Semiconductor Hardware & Thermal Management

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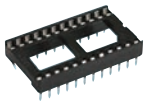
IC Sockets - Dual-In-Line

DIPLOMATE™ Dual Wipe DIP Sockets



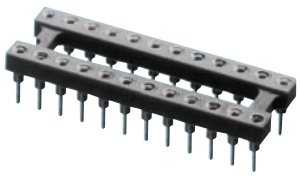
- Open frame construction
- Inhibits solder wicking and flux contamination
- Tin plated phosphor bronze contacts
- Stackable end-to-end or side-by-side
- Suitable for auto-insertion
- Body height above pcb 4.45mm
- **UL** recognised

211532

Order Multiple=5

No. of Ways	Mftrs List No.	Order Code	Price Each 5+	100+	500+	1K+	+
0.3" (7.62mm) Row Spacing							
8	1-390261-2	**110-1345**●					
14	1-390261-3	**110-1346**●					
16	1-390261-4	**110-1347**●					
18	1-390261-5	**110-1348**●					
20	1-390261-6	**110-1349**●					
0.6" (15.24mm) Row Spacing							
28	1-390262-2	**110-1351**●					
40	1-390262-5	**110-1352**●					

Sockets, Open Frame Collet Solder Pin Tails



Pitch, lead = 2.54mm

Features:
- Open Frame allows Efficient Utilization of Board Space with Optimized Cooling
- Choose from Several Pin Styles
- Compatible with Automatic Insertion Equipment
- Side-to-Side and End-to-End Stackable

Specifications:
- Body Material is black UL 94V-0 glass-filled 4/6 Nylon
- Pin Body is Brass Alloy 360 1/2-hard per UNS C36000 ASTM B16-00
- Pin Body Plating 10µ [0.25µm] min. Gold per MIL-G-45204 or 200µ [5.08µm] min. 93/7 Tin/Lead per ASTM B545 or 200µ [5.08µm] min. Tin per ASTM B545 Type 1 over 100µ [2.54µm] min. Nickel per SAE AMS-QQ-N-290
- 4-fingered Collet Contact is Beryllium-Copper Alloy per UNS C17200 ASTM B194-01
- Contact Plating 200µ [5.08µm] min. 93/7 Tin/Lead per ASTM B545 or 200µ [5.08µm] min. Tin per ASTM B545 Type 1 or 10µ [0.25µm] Gold per MIL-G-45204 over 50µ min. [1.27µm] Nickel per SAE AMS-QQ-N-290
- Available Plating = Heavy Gold 30µ [0.76µm]
- Contact Current Rating = 3 amps
- Operating Temperature = 221°F [105°C] Tin and Tin/Lead plating = 257°F [125°C] Gold plating
- Insertion Force = 180 grams/pin
- Withdrawal Force = 90 grams/pin
- Normal Force = 140 grams/pin
- Midget Pin Insertion Force = 370 grams/pin
- Midget Pin Withdrawal Force = 150 grams/pin
- Midget Pin Normal Force = 240 grams/pin, based on a 0.018 [0.46] dia. test lead
- Accepts Lead Lengths from 0.100 [2.54] min. and 0.015-0.025 [0.38-0.64] in dia.
- Accepts Midget Pin Lead Lengths from 0.080 [2.03] and up to 0.022 [0.56] dia.

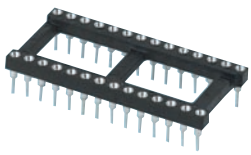
Mounting Considerations:
- Suggested PCB Hole Size for Solder Pin Tail and Extra Long Pin = 0.030 ±0.002 [0.76 ±0.05] dia.
- Suggested PCB Hole Size for Midget Pin = 0.040 ±0.002 [1.02 ±0.05] dia.

527584

Mftrs. List No.	No. of Ways	Pitch, row mm	Order Code	Price Each 1+	25+	100+
08-3518-10	8	7.62	**167-4784**●			
14-3518-10	14	7.62	**167-4785**●			
16-3518-10	16	7.62	**167-4786**●			
18-3518-10	18	7.62	**167-4787**●			
20-3518-10	20	7.62	**167-4788**●			
24-3518-10	24	7.62	**167-4789**●			
22-4518-10	22	10.16	**167-4790**●			
24-6518-10	24	15.24	**167-4793**●			
28-6518-10	28	15.24	**167-4794**●			
32-6518-10	32	15.24	**167-4795**●			
40-6518-10	40	15.24	**167-4796**●			
48-6518-10	48	15.24	**167-4797**●			
64-9518-10	64	22.86	**167-4799**●			

Premium Quality, Turned Pin DIP Sockets

800 Series, Thick 30µ" Gold Plated Contacts



The 800 Series socket combines precision four-fingered inner contacts with an open ladder insulator to produce the ultimate high-reliability socket.

H (above PCB)=4.75, W=10.16 (0.3" row spacing), 12.7 (0.4" row spacing), 17.78 (0.6" row spacing), L=1.27 (x No. ways)
PCB clearance=4.32 min.

- Low insertion force, precision 4-finger inner contacts
- High quality turned pin contacts
- "X" and "Y" Stackable. Open ladder for cooling, cleaning and inspection
- Accepts IC leads:
  Rectangular - 0.23mm x 0.38mm to 0.28mm x 0.51mm
  Round - 0.41mm to 0.53mm
  2.67mm min. length
- Thermoplastic polyester body, **UL** recognised

Contact rating	3A	Insulator	Thermoplastic polyester
Contact resistance	10mΩ	Shell	Brass, Tin / Lead plated
Insulation resistance	x 10^6MΩ	Contact	Beryllium Copper, Gold plated
Insertion force	134g typ.	Operating temp.	-55°C to +125°C
Dielectric withstand voltage	1kV rms		

Mftrs. List No. 8xx-AG11D where xx = No. of ways.

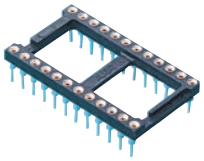
241546

No. of Ways	Order Code	Price Each 1+	60+	240+	480+	960+
0.3" (7.62mm) Row Spacing						
8	**107-7303**●					
14	**107-7295**●					
16	**107-7298**●					
18	**107-7299**●					
20	**107-7300**●					
24	**107-7301**●					
0.4" (10.16mm) Row Spacing						
22	**107-7304**●					
0.6" (22.86mm) Row Spacing						
24	**107-7305**●					
28	**107-7306**●					
32	**107-7307**●					
40	**107-7308**●					

IC Sockets - Dual-In-Line - continued

Low Profile – Turned Pin Contacts

Tyco Electronics



- Available individually, or in convenience tubes
- High precision, four-fingered inner contacts
- X and Y stackable
- Open frame design for cooling, cleaning and easy inspection
- Non-wicking, closed base
- Supplied in 630mm tubes
- Beryllium copper inner contact, 10µ gold-on-nickel or tin plated
- Thermoplastic polyester body, **UL** recognised

Contact rating	3A	Capacitance	1pF
Contact resistance	10mΩ	Dielectric withstand voltage	1kV rms
Insulation resistance	x 10^6MΩ	Operating temperature	-55°C to +105°C

Mftrs. List No. 8XX-AG11DESL (gold plated), 8XX-AG12DES (tin plated) except 824-AG31DESL = 107-7328. XX = No. of ways.

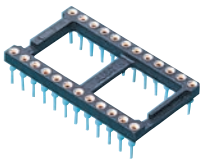
211506

Mftrs. List No.	No. of Ways	Contact Material	Tube Qty.	Order Code	Price Per Tube 1+	4+	8+	20+	40+
7.62mm (0.3") Row Spacing - Tubed Quantities									
808-AG11D-ESL-LF	8	Gold	60	**107-7345**					
814-AG11D-ESL-LF	14	Gold	34	**107-7312**					
814-AG12D-ES-LF	14	Tin	34	**107-7313**					
816-AG11DESL-LF	16	Gold	30	**107-7316**					
816-AG12D-ES-LF	16	Tin	30	**107-7317**					
818-AG11D-ESL-LF	18	Gold	26	**107-7319**					
818-AG12D-ES-LF	18	Tin	26	**107-7320**					
820-AG11D-ESL-LF	20	Gold	24	**107-7322**					
824-AG31D-ESL-LF	24	Gold	20	**107-7328**					
10.16mm (0.4") Row Spacing - Tubed Quantities									
822-AG11DESL-LF	22	Gold	22	**107-7323**					
15.24mm (0.6") Row Spacing - Tubed Quantities									
824-AG11D-ESL-LF	24	Gold	20	**107-7329**					
828-AG11D-ESL-LF	28	Gold	17	**107-7331**					
828-AG12D-ES-LF	28	Tin	17	**107-7332**					
832-AG11D-ESL-LF	32	Gold	15	**107-7334**					
832-AG12D-ES-LF	32	Tin	15	**107-7335**					
840-AG11D-ESL-LF	40	Gold	12	**107-7337**					
840-AG12D-ES-LF	40	Tin	12	**107-7339**					

					Price Each 1+	60+	240+	480+	960+
16.24mm (0.6") Row Spacing-Each									
824-AG11D-ESL-LF	24	Gold		**107-7325**					
828-AG11D-ESL-LF	28	Gold		**107-7330**					
832-AG11D-ESL-LF	32	Gold		**107-7333**					
840-AG11D-ESL-LF	40	Gold		**107-7336**					
848-AG11DESL-LF	48	Gold		**107-7341**					
808-AG11D-LF	8	Gold		**107-7303**					
814-AG11D-LF	14	Gold		**107-7295**					
816-AG11D-LF	16	Gold		**107-7298**					
818-AG11D-LF	18	Gold		**107-7299**					
820-AG11D-LF	20	Gold		**107-7300**					
824-AG31D-LF	24	Gold		**107-7301**					
822-AG11D-LF	22	Gold		**107-7304**					
824-AG31D-LF	24	Gold		**107-7301**					
824-AG11D-LF	24	Gold		**107-7305**					
828-AG11D-LF	28	Gold		**107-7306**					
832-AG11D-LF	32	Gold		**107-7307**					
840-AG11D-LF	40	Gold		**107-7308**					

Low Profile – Turned Pin Contacts

multicomp



- Open-frame construction
- Inhibits solder wicking and flux contamination
- Tin plated beryllium copper or phosphor bronze contacts
- Stackable end-to-end or side-to-side
- Suitable for auto-insertion
- Body height above pcb 4.45mm
- UL recognised
- Available loose or in tubes
- Insulator: Thermoplastic polyester, **UL** recognised
- Contacts: Phosphor Bronze
- Plating: Tin/lead

Contact rating	2A	Capacitance	5.0pF
Contact resistance	20mΩ	Dielectric withstand voltage	1,000 Volts RMS
Insulation resistance	5000MΩ @ 500VDC	Operating temperature	-55°C to +105°C

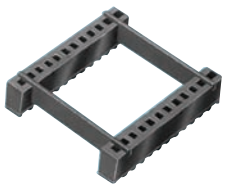
249149.342476

No. of Ways	Tube Quantity	Order Code	Price Each 5+	50+	200+	500+
0.3" (7.62mm) Row Spacing						
8	—	**110-3844**				
14	—	**110-3845**				
16	—	**110-3846**				
18	—	**110-3847**				
20	—	**110-3848**				
24	—	**110-3849**				
28	—	**110-3850**				
0.6" (15.24mm) Row Spacing						
24	—	**110-3851**				
28	—	**110-3852**				
32	—	**110-3853**				
40	—	**110-3855**				

No. of Ways	Tube Quantity	Order Code	Price Per Tube 1+	10+	25+	100+
0.3" (7.62mm) Row Spacing - Tubed Quantities						
8	60	**110-3831**				
14	34	**110-3832**				
16	30	**110-3833**				
18	26	**110-3834**				
20	24	**110-3835**				
24	20	**110-3836**				
28	17	**110-3837**				
0.6" (15.24mm) Row Spacing - Tubed Quantities						
24	20	**110-3838**				
28	17	**110-3839**				
32	15	**110-3840**				
40	12	**110-3841**				

Sockets, Strip-Line Bifurcated Contact Solder Tail Pins

ARIES Electronics (Europe)



Pitch, lead = 2.54mm

Features:
- For mounting liquid crystal displays and other high pin count or odd centered components.
- Available in several sizes with bifurcated contacts in solder tail or wire wrap pins.

Specifications:
- Body is Black UL 94-V0 Glass-filled 4/6 Nylon.
- Pin is Grade A Phosphor Bronze per QQ-B-750.
- Optional spacer is FR-406, .032 [.81] thick.
- Pin plating is :50-130"µ min. Matte Tin per ASTM B545-97 over 50µ" Nickel per SAEAMS-QQ-N-290.
- Current rating=1 Amp.
- Operating temperature
  =-67°F to 221°F [-55°C to 105°C] Tin & Tin/Lead plating,
  =-67°F to 257°F [-55°C to 125°C] Gold.
- Insertion Force=110 grams/pin average; Withdrawal Force=75 grams/pin average.
- Accepts flat leads up to .014 x .020 wide [.36-.51], round leads up to .020 [.51] in diameter.
- Socket accepts lead lengths from seating plane .080-.160 [2.03-4.06].

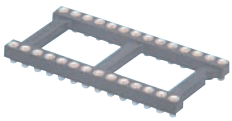
Mounting Considerations:
- Suggested PCB hole size=.036 ± .002 [.91 ± .05] dia.

527577

Mftrs. List No.	No. of Ways	Order Code	Price Each 1+	25+	100+
20-0511-10	20	**167-4781**			
25-0511-10	25	**167-4782**			
34-0511-10	34	**167-4783**			

Surface Mount – Collet Sockets

ARIES Electronics (Europe)



- Open frame design
- High reliability machined collet contacts
- Suitable for vapour phase soldering
- Beryllium copper contacts, gold-on-nickel plated
- PET thermoplastic polyester bodies
- **UL94V-0** rated

Mftrs. List No. 0.3" (7.62mm) row spacing xx-3518-00 where xx=no. of ways
0.6" (15.24mm) row spacing xx-6518-00

211486

No. of Ways	Order Code	Price Each 1+	100+	500+	1K+
8	SMD **116-9119**				
14	SMD **113-6588**				
16	SMD **116-9120**				
20	SMD **113-6589**				
28	SMD **113-6590**				

RoHS Compliant Non-compliant

Low Profile Wire Wrap

HARWiN

Turned Pin Contacts

- Suitable for 3 level wire wrap applications
- Same specification as D28 series (above)
- Four leaf berryllium copper spring contacts, thick gold plated
- Tin-lead plated brass pins
- Glass reinforced polyster body, **UL** recognised

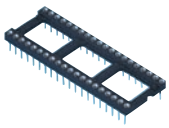
Mftrs. List No. D08xx-01, where xx= No of ways, except D0924-42= 102-3045

631471

No. of Ways	Order Code	Price Each 1+	100+	250+	500+	1K+
0.3" (7.62 mm) Row Spacing						
6	**102-3036**					
8	**102-3037**					
14	**102-3038**					
16	**102-3039**					
18	**102-3040**					
20	**102-3041**					
0.6" (15.24 mm) Row Spacing						
28	**102-3042**					
40	**102-3043**					

Low Profile – Thick Gold, Turned Pin Contacts

HARWiN



- Reliable four-leaf beryllium copper contacts
- 0.25µ thick gold plated
- Sold in complete tubes
- 4.2mm body height
- Auto insertable
- Tin-lead plated brass pins
- Glass filled polyester body **UL** recognised

Contact rating	1A	Mechanical life	100 cycles min.
Contact resistance	<20mΩ	Dielectric strengh	1kV rms
Insulation resistance	>MΩ	Operating temperature	-55°C to + 125°C

Mftrs. List No. D28xx-01 where xx=No. of ways, except D2922-011 = 102-3064, D2924-01 = 102-3065 D2928-01 = 102-3066D2924-42102-3065

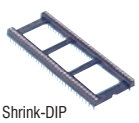
211511

No. of Ways	Tube Quantity	Order Code	Price Per Tube 1+	5+	10+	25+	50+
0.3" (7.62mm) Row Spacing							
6	69	**102-3052**					
8	52	**102-3053**					
14	29	**102-3054**					
16	25	**102-3055**					
18	22	**102-3057**					
22	18	**102-3064**					
22	18	**102-3059**					
24	17	**102-3065**					
28	14	**102-3066**					
0.4" (10.16mm) Row Spacing							
22	18	**102-3059**					
0.6" (15.24mm) Row Spacing							
24	17	**102-3060**					
28	14	**102-3061**					
32	12	**102-3062**					
40	10	**102-3063**					

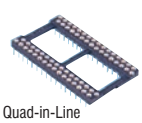
Low Profile, Thick Gold Plated

HARWiN

Turned Pin Contacts



Shrink-DIP



Quad-in-Line

- Auto-insertable
- High reliability
- Long life, ≥1000 insertions
- Four leaf beryllium copper spring contacts to **CDA172**
- Tin-lead plated brass pins
- Glass filled polyester body to **UL94V-0**

Temperature range	-55°C to +180°C	Insulation resistance	$>10^{12}\Omega$
Contact resistance	<10mΩ	Body height	3.6mm, 4.2mm (366-5781)

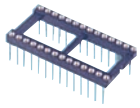
Mftrs. List No. D73064-01 = 102-3067, D8864-01 = 102-3069D73064-42102-3067

211565

Mftrs. List No.	Order Code	Price Each 1+	10+	50+	100+	250+
0.75" (19.05mm) Quad-in-Line						
64	**102-3067**					
0.75" (19.05mm) Shrink DIP						
64	**102-3069**					

Extended Sockets – Turned Pin Contacts

HARWiN



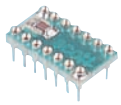
- Bridges components to save pcb space
- 5mm min. clearance from pcb
- Facilitates test hook connection to IC pins
- Beryllium copper brass contacts, tin shell and gold clip
- 1000 insertions min.
- Glass filled polyester body, **UL94V-0** rated

Pin spacing 0.1" (2.54mm) Row spacing 0.6" (15.24mm)

411947

No Of Ways	Order Code	Price Each 1+	100+	500+
24 Way	**102-3071**			
28 Way	**102-3072**			
40 Way	**102-3073**			

Turned Pin with Decoupling Capacitor



- In-built 0.1 µF chip capacitor from Vcc to Gnd
- Greater suppresion than leaded capacitor equivalents
- Low profile
- 4-leaf beryllium copper spring contacts, gold plated
- Tin plated pins
- Glass epoxy laminate body, **UL** recognised

Temperature range	-65°C to + 125°C	Pin spacing	0.1" (2.54mm)
Insulation resistance	$5 \times 10^9\Omega$	Contact resistance	3.5mΩ
Dielectric withstand voltage	2100V min.	Body height	4.45mm

211588

Row Spacing		Order Code	Price Each 1+	25+	100+	500+
7.62	14 Way	**121-7108**				
7.62	16 Way	**121-7109**				
7.62	20 Way	**121-7110**				
7.62	24 Way	**121-7111**				
15.24	28 Way	**121-7113**				
15.24	40 Way	**121-7115**				

Socket, Zero Insertion Force

ARIES Electronics (Europe)

Pitch, lead = 2.54mm Pitch, row = 15.24mm

Features:

- A choice of 24, 28, or 40 pin count devices can be inserted without bending or otherwise damaging the legs, since no force is required to either insert or remove the component from the socket.
- Contacts are normally open and are closed by a unique cam action controlled by dual lever arms.
- The last 15° of movement of the cam provides a wiping action to the contacts on the legs of the device to remove any residue, ensuring a gas-tight seal.
- Tapered entry guides help guide the device legs into the mati ng position with thecontacts.

