **BS1363** Uk 3 pin plug. Autoreset thermal trip within windings.

L = 110, W = 95, H = 77
FC 97.5 x 60 x 4mm dia.

Note: This unit does not provide mains isolation as the output shares a common neutral with the mains input. The output frequency is also unchanged.

Input	240V ac 50Hz	Output	110V ac 50Hz
Regulation	5.5%	Weight	1.6kg

223906

Mftrs. List No.	Order Code	Price Each 1+	10+	20+
D2734	**116-6383**	32.89	31.04	29.83

500VA

Tacima

This range of modern, portable autotransformers enables American type mains operated equipment to be used within the UK. The output sockets accept American style 2 or 3-pin plugs. The transformer is input- and output fuse protected.

- Uses toroidal windings in a robust housing
- Negligible external magnetic field
- Includes 1.4m UK mains lead

Input	Output	No. of sockets
220	110	2

333438

Mftrs. List No.	Order Code	Price Each 1+	5+	10+	25+	50+
SC5476/2	**471-9396**	66.43	65.95	65.31	63.08	61.82

UVC1000 Series Auto Transformer

BLOCK

- Short circuit-proof auto transformer in steel enclosure
- Integrated fuse and thermal protection against short circuit and overload
- NTC thermistor (inrush current limiter)
- Inputs can be made via a 3 core lead fitted with a BS 1363, UK 3 pin plug and a IEC 320 socket (supplied) or 3 pin USA 15A/125V plug and an IEC 320 socket (not supplied)

Input	110V ac or 240V ac	
Output	110V ac from 240V ac input	
Fuse	5 x 20mm **IEC127**	5A for 240V input 10A for 100V input
Regulation	2%	

Protection Class I, Insulation Class B (130°C)

Note: This unit does not provide mains isolation.

347682/405613

Mftrs. List No.	Order Code	Price Each 1+	4+	8+
UVC 1000	**113-1602●**	133.46	123.31	110.11

1500VA

Tacima

Step down transformer for using USA mains-powered electrical equipment in the UK. The output sockets accept American style 2 or 3-pin plugs. The unit has a 13A input fuse and a resettable output fuse.

- Uses toroidal windings in a robust housing
- Negligible external magnetic field
- Includes 1.4m UK mains lead

Maximum Load	No. of Sockets	Dimensions Height	Width	Depth
1500	2	125	205	170

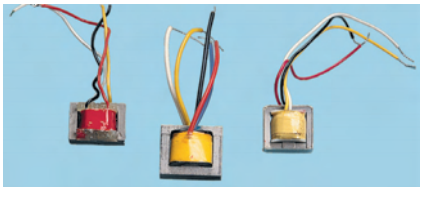
335215

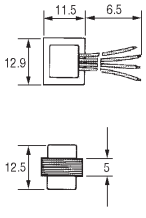
Load	List No.	Order Code	Price Each 1+	5+	10+	25+	50+
1500	SC5497	**471-9402**	129.93	129.01	123.96	116.58	112.62

Audio Frequency

Isolation and Matching Transformers

NEUTRIK





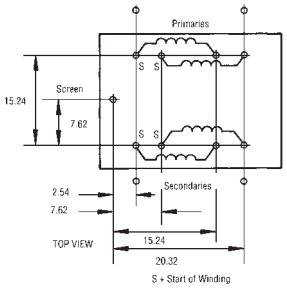
Professional audio transformers for multiple applications, audio-, studio-, and line inputs, very low distortion, excellent frequency response.

Source Load Impedance in	Turns Ratio	Max. Input Voltage THD ≤ 1%	THD ≤ 3%	Ripple 20Hz - 20KHz		Order Code
200/200Ω	1:1	940mV	980mV	Max. -1dB	Red mark	724-592
200/10KΩ	1:4	1050mV	1210mV	Max. -1dB	Yellow mark	724-609
200/50KΩ	1:3:10	880mV	1220mV	Max. -2dB	Orange mark	724-610

203854

Mftrs. List No.	Order Code	Price Each 1+	10+	25+	50+
NTE1	**724-592●**	9.57	8.64	7.85	7.06
NTE4	**724-609●**	9.89	8.95	8.14	7.28
NTE10/3	**724-610●**	11.00	9.92	9.00	8.11

PCB Mounting High Performance



Transformer H = 22, W = 28, D = 23. Screening can and cover H = 23, W = 29, D = 24.

A range of high performance, resin encapsulated, printed circuit board mounting miniature audio transformers. The transformers feature dual input and output windings for series or parallel connection enabling a wide range of input and output impedances to be matched.

Ratings are 100mW @ 300Hz and 2.5mW @ 50Hz. All the transformers feature an internal screen which when used in conjunction with the external screening can (Order Code 117-2345) affords a 30dB reduction of external 50Hz field.

Impedance Matching Table

Turns Ratio	6.3+6.3 : 1+1		1+1 : 2+2		1+1 : 6.45+6.45	
	Primary	Secondary	Primary	Secondary	Primary	Secondary
Individual windings	150+150Ω	3.75+3.75Ω	150+150Ω	600+600Ω	150+150Ω	6.25+6.25kΩ
Series connected	600Ω	15Ω	600Ω	2.4kΩ	600Ω	25kΩ
Parallel connected	150Ω	3.75Ω	150Ω	600Ω	150Ω	6.25kΩ
dc resistance	10+10Ω	0.36+0.36Ω	10+10Ω	55+55Ω	9.6+10Ω	535+605kΩ
Freq. range (±3dB)	40Hz-35kHz	40Hz-35kHz	40Hz-35kHz	40Hz-35kHz	40Hz-25kHz	40Hz-25kHz

223876

Ratio	Order Code	Price Each 1+	20+	50+	100+	250+
6.3+6.3 : 1+1	**117-2346●**	10.10	8.80	8.29	7.79	7.36
1+1 : 2+2	**117-2343●**	10.10	8.80	8.29	7.79	7.36
1+1 : 6.45+6.45	**117-2344●**	10.10	8.80	8.29	7.79	7.36
Screening can/cover	**117-2345●**	3.99	3.48	3.27	3.07	2.92

PCB Mounting Audio Transformers

VTX vigortronix

New

- Encapsulated PCB mounting
- Less than 1% T.H.D
- 30Hz - 35KHz Frequency range
- Optional MU-metal can with lid to minimise external noise

Dimensions: H=22.5, W=27.5, D=23

Mftrs. List No.	Ratio	Impedance Prim. (Ω)	Sec. (Ω)	Frequency Range Min. (Hz)	Max. (KHz)
VTX-101-001	6.3+6.3 : 1+1	150 + 150	3.75 + 3.75	30	30
VTX-101-002	1+1 : 2+2	150 + 150	600 + 600	30	35
VTX-101-003	1+1 : 6.45+6.45	150 + 150	6.25 + 6.25	30	25
VTX-101-006	1+1 : 1+1	150 + 150	150 + 150	30	30
VTX-101-007	1+1 : 1+1	600 + 600	600 + 600	30	35

526624

Mftrs. List No.	Ration	Order Code	Price Each 1+	20+	50+	100+
VTX-101-001	6.3+6.3 : 1+1	**167-4300●**	9.49	9.21	8.93	8.66
VTX-101-002	1+1 : 2+2	**167-4301●**	9.49	9.21	8.93	8.66
VTX-101-003	1+1 : 6.45+6.45	**167-4302●**	9.49	9.21	8.93	8.66
VTX-101-006	1+1 : 1+1	**167-4303●**	9.49	9.21	8.93	8.66
VTX-101-007	1+1 : 1+1	**167-4305●**	9.49	9.21	8.93	8.66
Accessories						
VTX-102-000	Screening Can	**167-4299●**	5.99	5.81	5.64	5.47

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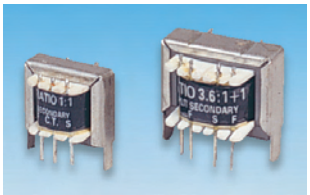
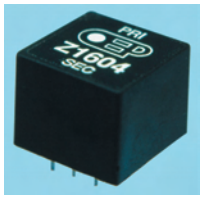
Audio Frequency - continued

PCB Mounting, Miniature





117-2419 H=19, W=16, D=16 | 117-2420 H=27, W=20, D=21 | 117-2421 H=15, W=18, D=18

Miniature PCB mount audio matching transformers avaiable with ratios of either 1:1, centre tapped secondary or 3.6:1+1, split secondary.
117-2421 is fully encapsulated in flame retardant epoxy resin within a glass filled nylon case for maximum environmental and mechanical protection.

Turns Ratio	Primary Impedance	Secondary Impedance	Power Max.	DC Resistance (Ω) Primary	DC Resistance (Ω) Secondary	Frequency Range	Mftrs. Part No.
Open							
1:1CT	800Ω	800ΩCT	2mW	69	97	200Hz to 15kHz	E187A
3.6 : 1+1	3Ω	250Ω	5mW	80	23+23	200Hz to 15kHz	E187B
Encapsulated							
1:1CT	800Ω	800Ω	2mW	109	134	30Hz to 25kHz	Z1604

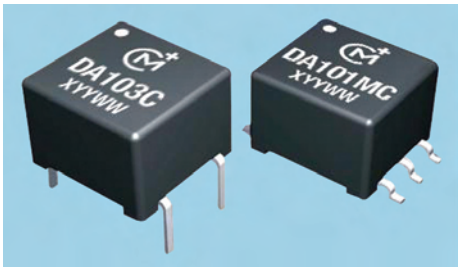
Note: A feature of the design and construction of these transformers may cause the pin spacing to vary slightly.

341309

Mftrs List No.	Order Code	Price Each 1+	20+	50+	100+	500+
E187A	**117-2419**	7.15	6.16	5.72	5.36	4.98
E187B	**117-2420**	9.43	9.22	8.79	8.57	8.11
Z1604	**117-2421**	5.95	5.77	5.51	5.30	4.96

Transformers For Digital Audio Data Transmission

DA100 Series



The Digital Audio transformers are compliant with AES/EBU recommendations for the digital audio interface, offering optimised shunt capacitance between primary and secondary windings, Capable of operating over the audio data rate frequency range, providing isolation from 50-60Hz noise.

- Suitable for both 75 & 110Ω circuits
- UL 94 V-0 package materials
- 2kVrms isolation
- Fully encapsulated
- Toroidal construction
- Industry-standard pin-out

THT Mftrs List No.	SMD Mftrs List No.	Turns Ratio	Primary Inductance µH (10kHz, 10mV)	Min. Volt-time Product, Et Vµs
DA101C	DA101MC	1:1	1.00 - 1.59	15
DA102C	DA102MC	1:1	2.00 - 3.00	20
DA103C	DA103MC	1:1	4.00 - 5.96	28

473063

Mftrs. List No.	Order Code	Price Each 1+	10+	20+	50+	100+
DA101C	**136-2398**	1.29	1.22	1.17	1.11	1.02
DA102C	**136-2399**	1.29	1.22	1.17	1.11	1.02
DA103C	**136-2400**	1.29	1.22	1.17	1.11	1.02
DA101MC	SMD **136-2401**	1.29	1.22	1.17	1.11	1.02
DA102MC	SMD **136-2402**	1.29	1.22	1.17	1.11	1.02
DA103MC	SMD **136-2403**	1.29	1.22	1.17	1.11	1.02

100V Line Transformers

- Designed to match loudspeakers to the 100V output of public address amplifiers
- 2, 5 and 10 watt fixed power versions for use with 8 ohm speakers
- Universal version for 4, 8 or 16 ohm impedance speakers, provided with taps at 1, 2, 5, 15 and 30 watts

	H	W	D
117-2431	37	65	40
117-2432	45.5	81.5	39
117-2434	65.5	105.5	58

Input	Output	R_{pri} Ω	R_{sec} Ω	L_{pri} H	Mftrs. List No.	Order Code
100V	2W @ 8Ω	320ohm	0.7ohm	4.2H	B18A001F	117-2431
100V	5W @ 8Ω	79ohm	1.3ohm	2.1H	P74A001F	117-2432
100V	0-30W @ 4, 8 or 16Ω	191.5ohm	0.2ohm	3.81H	D29A100	117-2434

Primary to Secondary Isolation 2 kVAC

341328/405615

Type	Order Code	Price Each 1+	10+	25+	50+
2W	**117-2431**	4.60	4.01	3.78	3.54
5W	**117-2432**	6.05	5.27	4.96	4.66
Universal	**117-2434**	12.59	10.97	10.20	9.56