Specifications:

- Body, handle, and cam are Black UL 94V-0 Glass-filled 4/6 Nylon.
- Pins are Beryllium Copper 170 or 172, 1/2 hard.
- Pin plating:
  200µ" [5.08µm] min. Matte Tin per ASTM-B545-97 over 50µ" [1.27µm] min. Nickel per SAE-AMS-QQ-N-290.
- Contact current rating=1 Amp.
- Operating temperature: 221°F [105°C] Tin
- Minimum Retention Force (when closed)=15 grams/lead, based on a .008 [.20] thick test lead.
- Accepts most lead widths with lengths from .075 to .250 [1.91 to 6.35].

Mounting Considerations:

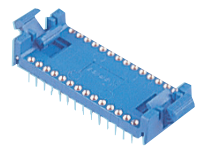
- Suggested PCB hole size=.035 ± .002 [.89 ± .05] dia.

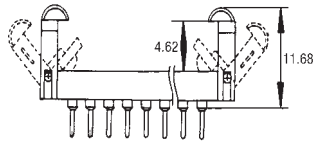
527533

Mftrs. List No.	No. of Ways	Order Code	Price Each 1+	25+	100+	250+
28-516-11	28	**167-4774**				

Lock/Eject – Turned Pin Contacts

ARIES Electronics (Europe)





Socket for DIL IC packages designed for fast in-field board maintenance. The latch acts as a locking device to prevent disconnection and is ideal for high vibration environments. When used as an ejector, the latch removes the DIL package without damage. Glass filled thermoplastic body **UL** recognised. Turned pin contacts are beryllium copper, gold plated. Solder tail terminations are tin plated brass.

IC Sockets - Dual-In-Line - continued

Lock/Eject – Turned Pin Contacts - continued

Temperature range -55°C to +105°C
Pin spacing 0.1" (2.54mm)
Row spacing 0.6" (15.24mm)

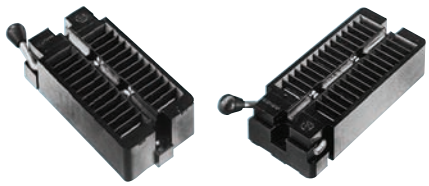
Mftrs. List No. xx-C182-10, where xx=No. of ways

425215

No. of Ways	Order Code	Price Each 1+	25+	100+	250+
14	**167-4724**				
16	**167-4725**				
28	**116-9115**				
32	**113-6579**				
40	**116-9116**				

Socket, Quick-Release Test

ARIES Electronics (Europe)



Pitch, lead = 2.54mm Pitch, row = 15.24mm

Features:
- Aries Universal Test Socket accepts devices on .300 to .600 [7.62 to 15.24] centers
- All pin count sockets go into PCB with either .300 or .600 [7.62 to 15.24] centers
- Swing quick-release handle down to open contacts and insert device. Release and handle automatically returns as contacts close onto device leads
- Socket handle can be mounted on either the right or left side
- Sockets can be soldered into PCBs or plugged into any socket

Specifications:
- Socket Body: black UL 94V-0 Glass-filled Polyphenylene Sulfide (PPS)
- Handle: Stainless Steel
- Handle Knob: Brass Alloy 360, 1/2-hard
- Contacts: Beryllium Copper 172 per QQ-C-533 or Spinodal
- Spinodal Contact Plating: -16 = 50µ [1.27µm] min. Nickel Boron
- Contact Current Rating: 1 Amp
- Insulation Resistance: 1000 MOhms min.
- Dielectric Withstanding Voltage: 1000 VAC
- Life Cycle: 25,000 to 50,000 cycles

527488

Mftrs. List No.	No. of Ways	Order Code	Price Each 1+	25+	100+
24-6574-10	24	**167-4712**			
28-6574-10	28	**167-4713**			
32-6574-10	32	**167-4714**			
40-6574-10	40	**167-4715**			
48-6574-10	48	**167-4716**			

Universal Zero Insertion Force Test Socket

ARIES Electronics (Europe)

Range of ZIF sockets which will accept DIL devices with 0.3" (7.62mm) to 0.6" (15.24mm) row spacing, with a pin width of 0.38mm to 1.14mm. Sockets are lever locking, ON in DOWN position. Body is of polyphenylene sulphide. 113-6788 is for SO-IC packages

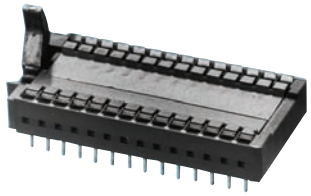
Pin spacing	0.1" (2.54mm)	Contact rating	1A
IC row spacing	0.3" (7.62mm) to 0.6" (15.24mm)	Breakdown voltage (min)	1000V ac
PCB row spacing	0.6" (15.24mm)	Insulation resistance	MΩ
Contact material	Beryllium Copper, tin plated	Life (min)	25000 cycles

454697

	Mftrs. List No.	Order Code	Price Each 1+	25+	100+	+
24 Way	24-6554-10	**116-9109**				
24 Way	24-6554-11	**167-4706**				
28 Way	28-6554-10	**116-9110**				
28 Way	28-6554-11	**167-4707**				
32 Way	32-6554-10	**113-6782**				
32 Way	32-6554-11	**167-4708**				
40 Way	40-6554-10	**116-9111**				
40 Way	40-6554-11	**167-4709**				
48 Way	48-6554-10	**113-6791**				
48 Way	48-6554-11	**167-4710**				

Socket, LO-PRO®file Zero Insertion Force

ARIES Electronics (Europe)



Pitch, lead = 2.54mm Pitch, row = 15.24mm

Features:
- A choice of 24, 28, or 40 pin count devices can be inserted without bending or otherwise damaging the legs, since no force is required to either insert or remove the component from the socket.
- A metal cam provides strong, smooth action as it moves to a positive stop, compressing the double-sided contacts, ensuring a gas-tight seal.
- Test point openings provided to reach all pins.

Specifications:
- Plastic body is Black UL 94V-0 glass-filled 4/6 Nylon.
- Contacts are Beryllium Copper Alloy 172, spring tempered.
- Contact plating:
  200µ" [5.08µm] min. Matte Tin per ASTM-B545-97 over 50µ" [1.27µm] min. Nickel per SAE-AMS-QQ-N-290.
- Operating temperature
  -67°F to 221°F [-55°C to 105°C].- Tin
- Contact current rating=2 Amps.
- Contact resistance=10 mOhms max.
- Breakdown voltage=1000 VAC min.
- Average Retention Force (when closed)=110 grams/lead, based on .010 [.25] diameter test lead.

Mounting Considerations:
- Suggested PCB hole size=.035 ± .002 ±.89 ± .05] dia.

527527

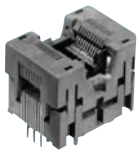
Mftrs. List No.	No. of Ways	Order Code	Price Each 1+	25+	100+	250+
24-526-10	24	**167-4770**				
28-526-10	28	**167-4771**				
40-526-10	40	**167-4772**				

IC Sockets - Small Outline

Test Sockets

WELLS-CTI

ZIF TSSOP 20 Way



- High quality TSSOP ZIF Socket
- Press to lock Mechanism

SMD

453875

Length	Width	Mftrs. List No.	Order Code	Price Each 1+	5+	10+	25+	+
14.63	14.7	676-3200111	**109-5897**					

SOIC ZIF Sockets

3M

- Suitable for gull wing style devices
- Top or front actuated sprung flip lid
- Lid actuation suitable for manual or automated use
- Compact size
- Side by side stackable
- Tweezer slot aids component placement/removal
- 80gms force per lead
- **UL** recognised

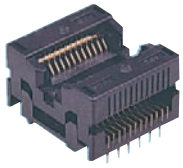
Contact rating	1A
Insulation resistance	>1 x 10^{12}Ω @ 500V dc
Withstand voltage	1000 Vrms
Contacts	Beryllium Copper
Insulator	
Operating temperature	-55°C-55°C to +150°C+150°C

211544

	Mftrs. List No.	Order Code	Price Each 1+	5+	10+	25+
8 Way	208-7391-55-1902	**989-7500**				
20 Way	220-7201-55-1902	**989-7518**				
24 Way	224-7397-55-1902	**989-7526**				
28 Way	228-7396-55-1902	**989-7534**				

SOP, Zero Insertion Force

WELLS-CTI



- For 'gull-wing' surface mount packages, 0.05" (1.27mm) pitch
- Open top, simple IC insertion and extraction
- Suitable for manual or automatic loading
- Easy access pins for testing
- Burn-in applications up to 150°C
- Compact size for high board density

Contacts	Beryllium Copper
Body	recognised

RoHS Compliant Non-compliant

Mftrs. List No.

652B0082215-002	= 989-7615	652B0162215	= 989-7640
652B0082215	= 989-7631	652D0202215	= 989-7658
652-0162211E001	= 989-7585	652D0282215	= 989-7593

211469

IC				Price Each			
	Overall W	Body D	Order Code	1+	10+	50+	100+
8 Way	6.0	3.9	**989-7615**				
8 Way	6.4	4.4	**989-7631**				
16 Way	10.2	7.6	**989-7585**				
16 Way	6.4	4.4	**989-7640**				
20 Way	10.4	7.55	**989-7658**				
28 Way	10.47	7.55	**989-7593**				

TSOP - I, Zero Insertion Force

WELLS-CTI

- Open top, simple IC insertion and extraction
- Suitable for automatic loading
- Highly reliable , pre-loaded contacts
- 30 grams insertion force
- Beryllium Copper Contacts
- Mechanical life over 10,000 cycles
- Typical contact resistance: 50 mΩ
- Max temperature: 150°C

648-0482211SA01 = 109-5884
648-0562211-A01 = 109-5885

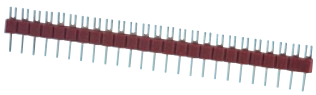
425356

IC				Price Each			
	Overall W	Body D	Order Code	1+	10+	25+	50+
48 Way	18.0	40	**109-5884**				
56 Way	20.0	40	**109-5885**				

IC Sockets - Single-In-Line

Strip-Line Headers with Coined Contacts

ARIES Electronics (Europe)



Pitch, lead = 2.54mm

Features:
- Aries Strip-Line headers are available with either fork or post style coined contacts.
- "Break" feature allows header to be cut to the number of positions desired.
- Side-to-side and end-to-end stackable.

Specifications:
- Body material is black UL 94-V0 Glass-filled 4/6 Nylon.
- Coined contacts are Brass,1/2 hard
- Contact plating:

200µ" min. Matte Tin plating per ASTM B545-97 over 50µ" min Nickel per QQ-N-290.
- Contact current rating =2 Amps.
- Operating temperature=221°F [105°C] Tin
- Fork contact accepts up to .025 [.64] diameter leads.

Mounting Considerations:
- Suggested PCB hole size=.035±.002 [.89 ± .05] dia.

527534

Mftrs. List No.	No. of Ways	Order Code	Price Each 1+	25+	100+
25-0600-10	25	**167-4775**			

Mini-Link™ Miniature Jumpers

ARIES Electronics (Europe)

Pitch, lead = 2.54mm

Features:
- Mini-Link™ miniature jumpers are useful for jumpering .025 [.63] square pins on .100 [2.54] centers.
- Used to jumper from row-to-row or from pin-to-pin.
- Their miniature size makes it possible to stack one on top of the other.
- A convenient test probe slot is provided as well.
- With a handle, used for ease of inserting or extracting.

Specifications:
- Body material is black UL 94V-0 Glass-filled 4/6 Nylon.
- Contacts are Beryllium Copper Alloy 174, spring tempered, per ASTM B768.
- Standard contact plating is 20µ [.51µm] Gold per MIL-G-45204 over 50µ [1.27µm] min. Nickel per SAE-AMS-QQ-N-290.
- Current rating=3 Amps.
- Operating temperature= -67°F to 257°F [-55°C to 125°C]
- Insertion Force=210 ± 40 grams/pin.
- Withdrawal Force=180 ± 40 grams/pin.
- Minimum insertion depth=.075 [1.91].

527579

Mftrs. List No.	No. of Ways	Order Code	Price Each 1+	25+	100+	250+
ML-100	2	**167-4800**				

Sockets, Pin-Line Collet Solder Tail Pins

ARIES Electronics (Europe)

Pitch, lead = 2.54mm

Features:
- Rows of socket strips may be mounted on any centers and are end-to-end or side-by-side stackable for .100 [2.54] grid ormatrix patterns.
- Available with solder tail or wire wrap pins.
- "Break" feature allows strips to be cut to the number of positions desired.

Specifications:
- Body material is black UL 94V-0 Glass-filled 4/6 Nylon.
- Pin body is Brass Alloy 360 1/2 hard per UNS C36000 ASTMB16-00.
- Pin body plating is either 10µ [.25µm] min. Gold per MIL-G-45204 or 200µ [5.08µm] min. 93/7 Tin/Lead per ASTM B545 or 200µ [5.08µm] min. Tin per ASTM B545 Type 1 over 100µ [2.54µm] min. Nickel per SAE-AMS-QQ-N-290.
- 4-fingered collet contact is Beryllium Copper Alloy per UNS C17200 ASTM-B194-01.
- Contact current rating=3 Amps.
- Insertion Force=180 grams/pin; Withdrawal Force=90 grams/pin; Normal Force=140 grams/pin; based on a .018 [.46] dia. test lead.
- Operating temperature=221°F [105°C] Tin & Tin/Lead plating =257°F [125°C] Gold plating.
- Insertion Force=180 grams/pin; Withdrawal Force=90 grams/pin; Normal Force=140 grams/pin; based on a .018 [.46] dia. test lead.
- Accepts leads .015-.025 [.38-.64] in dia., .100-.146 [2.54-3.71] long.

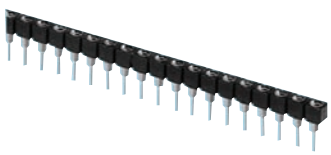
Mounting Considerations:
- Suggested PCB hole size=.030 ± .002 [.76 ± .05] dia.

527538

Mftrs. List No.	No. of Ways	Order Code	Price Each 1+	25+	100+
25-0513-10	25	**167-4776**			

Sockets, Single Row Collet Solder Tail Pins

ARIES Electronics (Europe)



Pitch, lead = 2.54mm

Features:
- Aries collet sockets are available in single or dual rows.
- Cuttable to the number of pins desired to fit the application.
- Side-to-side and end-to-end stackable.

Specifications:
- Body material is black UL 94V-0 Glass-filled 4/6 Nylon.
- Pin body is Brass Alloy 360 1/2 hard per UNS C36000 ASTM-B16-00.
- Pin body plating is either 10µ [.25µm] min. Gold per MIL-G-45204 or 200µ [5.08µm] min. 93/7 Tin/Lead per ASTM B545 or 200µ [5.08µm] min. Tin per ASTM B545 Type 1 over 100µ [2.54µm] min. Nickel per SAE-AMS-QQ-N-290.
- 4-fingered collet contact is Beryllium Copper Alloy per UNS C17200 ASTM-B194-01.
- Contact plating is either 200µ [5.08µm] min. 93/7 Tin/Lead per ASTM B545 or 200µ [5.08µm] min Tin per ASTM B545 Type 1 or 10µ [.25µm] Gold per MIL-G-45204 over 50µ min. [1.27µm] Nickel per SAE-AMSQQ-N-290. Heavy 30µ [.76µm] Gold Plating also available.
- Contact current rating=3 Amps.
- Insertion Force=180 grams/pin; Withdrawal Force=90 grams/pin; Normal Force=140 grams/pin; based on a .018 [.46] dia. test lead.
- Operating temperature
  =221°F [105°C] Tin & Tin/Lead plating
  =257°F [125°C] Gold plating.
- Insertion Force=180 grams/pin; Withdrawal Force=90 grams/pin; Normal Force=140 grams/pin; based on a .018 [.46] dia. test lead.
- Accepts leads .015-.025 [.38-.64] in diameter.
- Accepts lead lengths from .100 [2.54] min.

Mounting Considerations:
- Suggested PCB hole size=.030 ± .002 [.76 ± .05] dia.

527573

Mftrs. List No.	No. of Ways	Order Code	Price Each 1+	25+	100+
40-0518-10	40	**167-4779**			

Turned Pin, 0.1" (2.54mm) Pin Spacing

HARWiN

Body H=4.2, W=2.54

Mftrs. List No.

D01-9972042	=	102-3034
D01-9973242	=	102-3035
D01-9952042	=	102-3031
D01-9953242	=	102-3033

- Turned pin contacts
- Cut to desired length
- Beryllium copper, gold-plated contacts
- Tin-lead plated brass pins
- **UL** recognised

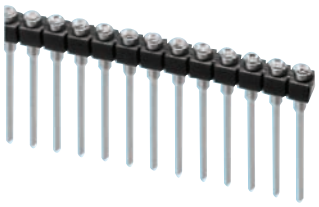
211471

No. of Ways	Order Code	Price Each 1+	100+	500+	1K+	2K5+
20	**102-3034**					
32	**102-3035**					
Wire-Wrap						
20	**102-3031**					
32	**102-3033**					

IC Sockets - Single-In-Line - continued

Sockets, Pin-Line Collet Wire Wrap Pins

ARIES™ Electronics (Europe)



Pitch, lead = 2.54mm

Features:
- Rows of socket strips may be mounted on any centers and are end-to-end or side-by-side stackable for .100 [2.54] grid or matrix patterns.
- Available with wire wrap or solder tail pins.
- "Break" feature allows strips to be cut to the number of positions desired.

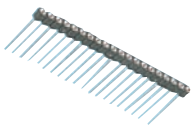
Specifications:
- Body material is Black UL 94-V0 Glass-filled 4/6 Nylon.
- Pin body is Brass Alloy 360 1/2 hard per UNS C36000 ASTM-B16-00.
- Pin body plating is either 10µ [.25µm] min. Gold per MIL-G-45204 or 200µ [5.08µm] min. 93/7 Tin/Lead per ASTMB545 or 200µ [5.08µm] min. Tin per ASTM B545 Type 1 over 100µ [2.54µm] min. Nickel per SAE-AMS-QQ-N-290.
- 4-fingered collet contact is Beryllium Copper Alloy per UNS C17200 ASTM-B194-01.
- Contact plating is 30µ [.76µm] min. Gold per MIL-G-45204 over 50µ min. [1.27µm] Nickel per SAE-AMS-QQ-N-290.
- Contact current rating=3 Amps.
- Operating Temp:
  =-67°F to 221°F [-55°C to 105°C] Tin
  =-67°F to 257°F [-55°C to 125°C] Gold
- Insertion Force=180 grams/pin; Withdrawal Force=90 grams/pin; Normal Force=140 grams/pin; based on a .018 [.46] dia. test lead.
- Accepts leads .015-.025 [.38-.64] in dia., .110-.162 [2.79-4.11] long.

527571

Mftrs. List No.	No. of Ways	Order Code	Price Each 1+	25+	100+
25-0503-30	25	**167-4777**●			

Wire Wrap Socket, 0.1" (2.54mm) Pin Spacing

HARWiN



- Turned pin socket contacts
- May be cut to desired length
- 4 leaf beryllium copper contacts, gold plated
- Tin-lead plated brass shell
- **UL** recognised

Mftrs. List No. D01-995-20-01=170-716,
D01-995-32-01=170-717

Body H=4.9, W=2.54, Lead L=12.9

211480

No. of Ways	Order Code	Price Each 1+	100+	500+	1K+
20	**102-3031**●				
32	**102-3033**●				

D01-9952042 102-3031
D01-9953242 102-3033

10 Way In-Line ZIP Strip Socket

3M

- Lever actuated zero insertion force mechanism
- Socket contact point of 2.2 mm (0.085") below top surface of socket
- Accepts pins upto 0.6 mm square (0.025")
- Ganging bar included to enable mass actuation
- Can be used in sets of 2 or more to create a socket for none-standard leaded packages
- Colour: green

Pin spacing	0.1" (2.54mm)	Breakdown voltage (min)	1000 V rms @ sea level
Contact material	Beryllium Copper	Insulation resistance	Greater than: 1 x 10^9 Ω @ 500 Vdc
Insulation Material:	Glass filled polysulfone	Operating temp	-55°C to 150 °C
Contact rating	1 Amp		

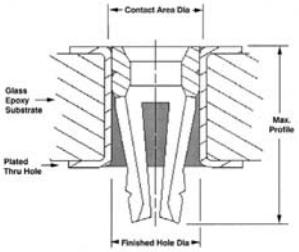
423301

Mftrs. List No.	Order Code	Price Each 1+	5+	10+	25+
232-2601-00-0602	**989-7437**●				

IC Sockets - Ultra-Low Profile

Holtite™ Press-fit, Zero Profile Sockets

Tyco Electronics



- Beryllium copper contacts, gold plated
- Maximum heat dissipation
- Solderless, gas-tight, press-fit insertion
- Supplied on MYLAR carrier strip
- Lowest socket profile
- Reliable, precision-machined, tapered-entry, four finger contact

The solderless zero-profile Holtite ™ socket contact is designed to be press-fitted into the plated-through hole of a pcb, allowing the plated-through hole to become the component socket. The outer conical shape of the Holtite ™ socket contact sizes the plated-through hole when pressed into place. The precision-machined geometry displaces the plated material without damaging the hole, or affecting the normal mechanical and electrical contact performance.

Current rating	3A max.	Operating temperature	-55°C to +125°C (Gold)
Contact resistance	9mΩ max.		-55°C to +125°C (Tin/Lead)
Insertion force	102g	Material:	Beryllium Copper
Extraction force	100g	Plating:	Gold

L mm	Dia. mm	Min. pcb thickness, mm	PCB hole dia., mm	Mftrs. List No.	Order Code
Gold Plated					
2.39	1.12	0.75	1.04	8134-HC-5P2	416-8367
3.45	1.59	0.75	1.47	8134-HC-6P2	416-8380
3.45	1.59	0.75	1.47	8134-HC-8P2	416-8409

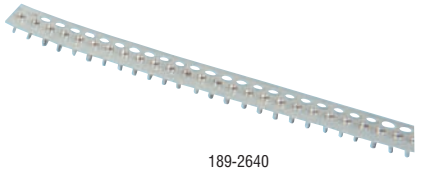
241543

Order Multiple=5		Price Each				
Mftrs. List No.	Order Code	5+	250+	1K+	2K5+	10K+
Gold Plated						
8134-HC-5P2	**416-8367**●					
8134-HC-6P2	**416-8380**●					
8134-HC-8P2	**416-8409**●					

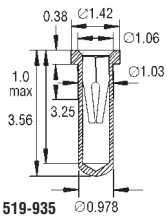
Ultra Low Profile Sockets

HARWiN

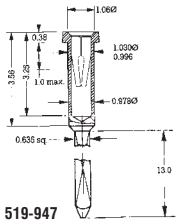
519-935 519-947



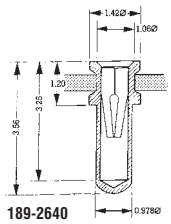
189-2640



519-935



519-947



189-2640

Subminiature, high reliability sockets designed to allow IC devices to be mounted on to PC boards giving virtually zero above board profile, with the added advantage of allowing tracks to be taken between the sockets, spaced on 2.54mm centres. The socket can also function as through-board connections.

The socket is a press-fit into a 1mm hole and has a closed body design to eliminate solder wicking. The outer shell of the socket has a tinned finish, while the inner spring contacts are gold finished. The sockets are available either loose or in strips mounted on 2.54mm centres. The sockets are also available with three level wire wrap tails.

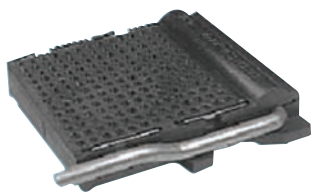
211497

Order Multiple=10			Price Each		
	Mftrs. List No.	Order Code	10+	100+	1K+
Standard, loose	H3153F01	**519-935**●			
Wire wrap, loose	H3175F01	**519-947**●			
Socket strip	D01F6020001	**189-2640**●			

IC Sockets - Pin Grid Array (PGA)

Socket, PGA

ARIES™ Electronics (Europe)



Pitch, lead = 2.54mm

Features:
- A strong, metal cam activates the normally closed contacts, preventing dependency on plastic for contact force.
- The handle can be provided on right or left hand side.
- Consult factory for special handle requirements.

Specifications:
- Socket body is black UL 94V-0 Polyphenylene Sulfide (PPS).
- Contacts are either Beryllium-Copper Alloy 174, 1/2 hard or Spinodal Alloy.
- Plating for Spinodal Alloy contact only: 6: 50µ [1.27µm] min. Nickel Boron.
- Handle is Stainless Steel.
- Contact current rating: 1 amp
- Operating temperatures: -85°F to 257°F [-65°C to 125°C] Gold plating, -85°F to 392°F [-65°C to 200°C] Nickel plated Spinodal.
- Accepts leads 0.014-0.026 [0.36-0.66] in diameter, 0.120-0.290 [3.05-7.37] long.

Mounting Considerations:
- Suggested PCB hole size: 0.032 ±0.002 [0.81 ±0.05] dia.
- Plugs into standard PGA sockets.

527492

RoHS ● Compliant ▲ Non-compliant

Mftrs. List No.	No. of Ways	Order Code	Price Each 1+
169-PRS13001-12	169	**167-4748**	
225-PRS15001-12	225	**167-4749**	
289-PRS17001-12	289	**167-4750**	
361-PRS19001-12	361	**167-4751**	
441-PRS21001-12	441	**167-4752**	

Zero Insertion Force PGA Socket Kits

- Lever action
- Easy to assemble kit form
- Contact Termination Area Plating: 30 µ" (0.76µm) Gold
- Contact underplating: 50 µ" (1.27µm) Nickel
- Polyethersulfone body, **UL** recognised
- 1A current rated
- 0.1" (2.54mm) pin centres

Contacts

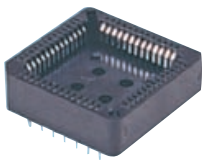
Order Code	989-7542	989-7550	989-7577
Mftrs. List No.	200-6311-9UN-1900	200-6313-9UN-1900	200-6321-9UN-1900

424894

Order Multiple=1		Price Each		
Grid Size	**Order Code**	1+	30+	50+
11x11	**989-7542**			
13x13	**989-7550**			
21x21	**989-7577**			
Order Multiple=10		**10+**	**200+**	**1K+**
Contacts for PGA ZIF sockets	**989-7607**			

IC Sockets - PLCC/LCC

PLCC Sockets, Through-Hole Mounting



- Level 11 connectors
- Accept J-Leaded PLCCs to JEDEC MS-016 and MS-018
- 8.25mm body height
- Top loaded contacts - eliminates solder bridging
- Closed base construction
- **UL** recognised

H (above pcb) = 8.25

Operating temperature	-55°C to + 170°C	Contacts	Phosphor bronze, Tin plated
Housing	High temperature PCT polyester		

211526

Order Multiple=5

No. of Ways	Mftrs List No.	Order Code	Price Each 1+	50+	100+	500+
28	1-822473-2	**110-1354**				
32	1-822473-3	**110-1355**				
44	1-822473-4	**110-1356**				
52	1-822473-5	**110-1357**				
68	1-822473-6	**110-1358**				
Order Multiple=1			**1+**	**25+**	**100+**	
Extraction Tool	822154-1	**162-632**				

Chip Carrier Sockets

Surface Mount

NEW

- Accepts chip carriers conforming to JEDEC outline MO-047 for square and MO-052 for rectangular
- High temperature insulator compatible with IR reflow and wave soldering
- Compatible with automated loading equipment
- Open top design allows unrestricted air flow
- Moulded slots for ease of device extraction

Connector Type	PLCC	Contact Termination	Surface Mount Vertical
Contact Material	Copper	Pitch Spacing	1.27mm
Contact Plating	Tin		

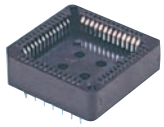
648592

No. of Contacts	Order Code	Mftrs. List No.	Price Each 1+	5+	10+	25+
32	**206-3808**	8432-21B1-RK-TR				
44	**206-3809**	8444-21B1-RK-TR				
68	**206-3810**	8468-21B1-RK-TR				

IMPROVED BACK ORDER DELIVERY

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

PLCC Sockets, Through-Hole Mounting



Industry standard sockets for JEDEC A/B PLCCs, incorporating internal standoffs for precision chip positioning, bottom standoffs for simpler flux residue removal, and 2.54mm grid soldertails. **UL** recognised.

H (above pcb)=7.7

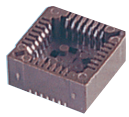
Current rating	1A	Contacts	Phosphor Bronze
Contact resistance	30mΩ max.	Insulator	Polyphenylene Sulphide

No. of ways	W/D	Mftrs List No.
28	18.3	8428-11B1-RK-TP
44	23.45	8444-11B1-RK-TP
84	36.0	8484-11B1-RK-TP

241540

No. of Ways	Order Code	Price Each 1+	10+	50+	100+	500+
28	**118-3026**					
32	**118-3027**					
44	**118-3029**					
68	**118-3031**					
84	**118-3033**					

PLCC Sockets, Through-Hole Mounting



- Production sockets for JEDEC 'A' PLCCs
- Through-hole terminations on 1.0" (2.54mm) grid
- Internal standoffs for precision placement
- Phosphor bronze contacts, tin/lead on nickel plated
- Glass filled polyphenylene sulphide body, **UL** recognised

H (above pcb) = 9.14

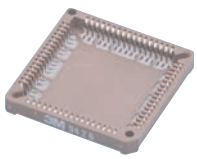
Contact resistance	15mΩ typ.
Operating temperature	-55°C to + 105°C

Mftrs. List No. PCS-0xx-A-1, where xx=No. of ways

222187

No. of Ways	H (Above PCB)	W	D	Order Code	Price Each 1+	100+	500+
20	9.14	14.98	14.98	**107-7350**			
32	8.38	20.07	17.52	**107-7353**			

PLCC Sockets



H (above pcb)=5.08

No. of ways	W/D	Mftrs List No.
20	15.24	8420-21B1-RK-TP
28	17.78	8428-21B1-RK-TP
32	17.78 / 20.32	8432-21B1-RK-TP
44	22.86	8444-21B1-RK-TP
52	25.4	8452-21B1-RK-TP
68	30.48	8468-21B1-RK-TP
84	35.56	8484-21B1-RK-TP

Current rating	1A	Contacts	Phosphor Bronze
Contact resistance	<30mΩ	Isolator	Polyphenylene Sulphide

Low cost, production grade sockets for JEDEC A/B packages. Very low profile, top extraction style withinternal standoffs and inspection windows. Compatible with all SMT soldering processes. **UL** recognised

457038

No. of Ways	Order Code	Price Each 1+	10+	50+	100+	500+
20	SMD **118-3018**					
28	SMD **118-3019**					
32	SMD **118-3020**					
44	SMD **118-3021**					
52	SMD **118-3022**					
68	SMD **118-3024**					
84	SMD **118-3025**					

PLCC Sockets

- Through-hole or surface mount options
- Through-hole version has copper alloy contacts, tin plated
- SMD version has phosphor-bronze contacts, tin-lead plating
- Polyphenylene sulphide body, **UL** recognised
- Supplied both individually and in tube multiples

IC Sockets - PLCC/LCC - continued

PLCC Sockets - continued

Through Hole

No. of Ways	Order Code	Price Each 1+	10+	50+	250+
28	**110-3871**				
32	**110-3872**				
84	**110-3876**				
28	SMD **110-3886**				
84	SMD **110-3882**				

337914.342477

Tubes

Through Hole

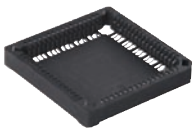
No. of Ways	Tube Quantity	Order Code	Price Per Tube 1+	50+	100+	500+
68	19	**110-3862**				
84	15	**110-3863**				
44	25	SMD **110-3865**				

PLCC Sockets

multicomp

NEW

Through Hole



Surface Mount

Connector Type	PLCC
Contact Material	Phosphor Bronze
Contact Plating	Tin

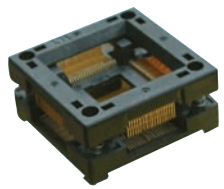
655916

No. of Contacts	Mftrs. List No.	Order Code	Price Each 1+	250+	500+	1K+	5K+
Through Hole (2.54mm pitch spacing)							
20	MC-20PLCC	**209-7211**					
28	MC-28PLCC	**209-7212**					
32	MC-32PLCC	**209-7213**					
44	MC-44PLCC	**209-7214**					
52	MC-52PLCC	**209-7215**					
68	MC-68PLCC	**209-7216**					
84	MC-84PLCC	**209-7218**					
Surface Mount (1.27mm pitch spacing)							
20	MC-20PLCC-SMT	**209-7219**					
28	MC-28PLCC-SMT	**209-7220**					
32	MC-32PLCC-SMT	**209-7221**					
44	MC-44PLCC-SMT	**209-7222**					
52	MC-52PLCC-SMT	**209-7223**					
68	MC-68PLCC-SMT	**209-7224**					
84	MC-84PLCC-SMT	**209-7225**					

IC Sockets - QTFP

ZIF TQFP Sockets

WELLS-CTI



H (above pcb)=15.42

- Zero insertion force for autoload, 10,000 mech operations max
- 2 mm lead form
- Contact rating: 1A
- Insulation breakdown: 1000VAC RMS for 1 min.
- With normal or scrubbing contacts (1095890)
- Socket Body: PEI, PPS, or equivalent
- Contact plating: Gold over Nickle
- Contact Resistance: 30 mΩ
- Burn-in applications up to 150°C
- Small overall size

Size I.C L x W (mm)	No. of Ways	Socket W/L mm	Mfftrs. List No.
10 x 10	44	29.3	7010-044-6-08
10 x 10	64	29.3	7010-064-6-08
14 x 14	64	33.3	7014-064-6-08
14 x 14	80	33.3	7014-080-6-08

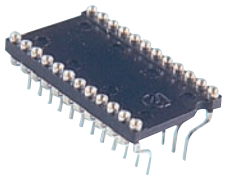
428749

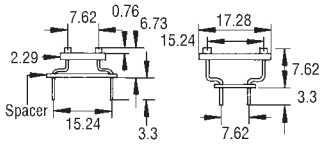
Mftrs. List No.	Order Code	Price Each 1+	5+	10+
7010-064-6-08	**133-7654**			
7014-064-6-08	**133-7656**			
7014-080-6-08	**133-7655**			
7010-044-6-08	**133-7653**			

IC Sockets - Adaptors

0.3" (7.62mm) DIL to 0.6" (15.24mm) DIL

ARIES Electronics (Europe)





116-9113, 116-9118 116-9114, 113-6587

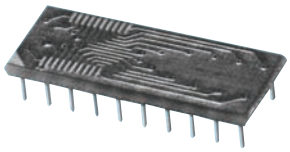
Adaptor sockets allow the use of 0.3" (7.62mm) centre devices when the PCB is drilled on 0.6" (15.24mm) centres and vice versa. High reliability turned pin contacts, and glass filled thermoplastic body.

211436

No. of Ways	Mftrs List No.	Order Code	Price Each 1+	25+	100+
0.3" (7.62mm) to 0.6" (15.24mm) Row Spacing, Enlarger					
24	1106396-24	**116-9113**			
28	1106396-28	**116-9118**			
0.6" (15.24mm) to 0.3" (7.62mm) Row Spacing, Reducer					
24	1107254-24	**116-9114**			
28	1107254-28	**113-6587**			

Adaptor, SSOP/DIP

ARIES Electronics (Europe)



Pitch, lead = 2.54mm Pitch, row = 7.62mm

Features:
- RoHS/ WEEE Compliant
- Allows the use of .65mm pitch surface mount ICs in thru-hole designs.
- Ideal for prototyping and testing/evaluating SSOP ICs.
- Adapter can be cut to smaller sizes by end user.
- Consult factory for panelized form or for mounting of consigned ICs.

Specifications:
- Adapter body is .062 [1.58] thick FR406 or IS410 per IPC4101A/26 with 1 ounce minimum Copper traces both sides.
- Pad are finished with ENIG (Immersion Gold over Electroless Nickel)
- Pins are Brass Alloy 360 1/2 hard per UNS C36000 ASTM-B16-00.
- Pin plating is 10µ Min. Gold per MIL-G-45204 over 100µ Min. Nickel per SAE-AMS-QQ-N-290.
- Current rating=1 Amp.
- Operating temperature=221°F [105°C].