Isolating/Matching

600Ω Line Matching 1:1

PCB and Surface Mounting

Non-Encapsulated, Standard	Low profile	SMD Microprofile	SMD Hybrid
H=12.6, W=18, D=18	H=11, W=15.5, D=19	H=7, W=9, D=12.7	H=7, W=17.6, D=12.7
Lead length=3.5,	Lead length=3.5,	Row spacing=9.2	Row spacing=9.2
Pin dia.=0.65	Pin dia.=0.65	Pitch=2.54	Pitch=2,54

PCB Drilling Plan

Standard PCB Drilling Hole size=1.0 | Low Profile Drilling Hole size=1.0

- A full range of encapsulated transformers for voice and data applications
- Approved to **EN 60950** (reinforced isolation) and **EN41003**
- **BABT** Certificate of Recognition
- **CSA/NRTL certified to CSA C22.2 No. 950-95** and **UL** recognised

		Mftrs. List No.	Order Code
Standard Products	Voice & Data to 14,400 bps (V32bis)	P1200	113-0832
	Professional Quality >28,800 bps (V34), (0 dBm in line)	P2001	113-0843
Non-Encapsulated	Voice & Data to 2,400 bps (V22 bis)	P3324	113-0840
Low Profile Products	Voice & Data to 14,400 bps (V32bis),	P1165	113-0835
SMD Microprofile Products	Voice & Data to 14,400 bps (V32bis)	P2781	113-0847
	Data at 28,800 bps (V34)	P3081	113-0850
	High Quality, low distortion, Voice & Data to 2,400 bps (V22bis)	P3188	113-0837
	Cost Effective, Voice & Data to 28,800 bps (V34)	P3191	113-0839
	Professional Quality, Voice & Data to 28,800 bps, (includes 2 to 4 wire Hybrid)	P3000	113-0848

Freq. Response	200Hz-4kHz±0.2dB
Isolation, 50Hz	>3.88kVrms
Saturation Voltage, 50Hz	<10Vrms, 65Vpk
Balance, DC-5kHz	>80dB

Order Code	Package	Return Loss*	Distortion**	Dc_R (per wdg)	Insertion Loss***
113-0832	Std	>19dB	-91 dBm	59ohm - 73ohm	<1.5dB
113-0843	Std	>20dB	-110 dBm	59ohm - 73ohm	<1.5dB
113-0840	Non-encap	>16dB	-86 dBm	~ 95Ω	<1.8dB
113-0835	LP	>20dB	-95 dBm	54ohm - 66ohm	<1.5dB
113-0847	SMD	>20dB	-89 dBm	102ohm - 123ohm	<2dB
113-0850	SMD	>16dB	-96 dBm	135ohm - 165ohm	<4dB
113-0837	SMD	>18dB	-50 dBm 1	168ohm - 206ohm	<3.5dB
113-0839	SMD	>16dB	-93 dBm	270ohm - 340ohm	<4.5dB
113-0848	SMD	>17dB	-100 dBm	N/A	<2dB

*300Hz - 3.4kHz 600Ω Network Terminating Impedance
**3rd Harmonic, -10dBm/600Ω @ 600Hz
1 3rd Harmonic, 0dB @ 450Hz
Transhybrid Loss for 523-112 >30dB
***F=2kHz, 600Ω

223878

Standard Products	Order Code	Price Each 1+	10+	25+	50+	100+
V32 bis	**113-0832**	3.37	3.10	2.94	2.81	2.64
V34 Pro	**113-0843**	5.91	5.03	4.50	4.09	3.92
V22 bis (non-encap.)	**113-0840**	2.07	1.90	1.81	1.71	1.63
Low Profile Products						
V32 bis	**113-0835**	4.35	4.02	3.82	3.63	3.43
SMD Products						
V32 bis	SMD **113-0847**	4.51	3.96	3.42	3.17	3.12
V34	SMD **113-0850**	4.02	3.70	3.26	3.16	2.83
V22 bis	SMD **113-0837**	3.07	2.82	2.66	2.53	2.43
V34	SMD **113-0839**	3.21	2.98	2.80	2.70	2.57
Hybrid	SMD **113-0848**	8.98	7.46	6.42	5.82	5.34

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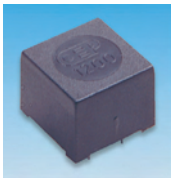
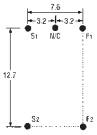
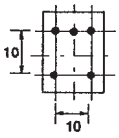
600Ω Line Matching 1:1, High Speed

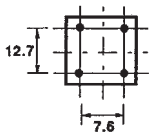
BABT Approved







117-2349



117-2348/117-2350

117-2350/117-2351
117-2349 (low profile):
117-2348:.

H=15, W=18, D=18 (excl. pins)
H=11, W=19, D=15 (excl. pins)
W=18, D=18, H=12.7 (excl. pins)

Fully encapsulated 600Ω 1:1 line isolating transformers for use in telecommunications data transmission as an isolation barrier between modems or similar devices connected to telecommunication lines. All the transformers are fully certified and approved to **BS415, EN60950** and **EN41003,** and carry a **BABT** Certificate of Recognition.

117-2348 Industry standard 600Ω 1:1 line transformer. **BABT CR/0125**
117-2349 Low profile version of 117-2348 for use where height is restricted, **BABT CR/0127**
117-2350 Low distortion type for high speed applications. **BABT CR/0128**
117-2351 High efficiency device, with improved coupling, frequency response and return loss characteristics. **BABT CR/0126.**

Characteristics measured under test circuit conditions.

Insertion loss	1.5dB max. @ 1kHz
	1.5dB, 200-4kHz (482-341) 0.8dB @ 1kHz
Return loss	>20dB, 200-4kHz
Isolation	3750V rms max.
Saturation	10V rms, 65V pk @ 50Hz
Balance	>80dB, 200-400kHz
Distortion	0dB/600Ω, f=450Hz
	second harmonic <-88dB (482-330)
Linearity	<0.03% THD 300-400kHz @ -10dBm/600Ω (482-341)

Winding Resistance, typ (Ω)	117-2348/117-2350	117-2349	117-2351
Primary	68	65	50
Secondary	68	65	60

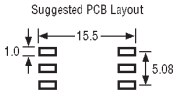
Mftrs. List Nos: OEP1200 = 117-2348 Z1612E = 117-2350 TF048 = 117-2351
Z1260 = 117-2349

223891

	Order Code	Price Each 1+	10+	25+	50+	100+
Standard	**117-2348**●	3.62	3.12	2.94	2.86	2.69
Low profile	**117-2349**●	3.87	3.33	3.10	2.90	2.72
Low distortion	**117-2350**●	4.52	3.89	3.62	3.39	3.17
High efficiency	**117-2351**●	4.32	3.72	3.46	3.24	3.02

600Ω Line Matching

H=7, W=13.2, D=10.3



Surface Mount 600 ohm Line matching transformer designed for use in data transmission Circuits. Resin encapsulated in a flame retardant ABS case. Approved to **BS60950** and **EN41003 BABT** Certificate of Recognition.

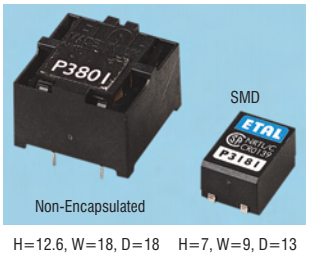
Turns Ratio1:1	Nominal Impedence 600ohms	DC winding resistance	111ohm±15%
TDH (typical)600H	-89dBm (552-446)	Return loss	-18dB (200Hz to 4kHz)
	-100dBm (899-859)	Insertion loss	2dB (2kHz/430Ω)
Primary Inductance at 1 kHz 3.9H		Saturation volts	<10Vrms, 65V Pk 50Hz
Leakage inductance at 1kHz 4.2mH		Isolation	50Hz 3.88KVrms min

223861

Mftrs. List No.	Order Code	Price Each 1+	10+	15+	25+	50+	100+
V22bis/V32 bis							
OEP8000	SMD **117-2342**●	4.02	3.46	3.22	3.02	2.87	2.67

HIgh Speed Internet Access (56k bps)

600Ω Line Matching 1:1



H=12.6, W=18, D=18 Drilling 12.7 x 7.62
H=7, W=9, D=13 Drilling 10 x 10
H=12.6, W=18, D=18 Drilling 12.7 x 7.62
H=11, W=55, D=13 Drilling 10 x 10

- Optimised to meet the demanding specifications for 56k bits/seconds
- Approved to **EN 60950** (Reinforced Isolation)
- **BABT** Certificate of Recognition
- **CSA/NRTL certified to CSA C22.2 No. 950-95** and **UL** recognised

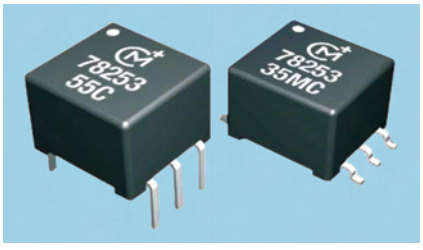
Isolation, 50Hz	>3.88 KV RMS			
Saturation Voltage,50Hz	<10Vrms,65V pk			
Balance, DC-5KHz	>80dB			
Farnell Order Code		1130841	1130842	1130836
Mftrs List No.		P3356	P3801	P3181
Construction		Non Encap.	Non Encap.	SMD
C of R		—	608755	CR0139
Typ. Insertion Loss (dB)		1.5	1.5	—
	LF - 3dB cut off	10	–	—
	100Hz - 4kHz (Typ)	±0.1dB	±0.2dB	—
Return Loss (Min) (dB)		16	18	16
Distortion (Typ) (dBm) (150Hz - 3dBm in line)		-70	-90	-90

223922

	Order Code	Price Each 1+	10+	25+	50+
Non-Encapsulated	**113-0841**●	2.30	2.13	2.04	1.92
Standard	**113-0842**●	1.80	1.68	1.59	1.52
SMD	SMD **113-0836**●	3.53	3.24	3.07	2.89

MAX253 Converter Transformers

78253 Series



The 78253 series of converter transformers are specifically designed for use with the MAX253 chip set to provide isolated power supplies. The 5V version can supply 1W. A centre tapped secondary winding allows for full bridge, half bridge or voltage doubling.

- Isolation to 4kVdc
- UL 94 V-0 package materials
- Toroidal construction
- Industrial temperature range
- Frequency range to 500kHZ
- Fully encapsulated
- Industry-standard pin-out

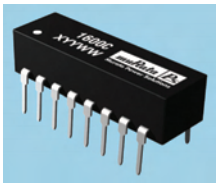
Mftrs List No.	Isolation Voltage V_{DC}	Turns Ratio
78253/55C	1500	1:1.31
78253/55MC	1500	1:1.31
78253/55VC	4000	1:1.33
78253/55MVC	4000	1:1.33

473115

Mftrs. List No.	Order Code	Price Each 1+	10+	20+	50+	100+
78253/55C	**136-2404**●	2.26	2.14	2.04	1.93	1.81
78253/55MC	SMD **136-2405**●	2.26	2.14	2.04	1.93	1.81
78253/55VC	**136-2407**●	2.91	2.74	2.60	2.47	2.31
78253/55MVC	SMD **136-2408**●	2.91	2.74	2.60	2.47	2.31

Quad Isolator Transformer

1600 Series



- Logic Translation
- Bi-Directional
- Invert/ Non-Invert
- TTL-CMOS Convert
- Toroidal construction
- 500Vrms Isolation

The 1600 series are quad isolation transformer packs for use in digital circuits. They are particularly suited to isolating microprocessor bus connections and performing logic level translation. Being completely passive, power savings are offered over opto-coupled or emitter follower solutions.

Mftrs. List No.	Function	Turn Ratio	Inductance	Capacitance	Order Code
1600C	5V to 5V Logic Isolation	1:1	3.0mH	60pF	145-4862
1630C	5V to 15V Logic Isolation	1:3	1.0mH	34pF	145-4863

483567

Mftrs List No.	Order Code	Price Each 1+	10+	25+	50+
1600C	**145-4862**●	8.67	8.41	8.15	7.91
1630C	**145-4863**●	8.67	8.40	8.15	7.90

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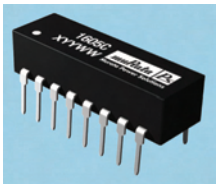
Visit **www.farnell.co.uk** and look for the **Tech Info** heading in your search results.