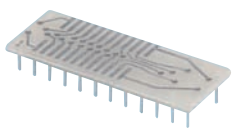
Mounting Considerations:
- Suggested PCB hole size=.028 ± .003 [.71 ± .08] dia.
- Will plug into standard IC sockets.

527494

Mftrs. List No.	No. of Ways	Order Code	Price Each 1+	25+
20-351000-11-RC	20	**167-4755**		
24-351000-11-RC	24	**167-4756**		
28-351000-11-RC	28	**167-4757**		

SOIC to 0.3" (7.62mm) DIL

ARIES Electronics (Europe)



- Converts to standard 0.3" (7.62mm) row spacing DIL configuration
- Wide solder pads, min. row spacing 0.15" (3.81mm)
- Suitable for SOJ packages
- Tin/nickel plated phosphor bronze pins

211481

No. of Ways	Mftrs List No.	Order Code	Price Each 1+	5+	50+
8	08-350000-11-RC	**113-6592**			
14	14-350000-11-RC	**113-6593**			
16	16-350000-11-RC	**113-6594**			
18	18-350000-11-RC	**113-6595**			
24	24-350000-11-RC	**113-6596**			
28	28-350002-11-RC	**113-6597**			
28	28-650000-11-RC	**167-4727**			
32	32-650000-11-RC	**167-4728**			

TROUBLESHOOTING TIPS
Chat online to one of our technical engineers at **farnell.com**

RoHS Compliant Non-compliant

DIMM Memory Sockets

DIMM Memory Sockets

Tyco Electronics

Pitch Lead mm	Pitch Row mm	Module Orientation	Height Profile	Contact Material	Mftrs List No.
SDRAM					
0.8	6.2	Right Angle	Standard	Gold	390113-1
0.8	6.2	Right Angle	High	Gold	390112-1
0.8	6.2	Right Angle	High	Gold	390322-1
200 Pin DDR1					
0.6	6.2	Right Angle	Standard	Gold over Nickel	1473005-1
0.6	6.2	Right Angle	Standard	Gold over Nickel	1473005-4

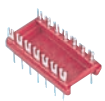
419725

Mftrs.		Price Each				
List No.	**Order Code**	1+	10+	25+	50+	100+
390113-1	**109-5863**					
390112-1	**109-5865**					
390322-1	**109-5866**					
1473005-1	**109-5876**					
1473005-4	**109-5877**					

Component DIL Headers

8 Way to 40 Way Headers and Covers

ARIES Electronics (Europe)



- For use with matching DIL socket
- Versatile board-to board connector
- Components may be soldered across the pins
- Numbered pin positions
- Matching snap-fit covers
- **UL** recognised

Pin spacing	0.1" (2.54mm)	Row spacing	0.3" (7.62mm)	6, 8, 14, 16, 18, 20 pin
Height above pcb	6.0		0.6" (15.24mm)	24, 28 pin
With cover	6.9 (7.4 for 24, 28 pin)			

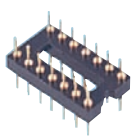
Mftrs. List No. Headers xx-600-10, Covers xx-650-10, where xx=No of ways

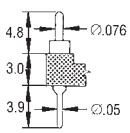
211517

No. of Ways	**Order Code**	Price Each 1+	100+	500+
8 way	**116-9106**			
8 way	**116-9106**			
14 way	**116-9107**			
14 way	**116-9107**			
16 way	**116-9108**			
16 way	**116-9108**			
20 way	**113-6775**			
24 way	**113-6776**			
28 way	**113-6777**			
8 way	**117-2776**			
8 way	**117-2776**			
14 way	**117-2778**			
14 way	**167-4719**			
14 way	**167-4720**			
16 way	**117-2779**			
16 way	**167-4721**			
16 way	**167-4722**			
16 way	**167-4723**			
24 way	**113-6780**			

DIL Through Headers – Turned Pin

HARWiN





DIL through headers with precision machined brass pins, for use as either through-connect headers or as miniature connectors in conjunction with DIL sockets. Body is black glass filled polyester, **UL** recognised, contacts have tin/lead finish.

Mftrs. List No. D92xx-01 (tin/lead), D92xx-05 (gold), where xx = No of ways

211538

No. of Ways	Contacts	**Order Code**	Price Each 1+	25+	100+	500+
0.3" (7.62mm) Row Spacing						
14	Tin / Lead	**177-852**				
16	Tin / Lead	**177-854**				

IC Installation and Extraction Tools

Lead Alignment Hand Tool

ARIES Electronics (Europe)

- Straightens bent pins
- Aligns 0.3" (7.62mm) and 0.6" (15.24mm) row spacing IC pins
- Accepts DIL ICs up to 48 pin (63.5mm length)
- Simple squeeze-to-operate
- Static safe

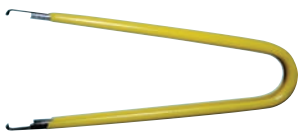
Mftrs. List No.T516AST-516AS

211547

Order Code	Price Each 1+	10+	25+
175-657			

DIP Extractor Tool

ARIES Electronics (Europe)



Features:
- An extremely handy, economical tool for removing ICs from DIP sockets.
- Reduces the risk of pin damage associated with stubborn IC removal.

527493

Mftrs. List No.	**Order Code**	Price Each 1+	25+
T-90	**167-4753**		

DIL Extraction Tool

multicomp

A simple robust IC extraction tool manufactured from stainless steel with a soft plastic cover for increased grip. Suitable for use on DIL packages from 6 to 28 leads.

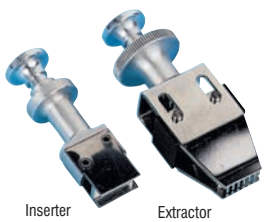
W=25, L=10

211438

Order Code	Price Each 1+	10+	25+
109-152			

DIL IC Inserters and Extractors

TERMINAL



- Durable, high quality metal construction
- Static safe
- Precision lifting/lowering mechanism prevents IC pin damage
- Extractor requires:
  1mm min. clearance underneath the IC
  3mm min. clearance between adjacent ICs

Mftrs. List No. TW2100-14=877-463 TW2000-14/20=877-426 TW2000-24=877-440 TW2000-40=877-451 TW2100-24/6=877-505 TW2100-40=877-517

211516

No. of Ways	IC Row Spacing	**Order Code**	Price Each 1+	5+	25+
Inserters					
14	0.3"	**877-463**			
24/28	0.6"	**877-505**			
40	0.6"	**877-517**			
Extractors					
14 to 20	0.3"	**877-426**			
24/28	0.6"	**877-440**			
40/48	0.6"	**877-451**			

PLCC Extraction Tool

ProsKit

- Simple and safe 'squeeze to remove' operation
- Universal size - fits all PLCC packages
- Made of thermo plastic for work in ESD area

222189

Mftrs. Part No.	**Order Code**	Price Each 1+	10+	25+
8PK-610	**150-4085**			

IC Test Clips

DIL IC Test Clip/Extractor

- Unique design provides accurate, reliable contact
- Non-shorting, positive spring clamping
- Narrow nose for greater dexterity in densely populated boards
- Exposed contacts allow probing at IC legs
- Alloy 770 contacts
- Nylon body

Mftrs. List No. 923690-xx, where xx=No. of ways, except 178-274=923689-24

211548

No. of Ways	Order Code	Price Each 1+	10+	25+
0.3" (7.62mm) Row Spacing				
8 way	**178-270**			
14 way	**178-271**			
16 way	**178-272**			
20 way	**178-273**			
24 way	**178-274**			
0.6" (15.24mm) Row Spacing				
24 way	**178-275**			
28 way	**178-276**			
40 way	**178-277**			

SOIC Small-Outline IC

These test clips are for the easy and convenient testing of surface mounted small-outline IC's (SOIC's). Strong helical springs and insulating contact combs ensure contact integrity during testing. Probes or single row female connectors will connect to the 0.025" (0.63mm) square, gold plated contacts on 0.1" (2.54mm) centres.

Mftrs. List No. 178-278/279/280 923650-xx, 178-282/283 923660-xx, where xx=No. of ways

IC pin spacing 0.05" (1.27mm)

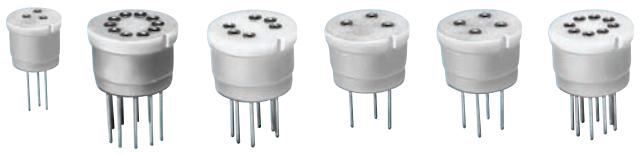
211463

No. of Ways	Order Code	Price Each 1+	5+	10+
Narrow Bodied 0.15" (3.81mm)				
8 way	**178-278**			
14 way	**178-279**			
16 way	**178-280**			
Wide Bodied 0.3" (7.62mm)				
20 way	**178-282**			
24 way	**178-283**			

923650-08178-278	178-278
923650-14178-279	178-279
923650-16178-280	178-280
923660-20178-282	178-282
923660-24178-283	178-283

Transistor/Diode Sockets and Fixing Hardware

Transistor Sockets



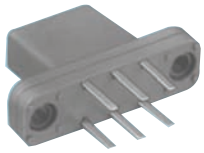
1466132 1466130 1466128 1466126 1466127 1466129

- High quality, turned pin
- Through-hole mounting
- Gold plated brass contacts (<4mΩ)
- Gold plated Berylium CU spring
- Insulation resistance: >10^{18} Ohm
- Material (isolation body): PTFE
- Maximum working voltage: 100V
- Maximum current: 5A
- Operating temp range: -200°C to 260°C
- All Sockets 7.3mm height above PCB

496993

Mftrs. List No.	Compatability	Order Code	Price Each 1+	25+	100+
TF 183	TO-18 3-pin	**146-6132**			
TF 510	TO-5 10-pin	**146-6130**			
TF 53	TO-5 3-pin	**146-6126**			
TF 54	TO-5 4-pin	**146-6127**			
TF 56	TO-5 6-pin	**146-6128**			
TF 58	TO-5 8-pin	**146-6129**			

Transistor Test Socket



This Power In-line socket must be mounted to board with screws and accepts a wide range of in-line devices up to 3 lead, including TO-3 and TO-66. The socket has 2 entry ports which accept devices with 0.75" to 0.2" between leads.

- Glass filled Polyphenylene-Sulfide
- Contacts: 0.76µm Gold over 1.27µm Nickel
- T0-3 and TO-66 compatable
- 3-contact, accomodates: 0.2" to 0.75 distance between outer leads"
- 1 Ampere current rating
- -55°C to +150°C temperature range
- **UL** recognised

427729

Order Code	Price Each 1+	10+	25+	50+
109-5898				

Transistor and IC Sockets

177-129

TO-3 Socket - 131-9821

- Polyester thermoplastic
- Gold flash contacts
- T0-18, T0-5/39 sockets fit 0.1" (2.54mm) grid
- T0-99 socket fits 0.3" (7.62mm) square pattern
- -55°C to +150°C temperature range
- **UL** recognised

211550

Order Multiple=5	Order Code	Price Each 5+	100+	250+	500+	1K+
3 Pin TO-18	**177-128**					
3 Pin TO-5, TO-39	**177-129**					
Order Multiple=1		**1+**	**100+**	**250+**	**500+**	**1K+**
8 Pin TO-99	**177-130**					
3 Pin TO-3	**131-9821**					

Transistor Pads

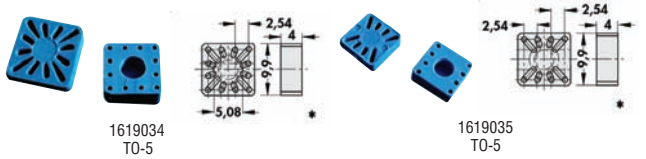
519-960 H=3.43 Dia=6.35 | 519-972 H=3.81 Dia=7.11 | 519-984 H=3.18 Dia=6.35 | 520-007 H=3.68 Dia=9.37

519-960: TO-92 spreads to 0.1" (2.54mm) inline or 0.2"(5.08mm pcb
519-972: TO-92 spreads to 0.2" (5.08mm)pcd
519-984: TO-18 PO Type 1B
520-007: TO-5/TO-18 spread TO-18 to TO-5

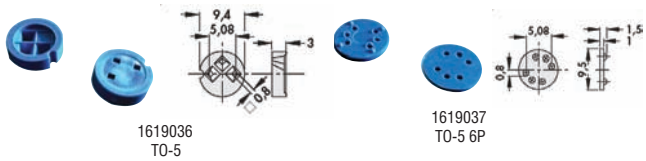
211551

Order Code	Price Each 100+	1K+	2K5+	10K+
519-960				
519-972				
519-984				
520-007				

Transistor Pads



1619034 TO-5 | 1619035 TO-5



1619036 TO-5 | 1619037 TO-5 6P

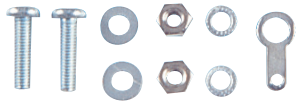
Material	Polyamide, GF reinforced
Heat resistance	145 °C
Flammability	UL 94 V-0 (at thickness ≥ 3 mm), UL 94 V-1

517344

Mftrs. List No.	Order Code	Price Each 10+	250+	1K+	10K+
US 512-4	**161-9034**				
US 58-4	**161-9035**				
MS 53-3	**161-9036**				
MS 56-15	**161-9037**				

RoHS Compliant Non-compliant

Transistor Fixing Kits



520-159 M3 Thread

520-160 M3 Thread

211555

Order Multiple=10

Type	Order Code	Price Each 10+	250+	1K+	10K+
TO-3 / TO-66	**520-159**●				
TO-220 / TO-126 / SOT-93	**520-160**●				

Transistor Insulating Bushes

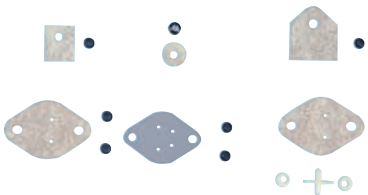
- For use with screw mounted transistors
- Isolates transistors from heatsinks
- Popular TO-220 and TO-3 sizes
- Nylon construction
- Suitable for use with Sil-Pad and other thermal pads
- Sold in packs of 10

222200

Pack Quantity =10

Size	Order Code	Price Per Pack 1+	25+	100+	1K+
TO-220	**936-649**●				
TO-3	**936-637**●				

Transistor Insulating Kits



- All kits offer 1 kV isolation, except 520-202 (2 kV)
- 520-172 use 4.37 mm high bushes, shank length 3.2 mm
- 520-184 uses 6.35 mm high bushes, shank length 5.2 mm
- The kits with silicone impregnated washer eliminate the need for heatsink compound
- It is recommended that heatsink compound should be used with Mica washer kits

See above

◇ Suitable for TO-218 devices with rounded tab (e.g some bipolar transistors)

◆ Suitable for TO-247 / TO-3P devices with rectangular tab (e.g power MOSFET' s)

631468

Type	Order Code	Price Each 10+	250+	1K+	10K+
Kits with Mica Washer					
MK3301	**520-172**●				
TO-3 (6.35 mm Bush)	**520-184**●				
TO-3 (2 kV isolation)	**520-202**●				
TO-220	**520-214**●				
TO-126	**520-226**●				
◇ SOT-93 (TO-3P, TO-218)	**520-238**●				
Kits with Silicone Impregnated Washer					
TO-220 Fit	**522-636**●				

Crystal Oscillator Sockets and Hardware

Oscillator Sockets

Pitch, row = 7.62mm

Features:

- This four pin socket (in 14 & 8 position frames) accept standard oscillator packages.
- Designed to be end-to-end or side-to-side stackable.
- Machine insertable.

Specifications:

- Body material is black UL 94V-0 Glass-filled 4/6 Nylon.
- Pin body is Brass Alloy 360 1/2 hard per UNS C36000 ASTM-B16-00.
- Pin body plating is 200µ [1.27µm] min. 93/7 Tin/Lead per ASTM B545 or 200µ [5.08µm] min Tin per ASTM B 545 Type 1 over 100µ [2.54µm] min. Nickel per SAE-AMS-QQN-290.
- 4-fingered collet contact is Beryllium Copper Alloy per UNS C17200 ASTM-B194-01.
- Contact plating is 10µ [.25µm] min. Gold per MIL-G-45204 over 50µ [1.27µm] min. Nickel per SAE-AMS-QQ-N-290.
- Contact current rating=3 Amps.
- Operating temperature=221°F [105°C].
- Insertion Force=180 grams/pin; Withdrawal Force=90 grams/pin; Normal Force=140 grams/pin; based on a .018 [.46] diameter test lead.
- Accepts leads .015-.025 [.38-.64] in diameter, .100-.146 [2.54-3.71] in length.

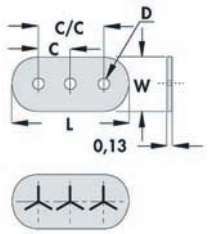
Mounting Considerations:

- Suggested PCB hole size=.030 ± .002 [.76 ± .05] dia.

527583

Mftrs. List No.	No. of Ways	Order Code	Price Each 1+	25+	100+
1108800	8	**167-4801**●			
1107741	14	**167-4802**●			

Insulating discs for Oscillators



Technical Data:

Foil:	MYLAR
Thickness:	0,127 mm
Heat resistance:	250 °C
Dielectric strength:	9 KV

Typ	Size (mm) C	C/C	L	D	W	Package
ISQ 03	1,9	3,8	8,3	0,71	3,7	HC-80/U
ISQ 05	-	4,9	11,8	self holding	5,6	HC-18/U, HC-43/U+HC-49/U
ISQ 06	2,4	4,9	11,8	0,71	5,6	HC-18/U, HC-43/U+HC-49/U
ISQ 08	-	4,9	11,8	1,30	5,6	HC-25/U, HC-42/U+HC-50/U

330616

Typ	Order Code	Price Each 10+	25+	50+	100+
ISQ 03	**469-5460**●				
ISQ 05	**469-5483**●				
ISQ 06	**469-5495**●				
ISQ 08	**469-5513**●				

Thermal Interface Materials

Thermal Interface Materials

150 x 150mm Sheets

- Thermal gap fillers from 1.5 W/m K to 4.8 W/m K with and without PSA adhesive.
- Soft materials highly compressible, easy to assemble, and provide good electrical insulation.
- Shock and vibration absorber
- Typically used on electrical components, : IC, CPU and MOS, and connection between boards to enclosure walls to help heat conduction
- Typical applications include heat dissipation from LEDs, motherboards, power supplies, LCD TVs, notebooks, hubs, hand sets, memory modules, hard drives

Series	Shore Hardness A	Insulation Strength (kV/mm)	Series	Shore Hardness A	Insulation Strength (kV/mm)
L37-5-150-xA	15	7	H486-150-xx	20	7
H482-150-xA	10	5	H486A-150-x	20	5
L373/S-150-xA	5	10	H486R-150-x	30	5

475869

Mftrs. List No.	Thickness (mm)	Thermal Conductivity (W/m K)	Order Code	Price Each 1+	25+	100+
Thermal Gap Fillers						
L375-150-0.5A	0.5	1.6	**137-2917**●			
L375-150-1.0A	1.0	1.6	**137-2918**●			
L375-150-2.0A	2.0	1.6	**137-2921**●			
L375-150-3.0A	3.0	1.6	**137-2922**●			
H482-150-0.5A	0.5	2.2	**137-2923**●			
H482-150-1.0A	1.0	2.2	**137-2924**●			
H482-150-1.5A	1.5	2.2	**137-2925**●			
H482-150-2.0A	2.0	2.2	**137-2926**●			
L373-150-0.5A	0.5	1.7	**137-2927**●			
L373-150-1.0A	1.0	1.7	**137-2928**●			
L373-150-1.5A	1.5	1.7	**137-2929**●			
L373-150-2.0A	2.0	1.7	**137-2930**●			
L373S-150-0.5	0.5	1.6	**137-2931**●			
L373S-150-1.0	1.0	1.6	**137-2933**			
L373S-150-1.5	1.5	1.6	**137-2934**●			
L373S-150-2.0	2	1.4	**137-2935**●			
H486-150-0.5A	0.5	3.2	**137-2936**●			
H486-150-1.0A	1.0	3.2	**137-2937**●			

Thermal Interface Materials - continued

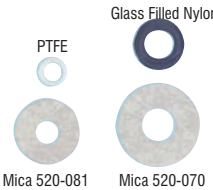
Thermal Interface Materials - continued

150 x 150mm Sheets - continued

Mftrs. List No.	Thickness (mm)	Thermal Conductivity (W/m K)	Order Code	Price Each 1+	25+	100+
Thermal Gap Fillers						
H486-150-1.5A	1.5	3.2	**137-2938**			
H486-150-2.0A	2.0	3.2	**137-2939**			
H486A-150-0.5	0.5	4.0	**137-2940**			
H486A-150-1.0	1	4	**137-2941**			
H486R-150-0.5	0.5	4.8	**137-2942**			
H486R-150-1.0	1.0	4.8	**137-2943**			
Double Sided Adhesive						
LI-98-150-025	—	—	**137-2945**			
Graphite Interface Material						
T62-150-013-165G	0.13	20	**137-2946**			
T621-150-016-165GA	0.16	15	**137-2947**			
T62-150-025-100G	0.25	20	**137-2950**			
T62-150-050-100G	0.5	20	**137-2955**			

Stud Device Insulating Kits

multicomp



211554

Type	Order Code	Order Multiple=10 Price Each 10+	250+	1K+	10K+
Insulating Kits					
DO-4 (10-32)	**520-070**				
DO-5 (1/4-28)	**520-081**				

Grease Replacement Thermal Interface

BERGQUIST

Q-Pad 3®

Bergquist Q-Pad 3 eliminates problems associated with thermal grease such as contamination of electronic assemblies and reflow solder baths. Q-Pad 3 may be installed prior to soldering and cleaning, without worry. When clamped between two surfaces, the elastomer conforms to surface textures therby creating and air free interface between heat generating components and heat sinks.

- Graphite loaded polymer elastomer
- Electrically conductive - non insulating
- Clean, grease-free and easy to assemble
- 1.3°C/W thermal resistance
- Pre-cut for transistors or uncut sheet
- 0.13mm thickness

632106

Type	Mftrs. List No.	Order Code	Price Each 1+	50+	100+
TO-220	Q3AC-35	**209-7549**			
Sheet	Q3AC 300MMX300MM SHEET	**681-465**			

Thermally Conductive Material

BERGQUIST

Sil-Pad 400®

- Suitable for clip mounted TO-220 packages (664-194), or screw mounted TO-220 and TO-3P packages
- Clean, grease-free and flexible
- 0.45°C/W thermal resistance
- Electrically isolating to 3.5kV (min)
- Silicon rubber/fibre-glass
- -60°C to +180°C operating temperature
- 0.18mm thickness

Mftrs. List No. 3223-07FR-43664-194 = 664-194 SP400-0.007-00-54 = 878-3608
3223-07FR-104NH664-224 = 664-224 SP400-0.007-00-1212 = 878-3616

Package	Order Code	Order Multiple=5 Price Each 10+	500+	1K+
TO-220	**664-194**			
TO-3P	**664-224**			

	Order Code	Order Multiple=1 1+	5+	10+
300mm x 300mm sheet	**878-3616**			

Package	Order Code	Pack Quantity=10 Price Per Pack (10) 1+	5+	25+
TO-220 (pre-cut hole)	**878-3608**			

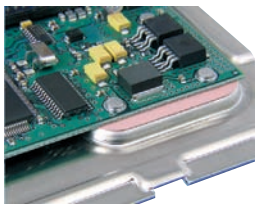
Transistor Insulating Bushes

222196

Size	Order Code	Pack Quantity=10 Price Per Pack 1+	25+	100+	1K+
TO-220	**936-649**				
TO-3	**936-637**				

Sil-Pad SP900S

BERGQUIST



- Thermal impedance: 0.61°C-in²/W (@5- psi)
- Low mounting pressure
- Suitable for clip mounted TO-220 packages (878-3551) or screw mounted TO-220 and TO-3P power packages
- Smooth and highly compliant surface
- Electrically isolating

Thermal Conductivity W/m-K	Dielectric Breakdown Voltage kV-ac	Dielectric Constant	Dielectric Constant	Volume Resistivity Ω-m
1.6	5.5	6	0.2mm	10^{10}

Package	Order Code	Pack Quantity=10 Price Per Pack 1+	10+	25+
TO-220	**878-3551**			
TO-220 (pre-cut hole)	**878-3560**			
TO-3P	**878-3578**			

Transistor Insulating Bushes

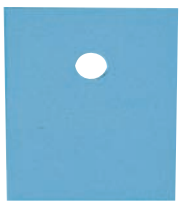
387133

Size	Order Code	Pack Quantity=10 Price Per Pack 1+	25+	100+	1K+
TO-220	**936-649**				
TO-3	**936-637**				

Medium Grade Thermally Conductive Material

BERGQUIST

Sil-Pad K6®



Sil-Pad K-6 is a medium performance film-based thermally conductive insulator. The film is coated with a silicone elastomer to deliver high performance and provides a continuous, physically tough, dielectric barrier against 'cut-through 'and resultant assembly failures.

- Thermal impedance: 0.49°C-in²/W (@50 psi)
- Tough dielectric barrier against cut-through
- Electrically isolating to 6kV (min)
- Medium performance Kapton®-based film
- 0.15mm thickness

Thermal Pads

Package	Mftrs. List No.	Order Code	Price Each 1+	50+	100+
TO-220	K6-54	**209-7550**			
TO-3P	K6-104	**681-090**			

			1+	5+	10+
Sheet	SIL-PAD K6 300MMX300MM SHEET	**186-9649**			

Transistor Insulating Bushes

222195

Package	Mftrs. List No.	Order Code	Price Per Pack 1+	25+	100+	1K+
TO-220	31-35-25GFN	**936-649**				
TO-3	3-38-32GFN	**936-637**				

High Grade Thermally Conductive Material

BERGQUIST

Sil-Pad® K-10

- Thermal impedance 0.41°C-in2/W (@50 psi)
- 0.2°C/W thermal resistance
- Tough dielectric barrier against cut-through
- Electrically isolating to 6kV (min)
- High performance film
- Designed to replace ceramic insulators

Mftrs. List No. K10-54936-741 = 936-741
K10-104936-753 = 936-753
K10SHEET 936-765 = 936-765

Sil-Pad K-10 is a high performance insulator. It combines special film with a filled silicone rubber. The result is a product with good cut-through properties and excellent thermal performance.
Sil-Pad K-10 is designed to replace ceramic insulators such as Beryllium Oxide, Boron Nitride, and Alumina. These insulators are expensive and they break easily. Sil-Pad K-10 eliminates breakage and costs much less than ceramics.

Package	Order Code	Order Multiple=5 Price Each 5+	100+	1K+
TO-220	**936-741**			
TO-3P	**936-753**			
x 300mm sheet	**936-765**			

RoHS ● Compliant ▲ Non-compliant

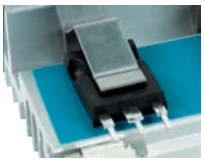
Transistor Insulating Bushes

222199

Pack Quantity =10		Price Per Pack			
Size	Order Code	1+	25+	100+	1K+
TO-220	936-649				
TO-3	936-637				

Sil-Pad A1500

BERGQUIST



- Thermal impedance: 0.42°C-in^2/W (@50 psi)
- Solvent-free process
- Elastomeric compound coated on both sides

Bergquist Sil-Pad A1500 is a silicone-based thermally conductive and electrically insulating material. It consists of a cured silicone elastomeric compound coated on both sides of a fiberglass reinforcement layer.

Thermal Conductivity W/m-K	Dielectric Breakdown Voltage kV-ac	Dielectric Constant	Dielectric Constant	Volume Resistivity Ω-m
2	6000	7		10^{11}

387150

		Price Each		
	Order Code	1+	5+	10+
100mm x 100mm sheet	878-3667			

High Performance, High Reliability Insulator

BERGQUIST

Sil-Pad 2000®

- Ultimate performance and reliability
- 0.2°C/W thermal resistance
- Electrically isolating to 4kV (min).
- Clean, grease-free and flexible
- -60°C to +200°C operating temperature
- Boron nitride loaded silicon elastomer
- Pre-cut for transistors, or uncut sheet
- 0.38mm thickness

Sil-Pad 2000 is a high performance thermally conductive insulator designed for demanding military / aerospace and commercial applications.
Sil-Pad 2000 complies with **MIL-M-38527/8A**, **MIL-M-38527C** and **MIL-I-49456**.

	Mftrs.	Order	Price Each		
Package	List No.	Code	5+	100+	1K+
TO-220	2015-54	681-118			
TO-3P	2015-104	209-7551			
			1+	5+	10+
Pad	SIL-PAD 2000 150MMX150MM SHEET	681-131			

Transistor Insulating Bushes

222194

	Mftrs.	Order	Price Per Pack			
Size	List No.	Code	1+	25+	100+	1K+
TO-220	31-35-25GFN	936-649				
TO-3	3-38-32GFN	936-637				

Thermally Conductive, Pressure Sensitive Adhesive Tape

BERGQUIST

Bond-Ply 100

- Thermal impedance: 0.86°C - in^2/W (@ 100 psi)
- High bond strength to a variety of surfaces
- Double-sided pressure sensitive adhesive tape
- High performance, thermally conductive acrylic adhesive
- Can be used instead of heat cure adhesive, screw mounting or clip mounting

Typical applications:

- Mount heat sink onto BGA graphic processor or drive processor
- Mount heat spreader onto power converter PCB or onto motor control PCB

Thermal Conductivity W/m-K	Dielectric Breakdown Voltage V-ac	Tensile Strength (psi) / (MPa)	Thickness	Volume Resistivity Ω-m
0.8	3000	6	0.127mm	10^{11}

387159/405607

		Price Each		
	Order Code	1+	5+	10+
150mm x 150mm sheet	878-3705			
300mm x 300mm sheet	878-3713			
Supplied in Packs of 10		Price Per Pack		
		1+	10+	25+
25mm x 25mm sheet	878-3721			

Gap Pad™ Conformable Air Gap Fillers

BERGQUIST

Gap Pad provides an effective thermal interface between heat sinks and electronic devices where uneven surface topography, air gaps and rough surface textures are present.

- Eliminates air gaps to reduce thermal resistance
- Highly conformable to reduce interfacial resistance
- Low-stress vibration dampening
- Compatible with automated dispensing equipment
- Available in different grades, of various thickness

VO: Standard applications
VO Soft: Low stress applications, fragile components
VO Ultra-Soft: Highly-conformable, gel-like modulus
2000-S40: High thermal performance, highly-conformable, glass reinforced
2500-S80: High thermal performance, highly-conformable, non-reinforced, inherently tacky
3000-S30: Ultra-high thermal performance, highly-conformable, glass reinforced

Material	Thermal Conductivity W/m-K	Dielectric Breakdown Voltage kV-ac	Dielectric Constant	Volume Resistivity Ω-m	Adhesive Backed ?
Gap Pad VO	0.8	6	5.5	$1x10^{11}$	y
Gap Pad VO Soft	0.8	6	5.5	$1x10^{11}$	n
Gap Pad VOUS	1	6	5.5	$1x10^{11}$	n
Gap Pad 2000 S40	2.0	2.5	6.0	$4.2 x 10^{11}$	n
Gap Pad 2500 S80	2.7	6	6.8	$1x10^{11}$	n
Gap Pad 3000 S30	3.0	2.5	6.0	8.5^{10}	n

211495

100 x 100mm Sheet		Price Each		
Thickness	Order Code	1+	5+	10+
Gap Pad VO				
1.5mm	681-143			
2mm	936-728			
3.2mm	681-155			
4mm	936-730			
Gap Pad VO Soft				
1.5mm	168-830			
3.2mm	168-841			
Gap Pad VO Ultra-Soft				
1.0mm	878-3411			
2mm	878-3438			
3.175mm	878-3446			
5mm	878-3454			
Gap Pad 2000 S40				
1.0mm	878-3462			
2.0mm	878-3470			
3.175mm	878-3489			
Gap Pad 2500 S80				
1mm	878-3497			
3.175mm	878-3519			
Gap Pad 3000 S30				
1mm	878-3527			
2mm	878-3535			
3.175mm	878-3543			

Thermal Insulator Pad

Laird TECHNOLOGIES

T-gard™ 500

NEW

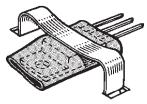
Tgard™ 500 is a medium thermal performance insulator pad consisting of a ceramic filled high temperature silicone rubber coated on electrical grade fiberglass.
Tgard™ 500 is designed for applications that require additional thickness to prevent electrical shorts from stamped aluminum heatsinks used in switching mode power supplies (SMPS) and debris from aluminum castings used in automotive motor controls.
Tgard™ 500 is used in applications that require an interface of 2.5°C/watt or higher on a TO-220 mounted at 50 psi pressure.

649642

Thermal			Price Each			
Resistance	Order Code	Mftrs. List No.	1+	5+	25+	100+
2.9°C/W	206-1813	A15397-03-FAR				

Thermal Interface Materials - continued

Transistor Insulating Tubes



A simple and safe method of isolating power devices. The transistor is inserted into the flexible tube, which is then clipped on to a suitable heat-sink. Electrical isolation is greatly improved compared to traditional screw mounting techniques. **UL** recognised.

TO-220: L=25, Dia.=10
TO-218/247/3P: L=30, Dia.=13

Thickness	0.6 max.	Thermal conductivity	0.7 $Wm^{-1} K^{-1}$
Breakdown voltage	8000V	Elongation	115%
Thermal resistance	0.92°C/W	Temperature range	-55°C to +180°C

FOR SUITABLE TRANSISTOR CLIPS SEE ORDER CODES 557-729 & 557-730

222192

Order Multiple=10

Package	Mftrs. List No.	Order Code	Price Each 10+	250+	1K+	10K+
TO-220	THER-T-SMALL	**547-566**				
TO-218/TO-247						
TO-3P	THER-T-LARGE	**547-578**				

Self-Adhesive Kool-Pad™, Thermally Conductive Sheet

- Eliminates mechanical clamping to heatsinks
- Cut-to-shape 300mm x 300mm sheets
- Heat curable, adhesive coated on both sides
- 0.49°C/W thermal resistance (T0-3)
- Electrically conductive aluminium foil base
- -20°C to +155°C operating temperature
- Thickness 0.14mm
- **UL** recognised

211473

Mftrs. List No.	Order Code	Price Each 1+	5+	25+	100+
KA150-2AC-30X30	**121-9151**				

Conductive Thermal Pads

- Dry alternative to grease
- 'Zemrex CM20' material
- **Electrically conductive**
- Resistant to most solvants
- Non-contaminating to solder baths

Thermal resistance (TO-3)	0.07°C/W	Operating temperature	-200°C to ++500°C
Thermal conductivity	cal/cm sec °C	Volume resistivity	$10^{-3}\Omega$cm

211556

Order Multiple=50

Type	Order Code	Price Each 50+	250+	5K+
TO-220	**121-9149**			

Pyrolytic Graphite Sheets

EYG series

- PGS (Pyrolytic Graphite Sheet) is a thermal interface material
- Very thin, lightweight, synthetically made, high thermal conductivity
- Ideal for thermal management, heatsinking in limited spaces or for supplemental heatsinking in addition to conventional means

- Flexible material, can be cut into customizable shapes (withstands repeated bending)
- Excellent thermal conductivity (2 to 4 times as high as copper, 3 to 6 time as high as aluminum)
- Lightweight: 0.85 to 2.1 g/cm3 (1/4 to 1/10 of copper, 1/1.3 to 1/3 of aluminum in density)
- For cell phones, DVC, DSC, PC and peripherals, semiconductor manufacturing equipment, optical communications equipment
- EYG**S**: pure PGS versions, EYG**A** taping versions
- A and M:(adhesive types), PA and PM types (laminated polyester types)

604841

Dimensions (mm) Width	Length	Height	Mftrs. List No.	Order Code	Price Each 1+	3+	10+
180	230	0.07	EYGS182307	**179-9755**			
115	180	0.07	EYGS121807	**180-0063**			
90	115	0.07	EYGS091207	**180-0064**			
90	115	0.07	EYGA091207A	**180-0065**			
115	180	0.07	EYGA121807A	**180-0066**			
115	180	0.07	EYGA121807PA	**180-0068**			
90	115	0.07	EYGA091207PM	**180-0069**			
115	180	0.07	EYGA121807PM	**180-0070**			
115	180	0.07	EYGA121807SM	**180-0072**			
90	115	0.07	EYGA091207M	**180-0074**			
115	180	0.07	EYGA121807M	**180-0075**			
115	180	0.07	EYGA121807V	**180-0077**			
90	115	0.07	EYGA091207RV	**180-0078**			
115	180	0.07	EYGA121807RV	**180-0079**			
115	180	0.07	EYGA121807KV	**180-0081**			
115	180	0.025	EYGS121803	**180-0082**			
90	115	0.025	EYGS091203	**180-0083**			
90	115	0.025	EYGA091203A	**180-0084**			
115	180	0.025	EYGA121803A	**180-0086**			
90	115	0.025	EYGA091203PA	**180-0087**			
115	180	0.025	EYGA121803PA	**180-0088**			
90	115	0.025	EYGA091203PM	**180-0089**			
90	115	0.025	EYGA091203SM	**180-0090**			
115	180	0.025	EYGA121803SM	**180-0091**			
90	115	0.025	EYGA091203M	**180-0092**			
115	180	0.025	EYGA121803M	**180-0093**			
90	115	0.025	EYGA091203V	**180-0094**			
115	180	0.025	EYGA121803V	**180-0095**			
90	115	0.025	EYGA091203RV	**180-0096**			
115	180	0.025	EYGA121803RV	**180-0098**			
115	180	0.025	EYGA121803KV	**180-0100**			