Isolating/Matching - continued

Low Phase Transformer
1605C



The 1605C is a package of unity-turns-ratio isolation transformers. The transformers are designed to have fast rise times with low phase shift and insertion loss to reduce signal distortion. The high shunt impedance of these devices minimises system loading and enables the correct termination conditions to be accurately defined by means of resistors. The devices can be used as network-node isolators in CSMA/CD systems.

- 500Vrms Isolation
- Industry-standard footprint
- Backward compatible with Sn/Pb soldering systems
- Compatible with standard networks

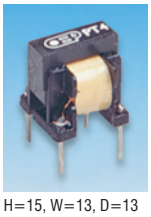
Mftrs. List No.	Turns Ratio	Min. Primary Inductance	Min ET Constant	Max. Inerwinding Capacitance
1605C	1:1	26.0 µH	1.8 Vµs	8 pF

489726

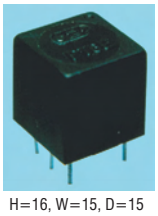
Mftrs. List No.	Order Code	Price Each 1+	10+	25+	50+
1605C	**145-4864**	2.24	2.16	2.10	2.03

Pulse, High Frequency

Open Frame and Encapsulated



H=15, W=13, D=13 (excluding pins)



H=16, W=15, D=15 (excluding pins)

- Open and enclosed PCB mounting transformers
- Designed for wide band and general pulse applications in particular thyristor and triac control systems, where isolation between firing circuit and load needs to be provided
- 117-2430 is class 2 insulated to **BS415**

Ratio	L_{pri} (min) mH	L (typ) µH	C (typ) pF	R_{pri} (max) Ω	R_{sec} (max) Ω	Mftrs. List No. Open	Single Section Encapsulated	2 Section Encapsulated
1:1	3	19	20	1.1	0.9	PT4	PT4E	PT42E
1:1+1	3	8*	30*	1.4	2.6*	PT6	PT6E	—
2:1+1	12	30*	26*	4	4.2*	PT8	PT8E	—
2:1	12	115	19	5.1	2.6	PT10	—	—

*Secondary joined in series

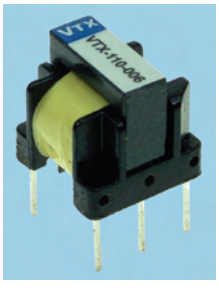
Proof Voltage	2.8kV (pk)	Max output pulse current	200Vμsec
Output voltage time product (ET Constant)	200Vμsec	Bandwidth	3kHz to 1MHz

341310

Ratio	Mftrs. List No.	Order Code	Price Each 1+	50+	100+	250+
Open						
1:1	PT4	**117-2422**	3.42	2.95	2.75	2.57
1:1+1	PT6	**117-2423**	3.50	3.02	2.81	2.63
2:1+1	PT8	**117-2424**	3.56	3.07	2.86	2.67
2:1	PT10	**117-2425**	3.42	2.95	2.75	2.57
Encapsulated						
1:1	PT4E	**117-2427**	3.78	3.26	3.03	2.84
1:1+1	PT6E	**117-2428**	4.35	3.75	3.48	3.27
2:1+1	PT8E	**117-2429**	4.24	3.65	3.39	3.18
High Isolation						
1:1	PT42E	**117-2430**	4.29	3.88	3.51	3.16

Open Frame and Encapsulated

New



Dimension: H=14, W=13, D=13 Dimensions: H=15.5, W=15, D=15

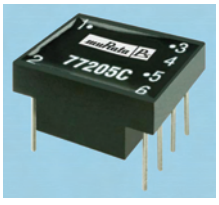
- Designed for wide band and general pulse applications
- Ideal for Triac Thyristor control systems
- Max pulse current 200mA (Peak)

Mftrs. List No.	Turn Ratio	Inductance (µH)	Capacitance (pF)	DC Resistance Prim. (Ω ±10%)	Sec. (Ω ±10%)
VTX-110-004	1 : 1	3	20	1.1	1.32
VTX-111-004	1 : 1	3	20	1.1	1.32
VTX-110-006	1 : 1+1	3	30	1.32	1.1 + 1.54
VTX-111-006	1 : 1+1	3	30	1.32	1.1 + 1.54
VTX-110-008	2 : 1+1	12	26	3.36	1.4 + 2
VTX-111-008	2 : 1+1	12	26	3.36	1.4 + 2
VTX-110-010	2 : 1	12	19	2.32	1.45
VTX-111-010	2 : 1	12	19	2.32	1.45
VTX-111-042	1 : 1	3	20	0.8	0.8

526626

Mftrs. List No.	Ratio	Order Code	Price Each 1+	20+	50+	100+
Open						
VTX-110-004	1 : 1	**167-4306**	2.98	2.85	2.71	2.63
VTX-110-006	1 : 1+1	**167-4308**	3.05	2.96	2.87	2.78
VTX-110-008	2 : 1+1	**167-4310**	2.94	2.85	2.76	2.68
VTX-110-010	2 : 1	**167-4312**	2.98	2.85	2.71	2.63
Encapsulted						
VTX-111-004	1 : 1	**167-4307**	3.29	3.19	3.09	3.00
VTX-111-006	1 : 1+1	**167-4309**	3.73	3.62	3.51	3.40
VTX-111-008	2 : 1+1	**167-4311**	3.73	3.62	3.51	3.40
VTX-111-010	2 : 1	**167-4313**	3.28	3.18	3.08	2.99
VTX-111-042	1 : 1	**167-4314**	3.39	3.29	3.19	3.09

772 Series Pulse Transformer



- 600Vrms Working
- UL94-V0
- 2500/4000Vrms Isolation
- Inductance to 4mH
- Up to 240Vμs E_T
- PCB Mounting

The 772 series of pulse transformers are intended for medium power applications in switch mode power supplies and thyristor/triac firing (eg motor control applications). The standard turns ratios may be modified by connecting several winding in series.

Mftrs. List No.	Turn Ratio ± 2%	Inductance (mH)	Capacitance (pF)	DC Resistance (Ω)	Order Code
77204C	1:1	4	55	0.86	145-4877
77205C	1:1:1	4	35	0.9	145-4878

483334

	Order Code	Price Each 1+	10+	25+	50+
772 Series	**All Order Codes**	5.71	5.54	5.37	5.20

786 Series Pulse Transformer

- 5 Configurations
- Inductance 10 10mH
- Toroidal Construction
- Fully Encapsulated
- Isolation to 1kVrms
- UL 94V-0 Package Materials

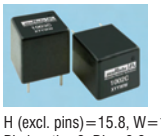
The 786 series is a comprehensive range of general purpose pulse transformers. Common applications include line coupling, matching or isolating. The devices can also be used in small isolating power supplies and also as common-mode chokes in filtering applications.

Mftrs. List No.	Turn Ratio ± 2%	Inductance (µH)	Capacitance (pF)	DC Resistance (Ω)	Order Code
78601/1C	1:1	2000	49	0.6	145-4879
78601/2C	1:1	500	22	0.34	145-4880
78601/3C	1:1	200	14	0.25	145-4881
78602/1C	1:1:1	2000	72	0.66	145-4883
78602/2C	1:1:1	500	32	0.34	145-4884
78604/1C	2:1	2000	29	0.6	145-4885
78604/2C	2:1	500	13	0.34	145-4886
78615/1C	1CT:1CT	2000	16	0.6	145-4887
78615/2C	1CT:1CT	500	7	0.34	145-4888

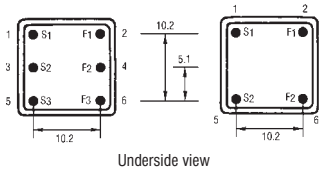
483299

	Order Code	Price Each 1+	10+	25+	50+
786 Series	**All Order Codes**	1.54	1.50	1.45	1.40

Encapsulated



H (excl. pins)=15.8, W=15, D=15
Pin length=6, Dia=0.8



Underside view
S1-F1 Primary—S2-F2 Secondary—S3-F3 Secondary

Fully encapsulated PCB mounting pulse transformers in moulded cases to flammability rating **UL94V-0**. Designed for wide band and general pulse triggering applications providing isolation between the firing circuit and the load.

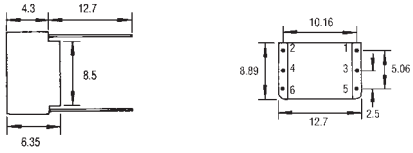
Ratio	LP (min) mH	L (typ) µH	C (typ) pF	RP (max) Ω	RS (max) Ω	Mftrs. List No.	Order Code
1:1	3	22*	23*	1.2	1*	1001C	108-7805
1:1:1	3	9*	28*	1.4	3*	1002C	108-7806

Proof Voltage	2.5Vrms
Output voltage time product (ET Constant)	200Vμs

223898

Ratio	Order Code	Price Each 1+	10+	20+	100+	250+
1:1	**108-7805**	3.27	3.10	2.94	2.79	2.65
1:1:1	**108-7806**	3.60	3.42	3.24	3.07	2.91

Miniature - 766 Series



Pin dia.=0.56, (pins 3 & 4 not fitted on 1:1 ratio)

A range of miniature ferrite cored PCB mounting pulse transformers encapsulated in a moulded case to **UL94V-0** flammability rating.

Intended for general purpose applications, digital and data processing, coupling, matching and isolation.

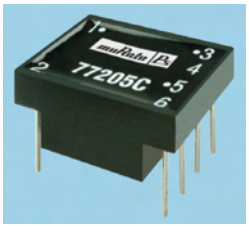
Ratio	LP (min) mH	L (typ) µH	C (max) pF	ETET VµS	Resistance of Windings Ω (max)	Mftrs. List No.	Order Code
1:1	2060	0.6	35	17.5Vµs	1.5	76601/1C	108-7807
1:1	492	0.3	20	8.5Vµs	0.8	76601/2C	108-7808
1:1	219	0.25	12	5.5Vµs	0.5	76601/3C	108-7809
1:1:1	2060	0.6	35	17.5Vµs	1.5	76602/1C	108-7810

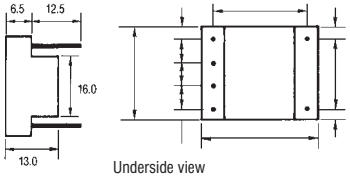
Proof Voltage 500Vdc

223897

Ratio	Order Code	Price Each 1+	10+	20+	100+	250+
1:1	**108-7807**●	1.82	1.72	1.63	1.55	1.47
1:1	**108-7808**●	1.82	1.72	1.63	1.55	1.47
1:1	**108-7809**●	1.82	1.72	1.63	1.55	1.47
1:1:1	**108-7810**●	1.82	1.72	1.63	1.55	1.47

Encapsulated - 772 Series





Pins=0.64 square (Pins 5 & 6 are fitted but not connected on 1:1 ratio)

General purpose pulse transformers for thyristor and triac switching applications. Fully encapsulated in moulded cases to **UL94V-0** flammability rating. Transformers with multiple secondaries may be configured to obtain alternative ratios by linking the secondaries together, i.e. 1:1:1 may be connected to obtain a 2:1.

Ratio	LP (min) mH	L (typ) µH	C (typ) pF	RP (max) Ω	RS_1 (max) Ω	RS_2 (max) Ω	Mftrs No. List No.	Order Code
1:1:1	16.3	40	40	3.6	3.1	2.0	77208C	108-7811
2:1:1	16.3	40	40	3.5	1.6	2.0	77209C	108-7813

Proof Voltage 3.5kVrms
Working voltage 600Vrms
Output voltage time product (ET constant) 482Vµs

223899

Ratio	Order Code	Price Each 1+	20+	100+	250+
1:1:1	**108-7811**●	5.32	4.45	3.90	3.77
2:1:1	**108-7813**●	5.32	4.45	3.90	3.77

Low Voltage Lighting

12V Electronic Dimmable Transformers

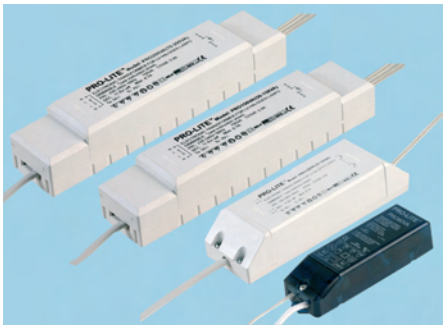
High quality, fully dimmable electronic transformers, TUV-approved and certified and CE marked. The transformers offer short circuit- and overload protection and are over-temperature protected.