Thermally conductive adhesive

- Thermally conductive, electrically non-conductive adhesive
- Two part epoxy resin adhesive, metaloxide filled
- Fully replaces mechanical fastenings
- Excellent function and application characteristics
- Thermal conductivity 0.822 W/mK
- Adhesive epoxyd

449570

Mftrs List No.	Order Code	Price Each 1+	5+	10+	100+
WLK 5	**121-1723**				
WLK 30	**121-1724**				

Graphite thermally conductive paste with high thermal conductivity

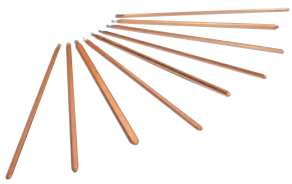
- Thermally and electrically conductive
- Graphite filler, silicone-free, organic admixtures, biologically degradable matrix based on, for example, oil
- Pasty consistency
- Density at least 0.7g/cm^3
- Thermal conductivity 10.5 W/mK
- Resistivity at least 10MOhm/cm
- Flash point for oil DIN 51755, 321°C
- Temperature range of from -40°C to 400°C
- Water-soluble

452835

Mftrs. List No		Order Code	Price Each 1+	10+	50+	100+
WLPG 02	2 ml	**131-5295**				
WLPG 05	5 ml	**131-5296**				

Heat Pipes

Heat Pipes



- Copper heat pipes, pure water filled for operation between +5 degC and 110°C
- Various wick structures offered, Screen mesh, Grooved, Sintered and composite (G+S)
- Low thermal resistance for transportation of heat from hot source to exchanger. Heat pipe can be incorporate into a block and fix a finned. tructure (or heat sink) to allow effective heat removal.
- Thermal resistance of pipe taken at 70°C working temperature (adiabatic), under horizontal orientation, evaporator section 15mm, and condensation section 60mm

497112

Length (mm)	Thickness (mm)	R_{TH} (K/W)	Mftrs. List No.	Order Code	Price Each 1+	25+	100+
100	5	0.02-0.04	00C93390101	**137-3301**			
150	6	0.02-0.03	00C93400101	**137-3302**			
150	4	0.65-0.90	00C93410101	**137-3303**			
200	6	0.35-0.60	00C93420101	**137-3305**			
100	5	0.03-0.06	00C93430101	**137-3306**			

RoHS ● Compliant ▲ Non-compliant

Length (mm)	Thickness (mm)	R_{TH} (K/W)	Mftrs. List No.	Order Code	Price Each 1+	25+	100+
150	6	0.02-0.03	00C93440101	**137-3307**			
150	8	0.003-0.05	00C93450101	**137-3308**			
200	6	0.003-0.008	00C93460101	**137-3309**			
150	8	0.003-0.015	00C93470101	**137-3310**			
300	8	0.002-0.007	00C93480101	**137-3311**			

Heatsinks - IC/Microprocessor

To calculate the size of heatsink you need for a device (Thermal Resistance in °C/W), the following equation may be used:

$R_{SA} = (T_J - T_A)/Pd - (R_{jc}+R_{cs})$

Where:

R_{jc} = Thermal resistance of the junction (°C/W)

R_{cs} =Thermal resistance of the case (°C/W)

P_d = Maximum power dissipated by the device (°C/W)

T_J = Maximum temperature of the junction (at full Pd) (°C/W)

T_A = Maximum ambient temperature (°C)

BGA Pin Fin Array Heatsinks

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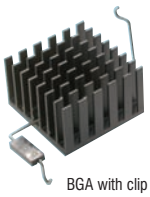
ONE COOL IDEA AFTER ANOTHER

Pad and Clip Versions

BGA with pad



BGA with clip

Pad versions

- Tape mounting saves board space by eliminating mounting holes
- Convenient peel and stick assembly is quick and clean
- Pin fin array allows omni-directional airflow to maximize heat dissipation

Clip versions

- Solder Anchors provide the most rugged mounting in the industry
- Simple tool-free installation
- Minimal PC Board real estate is required for mounting
- Clip design allows for easy removal in case of rework
- Clip design compatible with Solder Anchors, order code 177-3289 (PCB thickness 1.6mm) and 177-3291 (2.54 to 2.79mm)
- Clip designs provide mechanical fixing preferred in applications with vibrations and enchance thermal performance

Thermal Resistance	Dimensions (mm) Width	Length	Height	Fins Across Width	Length	Mftrs. List No.	Order Code
Pad (metal)							
40°C/W	23	23	10	10	11	374024B00032G	177-3310
23.4°C/W	23	23	18	6	6	374124B00032G	177-3312
20.3°C/W	27	27	18	8	8	374424B00032G	177-3317
Pad (plastic)							
30.6°C/W	27	27	10	12	13	374324B00035G	177-3315
20.3°C/W	27	27	18	8	8	374424B00035G	177-3319
Clip (all)							
23.4°C/W	23	23	18	6	6	374124B60023G	177-3313
30.6°C/W	27	27	10	12	13	374324B60023G	177-3316
23.4°C/W	35	35	10	14	15	374624B60024G	177-3323
15.3°C/W	35	35	18	10	10	374724B60024G	177-3325

551190

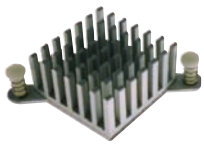
Order Code	Price Each 1+	10+	100+	250+
Pad (metal)				
177-3310				
177-3312				
177-3317				
Pad (plastic)				
177-3315				
177-3319				
Clip (all)				
177-3313				
177-3316				
177-3323				
177-3325				
Solder Anchors				
177-3389				
177-3391				

BGA Heatsinks

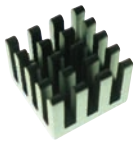
ABL HEAT SINKS

NEW

Flip Chip



Push Pin



Standard

Wireform

Hook / Solder Anchor

Thermal Resistance	Dimensions (mm) Length	Width	Height	Mftrs. List No.	Order Code
Flip-Chip					
13.5°C/W	40	40	10	BGA-FC-010	208-4414
11°C/W	40	40	24	BGA-FC-015	208-4415
Push-Pin					
11°C/W	40.8	40.8	15	BGA-PP-010	208-4416
10.5°C/W	49	49	10	BGA-PP-015	208-4418
9°C/W	49	49	15	BGA-PP-020	208-4419
9°C/W	49	49	15	BGA-PP-025	208-4420
7°C/W	49	49	35	BGA-PP-030	208-4421
7°C/W	49	49	20	BGA-PP-035	208-4422
6.5°C/W	49	49	35	BGA-PP-040	208-4423
Standard					
27°C/W	13	13.5	10	BGA-STD-010	208-4424
26.5°C/W	14	14	10	BGA-STD-015	208-4425
24.5°C/W	21	21	9	BGA-STD-020	208-4426
22°C/W	23	23	6	BGA-STD-025	208-4427
20°C/W	27	27	6	BGA-STD-030	208-4428
18.5°C/W	26	26	8	BGA-STD-035	208-4431
16°C/W	27	27	6	BGA-STD-040	208-4432
14.7°C/W	23	23	18	BGA-STD-045	208-4433
14°C/W	20	20	19.1	BGA-STD-050	208-4434
14°C/W	23.9	25.9	10	BGA-STD-055	208-4435
13.5°C/W	40	40	10	BGA-STD-060	208-4436
12.2°C/W	27.8	27.8	11.2	BGA-STD-065	208-4437
11.5°C/W	40	40	25	BGA-STD-070	208-4438
11°C/W	40	40	23	BGA-STD-075	208-4439
10.5°C/W	27	27	25	BGA-STD-080	208-4440
10°C/W	30.7	30.7	14.1	BGA-STD-085	208-4441
10°C/W	23.9	40	10	BGA-STD-090	208-4443
9.7°C/W	40	40	10	BGA-STD-095	208-4444
9.2°C/W	38.1	38.1	16	BGA-STD-100	208-4445
9.2°C/W	35	35	18	BGA-STD-105	208-4446
8.5°C/W	35	35	25	BGA-STD-110	208-4447
8.2°C/W	40	40	18	BGA-STD-115	208-4448
7°C/W	38.8	40.6	30.5	BGA-STD-120	208-4449
Accessories					
Wire Form Z-Clip				WF-300	208-4450
Wire Form Z-Clip				WF-700	208-4451
Wire Form Z-Clip				WF-151	208-4452
Heat Sink Anchor				HOOK-1	208-4453

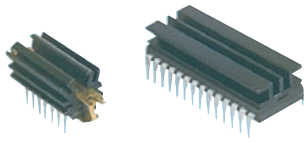
655843

Mftrs. List No.	Order Code	Price Each 1+	10+	25+	100+
Flip-Chip					
BGA-FC-010	**208-4414**				
BGA-FC-015	**208-4415**				
Push-Pin					
BGA-PP-010	**208-4416**				
BGA-PP-015	**208-4418**				
BGA-PP-020	**208-4419**				
BGA-PP-025	**208-4420**				
BGA-PP-030	**208-4421**				
BGA-PP-035	**208-4422**				
BGA-PP-040	**208-4423**				
Standard					
BGA-STD-010	**208-4424**				
BGA-STD-015	**208-4425**				
BGA-STD-020	**208-4426**				
BGA-STD-025	**208-4427**				
BGA-STD-030	**208-4428**				
BGA-STD-035	**208-4431**				
BGA-STD-040	**208-4432**				
BGA-STD-045	**208-4433**				
BGA-STD-050	**208-4434**				
BGA-STD-055	**208-4435**				
BGA-STD-060	**208-4436**				
BGA-STD-065	**208-4437**				
BGA-STD-070	**208-4438**				
BGA-STD-075	**208-4439**				
BGA-STD-080	**208-4440**				
BGA-STD-085	**208-4441**				
BGA-STD-090	**208-4443**				
BGA-STD-095	**208-4444**				
BGA-STD-100	**208-4445**				
BGA-STD-105	**208-4446**				
BGA-STD-110	**208-4447**				
BGA-STD-115	**208-4448**				
BGA-STD-120	**208-4449**				
Accessories					
WF-300	**208-4450**				
WF-700	**208-4451**				
WF-151	**208-4452**				
HOOK-1	**208-4453**				

Heatsinks - IC/Microprocessor - continued

Dual-in-Line

AAVID THERMALLOY
ONE COOL IDEA AFTER ANOTHER



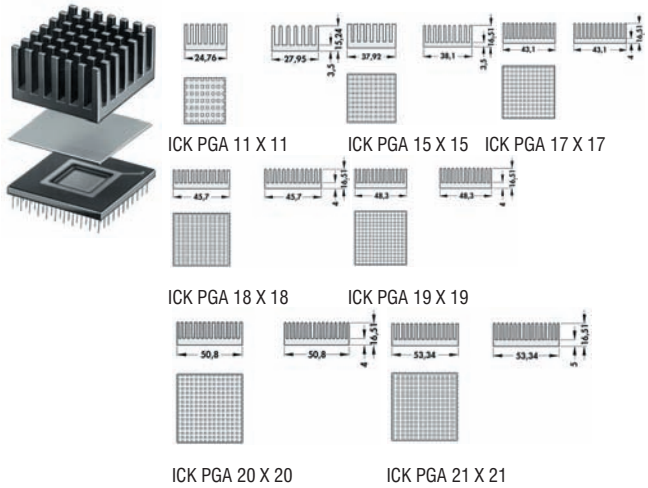
170-755 H=7.3, W=10.5, L=31.5 (inc.clip)
175-010 H=4.8, W=13.5, L=30.5
175-012 H=4.8, W=13.5, L=50.8

211559

Thermal Resistance	IC Pin count	Mftrs. List No.	Order Code	Price Each 5+	100+	250+
0.3" (7.62mm) IC Row Spacing						
31°C/W	14/16	DIP1490	**170-755**●			
0.6" (15.24mm) IC Row Spacing						
25°C/W	24	DIP1495	**175-010**●			
20°C/W	40	DIP1497	**175-012**●			

Heatsinks for PGA

fischer elektronik



Sizes of heatsinks (mm) can be seen in technical diagram. Sizes of thermally conductive foil WLFT family are in price table (mm).

311907

Mftr.List.No	Order Code	R_W (K/W)	Price Each 1+	100+	250+	500+
ICK PGA 11 X11	**462-0940**●					
ICK PGA 15 X15	**462-0951**●					
ICK PGA 17 X17	**462-0963**●					
ICK PGA 18X18	**462-0975**●					
ICK PGA 19 X19	**462-0938**●					
ICK PGA 20 X20	**462-0987**●					
ICK PGA 21 X21	**462-0999**●					

Fitting thermally conductive foil:

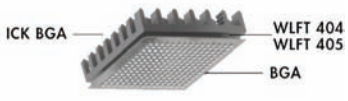
Mftr.List.No	Order Code	Price Each 1+	100+	250+	500+
WLFT 404 14X14	**121-1706**●				
WLFT 404 23X23	**121-1707**●				
WLFT 404 24.5 X 27.7	**469-5525**●				
WLFT 404 27X27	**121-1708**●				
WLFT 404 35X35	**121-1709**●				
WLFT 404 37 X 38	**469-5537**●				
WLFT 404 43 X 43	**469-5549**●				
WLFT 404 46 X 46	**469-5550**●				
WLFT 404 48 X 48	**469-5562**●				
WLFT 404 50 X 50	**469-5574**●				
WLFT 404 53 X 53	**469-5586**●				

Alternative thermallly conductive glue:

Mftr.List.No	Description	Thermal conductivity	Order Code	Price Each 1+	5+
WLK 5	5g Binder / 0,5g Accelerator	0.822W/m.K	**121-1723**●		
WLK 30	30g Binder / 3g Accelerator	0.836W/m.K	**121-1724**●		

BGA Heatsinks

fischer elektronik



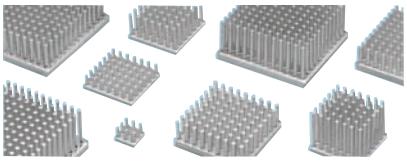
Thermal Resistance	Dimensions (mm) Width	Length	Height	Mftrs. List No.	Order Code
30°C/W	14	14	6	ICK BGA 14X14	121-1701
23°C/W	23	23	6	ICK BGA 23X23	121-1702
20°C/W	27	27	6	ICK BGA 27X27	121-1703
17°C/W	35	35	6	ICK BGA 35X35	121-1704

452244

Mftrs. List No.	Order Code	Price Each 1+	5+	10+	100+
ICK BGA 14X14	**121-1701**●				
ICK BGA 23X23	**121-1702**●				
ICK BGA 27X27	**121-1703**●				
ICK BGA 35X35	**121-1704**●				

Pin Heatsinks

fischer elektronik



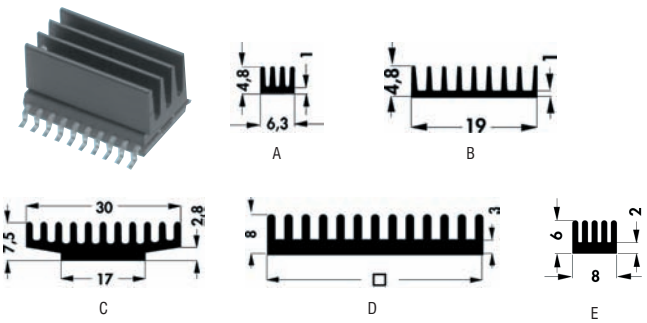
Thermal Resistance	Dimensions (mm) Width	Length	Height	Mftrs. List No.	Order Code
5.4°C/W	25	25	6.5	ICK S 25 X 25 X 6,5	121-1712
3.4°C/W	32	32	20	ICK S 32 X 32 X 20	121-1713
4.4°C/W	36.4	36.4	10	ICK S 36 X 36 X 10	121-1714
3.2°C/W	45	45	20	ICK S 45 X 45 X 20	121-1715

452252

Mftrs. List No.	Order Code	Price Each 1+	5+	10+	100+
ICK S 25 X 25 X 6,5	**121-1712**●				
ICK S 32 X 32 X 20	**121-1713**●				
ICK S 36 X 36 X 10	**121-1714**●				
ICK S 45 X 45 X 20	**121-1715**●				

Heatsinks for SMD packages

fischer elektronik



- Especially for SMD packages
- Low size
- Reduced weight
- Effective heat transmission
- Bonding directly on IC package
- Sizes in mm

Case Style	Thermal Resistance	Dimensions (mm) Width	Length	Height	Mftrs. List No.	Order Code
A	123°C/W	6.3	5	4.8	ICK SMD A 5 SA	430-2163
A	87°C/W	6.3	8	4.8	ICK SMD A 8 SA	430-2175
A	75°C/W	6.3	10	4.8	ICK SMD A 10 SA	430-2187
A	63°C/W	6.3	13	4.8	ICK SMD A 13 SA	430-2199
A	51°C/W	6.3	17	4.8	ICK SMD A 17 SA	430-2205
A	34°C/W	6.3	22	4.8	ICK SMD A 22 SA	430-2217
B	35°C/W	19	10	4.8	ICK SMD B 10 SA	430-2242
B	29°C/W	19	13	4.8	ICK SMD B 13 SA	430-2254
B	22°C/W	19	19	4.8	ICK SMD B 19 SA	430-2266
C	33°C/W	30	7	7.5	ICK SMD C 7 SA	430-2278
C	26°C/W	30	10	7.5	ICK SMD C 10 SA	430-2280
C	17°C/W	30	17	7.5	ICK SMD C 17 SA	430-2291
D	27°C/W	15.3	15.3	8	ICK SMD E 15 SA	430-6557
D	21°C/W	22.3	22.3	8	ICK SMD E 22 SA	430-2310
D	18°C/W	29	29	8	ICK SMD E 29 SA	430-2321
E	74°C/W	8	8	6	ICK SMD F 8 SA	430-2333
E	71°C/W	8	10	6	ICK SMD F 10 SA	430-2345
E	42°C/W	8	17	6	ICK SMD F 17 SA	430-2357
E	37°C/W	8	19	6	ICK SMD F 19 SA	430-2369
E	33°C/W	8	21	6	ICK SMD F 21 SA	430-2370
E	26°C/W	8	26	6	ICK SMD F 26 SA	430-2382

246703

Mftrs. List No.	Order Code	Price Each 1+	10+	25+	+
ICK SMD A 5 SA	**430-2163**●				
ICK SMD A 8 SA	**430-2175**●				
ICK SMD A 10 SA	**430-2187**●				
ICK SMD A 13 SA	**430-2199**●				
ICK SMD A 17 SA	**430-2205**●				
ICK SMD A 22 SA	**430-2217**●				
ICK SMD B 10 SA	**430-2242**●				
ICK SMD B 13 SA	**430-2254**●				
ICK SMD B 19 SA	**430-2266**●				
ICK SMD C 7 SA	**430-2278**●				

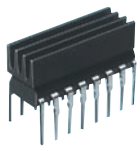
RoHS ● Compliant ▲ Non-compliant

Mftrs. List No.	Order Code	Price Each 1+	10+	25+	+
ICK SMD C 10 SA	**430-2280**				
ICK SMD C 17 SA	**430-2291**				
ICK SMD E 15 SA	**430-6557**				
ICK SMD E 22 SA	**430-2310**				
ICK SMD E 29 SA	**430-2321**				
ICK SMD F 8 SA	**430-2333**				
ICK SMD F 10 SA	**430-2345**				
ICK SMD F 17 SA	**430-2357**				
ICK SMD F 19 SA	**430-2369**				
ICK SMD F 21 SA	**430-2370**				
ICK SMD F 26 SA	**430-2382**				

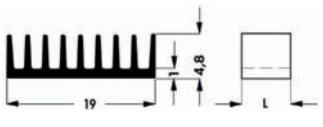
Heatsinks for DIL Packages

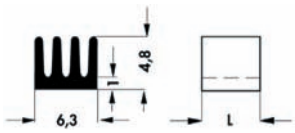
fischer elektronik

ICK...B



ICK 14/16 L





Thermal Resistance	Dimensions (mm) Width	Length	Height	Pin Count	Mftrs. List No.
50°C/W	19	6.3	4.8	14 / 16	ICK 14/16 B
13°C/W	19	33	4.8	24	ICK 24 B
8.5°C/W	19	51	4.8	40	ICK 40 B
46°C/W	6.3	19	4.8	14 / 16	ICK 14/16 L

330607

Mftrs. List No.	Order Code	Price Each 1+	100+	1K+	5K+
ICK 14/16 B	**462-0896**				
ICK 24 B	**462-0914**				
ICK 40 B	**462-0926**				
ICK 14/16 L	**462-0902**				

MBH Series - Pin Fin

MALICO INC

- Material : Al 6063
- Finish: Black Anodised

Heatsink not supplied with Fan or mounting clips.