	ET60T-2	SET105M
Power	20-60W	30-105W with phase lagging, 60-105W with inductive dimmers
Termination	VDE-approved cable, 23.5 cm long	VDE-approved cable, 20 cm long
Input Voltage	220V-240V/50Hz	220V-240V/50Hz
Output Voltage	11.6V	11.6V
Max. Ambient Temperature	50°C	50°C
Tested in Accordance with:	EN55015, EN61000, EN61046, EN61547	

347750

Description	Mftrs. List No.	Order Code	Price Each 1+	10+	25+	50+
60W	ET60T-2	**117-2435**●	6.76	6.42	5.40	4.55
20-105W	SET105M	**117-2436**●	10.04	9.53	9.11	8.73

12V Dimmable Lighting Transformers



A range of lightweight, compact lighting transformers for low voltage applications.

- ITS/EMC approved
- Short circuit, overload and surge protected
- Thermal cut-off
- Screw terminals
- Operating Temp (max): 50°C (40°C 35-105VA)

450026.450033

VA Rating	Dims (LxWxH)	Order Code	Price Each 1+	5+
20 - 60VA	120 x 38 x 26mm	**129-9795**●	5.31	4.87
35 - 105VA	152 x 48 x 38mm	**129-9796**●	7.67	7.14
50 - 150VA	218 x 48 x 40mm	**129-9798**●	13.85	12.92
70 - 200VA	218 x 48 x 40mm	**129-9799**●	18.93	17.98

Low Voltage Transformer

OSRAM

Haltronic 70w, 105w x 150w Mouse

- The Mouse transformer is a compact, lightweight electronic transformer that can be used with dimmers
- Ideal for recessed and surface mounted luminaries using low voltage tungsten halogen lamps
- Low power dissipation produces less heat than standard transformers making it suitable for wooden surfaces
- Units are VDE tested and comply with European standards for safety, operation and EMC
- Short circuit, overload and over temperature protection

231185

Mftrs. List No.	Max lamp wattage	Order Code	Price Each 1+	10+	20+
HTM70	70W	**152-8732**●	14.44	14.14	13.57
HTM105	105W	**152-8733**●	16.16	15.85	15.36
HTM150	150W	**152-8734**●	25.98	25.47	24.20

Isolation

SIM Series - Safety Isolating Transformer

BLOCK

- Twin secondary 12V windings for series or parallel connection
- Integrated overload protection and short circuit proof
- Encapsulated in resin
- Manufactured to **IEC 61558-2-6, DIN EN 61558-2-6, VDE0570 Part 2-6**

Primary Voltage	VA Rating	Dimensions H	W	D	Fixing Centres	Mftrs. List No.	Order Code
230 V	60VA	76	166	77	135 X 58	SIM60	113-1570
230 V	100VA	117	223	117	167 X 76	SIM100	113-1568
230 V	300VA	76	166	77	135 x 58	SIM300	113-1569

347678

Mftrs. List No.	Order Code	Price Each 1+	12+	24+	48+
SIM60	**113-1570**●	23.20	21.81	20.88	19.95
SIM100	**113-1568**●	24.85	23.36	22.36	21.37
SIM300	**113-1569**●	48.93	45.99	44.04	42.08

Coming soon

Register your interest for items that are 'Coming Soon' at **www.farnell.co.uk** and we'll email you to let you know that they're in stock.

Isolation - continued

TIM Series Isolating Transformer

230 V ac

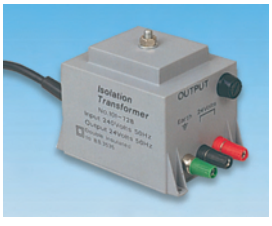
- Single 230V primary, twin 115V secondary windings for series or parallel connection
- Integrated overload protection and short circuit proof
- Encapsulated in resin
- Manufactured to **IEC 61558-2-4, DIN EN 61558-2-4, VDE 0570 part 2-4**

VA Rating	Output Current	Dimensions H	W	D	Fixing Centres	Mftrs. List No.	Order Code
60	0.26A	76	166	77	135 x 58	TIM60	113-1601
100	0.43A	76	166	77	135 x 58	TIM100	113-1597
200	0.86A	97	223	117	167 x 76	TIM200	113-1598
300	1.3A	97	223	117	167 x 76	TIM300	113-1599
500	2.1A	150	283	176	245 x 123	TIM500	113-1600
		165	283	200	245 x 148	TIM800	117-7113
		165	283	200	245 x 148	TIM1000	117-7115

347677

Mftrs. List No.	Order Code	Price Each 1+	12+	24+	48+
TIM60	**113-1601**	23.20	21.81	20.88	19.95
TIM100	**113-1597**	24.85	23.36	22.36	21.37
TIM200	**113-1598**	43.80	41.17	39.42	37.67
TIM300	**113-1599**	51.50	48.41	46.36	44.29
TIM500	**113-1600**	74.25	70.53	67.57	64.60
TIM800	**117-7113**	90.25	85.74	82.13	78.52
TIM1000	**117-7115**	103.30	98.13	94.00	89.87

24V Secondary



H=90, W=74, D=140,
Fixing Centres = 97.5 x 58 x 4 dia.

Safety transformers double insulated to **BS3535**, encapsulated in a material having exceptional insulating and shock resistant properties.
The housing is fitted with an M6 stud and fixing nut, suitable for fixing a spring holder for a soldering iron.
Fitted with 1.5 metres of mains cable to **BS6346** and replaceable output fuse 20 x 5mm (2.5A).
Rating: 50VA continuous.

Primary: 220/240V 50Hz **Secondary:** 24V ac

230956

Mftrs. List No.	Order Code	Price Each 1+	10+	20+
D2972	**116-6388**	35.78	31.21	27.23

ACT Series - Safety Isolating Transformer

DIN Rail Mounting

- Short circuit proof
- Integrated fuse protection and thermal cutout
- Encapsulated in resin
- Manufactured to **IEC 61558-2-6, DIN EN 61558-2-6, VDE 0570 Part 2-6**

Primary Voltage	Secondary Voltage	VA Rating	Dimensions H	W	D	Mftrs. List No.	Order Code
230V ac	24V ac	25VA	106	94	63	ACT25	117-7107
230V ac	24V ac	100VA	159	94	63	ACT100	117-7109

443212

Mftrs. List No.	Order Code	Price Each 1+	10+	25+	50+
ACT25	**117-7107**	34.75	32.67	31.27	29.88
ACT100	**117-7109**	54.18	50.94	48.76	46.60

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www.farnell.co.uk

240V Secondary

A range of isolation transformers manufactured to **BS171**. The transformers have a 1:1 ratio and are wound with a screened primary winding. They are fully shrouded with the exception of the 1000 watt which is cased in heavy gauge steel.

Primary: 240V ac 50Hz
Secondary: 240V

Rating	Dimensions H	W	D	Fixing Centres	Order Code
250 watt	135	113	162	92x75x6.5 dia	116-6385
500 watt	135	113	200	92x112x6.5 dia	116-6386
1000 watt	250	245	205	125x215x7 dia	116-6387

223844

Rating	Mftrs. List No.	Order Code	Price Each 1+	5+	10+
250W	D3717	**116-6385**	71.26	64.12	55.91
500W	D3718	**116-6386**	98.63	88.43	77.09
1000W	D3719	**116-6387**	211.60	190.24	165.82

240/110V

A range of high quality safety isolating transformers of rugged construction designed to provide 110V supply for power tools, lighting etc.These transformers may also be used for continuous load operation.

- Designed, constructed and tested to comply with **BSEN61558,IEC61558** (formerly **EN60742** and **BS3535**)
- 110V secondary is centre tapped to earth to minimise the risk of electric shock
- Integral re-settable thermal cut out to prevent the unit from overheating in an overload situation
- Fitted with a 2m mains cable, and moulded non-rewirable 13A plug (NB plug not fitted to 430-6521)
- Manufactured with BS4343 style output sockets with spring flap covers
- Insulated GRP enclosure
- Double wound construction, with safety earth screen between primary and secondary windings

Mftrs. List No.	Order Code	Mftrs. List No.	Order Code	Mftrs. List No.	Order Code
10225	149-8766	10245	149-8771	10270	149-8774
10235	149-8767	10250	149-8772	10280	149-8775
10240	149-8768	10260	149-8773		

248417

Tool Rating (VA)	Continuous Rating (VA)	Output Sockets	Order Code	Price Each 1+	5+	10+	15+
750	500	1 x 16A	**149-8766**	65.29	63.75	59.61	58.40
1000	750	1 x 16A	**149-8767**	68.40	66.29	64.62	63.31
1000	750	2 x 16A	**149-8768**	73.02	70.76	68.98	67.59
1500	1000	1 x 16A	**149-8771**	77.31	74.92	73.04	71.55
1500	1000	2 x 16A	**149-8772**	81.99	79.44	77.47	75.89
2250	1500	2 x 16A	**149-8773**	84.13	81.51	79.48	77.88
3300	2000	2 x 16A	**149-8774**	90.17	87.35	85.16	83.44
5000	3000	2 x 16A, 1 x 32A	**149-8775**	195.31	189.24	184.51	180.78

Variable

Encapsulated - 1A to 8A

- Linear variable output, 0V to line voltage
- No distortion of waveform Smooth linear output
- Negligible maintenance
- Overload capacity
- Low magnetising current
- High efficiency / excellent regulation
- Rugged Construction

Input voltage 240V ac single phase

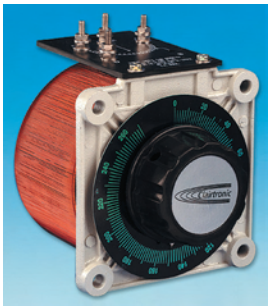
Output Voltage (V)	Rated Current (A)	Power Max. VA	Overall H	Dia.	Fixings	Wt. kg.	Mftrs. List No.
0 - 240	1.0	240	105	86	M3	1.75	10560
0 - 240	1.5	360	127	113	M3	2.75	10561
0 - 240	2.0	480	127	113	M3	3.25	10562
0 - 240	4.0	480	120	165	M6	6.5	10564
0 - 240	6.0	1440	125	165	M6	7.5	10565
0 - 240	8.0	2040	140	165	M6	8.5	10566

311806

Current Rating	Mftrs List No.	Order Code	Price Each 1+	5+	10+
1.0A	10560	**149-8750●**	54.49	53.27	51.14
1.5A	10561	**149-8751●**	60.38	59.04	56.70
2.0A	10562	**149-8752●**	69.11	67.59	64.89
4.0A	10564	**149-8753●**	126.05	123.25	118.35
6.0A	10565	**149-8754●**	134.55	131.80	126.26
8.0A	10566	**149-8755●**	143.20	140.02	134.45

Open/Enclosed, Single Phase - 0.7A to 28A

Clairtronic



Open wound

Enclosed

- Linear variable output, 0V to line voltage
- No distortion of waveform Smooth linear output
- Negligible maintenance
- Overload capacity
- Low magnetising current
- High efficiency / excellent regulation
- Rugged Construction

Input voltage 240V ac Output voltage 0 to 240/270V ac

Max. Current (A)	Max. VA	Height (excl. knob)	Overall W x D	Fixing Centres L x W	Dia. Fixing Hole	Mftrs. List No.	Order Code
Open Wound							
0.7	168	55	80 x 80	—	4	10530	149-8732
2.0	480	95	110 x 110	92 x 92	7	10531	149-8734
3.0	720	115	110 x 110	92 x 92	7	10532	149-8735
5.0	1200	130	175 x 175	146 x 146	10	10534	149-8736
8.0	1920	130	175 x 175	146 x 146	10	10535	149-8737
10.0	2400	135	175 x 175	146 x 146	10	10536	149-8738
15.0	3600	135	225 x 225	176 x 176	11	10537	149-8739
Enclosed							
0.7	168	160	160 x 130	—	—	10550	149-8740
2.0	480	160	160 x 130	—	—	10551	149-8741
3.0	720	160	160 x 130	—	—	10552	149-8742
5.0	1200	140	175 x 175	146 x 146	10	10554	149-8743
8.0	1920	170	175 x 175	146 x 146	10	10555	149-8744
10.0	2400	170	175 x 175	146 x 146	10	10556	149-8746
15.0	3600	190	225 x 225	176 x 176	11	10557	149-8747
20.0	4800	190	225 x 225	176 x 176	11	10558	149-8748
28.0	6720	225	300 x 300	238 x 238	13	10559	149-8749

311809

Current Rating	Order Code	Price Each 1+	5+	10+
Open Wound				
0.7A	**149-8732●**	49.79	48.69	46.75
2.0A	**149-8734●**	58.37	57.07	54.81
3.0A	**149-8735●**	85.43	83.57	80.30
5.0A	**149-8736●**	122.65	119.92	115.16
8.0A	**149-8737●**	140.06	136.96	131.53
10.0A	**149-8738●**	163.40	159.77	153.42
15.0A	**149-8739●**	248.07	242.56	232.90
Enclosed				
0.7A	**149-8740●**	73.15	71.53	68.68
2.0A	**149-8741●**	81.70	79.88	76.70
3.0A	**149-8742●**	105.05	102.73	98.66
5.0A	**149-8743●**	151.72	148.36	142.45
8.0A	**149-8744●**	163.37	159.76	153.45
10.0A	**149-8746●**	189.71	185.49	178.11
15.0A	**149-8747●**	280.11	273.90	263.00
20.0A	**149-8748●**	310.31	294.79	280.05
28.0A	**149-8749●**	428.01	406.60	386.26

Bench Top Type - 2.5A

H=155, W=137, D=192
(Product may differ from illustrtation)

- Compact bench-top variable power supply
- Robust steel enclosure
- 3-pin IEC outlet socket, or shrouded 4mm sockets
- Illuminated on/off switch
- 1.2m mains lead
- Ideal for schools, research and design labs
- Spare brush assemblies available

Input voltage	230V ac
Output voltage	0 to 260V ac
Rated current	2.5A
Max. VA	690VA

338519

Current Rating	Order Code	Price Each 1+	5+	10+
2.5A	**980-8230**	184.29	165.91	146.21

Bench Top - 3A to 10A

Clairtronic

- 230/240V Single Phase Input
- 13A output socket to BS1363A
- Output voltage range 112% of input
- Integral Safety Mains Tester
- Illuminated Power On/Off Switch
- Output On/Off switch & Control Knob
- 1m 3-core input cable with BS1363A plug
- Output protection fuse

	H	W	D
149-8764	195	280	215
149-8765	195	280	215

Input voltage	240V ac
Output voltage	0 to 270V ac

Current Rating (Amps)	Max. VA	Mftrs. List No.	Order Code
5.0	1350	10596	149-8764
10.0	2700	10597	149-8765

311811

Current Rating	Order Code	Price Each 1+	5+	10+
5.0A	**149-8764●**	293.82	287.08	275.26
10.0A	**149-8765●**	442.16	431.99	414.20

Portable - 5A and 10A

Clairtronic

- 230/240V single phase input 13A output socket to BS1363A
- Output voltage range 115% of input voltmeter & ammeter
- Power on indication lamp input & output fuse protection
- 1m 3-core input cable with BS1363A plug
- 3x 4mm shrouded output test sockets
- Output on/off switch & control knob
- 1m 3-core input cable with BS1363A

H=270, W=210, D=200

	116-6421	**116-6422**
Input voltage	240V ac	240V ac
Output voltage	0 - 276V ac	0 - 276V ac
Max. current	5A	10A
Ammeter scale	0 - 5A	0 - 10A
Voltmeter scale	0 - 300V	0 - 300V

311813

Current Rating	Mftrs. List No.	Order Code	Price Each 1+	5+	10+
5A	10590	**116-6421●**	553.78	535.72	508.62
10A	10591	**116-6422●**	447.83	433.22	411.31

Current Sensing

Current Sensing

5600 Series

muRata Ps Murata Power Solutions

The 5600 series of current sense transformers are designed to control, measure, or monitor ac currents. The transformers can be used as feedback elements between the output and pulse control circuitry providing regulation of switched mode power supplies, other applications include, motor current load/overload, lighting and instrumentation.

- 50, 100, 200 & 300 Turn variants
- Primary current rating to 10A
- Primary to secondary isolation 500VDC
- 20kHz-200kHz frequency range
- Centre tapped variants available

Mftrs. List No.	Number of Turns ± 1 Turn	Inductance Range Pins 1&3, 5kHz	DC Resistance Pins 1&3, Ω	Terminating Resistance to Produce 1VOUT/1AIN Ω ±5%	Order Code
56050C	50	5.00 - 9.30mH @1V	0.133 - 0.199	50	145-4865
56100C	100	20.0 - 37.0mH @1V	0.93 - 1.40	100	145-4866
56200C	200	80.0 - 150mH @ 2V	1.87 - 2.81	200	145-4867
56300C	300	180 - 335mH @3V	5.73 - 8.59	300	145-4868
56T100C	100CT	20.0 - 37.0mH @1V	0.93 - 1.40	100	145-4871
56T200C	200CT	80.0 - 150mH @2V	1.87 - 2.81	200	145-4872
56T300C	300CT	180 - 335mH @3V	5.73 - 8.59	300	145-4873

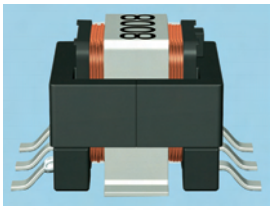
483255

	Order Code	Price Each 1+	10+	25+	50+
5600 Series	**All Order Codes●**	1.60	1.54	1.50	1.45

Current Sensing - continued

Current Sensing
E 5 Core

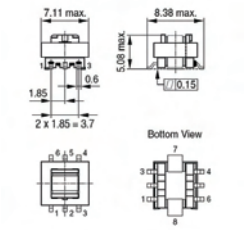
EPCOS



New

The E 5 series represents a compatible solution for existing designs based on an EE5 core. The DC resistance of the primary winding is 0.8 mΩ and the rated current is 20 A for all types of this series. They have a test voltage of 500 V AC.

- Switching power supplies
- Feedback control
- Overload sensing
- Load drop/shut down detection
- Very low DC resistance



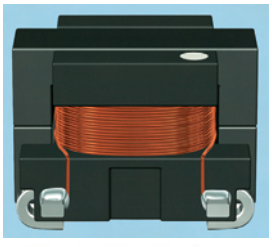
Order Code	Inductance (µH)	Turn Ratio	DC Resistance (mΩ) Primary	DC Resistance (mΩ) Secondary	V_{test} V AC
157-9326	80	1:20	0.8	400	500
157-9327	180	1:30	0.8	870	500
157-9328	320	1:40	0.8	1140	500
157-9329	500	1:50	0.8	1500	500
157-9330	720	1:60	0.8	1980	500
157-9331	980	1:70	0.8	4750	500
157-9333	2000	1:100	0.8	5500	500
157-9334	3000	1:125	0.8	6500	500

508782

Order Code	Price Each 1+	10+	25+	50+
All Order Codes●	1.77	1.72	1.68	1.64

Current Sensing
E 4.2 Core

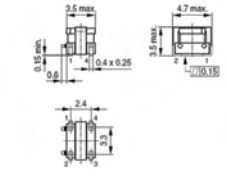
EPCOS



New

The E 4.2 series was developed as a miniature variant with a significantly more compact core. The primary winding is integrated in the coil former in a space saving way. Its DC resistance is 2.5 mΩ and its rated current is 7 A. The test voltage of these types is 360 V AC.

- Switching power supplies
- Feedback control
- Overload sensing
- Load drop/shut down detection
- Very low DC resistance



Order Code	Inductance (µH)	Turn Ratio	DC Resistance (mΩ) Primary	DC Resistance (mΩ) Secondary	V_{test} V AC
157-9316	33	1:20	2.5	320	360
157-9317	74	1:30	2.5	800	360
157-9318	132	1:40	2.5	1300	360
157-9321	205	1:50	2.5	2200	360
157-9322	295	1:60	2.5	3600	360
157-9323	400	1:70	2.5	4600	360
157-9324	820	1:100	2.5	8700	360
157-9325	1280	1:125	2.5	13000	360

508778

Order Code	Price Each 1+	10+	25+	50+
All Order Codes●	2.68	2.62	2.56	2.49

Troubleshooting tips

Chat live online to one of our technical engineers at **www.farnell.co.uk**

Components

Material Selection Guide

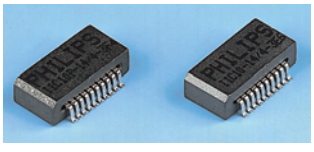
Ferrite Material	Material Characteristics
3H3	● Low Losses ● Defined temperature factor to compensate drift of capacitor ● Very stable with time
3S4/4C65	● High impedance in covered frequency range
3E25/3E5/3E6	● High permability
3C90	● High saturation level
3C90/3F3/3F4	● Low power losses ● High saturation

Ferrite Material	Main Application Areas
3H3/3E5/3E6	Telecom filters, signal transformers, pulse transformers,
3E25	delay lines
3C90/3F3/3F4	Power conversion, general purpose transformers
3S4/4C65	Suppression
3R1	Magnetic regulators

223855

Integrated Inductive Components - IIC

FERROXCUBE



- Surface mount component comparable in size to standard integrated circuits
- Windings are completed by PCB tracks
- Wide range of magnetic functions can be realised with the same product, depending on layout
- Available with or without airgap

Applications for IIC without Airgap include:
Power transformer
Signal transformer
Common-mode choke

Applications for IIC with Airgap include:
Power inductors
Output Choke
EMI-choke with bias

Operating temperature: -55°C to +150°C

Reel quantity: 1000 pieces

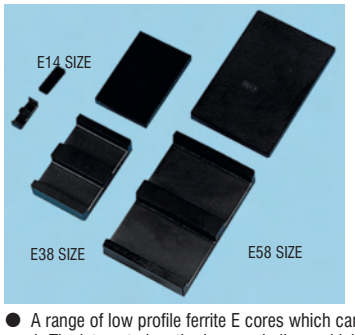
Mftrs. List No.	Order Code	Mftrs. List No.	Order Code
IIC10-14/4-3F4	305-6776	IIC10P-14/4-3F4	305-6764
IIC10-14/4-3S4	305-6788		

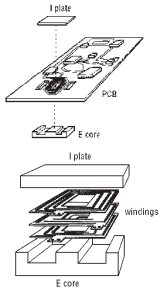
223851

With Partial Airgap	Material Grade	Order Code	Price Each 1+	10+	30+	100+	300+	1K+
IIC10P-14/4	3F4	**305-6764**	3.64	3.25	2.85	2.51	2.28	2.06
Without Airgap								
IIC10-14/4	3F4	**305-6776**	3.64	3.25	2.85	2.51	2.28	2.06
IIC10-14/4	3S4	**305-6788**	3.41	2.99	2.67	2.51	2.11	2.03

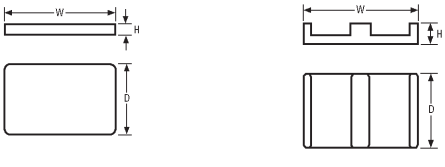
Planar Cores

FERROXCUBE





- A range of low profile ferrite E cores which can be used in 2 ways:
  1. The integrated method uses windings which are etched into a multi-layer PCB i.e. the coils are an integral part of the PCB
  2. The stand alone method uses coils etched onto mono layer PCB's which are then stacked between the planar cores
- Transformer and choke designs with power throughput from 10 to 1500 Watts achievable
- E cores can be glued to their mating parts, or sizes E14, E18 and E22 can be clipped together using spring clips
- Planar advantages include: very low profile, less skin effect with flat conductors, good coupling of stacked coils, no bobbin necessary, no winding labour costs, no winding errors and excellent repeatability
- Mftrs. List No. gives EW/H/D-material for E cores and PLTW/D/H/-material for I plates