481091

Thermal Resistance	Dimensions (mm) Width	Length	Height	Mftrs. List No.	Order Code	Price Each 1+	25+
7.9°C/W	19	19	12	MBH19002-12P/2.6	**137-3254**		
3.9°C/W	19	19	25	MBH19002-25P/2.6	**137-3255**		
6°C/W	27	27	12	MBH27002-12P/2.6	**137-3256**		
3.3°C/W	27	27	25	MBH27002-25P/2.6	**137-3257**		
5.2°C/W	29	29	12	MBH29002-12P/2.6	**137-3258**		
2.9°C/W	29	29	33	MBH29002-33P/2.6	**137-3259**		
2.6°C/W	31	31	33	MBH33002-33P/2.6	**137-3261**		
5.3°C/W	33	33	12	MBH33002-12P/2.6	**137-3260**		
3°C/W	35	35	12	MBH35002-12P/2.6	**160-1016**		
	35	35	25	MBH35002-25P/2.6	**160-1017**		
4.3°C/W	35	35	12	MBH375002-12P/2.6	**137-3263**		
2.1°C/W	35	35	25	MBH375002-33P/2.6	**137-3264**		
3.4°C/W	42.5	42.5	12	MBH42.5002-12P/2.6	**137-3265**		
1.9°C/W	42.5	42.5	25	MBH42.5002-25P/2.6	**137-3266**		

Actively Cooled Chipset Fans

BGA Chip Set Compatable

MALICO INC

- Heatsink and fan combinations
- Extruded heatsink design
- Fin material is Al 6063
- Available in a wide range of thermal resistances
- Black anodised finish
- 5V fan

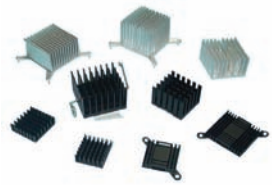
Dimensions (mm) Width	Length	Height	Thermal Resistance	Mftrs. List No.	Order Code
27	27	18	3.62	CEBF0127271803-00	137-3235
35	35	35	–	MC35101V1-0000-G99	NEW 209-7821
40	40	16	1.95	CEBF0140401605-00	137-3238
45	45	20	1.3	CEBF0145451601-00	137-3240

477635

Mftrs. List No.	Order Code	Price Each 1+	25+	100+
CEBF0127271803-00	**137-3235**			
MC35101V1-0000-G99	**209-7821**			
CEBF0140401605-00	**137-3238**			
CEBF0145451601-00	**137-3240**			

BGA Heatsinks

CCI



Aluminium BGA and compact crosscut heatsinking for a variety of applications requiring extension of surface area for cooling.

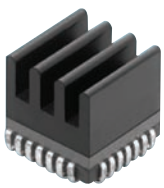
- PGA Heatsink
- Material: AL-6063
- Finish: Anodised
- Double sided adhesive provides simple and effective attachment
- Thermal Resistances specified at different airflow rates
- Typically used with DSP. FPGAs and other electronic packages.

497100

Thermal Resistance	Dimensions (mm) Width	Length	Height	Mftrs. List No.	Order Code	Price Each 1+	25+	100+
9.6°C/W	25	25	9.4	00C845401A	**137-3299**			
9.51°C/W	28	28	9	CCI08	**137-3295**			
9.96°C/W	30	30	6	CCI09	**137-3296**			
9.12°C/W	38	38	6	CCI10	**137-3297**			
9.38°C/W	40	40	5	CCI11	**137-3300**			
7.93°C/W	45	45	10	CCI02	**137-3294**			

PLCC Heatsinks

fischer elektronik



ICK PLCC 28

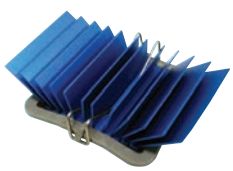
Dimensions (mm) Width	Length	Height	Diameter	Thermal Resistance	Mftrs. List No.	Order Code
11.8	11.8	8	–	25°C/W	ICK PLCC 28	430-2400
30	17	7.5	–	17°C/W	ICK CC 64	430-2412
–	–	12	25	19°C/W	ICK R	122-2501

452245

Mftrs. List No.	Order Code	Price Each 1+	10+	25+
ICK PLCC 28	**430-2400**			
ICK CC 64	**430-2412**			
ICK R	**122-2501**			

Heatsink, Maxigrip STD

ATS ADVANCED THERMAL SOLUTIONS EUROPE, B.V.



Thermal resistance	Height mm	Width mm	Depth mm	Mftrs. List No.
13.9°C/W	7.5	17	17	ATS-50170B-C2-R0
12.9°C/W	7.5	19	19	ATS-50190B-C2-R0
8.8°C/W	7.5	21	21	ATS-50210B-C2-R0
8.3°C/W	7.5	23	23	ATS-50230B-C2-R0
6.1°C/W	7.5	25	25	ATS-50250B-C2-R0
5.8°C/W	7.5	27	27	ATS-50270B-C2-R0
5.6°C/W	7.5	29	29	ATS-50290B-C2-R0
5.4°C/W	7.5	30	30	ATS-50300B-C2-R0
5.3°C/W	7.5	31	31	ATS-50310B-C2-R0
4.2°C/W	7.5	32.5	32.5	ATS-50325B-C2-R0
3.4°C/W	7.5	35	35	ATS-50350B-C2-R0
3.3°C/W	7.5	37.5	37.5	ATS-50375B-C2-R0
3.2°C/W	7.5	40	40	ATS-50400B-C2-R0
2.6°C/W	7.5	45	45	ATS-50450B-C2-R0
9°C/W	12.5	17	17	ATS-50170G-C2-R0
8.4°C/W	12.5	19	19	ATS-50190G-C2-R0
5.7°C/W	12.5	21	21	ATS-50210G-C2-R0
5.4°C/W	12.5	23	23	ATS-50230G-C2-R0
4°C/W	12.5	25	25	ATS-50250G-C2-R0
3.8°C/W	12.5	27	27	ATS-50270G-C2-R0
3.7°C/W	12.5	29	29	ATS-50290G-C2-R0
3.6°C/W	12.5	30	30	ATS-50300G-C2-R0
3.5°C/W	12.5	31	31	ATS-50310G-C2-R0
2.8°C/W	12.5	32.5	32.5	ATS-50325G-C2-R0

Heatsinks - IC/Microprocessor - continued

Heatsink, Maxigrip STD - continued

Thermal resistance	Height mm	Width mm	Depth mm	Mftrs. List No.
2.7°C/W	12.5	33	33	ATS-50330G-C2-R0
2.2°C/W	12.5	35	35	ATS-50350G-C2-R0
2.1°C/W	12.5	37.5	37.5	ATS-50375G-C2-R0
2°C/W	12.5	40	40	ATS-50400G-C2-R0
2°C/W	12.5	42.5	42.5	ATS-50425G-C2-R0
1.6°C/W	12.5	45	45	ATS-50450G-C2-R0
6.8°C/W	17.5	17	17	ATS-50170P-C2-R0
6.4°C/W	17.5	19	19	ATS-50190P-C2-R0
4.3°C/W	17.5	21	21	ATS-50210P-C2-R0
4.1°C/W	17.5	23	23	ATS-50230P-C2-R0
3°C/W	17.5	25	25	ATS-50250P-C2-R0
2.9°C/W	17.5	27	27	ATS-50270P-C2-R0
2.8°C/W	17.5	29	29	ATS-50290P-C2-R0
2.7°C/W	17.5	30	30	ATS-50300P-C2-R0
2.7°C/W	17.5	31	31	ATS-50310P-C2-R0
2.1°C/W	17.5	32.5	32.5	ATS-50325P-C2-R0
2.1°C/W	17.5	33	33	ATS-50330P-C2-R0
1.7°C/W	17.5	35	35	ATS-50350P-C2-R0
1.6°C/W	17.5	37.5	37.5	ATS-50375P-C2-R0
1.6°C/W	17.5	40	40	ATS-50400P-C2-R0
1.5°C/W	17.5	42.5	42.5	ATS-50425P-C2-R0
1.3°C/W	17.5	45	45	ATS-50450P-C2-R0

527307

Mftrs. List No.	Thermal Resistance	Order Code	Price Each 1+	10+	50+	100+
ATS-50170B-C2-R0	13.9°C/W	166-9012				
ATS-50190B-C2-R0	12.9°C/W	166-9014				
ATS-50210B-C2-R0	8.8°C/W	166-9015				
ATS-50230B-C2-R0	8.3°C/W	166-9016				
ATS-50250B-C2-R0	6.1°C/W	166-9017				
ATS-50270B-C2-R0	5.8°C/W	166-9018				
ATS-50290B-C2-R0	5.6°C/W	166-9019				
ATS-50300B-C2-R0	5.4°C/W	166-9020				
ATS-50310B-C2-R0	5.3°C/W	166-9021				
ATS-50325B-C2-R0	4.2°C/W	166-9022				
ATS-50350B-C2-R0	3.4°C/W	166-9025				
ATS-50375B-C2-R0	3.3°C/W	166-9026				
ATS-50400B-C2-R0	3.2°C/W	166-9027				
ATS-50450B-C2-R0	2.6°C/W	166-9029				
ATS-50170G-C2-R0	9°C/W	166-9030				
ATS-50190G-C2-R0	8.4°C/W	166-9031				
ATS-50210G-C2-R0	5.7°C/W	166-9032				
ATS-50230G-C2-R0	5.4°C/W	166-9033				
ATS-50250G-C2-R0	4°C/W	166-9034				
ATS-50270G-C2-R0	3.8°C/W	166-9036				
ATS-50290G-C2-R0	3.7°C/W	166-9037				
ATS-50300G-C2-R0	3.6°C/W	166-9038				
ATS-50310G-C2-R0	3.5°C/W	166-9039				
ATS-50325G-C2-R0	2.8°C/W	166-9040				
ATS-50330G-C2-R0	2.7°C/W	166-9042				
ATS-50350G-C2-R0	2.2°C/W	166-9043				
ATS-50375G-C2-R0	2.1°C/W	166-9044				
ATS-50400G-C2-R0	2°C/W	166-9045				
ATS-50425G-C2-R0	2°C/W	166-9046				
ATS-50450G-C2-R0	1.6°C/W	166-9048				
ATS-50170P-C2-R0	6.8°C/W	166-9049				
ATS-50190P-C2-R0	6.4°C/W	166-9050				
ATS-50210P-C2-R0	4.3°C/W	166-9051				
ATS-50230P-C2-R0	4.1°C/W	166-9052				
ATS-50250P-C2-R0	3°C/W	166-9053				
ATS-50270P-C2-R0	2.9°C/W	166-9054				
ATS-50290P-C2-R0	2.8°C/W	166-9055				
ATS-50300P-C2-R0	2.7°C/W	166-9056				
ATS-50310P-C2-R0	2.7°C/W	166-9057				
ATS-50325P-C2-R0	2.1°C/W	166-9058				
ATS-50330P-C2-R0	2.1°C/W	166-9061				
ATS-50350P-C2-R0	1.7°C/W	166-9062				
ATS-50375P-C2-R0	1.6°C/W	166-9063				
ATS-50400P-C2-R0	1.6°C/W	166-9064				
ATS-50425P-C2-R0	1.5°C/W	166-9065				
ATS-50450P-C2-R0	1.3°C/W	166-9066				

Heatsink, Maxigrip Low Profile

Thermal resistance	Height mm	Width mm	Depth mm	Mftrs. List No.
12.6°C/W	9.5	17	17	ATS-51170D-C2-R0
11.6°C/W	9.5	19	19	ATS-51190D-C2-R0
8°C/W	9.5	21	21	ATS-51210D-C2-R0
7.5°C/W	9.5	23	23	ATS-51230D-C2-R0
5.5°C/W	9.5	25	25	ATS-51250D-C2-R0
5.3°C/W	9.5	27	27	ATS-51270D-C2-R0
5°C/W	9.5	29	29	ATS-51290D-C2-R0
4.9°C/W	9.5	30	30	ATS-51300D-C2-R0
4.8°C/W	9.5	31	31	ATS-51310D-C2-R0
3.8°C/W	9.5	32.5	32.5	ATS-51325D-C2-R0
3.8°C/W	9.5	33	33	ATS-51330D-C2-R0
3.1°C/W	9.5	35	35	ATS-51350D-C2-R0
3°C/W	9.5	37.5	37.5	ATS-51375D-C2-R0
2.8°C/W	9.5	40	40	ATS-51400D-C2-R0
2.7°C/W	9.5	42.5	42.5	ATS-51425D-C2-R0
2.3°C/W	9.5	45	45	ATS-51450D-C2-R0
8.5°C/W	14.5	17	17	ATS-51170K-C2-R0
7.9°C/W	14.5	19	19	ATS-51190K-C2-R0
5.4°C/W	14.5	21	21	ATS-51210K-C2-R0
5.1°C/W	14.5	23	23	ATS-51230K-C2-R0
3.8°C/W	14.5	25	25	ATS-51250K-C2-R0
3.6°C/W	14.5	27	27	ATS-51270K-C2-R0
3.4°C/W	14.5	29	29	ATS-51290K-C2-R0
3.4°C/W	14.5	30	30	ATS-51300K-C2-R0
3.3°C/W	14.5	31	31	ATS-51310K-C2-R0
2.6°C/W	14.5	32.5	32.5	ATS-51325K-C2-R0
2.6°C/W	14.5	33	33	ATS-51330K-C2-R0
2.1°C/W	14.5	35	35	ATS-51350K-C2-R0
2°C/W	14.5	37.5	37.5	ATS-51375K-C2-R0
1.9°C/W	14.5	40	40	ATS-51400K-C2-R0
1.8°C/W	14.5	42.5	42.5	ATS-51425K-C2-R0
1.5°C/W	14.5	45	45	ATS-51450K-C2-R0
6.5°C/W	19.5	17	17	ATS-51170R-C2-R0
6.1°C/W	19.5	19	19	ATS-51190R-C2-R0
4.2°C/W	19.5	21	21	ATS-51210R-C2-R0
4°C/W	19.5	23	23	ATS-51230R-C2-R0
2.8°C/W	19.5	27	27	ATS-51270R-C2-R0
2.7°C/W	19.5	29	29	ATS-51290R-C2-R0
2.6°C/W	19.5	30	30	ATS-51300R-C2-R0
2.6°C/W	19.5	31	31	ATS-51310R-C2-R0
2°C/W	19.5	32.5	32.5	ATS-51325R-C2-R0
2°C/W	19.5	33	33	ATS-51330R-C2-R0
1.6°C/W	19.5	35	35	ATS-51350R-C2-R0
1.6°C/W	19.5	37.5	37.5	ATS-51375R-C2-R0
1.5°C/W	19.5	42.5	42.5	ATS-51425R-C2-R0
1.2°C/W	19.5	45	45	ATS-51450R-C2-R0