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	Mftrs. List No.	Order Code	Price Each 1+	30+	100+	300+	500+	1K+
E14 Core Size								
E Core	E14/3.5/5/R-3F3	**926-462●**	1.210	0.910	0.830	0.660	0.610	0.570
I Plate	PLT14/5/1.5/S-3F3	**926-474●**	1.150	0.870	0.740	0.620	0.570	0.530
E Core	E14/3.5/5/R-3C90	**305-5966●**	0.370	0.320	0.280	0.270	0.250	0.210
I Plate	PLT14/5/1.5/S-3C90	**305-5978●**	0.860	0.790	0.690	0.620	0.580	0.490
E Core	E14/3.5/5/R-3F4	**305-5980●**	0.530	0.430	0.390	0.340	0.330	0.280
I Plate	PLT14/5/1.5/S-3F4	**305-5991●**	1.060	0.990	0.890	0.790	0.700	0.600
Clip	CLM-E14/PLT14	**926-486●**	0.520	0.420	0.320	0.270	0.250	0.240
E18 Core Size								
E Core	E18/4/10/R-3F3	**926-498●**	1.530	1.140	1.020	0.860	0.780	0.710
I Plate	PLT18/10/2/S-3F3	**926-504●**	1.450	1.050	0.930	0.790	0.700	0.660
E Core	E18/4/10/R-3C90	**305-6004●**	1.460	1.180	1.050	0.970	0.920	0.790
I Core	PLT18/10/2/S-3C90	**305-6016●**	1.170	1.100	0.970	0.870	0.790	0.650
E Core	E18/4/10/R-3F4	**305-6028●**	0.690	0.570	0.500	0.460	0.450	0.380
I Plate	PLT18/10/2/S-3F4	**305-6030●**	0.420	0.390	0.340	0.300	0.280	0.240
Clip	CLM-E18/PLT18	**926-516●**	0.520	0.420	0.320	0.270	0.250	0.240
E22 Core Size								
E Core	E22/6/16/R-3F3	**926-528●**	1.940	1.410	1.240	1.040	0.950	0.890
I Plate	PLT22/16/2.5/S-3F3	**926-530●**	1.780	1.330	1.180	0.990	0.910	0.860
E Core	E22/6/16/R-3C90	**305-6041●**	1.750	1.450	1.280	1.150	1.130	0.950
I Plate	PLT22/16/2.5/ S-3C90	**305-6053●**	1.520	1.400	1.220	1.090	0.990	0.840
E Core	E22/6/16/R-3F4	**305-6065●**	2.090	1.680	1.520	1.400	1.330	1.100
I Plate	PLT22/16/2.5/S-3F4	**305-6077●**	1.810	1.660	1.480	1.310	1.180	0.970
Clip	CLM-E22/PLT22	**926-541●**	0.520	0.420	0.320	0.270	0.250	0.240
E32 Core Size								
E Core	E32/6/20-3F3	**926-577●**	1.090	0.990	0.880	0.840	0.800	0.750
I Plate	PLT32/20/3.2-3F3	**926-589●**	1.000	0.910	0.820	0.750	0.710	0.670
E Core	E32/6/20-3C90	**305-6089●**	1.620	1.330	1.180	1.080	1.010	0.880
I Plate	PLT32/20/3.2-3C90	**305-6090●**	2.190	2.020	1.740	1.540	1.430	1.150
E Core	E32/6/20-3F4	**305-6107●**	1.500	1.230	1.100	0.990	0.940	0.810
I Plate	PLT32/20/3.2-3F4	**305-6119●**	2.590	2.370	2.070	1.810	1.630	1.360
E38 Core Size								
E Core	E38/8/25-3F3	**926-619●**	3.760	2.820	2.550	2.270	2.110	2.010
I Plate	PLT38/25/3.8-3F3	**926-620●**	3.380	2.570	2.280	2.020	1.870	1.720
E Core	E38/8/25-3C90	**305-6144●**	1.810	1.480	1.320	1.200	1.160	0.960
I Plate	PLT38/25/3.8-3C90	**305-6156●**	1.190	1.090	0.950	0.830	0.750	0.620
E Core	E38/8/25-3F4	**305-6120●**	2.680	2.190	1.940	1.750	1.680	1.440
I Plate	PLT38/25/3.8-3F4	**305-6132●**	3.020	2.760	2.410	2.100	1.920	1.550
E43 Core Size								
E Core	E43/10/28-3F3	**926-656●**	5.120	3.860	3.490	2.970	2.770	2.670
I Plate	PLT43/28/4.1-3F3	**926-668●**	2.580	1.940	1.740	1.460	1.370	1.320
E Core	E43/10/28-3C90	**305-6168●**	2.810	2.290	2.060	1.870	1.750	1.500
E58 Core Size								
E Core	E58/11/38-3F3	**926-693●**	8.320	6.300	5.610	4.990	4.570	4.290
I Plate	PLT58/38/4-3F3	**926-700●**	7.240	5.470	4.880	4.340	4.020	3.770
E Core	E58/11/38-38-3C90	**305-6200●**	5.560	4.530	4.060	3.670	3.520	2.970
I Plate	PLT58/38/4-3C90	**305-6211●**	4.130	3.770	3.290	2.860	2.620	2.470
E Core	E58/11/38-3F4	**305-6223●**	6.200	5.050	4.510	4.080	3.930	3.330
I Plate	PLT58/38/4-3F4	**305-6235●**	4.830	4.650	4.440	4.090	3.580	3.080
E64 Core Size								
E Core	E64/10/50/50-3C90	**305-6247●**	9.520	7.790	6.940	6.280	6.020	5.100
I Plate	PLT64/50/5.1-3C90	**305-6259●**	5.390	5.210	4.990	4.650	4.350	3.820
I Plate	PLT64/50/5.1-3F3	**305-6272●**	2.370	2.312	2.257	2.205	2.155	2.107
E Core	E64/10/50-3F4	**305-6284●**	6.730	5.480	4.900	4.460	4.250	3.590
I Plate		**305-6296●**	2.980	2.880	2.820	2.670	2.440	2.320

ER Cores and Accessories

EPCOS

	H	W	D
ER9.5	2.5	9.5	5
ER11	2.5	11	6

Transformer Half Core	Material Grade	AL +30% -20%	Mftrs. List No.	Order Code	Coilformer	Mftrs. List No.	Order Code
ER9.5	N97	840	B65523JR97	142-2738	ER9.5	B65527B1008T1	142-2739
ER11	N97	1200	B65525JR97	142-2742	ER11	B65526B1010T1	142-2743

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ER9.5		Order Code	Price Each 1+	250+	500+	1K+
Half core	N97	**142-2738●**	0.490	0.480	0.450	0.430
Coilformer	One section 10 pin	**142-2739●**	0.540	0.520	0.500	0.490
Steel clip		**142-2740●**	0.450	0.430	0.410	0.380
ER11						
Half core	N97	**142-2742●**	0.540	0.510	0.490	0.480
Coilformer	One section 10 pin	**142-2743●**	0.950	0.920	0.880	0.850
Steel clip		**142-2744●**	0.130	0.125	0.120	0.115

ER Cores and Accessories

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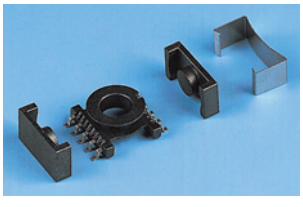


- Suitable for power and signal transformers
- Design provides low copper losses
- Surface mount bobbins

SMD

	Per Half Core H	W	D	Bobbin H	W	D
ER9.5	2.45	9.5	5.0	4.4	11.7	8.6
ER11	2.45	11.0		4.4	12.35	10.6

Mftrs. List Nos	Order Code	Mftrs. List Nos	Order Code
ER9.5-3E5-S	305-7033	ER11-3E5-S	305-7057
ER9.5-3F3-S	305-7045	ER11-3F3-S	305-7069
CPVS-ER95-1S-8P	116-2322	CPVS-ER11-1S-10P	116-2323
CLM-ER95	307-2629	CLM-ER11	307-2642

223852

ER9.5	Material Grade	Order Code	Price Each 1+	10+	30+	100+	300+	1K+
Full Core	3E5	SMD **305-7033●**	1.980	1.870	1.660	1.520	1.360	1.100
Full Core	3F3	SMD **305-7045●**	1.710	1.630	1.540	1.480	1.350	1.240
Bobbin	Single Section 8 pin	SMD **116-2322●**	0.710	0.600	0.560	0.470	0.400	0.310
Clamp		SMD **307-2629●**	0.570	0.480	0.400	0.340	0.220	0.137
ER11								
Full Core	3E5	SMD **305-7057●**	2.030	1.980	1.850	1.670	1.580	1.410
Full Core	3F3	**305-7069●**	0.950	0.920	0.900	0.870	0.770	0.670
Bobbin	Single Section 10 pin	SMD **116-2323●**	0.390	0.350	0.340	0.320	0.300	0.290
Clamp		SMD **307-2642●**	0.560	0.490	0.430	0.360	0.300	0.240

Without Centre Hole

FERROXCUBE

Transformer Full-Core	Material Grade	AL±25% @ 4kHz @ 0.1mT	Mftrs. List No.	Order Code
RM4/I	3E5	—	RM4/I-3E5	136-920
RM5/I	3E5	—	RM5/I-3E5	136-943
RM5/I	3C90	—	RM5/I-3C90	305-6910
RM6-SI	3H3	—	RM6S/I-3H3	305-6879
RM6-SI	3E5	—	RM6S/I-3E5	305-6818
RM6-SI	3C90	—	RM6S/I-3C90	305-6820
RM7/I	3C90	—	RM7/I-3C90	312-3431
RM8/I	3C90	—	RM8/I-3C90	305-6831
RM8/I	3H3	—	RM8/I-3H3	305-6880
RM10/I	3E5	—	RM10/I-3E5	305-6909
RM10/I	3C90	—	RM10/I-3C90	305-6843
RM12/I	3C90	—	RM12/I-3C90	305-6855
RM14/I	3C90	—	RM14/I-3C90	305-6867

AL=Inductance Factor (nH)= L / N^2

223880

Transformer Full-Core	Order Code	Price Each 1+	30+	300+	1K+
RM4/I	**136-920●**	2.79	2.27	1.98	1.44
RM5/I	**136-943●**	2.42	1.97	1.68	1.22
RM5/I	**305-6910●**	1.05	0.83	0.65	0.56
RM6-SI	**305-6879●**	2.01	1.55	1.31	1.11
RM6-SI	**305-6818●**	2.19	1.96	1.61	1.52
RM6-SI	**305-6820●**	1.89	1.46	1.24	1.11
RM7/I	**312-3431●**	2.40	2.15	1.84	1.61
RM8/I	**305-6831●**	2.64	2.10	1.79	1.49
RM8/I	**305-6880●**	2.93	2.47	2.07	1.92
RM10/I	**305-6909●**	5.21	4.79	4.16	3.80
RM10/I	**305-6843●**	3.25	2.90	2.59	2.27
RM12/I	**305-6855●**	4.68	4.30	3.83	3.58
RM14/I	**305-6867●**	5.16	4.88	4.55	4.46

Accessories for RM Transformer

FERROXCUBE

Mftrs. List No.	Order Code	Mftrs. List No.	Order Code	Mftrs. List No.	Order Code
CPVS-RM4-1S-6P	136-967	CSV-RM7/I-2S-8P	200-736	CSV-RM10-2S-8P	178-921
CLI-RM4/5/I	137-005	CSV-RM8-1S-4P	178-916	CLI/P-RM10/I	443-773
CSV-RM5-1S-6P-G	136-980	CSV-RM8-1S-8PL	178-917	CPV-RM12/I-1S-12PD	178-513
CLI-RM4/5/I	137-005	CLI/P-RM8/I	443-750	CLI/P-RM12/I	433-135
CLI/P-RM6/I	136-815	CSV-RM10-1S-5P	178-919	CSV-RM14-1S-12P	200-657
CSV-RM6S-1S-6P-G	312-3443	CSV-RM10-1S-8P	178-920	CLI/P-RM14/I	291-432

223873

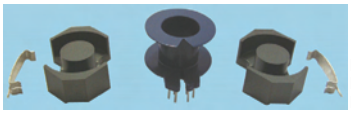
Core Size	Description	Order Code	Price Each 1+	30+	300+	1K+
RM4	One section 6 pin bobbin	**136-967●**	0.390	0.320	0.290	0.280
	Retaining clip RM4/5	**137-005●**	0.090	0.067	0.059	0.043
RM5◆	One section 6 pin bobbin	**136-980●**	1.320	1.040	0.890	0.650
	Retaining clip RM4/5	**137-005●**	0.090	0.067	0.059	0.043
RM6-R	Retaining clip + earth tag	**136-815●**	0.089	0.049	0.031	0.027
RM-S◆	One section 6 pin bobbin	**312-3443●**	0.690	0.580	0.520	0.490
RM7	One section 8 pin bobbin	**200-736**	0.610	0.450	0.440	0.430
RM8	One section 4 pin bobbin	**178-916●**	0.830	0.580	0.430	0.420
	One section 8 pin bobbin	**178-917●**	1.500	1.040	0.790	0.640
	Retaining clip + earth tag	**443-750●**	0.250	0.131	0.087	0.070
RM10	One section 5 pin bobbin	**178-919●**	1.720	1.210	0.910	0.730
	One section 8 pin bobbin	**178-920●**	1.720	1.210	0.910	0.710
	Two section 8 pin bobbin	**178-921●**	0.880	0.620	0.497	0.486
	Retaining clip + earth tag	**443-773●**	0.320	0.171	0.102	0.091
RM12	One section 12 pin bobbin	**178-513●**	3.680	2.580	1.940	1.540
	Retaining clip + earth tag	**433-135●**	0.300	0.161	0.102	0.087
RM14	One section 12 pin bobbin	**200-657**	3.830	2.680	2.010	1.610
	Retaining clip + earth tag (RM14/i only)	**291-432●**	0.480	0.260	0.174	0.150

◆Note:- Retaining clip + earth tag is common to RM6-R and RM6-S transformers

Farnell

Components - continued

RM Cores and Accessories



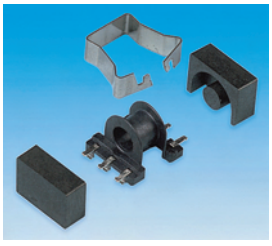
	H	W	D
RM6	6.25	12.4	8.2
RM8	8.25	17	11
RM10	9.35	21.2	13.5

Transformer Half Core	Material Grade	AL +30% -20%	Mftrs. List No.	Order Code	Coilformer	Mftrs. List No.	Order Code
RM6	N87	2400	B65807JR87	142-2717	RM6	B65808K1006D1	142-2718
RM8	N87	3300	B65811JR87	142-2720	RM8	B65812N1012D1	142-2721
RM10	N87	4200	B65813JR87	142-2723	RM10	B65814K1012D1	142-2724

479784

			Price Each			
RM6		**Order Code**	1+	250+	500+	1K+
Half core	N87	**142-2717●**	0.840	0.810	0.780	0.750
Coilformer	One section 6 pin	**142-2718●**	0.900	0.860	0.830	0.800
Steel clip		**142-2719●**	0.130	0.118	0.107	0.097
RM8						
Half core	N87	**142-2720●**	1.720	1.670	1.610	1.560
Coilformer	One section 12 pin	**142-2721●**	1.080	1.050	1.010	0.980
Steel clip		**142-2722●**	0.162	0.151	0.139	0.129
RM10						
Half core	N87	**142-2723●**	2.910	2.830	2.720	2.630
Coilformer	One section 12 pin	**142-2724●**	1.390	1.350	1.300	1.260
Steel clip		**142-2725●**	0.183	0.172	0.161	0.150

EP Cores and Accessories



- Suitable for wideband transformer applications
- High pcb packing densities
- Design provides excellent magnetic shielding from adjacent cores

	H	W	D
EP7	6.5	7.5	6.5
EP10	7.6	11.5	10.2
EP13	9	12.8	13

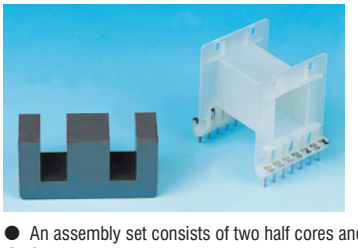
Mftrs. List Nos	Order Code	Mftrs. List Nos	Order Code
EP7-3C90	305-6727	CSH-EP10-1S-8P	307-2551
EP7-3E6	305-6739	CLI-EP10	307-2563
EP7-3F3	305-6740	EP13-3C90	305-6697
CSH-EP7-1S-6P-B	116-2321	EP13-3E6	305-6703
CLI-EP7	307-2605	EP13-3F3	305-6715
EP10-3C90	305-6661	CSH-EP13-1S-10P	307-2575
EP10-3E6	305-6673	CLI-EP13	307-2587
EP10-3F3	305-6685		

An assembly set consists of a full core, bobbin and one clip.

223850

	Material Grade				Price Each			
EP7		**Order Code**	1+	10+	30+	100+	300+	1K+
Full Core	3C90	**305-6727●**	1.520	1.360	1.230	1.110	0.990	0.890
Full Core	3E6	**305-6739●**	2.010	1.880	1.700	1.620	1.350	1.150
Full Core	3F3	**305-6740●**	0.830	0.780	0.730	0.710	0.540	0.480
Bobbin	Single Section 6 pin	**116-2321●**	0.310	0.250	0.195	0.189	0.184	0.179
Clip		**307-2605●**	0.260	0.220	0.172	0.153	0.101	0.082
EP10								
Full Core	3C90	**305-6661●**	1.680	1.440	1.230	1.110	0.950	0.870
Full Core	3E6	**305-6673●**	1.330	1.200	1.030	0.880	0.680	0.620
Full Core	3F3	**305-6685●**	1.900	1.700	1.530	1.260	1.040	1.000
Bobbin	Single Section 8 pin	**307-2551●**	0.320	0.250	0.196	0.166	0.152	0.149
Clip		**307-2563●**	0.290	0.230	0.193	0.159	0.133	0.105
EP13								
Full Core	3C90	**305-6697●**	1.750	1.610	1.480	1.220	1.020	0.960
Full Core	3E6	**305-6703●**	2.200	1.940	1.790	1.700	1.580	1.480
Full Core	3F3	**305-6715●**	2.000	1.850	1.660	1.350	1.170	1.100
Bobbin	Single Section	**307-2575●**	1.020	0.800	0.640	0.540	0.450	0.350
Clip		**307-2587●**	0.290	0.230	0.199	0.166	0.133	0.108

E Cores and Accessories



	H	W	D
E42	33	42.5	43
E55	46	56	57

- An assembly set consists of two half cores and a coil former
- Suitable for large power capacity power supplies
- High saturation flux density and low power loss
- N27 material recommended for power applications up to 100kHz
- N67 material recommended for power applications from 100kHz to 300kHz

Transformer Half Core	Material Grade	AL +30% -20%	Mftrs. List No.	Order Code	Coilformer	Mftrs. List No.	Order Code
E42	N27	3500	B66325GX127	119-0595	E42	B66242J1000R1	119-0598
E42	N67	3800	B66325GX187	119-0596	E55	B66252BM1	119-0599
E55	N27	5800	B66335GX127	119-0597			

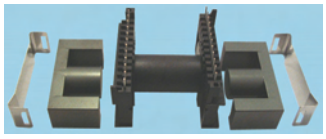
AL=Inductance Factor (nH)=L/N^2

Note: The most favoured method of fixing the half cores together is adhesive bonding. Suitable adhesive Order Code 318-036

223846

			Price Each				
		Order Code	1+	50+	250+	500+	1K+
E42							
Half core	N27	**119-0595●**	0.90	0.86	0.79	0.73	0.62
Half core	N67	**119-0596●**	1.31	1.12	0.98	0.86	0.79
Coilformer single section 10 pin		**119-0598●**	1.56	1.32	1.17	1.04	0.88
E55							
Half core	N27	**119-0597●**	3.06	2.90	2.68	2.43	2.13
Coilformer single section 14 pin		**119-0599●**	2.21	2.11	1.93	1.76	1.54

ETD Cores and Accessories



	H	W	D		H	W	D		H	W	D		H	W	D
ETD29	16	30.6	9.8	ETD39	20	38.9	12.8	ETD54	27.8	54.5	19.3	ETD59	31.2	59.8	22.1

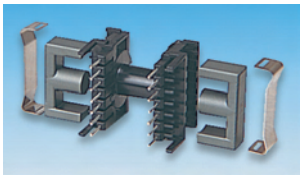
Transformer Half Core	Material Grade	AL +30% -20%	Mftrs. List No.	Order Code	Coilformer	Mftrs. List No.	Order Code
ETD29	N97	2250	B66358GX197	142-2745	ETD29	B66359W1013T1	142-2746
ETD39	N97	2800	B66363GX197	142-2748	ETD39	B66364W1016T1	142-2749
ETD54	N97	4600	B66395GX197	142-2751	ETD54	B66396W1022T1	142-2752
ETD59	N97	5500	B66397GX197	142-2755	ETD59	B66398W1024T1	142-2756

479810

			Price Each			
ETD29		**Order Code**	1+	250+	500+	1K+
Half core	N97	**142-2745●**	0.49	0.47	0.45	0.44
Coilformer	One section 13 pin	**142-2746●**	0.82	0.79	0.76	0.74
Steel clip		**142-2747●**	0.29	0.28	0.27	0.26
ETD39						
Half core	N97	**142-2748●**	0.85	0.83	0.80	0.78
Coilformer	One section 16 pin	**142-2749●**	1.13	1.10	1.06	1.03
Steel clip		**142-2750●**	2.26	2.19	2.11	2.05
ETD54						
Half core	N97	**142-2751●**	2.77	2.69	2.58	2.50
Coilformer	One section 22 pin	**142-2752●**	1.42	1.38	1.33	1.29
Steel clip		**142-2754●**	0.59	0.57	0.55	0.53
ETD59						
Half core	N97	**142-2755●**	3.70	3.58	3.45	3.33
Coilformer	One section 24 pin	**142-2756●**	1.60	1.55	1.50	1.45
Steel clip		**142-2757●**	0.80	0.78	0.75	0.73

Ferroxcube ETD Cores and Accessories

Material Grade 3C90



A range of ungapped E cores suitable for power application where a high operating flux density and low total core-loss is required. 3C90 is a low loss, medium frequency ferrite for applications up to 200kHz, such as switched mode power supplies and inverters. Two cores, one bobbin and two stainless steel clips are required to make up a transformer.

Note: New design of bobbin has square pins instead of round and is 2-3mm lower in height but functionally is identical

Mftrs. List Nos	Order Code	Mftrs. List Nos	Order Code	Mftrs. List Nos	Order Code
ETD29/16/10-3C90	305-6375	CPH-ETD39-1S-16P	305-6314	CLI-ETD49	105-778
CPH-ETD29-1S-13P	178-506	CLI-ETD39	105-772	ETD54/28/19-3C90	305-6429
CLI-ETD29	178-507	ETD44/22/15-3C90	305-6405	CPH-ETD54-1S-22P	137-029
ETD34/17/11-3C90	305-6387	CPH-ETD44-1S-18P	305-6326	CLI-ETD54	137-030
CPH-ETD34-1S-14P	305-6302	CLI-ETD44	105-775	ETD59/31/22-3C90	305-6430
CLI-ETD34	105-769	ETD49/25/16-3C90	305-6417	CPH-ETD59-1S-24P	137-054
ETD39/20/13-3C90	305-6399	CPH-ETD49-1S-20P	305-6338	CLI-ETD59	137-066

223879

	Dimensions				Price Each			
ETD29	W	L	D	**Order Code**	1+	30+	300+	1K+
Half core	29	16	10	**305-6375●**	1.520	1.040	0.840	0.690
Bobbin	One section 13 pin			**178-506●**	1.740	1.220	0.920	0.710
Steel clip				**178-507●**	0.310	0.200	0.174	0.136
ETD34								
Half core	35	17	11	**305-6387●**	1.610	1.110	0.890	0.730
Bobbin	One section 14 pin			**305-6302●**	2.250	1.900	1.700	1.520
Steel clip				**105-769●**	0.480	0.260	0.174	0.150
ETD39								
Half core	39	20	12	**305-6399●**	1.880	1.570	1.350	1.110
Bobbin	One section 16 pin			**305-6314●**	2.400	1.940	1.650	1.480
Steel clip				**105-772●**	0.530	0.310	0.192	0.163
ETD44								
Half core	44	22	15	**305-6405●**	2.930	2.270	2.000	1.580
Bobbin	One section 18 pin			**305-6326●**	2.630	2.270	2.100	1.670
Steel clip				**105-775●**	0.670	0.340	0.220	0.179

ETD29	Dimensions W	L	D	Order Code	Price Each 1+	30+	300+	1K+
ETD49								
Half core	49	25	16	**305-6417●**	2.730	2.150	1.940	1.620
Bobbin	One section 20 pin			**305-6338●**	2.800	2.580	2.530	2.330
Steel clip				**105-778●**	0.660	0.390	0.250	0.210
ETD54								
Half core	54	28	19	**305-6429●**	3.740	3.560	3.150	2.970
Bobbin	One section 22 pin			**137-029●**	7.050	5.510	4.780	3.450
Steel clip				**137-030●**	0.680	0.530	0.470	0.350
ETD59								
Half core	59	31	22	**305-6430●**	4.430	4.130	4.030	3.720
Bobbin	One section 24 pin			**137-054●**	7.310	5.730	4.970	3.580
Steel clip				**137-066●**	1.260	1.040	0.910	0.640

EF Cores and Accessories

EPCOS

	H	W	D		H	W	D		H	W	D
EF20	10.1	20.4	5.9	EF25	12.8	25	7.5	E30	15.2	30	7.3

Transformer Half Core	Material Grade	AL +30% -20%	Mftrs. List No.	Order Code	Coilformer	Mftrs. List No.	Order Code
EF20	N87	1470	B66311GX187	142-2758	EF20	B66206A1110T1	142-2759
EF25	N87	1850	B66317GX187	142-2761	EF25	B66208A1110T1	142-2762
E30	N87	1900	B66319GX187	142-2764	E30	B66232A1114T1	142-2766

479694

EF20		Order Code	Price Each 1+	250+	500+	1K+
Half core	N87	**142-2758●**	0.210	0.193	0.182	0.171
Coilformer	One section 10 pin	**142-2759●**	1.050	1.020	0.980	0.950
Steel clip		**142-2760●**	0.360	0.340	0.330	0.320
EF25						
Half core	N87	**142-2761●**	0.290	0.280	0.270	0.260
Coilformer	One section 10 pin	**142-2762●**	0.800	0.780	0.750	0.730
Steel clip		**142-2763●**	0.172	0.162	0.150	0.139
E30						
Half core	N87	**142-2764●**	0.350	0.340	0.330	0.320
Coilformer	One section 14 pin	**142-2766●**	1.320	1.280	1.220	1.180
Steel clip		**142-2767●**	0.240	0.230	0.220	0.200

EFD Cores and Accessories, Surface Mount

FERROXCUBE

SMD

Material Grade 3F3, 3F4 and 3C90

A range of cores and bobbins offering a combination of very low build height and high throughput power densities. Applications include dc-dc converters, switch mode power supplies and other power conversion circuits. 3F3 is a material for designs up to 1MHz 3F4 is recommended for designs up to 3MHz, such as resonant converters. 3C90 is recommended for designs up to 200kHz, such as general purpose transformers.

	EFD10 H	W	D	EFD15 H	W	D
Half core	2.7	10.5	5.2	4.65	15	7.5
Bobbin	5.4	11.7	14.7	7.5	16.7	

Note: The most favoured method of fixing the half cores together is by adhesive bonding.

Mftrs. List Nos	Order Code	Mftrs. List Nos	Order Code	Mftrs. List Nos	Order Code
EFD10-3F3-S	482-602	CLM-EFD10	310-2427	EFD12-3C90-S	310-2397
EFD10-3F4-S	482-614	EFD12-3F3-S	482-638	CLM-EFD12	310-2439
CPHS-EFD10/3-1S-8P	482-626				

An assembly set is a full core, bobbin and one clamp

223881

EF10	Core Grade	Order Code	Price Each 1+	30+	300+	1K+
Full core	3F3	SMD **482-602●**	3.140	2.240	1.680	1.390
Full core	3F4	SMD **482-614●**	6.270	4.550	3.390	2.680
Bobbin, 8 pin		SMD **482-626●**	1.230	0.870	0.650	0.520
Steel Clamp		SMD **310-2427●**	0.860	0.440	0.197	0.154
EFD12						
Full core	3F3	SMD **482-638●**	2.620	1.890	1.440	1.130
Full core	3C90	SMD **310-2397●**	2.590	1.230	0.800	0.650
Steel Clamp		SMD **310-2439●**	0.380	0.200	0.092	0.073

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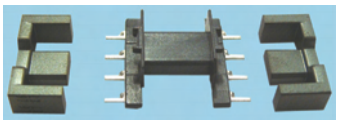
EFD Cores and Accessories

EPCOS



	H	W	D
EFD15	7.5	15	4.65
EFD20	10	20	6.65
EFD25	12.5	25	9.1
EFD30	15	30	9.1

Transformer Half Core	Material Grade	AL +30% -20%	Mftrs. List No.	Order Code
EFD15	N97	820	B66413GX197	142-2726
EFD20	N97	1250	B66417GX197	142-2729
EFD25	N97	2100	B66421GX197	142-2731
EFD30	N97	2150	B66423GX197	142-2732
Coilformer				
EFD15			B66414B6008T1	142-2727
EFD20			B66418W1008D1	119-0586
EFD25			B66422W1010D1	119-0589
EFD30			B66424W1012D1	119-0592

479820

EFD15	Order Code	Order Code	Price Each 1+	250+	500+	1K+
Half core	N97	**142-2726●**	1.13	1.08	1.00	0.91
Coilformer	One section 8 pin	**142-2727●**	1.44	1.38	1.27	1.14
Retaining clip		**119-0584●**	0.28	0.27	0.25	0.23
EFD20						
Half core	N97	**142-2729●**	0.57	0.54	0.50	0.46
Coilformer	One section 8 pin	**119-0586●**	0.70	0.64	0.59	0.54
Retaining clip		**119-0587●**	0.28	0.27	0.25	0.23
EFD25						
Half core	N97	**142-2731●**	1.13	1.08	1.00	0.91
Coilformer	One section 10 pin	**119-0589●**	0.93	0.79	0.70	0.62
Retaining clip		**119-0590●**	0.18	0.15	0.12	0.11
EFD30						
Half core	N97	**142-2732●**	1.13	1.08	1.00	0.91
Coilformer	One section 12 pin	**119-0592●**	0.98	0.83	0.73	0.65
Retaining clip		**119-0594●**	0.28	0.27	0.25	0.23

EFD Cores and Accessories

EPCOS

Material Grade N87

	Assembly set dimensions H (above PCB)	W	D
EFD15	8	17	19.3
EFD20	10	22	24.3
EFD25	12.5	27.3	29.3
EFD30	12.5	32.5	

A range of EFD cores and accessories having a flattened and lowered centre limb, suitable for low profile transformer designs within switch mode power supplies and dc to dc converters.

An assembly set consists of two half cores, a single section bobbin and two retaining clips.

Mftrs. List Nos	Order Code	Mftrs. List Nos	Order Code	Mftrs. List Nos	Order Code
B66413GX187	119-0582	B66418W1008D1	119-0586	B66422B2000	119-0590
B66414W1008D1	119-0583	B66418B2000	119-0587	B66423GX187	119-0591
B66414B2000	119-0584	B66421GX187	119-0588	B66424W1012D1	119-0592
B66417GX187	119-0585	B66422W1010D1	119-0589	B66424B2000	119-0594

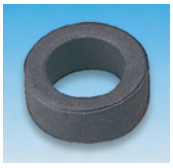
223900

	Order Code	Price Each 1+	250+	500+	1K+
EFD15					
Half core	**119-0582●**	1.13	1.08	1.00	0.91
Bobbin, 8pin	**119-0583●**	1.44	1.38	1.27	1.14
Retaining clip	**119-0584●**	0.28	0.27	0.25	0.23
EFD20					
Half core	**119-0585●**	0.53	0.50	0.47	0.43
Bobbin, 8pin	**119-0586●**	0.70	0.64	0.59	0.54
Retaining clip	**119-0587●**	0.28	0.27	0.25	0.23
EFD25					
Half core	**119-0588●**	1.03	0.88	0.77	0.68
Bobbin, 10pin	**119-0589●**	0.93	0.79	0.70	0.62
Retaining clip	**119-0590●**	0.18	0.15	0.12	0.11
EFD30					
Half core	**119-0591●**	1.03	0.88	0.77	0.68
Bobbin, 12pin	**119-0592●**	0.98	0.83	0.73	0.65
Retaining clip	**119-0594●**	0.28	0.27	0.25	0.23

Saturable Inductor

FERROXCUBE

Material Grade 3R1



A selection of ring cores in 3R1 ferrite material coated in black nylon II, being of comparable performance to amorphous metals. Applications as saturable inductors to provide an efficient means of regulating several independent outputs in a switch mode power supply and spike suppression in high frequency semiconductor switching circuits.

Dimensions D	d	H	le (mm)	Ae (mm^2)	Mftrs. List No.	Order Code
9.5	5.4	3.4	22.9	4.4	TN9/6/3-3R1	179-441
14.6	8.2	5.5	35	12.3	TN14/9/5-3R1	179-442
23.7	13.1	7.5	55.8	30.9	TN23/14/7-3R1	179-443
36.9	21.9	15.7	89.6	95.9	TN36/23/15-3R1	179-444

Components - continued

Saturable Inductor - continued

Material Grade 3R1 - continued

223896

Order Code	Price Each 1+	30+	300+	1K+
179-441	0.350	0.220	0.168	0.137
179-442	1.170	0.700	0.560	0.450
179-443	2.600	1.880	1.440	1.150
179-444	8.300	6.220	5.340	4.390

Toroids

FERROXCUBE

- A selection of ferrite ring cores coated with Polyamide II or lacquer
- Flame retardant in accordance with **UL94V-2**

Polyamide II

- Maximum working temperature 160°C
- Low permeability materials

Lacquer

- Maximum working temperature 90°C
- High permeability materials

Dimensions D	d	H	Material Grade	le (mm)	Ae (mm^2)	AL ± 25% (nH)	Mftrs. List No.	Order Code
Polyamide II								
9.4	5.5	3.4	4C65	22.9	4.44	30	TN9/6/3-4C65	200-694
13.25	7.35	5.7	3C85	30.1	12.2	1000	TN13/7.5/5-3C90	178-504
14.5	8.4	5.5	4C65	35	12.3	55	TN14/9/5-4C65	180-008
23.6	13.4	7.6	4C65	55	30.9	87	TN23/14/7-4C65	180-009
23.7	13.1	7.5	3E25	55.8	30.9	3828	TN23/14/7-3E25	305-6971
25.8	14	10.6	3E25	60.2	48.9	5620	TN25/15/10-3E25	305-6995
32.2	18.1	13	3E25	76	76.5	6950	TN32/19/13-3E25	305-7008
36.9	21.9	15.7	3E25	89.6	95.9	7390	TX36/23/15-3E25	305-7021
Lacquer - 3E5 Grade						AL ± 30% (nH)		
10.25	5.75	4.25	3E5	24.1	7.8	3470	TX10/6/4-3E5	305-6960
25.25	14.75	10.25	3E5	60.2	48.9	8680	TX25/15/10-3E5	305-6983
36.25	22.75	15.25	3E5	89.6	95.9	11400	TX36/23/15-3E5	305-7010

223874

	Order Code	Price Each 1+	30+	300+	1K+
Polyamide II	**200-694**	0.86	0.51	0.40	0.32
	178-504	0.56	0.36	0.27	0.24
	180-008	1.11	0.67	0.53	0.44
	180-009	2.24	1.61	1.22	0.99
	305-6971	1.68	1.36	1.05	0.95
	305-6995	1.74	1.41	1.11	0.97
	305-7008	2.33	1.80	1.42	1.20
	305-7021	4.06	3.86	3.41	3.01
Lacquer	**305-6960**	1.05	0.86	0.66	0.60
	305-6983	2.06	1.63	1.28	1.13
	305-7010	4.38	3.99	3.60	3.16

Toroids

Epoxy Coated

EPCOS

- Epoxy coating provides higher mechanical strength
- Applications include pulse, small signal, power transformers and EMI suppression chokes

Dimensions da	di	h	Material Grade	le (mm)	Ae (mm^2)	AL ± 25% (nH)	Mftrs. List No.	Order Code
6.30	3.80	2.5	N30	15.21	3.06	1090	B64290P37X830	142-2733
10.0	6.0	4	N30	24.07	7.83	1760	B64290L38X830	142-2735
12.5	7.5	5	N30	30.09	12.23	2200	B64290L44X830	119-0601
16	9.6	6.3	N30	38.52	19.73	2770	B64290L45X830	119-0602
25.3	14.8	10	N27	60.07	76.89	2150	B64290L618X27	119-0603
25.3	14.8	10	N30	60.07	51.26	4620	B64290L618X830	142-2734
25.3	14.8	10	T37	60.07	51.26	6970	B64290L618X37	142-2736
25.3	14.8	10	T38	60.07	21.26	10700	B64290L618X38	142-2737
36	23	15	N30	89.65	95.89	5750	B64290L674X830	119-0604

228157

Order Code	Price Each 1+	50+	250+	500+	1K+
119-0601	0.41	0.38	0.36	0.32	0.26
119-0602	0.97	0.82	0.73	0.64	0.57
119-0603	1.53	1.45	1.34	1.22	1.07
119-0604	3.20	2.74	2.56	2.44	2.27
142-2733	0.32	0.18	0.15	0.14	0.13
142-2734	1.24	1.17	1.14	1.06	0.77
142-2735	0.25	0.24	0.23	0.22	0.21
142-2736	1.39	1.31	1.25	1.18	1.12
142-2737	1.38	1.29	1.23	1.17	1.11