527336

Mftrs. List No.	Thermal Resistance	Order Code	Price Each 1+	10+	50+	100+
ATS-51170D-C2-R0	12.6°C/W	166-9068				
ATS-51190D-C2-R0	11.6°C/W	166-9069				
ATS-51210D-C2-R0	8°C/W	166-9071				
ATS-51230D-C2-R0	7.5°C/W	166-9074				
ATS-51250D-C2-R0	5.5°C/W	166-9075				
ATS-51270D-C2-R0	5.3°C/W	166-9076				
ATS-51290D-C2-R0	5°C/W	166-9078				
ATS-51300D-C2-R0	4.9°C/W	166-9081				
ATS-51310D-C2-R0	4.8°C/W	166-9082				
ATS-51325D-C2-R0	3.8°C/W	166-9085				
ATS-51330D-C2-R0	3.8°C/W	166-9086				
ATS-51350D-C2-R0	3.1°C/W	166-9087				
ATS-51375D-C2-R0	3°C/W	166-9088				
ATS-51400D-C2-R0	2.8°C/W	166-9089				
ATS-51425D-C2-R0	2.7°C/W	166-9090				
ATS-51450D-C2-R0	2.3°C/W	166-9091				
ATS-51170K-C2-R0	8.5°C/W	166-9092				
ATS-51190K-C2-R0	7.9°C/W	166-9093				
ATS-51210K-C2-R0	5.4°C/W	166-9094				
ATS-51230K-C2-R0	5.1°C/W	166-9095				
ATS-51250K-C2-R0	3.8°C/W	166-9097				
ATS-51270K-C2-R0	3.6°C/W	166-9098				
ATS-51290K-C2-R0	3.4°C/W	166-9099				
ATS-51300K-C2-R0	3.4°C/W	166-9100				
ATS-51310K-C2-R0	3.3°C/W	166-9101				
ATS-51325K-C2-R0	2.6°C/W	166-9103				
ATS-51330K-C2-R0	2.6°C/W	166-9104				
ATS-51350K-C2-R0	2.1°C/W	166-9105				
ATS-51375K-C2-R0	2°C/W	166-9106				
ATS-51400K-C2-R0	1.9°C/W	166-9107				
ATS-51425K-C2-R0	1.8°C/W	166-9108				
ATS-51450K-C2-R0	1.5°C/W	166-9109				
ATS-51170R-C2-R0	6.5°C/W	166-9110				
ATS-51190R-C2-R0	6.1°C/W	166-9111				
ATS-51210R-C2-R0	4.2°C/W	166-9112				
ATS-51230R-C2-R0	4°C/W	166-9113				
ATS-51270R-C2-R0	2.8°C/W	166-9116				
ATS-51290R-C2-R0	2.7°C/W	166-9117				
ATS-51300R-C2-R0	2.6°C/W	166-9118				
ATS-51310R-C2-R0	2.6°C/W	166-9119				
ATS-51325R-C2-R0	2°C/W	166-9120				

RoHS Compliant Non-compliant

Mftrs. List No.	Thermal Resistance	Order Code	Price Each 1+	10+	50+	100+
ATS-51330R-C2-R0	2°C/W	**166-9121**				
ATS-51350R-C2-R0	1.6°C/W	**166-9122**				
ATS-51375R-C2-R0	1.6°C/W	**166-9123**				
ATS-51425R-C2-R0	1.5°C/W	**166-9125**				
ATS-51450R-C2-R0	1.2°C/W	**166-9127**				

Heatsink, Maxigrip Flip-Chip IC

ATS-59000-C2-R0

ATS-59001-C2-R0

ATS-59002-C2-R0

ATS-59003-C2-R0

ATS-59004-C2-R0

ATS-59005-C2-R0

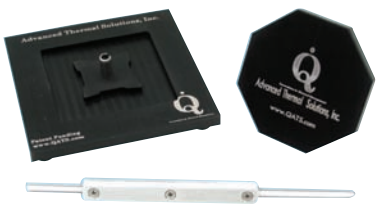
ATS-59008-C2-R0

Thermal resistance	Height mm	Width mm	Depth mm	Mftrs. List No.
4.2°C/W	9	21	45	ATS-59000-C2-R0
3°C/W	11	28	45	ATS-59001-C2-R0
3.8°C/W	13	25	32	ATS-59002-C2-R0
3.8°C/W	13	25	50	ATS-59003-C2-R0
1.9°C/W	12	32	55	ATS-59004-C2-R0
3.8°C/W	10	29	37	ATS-59005-C2-R0
3.8°C/W	11	29	37	ATS-59006-C2-R0
1.6°C/W	16.75	35	46	ATS-59008-C2-R0
1.8°C/W	13	62	52	ATS-59009-C2-R0

527337

Mftrs. List No.	Thermal Resistance	Order Code	Price Each 1+	10+	50+	100+
ATS-59000-C2-R0	4.2°C/W	**166-9133**				
ATS-59001-C2-R0	3°C/W	**166-9134**				
ATS-59002-C2-R0	3.8°C/W	**166-9135**				
ATS-59003-C2-R0	3.8°C/W	**166-9136**				
ATS-59004-C2-R0	1.9°C/W	**166-9137**				
ATS-59005-C2-R0	3.8°C/W	**166-9139**				
ATS-59006-C2-R0	3.8°C/W	**166-9141**				
ATS-59008-C2-R0	1.6°C/W	**166-9143**				
ATS-59009-C2-R0	1.8°C/W	**166-9144**				

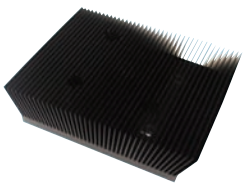
Maxigrip Tool

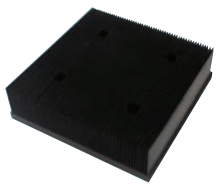


527330

Mftrs. List No.	mm	Order Code	Price Each 1+	+	+	+
MGT190	19	**166-9150**				
MGT210	21	**166-9152**				
MGT230	23	**166-9153**				
MGT270	27	**166-9155**				
MGT290	29	**166-9156**				
MGT300	30	**166-9157**				
MGT310	31	**166-9158**				
MGT325	32.5	**166-9159**				
MGT330	33	**166-9160**				
MGT350	35	**166-9161**				
MGT375	37.5	**166-9162**				
MGT400	40	**166-9164**				
MGT425	42.5	**166-9166**				
MGT450	45	**166-9167**				

LGA Heatsink, with Fan


ATS-57002-C1-R0


ATS-57003-C1-R0

Thermal resistance	Height mm	Width mm	Depth mm	Mftrs. List No.
0.5°C/W	27	94	101	ATS-57002-C1-R0
0.8°C/W	27	94	94	ATS-57003-C1-R0

527316

Mftrs. List No.	Thermal Resistance	Order Code	Price Each 1+	10+	50+	100+
ATS-57002-C1-R0	0.5°C/W	**166-9130**				
ATS-57003-C1-R0	0.8°C/W	**166-9131**				

Heatsinks - Pressed

To calculate the size of heatsink you need for a device (Thermal Resistance in °C/W), the following equation may be used:

$R_{SA} = (T_J - T_A)/Pd - (R_{jc}+R_{cs})$

Where:

R_{jc} = Thermal resistance of the junction (°C/W)

R_{cs} = Thermal resistance of the case (°C/W)

P_d = Maximum power dissipated by the device (°C/W)

T_J = Maximum temperature of the junction (at full Pd) (°C/W)

T_A = Maximum ambiant temperature (°C)

TO-126 / TO-220 Clip-on

121-3451

178-701

121-3476

179-954

265-196

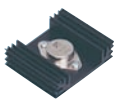
523-392

Packages Cooled	Thermal Resistance	Dimensions (mm) Length	Width	Height	Mftrs. List No.	Order Code
TO-220	28°C/W	8.1	19.7	20	PF720	265-196
TO-220	25°C/W	19.5	12.7	13	PF436G	121-3476
TO-220	23°C/W	11	22	19	PF752	178-701
TO-220	20°C/W	11	22	19	PF750G	121-3451
TO-220	13°C/W	20	21	28	HF20	121-3432
TO-220	11°C/W	20	36	28	HF35G	121-3434
TO-3P / TO-220	8°C/W	16	16	27	PPC0350BP..	No Order Code

211562

Mftrs. List No.	Order Code	Price Each 5+	25+	100+	1K+
PF720	**265-196**				
PF436G	**121-3476**				
PF752	**178-701**				
PF750G	**121-3451**				
		1+	**25+**	**100+**	**1K+**
HF20	**121-3432**				
HF35G	**121-3434**				
PPC0350BP..	**523-392**				

TO-3


170-087, 232-660

399-9348

177-013
Fixing centres = 30.15, ø4.1

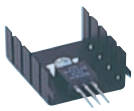
595-743

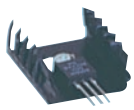
Thermal Resistance	Dimensions (mm) Length	Width	Height	Mftrs. List No.	Order Code
3.3°C/W	50	65	20	510AB0500MB(TO3)..	No Order Code
3.4°C/W	89	60	16	3.5YB-2..	No Order Code
4°C/W	45	41.2	43	LS50	595-743
7.3°C/W	26.9	40.8	25	PF527	177-013

211569

Mftrs. List No.	Order Code	Price Each 1+	25+	100+	1K+
510AB0500MB(TO3)..	**232-660**				
3.5YB-2..	**170-087**				
LS50	NEW **595-743**				
PF527	**177-013**				

TO-220 / TO-126 / TO-218 Screw Fixing


170-070, 160-1251
Slot = 3.8mm x 9mm

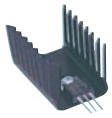

170-071,
Slot = 3.8mm x 8.9mm

170-072, 170-073
Hole dia = 4mm

179-934
Slot = 3.8mm x 8.9mm

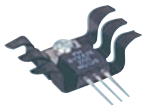
Heatsinks - Pressed - continued

TO-220 / TO-126 / TO-218 Screw Fixing - continued

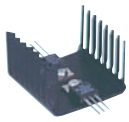


170-074
Hole dia = 4mm

170-075,
Hole dia = 4mm



177-009
Hole dia = 3.7mm



179-935
2 Holes dia = 4mm
Accepts one or two devices

179-938
Hole dia = 3.8mm
May be mounted flat or free-standing vertically

175-009
May be mounted vertically by two No 6 self tapping screws as shown (not supplied)

Thermal Resistance	Dimensions (mm) Width	Length	Height	Mftrs. List No.	Order Code
TO-126					
21°C/W	22	19	19	TV4	170-075
TO-220					
6.8°C/W	32	60	16	1.25GY-50	175-009
7.1°C/W	42	38	25	TV35	179-935
19°C/W	25.4	30	12.7	523002B00000G	160-1251
20°C/W	31.7	17.8	10.2	TV96	177-009
21°C/W	22	19	19	TV5G	170-072
30°C/W	22	19	11	TV58	170-073
TO-126 / TO-220					
14.2°C/W	30	12.7	12.7	TV1500	179-934
17°C/W	30	12.7	30.2	TV1505	170-071
21°C/W	28	28	9.4	220SA	179-938
TO-218 / TO-220					
9.9°C/W	28	38	22	TV40G	170-074

224008

Mftrs. List No.	Order Code	Price Each 5+	25+	100+	1K+
TO-126					
TV4	**170-075**●				
		1+	25+	100+	1K+
TO-220					
1.25GY-50	**175-009**●				
TV35	**179-935**●				
523002B00000G	**160-1251**●				
TV96	**177-009**●				
TV5G	**170-072**●				
TV58	**170-073**●				
TO-126 / TO-220					
TV1500	**179-934**●				
TV1505	**170-071**●				
220SA	**179-938**●				
TO-218 / TO-220					
TV40G	**170-074**●				

Heatsinks TO268 / D3PAK SMT

AAVID THERMALLOY
ONE COOL IDEA AFTER ANOTHER

- Matt tin plated finish
- Surface mount heat sink for D3 Pak (TO-268) package semiconductors

Thermal Resistance	Dimensions (mm) Width	Length	Height	Mftrs. List No.	Order Code
14°C/W	30.99	12.7	10.16	573400D00000G.	177-3336

551592

Order Code	Price Each 1+	10+	100+	250+
177-3336●				

Slalom Heatsink

T0262 / D2 Pak SMD

AAVID THERMALLOY
ONE COOL IDEA AFTER ANOTHER

- Increased thermal performance up to 30% over bright copper heat sinks from improved radiation of the black finish
- Unique aluminum design reduces cost vs similar designs utilizing copper
- Light weight aluminum construction allows faster pick and place assembly reducing the manufacturing cycle time
- Black finish provides enhanced heat absorption, improving Infra-red reflow process cycle time and quality
- Edge mounted Skis" are designed for use with limited board space and allow customization of footprint design and size
- For PSUs, telecom and medical equipment, motor controls, industrial process control equipment, consumer products

Thermal Resistance	Dimensions (mm) Width	Inside Width	Length	Height	Mftrs. List No.	Order Code
24.6°C/W	26.0	13.6	12.7	12.7	SLALOM D2 PAK	177-3377

551950

Order Code	Price Each 1+	+	+	+
177-3377●				

D Series

For SMD Devices

NEW

OHMITE

This series provides an innovative solution for SMD compatible semiconductors and resistors.
The unique design combines tin plated, solderable rods with an aluminium extruded heatsink body. These rods (or "rollers") are mated mechanically to the heatsink by forging to reduce the thermal resistance between the heatsink body and the solderable feet.
Specifically designed for use with the increasingly popular TO-252, TO-263 and TO-268 packages, the D Series affords the user superior thermal performance over the more common stamped aluminium heatsinks. By eliminating the staking joint typically used in stamped heatsinks, the resulting air gap and thermal "bottleneck" is also eliminated, while surface area for cooling is maximized with the extruded fins of the D Series body.

Dimensions (mm) Width	Length	Height	Packages Cooled	Finish	Mftrs. List No.	Order Code
12.7	25.91	10.16	TO-263	No finish	DV-T263-101E	**209-7700**
12.7	25.91	10.16	TO-263	Black	DA-T263-101E	**209-7702**
12.7	31	10.16	TO-268	No finish	DV-T268-101E	**209-7699**
12.7	31	10.16	TO-268	Black	DA-T268-101E	**209-7701**

655901

Mftrs. List No.	Order Code	Price Each 1+	25+	100+	250+
DV-T263-101E	**209-7700**●				
DA-T263-101E	**209-7702**●				
DV-T268-101E	**209-7699**●				
DA-T268-101E	**209-7701**●				

E Series

For TO-220 Devices

NEW

OHMITE

Features
- Vertical through-hole PCB mounting
- 0.142 in. diameter mounting holes (3)

Thermal Resistance	Dimensions (mm) Width	Length	Height	Packages Cooled	Finish	Mftrs. List No.	Order Code
6.2°C/W	12.7	35	63.5	TO-220	Black	EA-T220-64E	**209-7696**
7.4°C/W	12.7	35	63.5	TO-220	No finish	EV-T220-64E	**209-7693**
7.5°C/W	12.7	35	50.8	TO-220	Black	EA-T220-51E	**209-7697**
9°C/W	12.7	35	50.8	TO-220	No finish	EV-T220-51E	**209-7694**
9.5°C/W	12.7	35	38.1	TO-220	Black	EA-T220-38E	**209-7698**
11.4°C/W	12.7	35	38.1	TO-220	No finish	EV-T220-38E	**209-7695**

655902

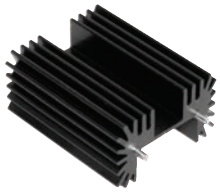
Mftrs. List No.	Order Code	Price Each 1+	25+	100+	250+
EA-T220-64E	**209-7696**●				
EV-T220-64E	**209-7693**●				
EA-T220-51E	**209-7697**●				
EV-T220-51E	**209-7694**●				
EA-T220-38E	**209-7698**●				
EV-T220-38E	**209-7695**●				

F and R Series

For TO-218, TO-220 and TO-247 Devices

NEW

OHMITE



Features
- For vertical mounting with solderable pins
- For TO-220, TO-218, TO-247

RoHS ● Compliant ▲ Non-compliant

Thermal Resistance	Dimensions (mm) Width	Length	Height	Packages Cooled	Finish	Mftrs. List No.	Order Code
3°C/W	25	41.6	63.5	TO-220	Black	FA-T220-64E	**209-7688**
3.1°C/W	42	25	63.5	TO-220 / TO-218 / TO-247	Black	RA-T2X-64E	**209-7678**
3.4°C/W	25	41.6	50.8	TO-220	Black	FA-T220-51E	**209-7689**
3.5°C/W	42	25	50.8	TO-220 / TO-218 / TO-247	Black	RA-T2X-51E	**209-7681**
3.8°C/W	25	41.6	38.1	TO-220	Black	FA-T220-38E	**209-7690**
3.9°C/W	42	25	38.1	TO-220 / TO-218 / TO-247	Black	RA-T2X-38E	**209-7682**
4.7°C/W	25	41.6	25.4	TO-220	Black	FA-T220-25E	**209-7691**
4.8°C/W	42	25	25.4	TO-220 / TO-218 / TO-247	Black	RA-T2X-25E	**209-7683**

655904

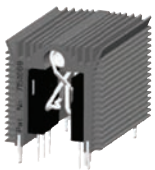
Mftrs. List No.	Order Code	Price Each 1+	25+	100+	250+
FA-T220-64E	**209-7688**				
RA-T2X-64E	**209-7678**				
FA-T220-51E	**209-7689**				
RA-T2X-51E	**209-7681**				
FA-T220-38E	**209-7690**				
RA-T2X-38E	**209-7682**				
FA-T220-25E	**209-7691**				
RA-T2X-25E	**209-7683**				

M Series

Heatsink with Clips for TO-264 and TO-247

NEW

OHMITE



The M series heatsinks are high performance, low cost, configurable, scalable and compact with matrix clip system for TO-247 and TO-264 packages.
This powerful heatsink provides the easiest assembly, largest surface area and smallest footprint. It is the ideal type of heat sink for high power density and small size (1U or 2U) electronic packaging with forced convection cooling.

Thermal Resistance	Dimensions (mm) Width	Length	Height	Packages Cooled	No. of Clips	Finish	Mftrs. List No.	Order Code
3°C/W	55.8	55	43.5	TO-247 / TO-264	2	Black	MA-302-55E	**209-7686**
3.6°C/W	55.8	55	43.5	TO-247 / TO-264	2	No finish	MV-302-55E	**209-7684**
5.2°C/W	34.1	55	38.6	TO-247 / TO-264	2	Black	MA-102-55E	**209-7687**
6°C/W	34.1	55	38.6	TO-247 / TO-264	2	No finish	MV-102-55E	**209-7685**

655904

Mftrs. List No.	Order Code	Price Each 1+	25+	100+	250+
MA-302-55E	**209-7686**				
MV-302-55E	**209-7684**				
MA-102-55E	**209-7687**				
MV-102-55E	**209-7685**				

TO-220/TO-3P Clip-on or Screw Fixing

ABL HEAT SINKS

595-810, 595-834

595-871

595-846

595-883

595-858 (Body)
Solder tabs pitch 24.1mm and length 5mm

Devices may be fixed with screw or clip. 595-858 has solder tabs. 595-810 can have two devices mounted per heatsink.

Thermal Resistance	Dimensions (mm) Width	Length	Height	Mftrs. List No.	Order Code
7.1°C/W	42.2	38	25	LS85	595-810
9.9°C/W	28	38	22	LS140	595-834
12°C/W	44	37	10	LS300	595-871
14°C/W	30	30	13	LS160	595-846
17°C/W	30	30	13	LS220	595-858
20°C/W	44	17.8	10	LS305	595-883

211488

Order Multiple=1

Thermal Resistance	Mftrs. List No.	Order Code	Price Each 1+	25+	100+	500+	1K+
7.1°C/W	LS85	**595-810**					
9.9°C/W	LS140	**595-834**					
12°C/W	LS300	**595-871**					
14°C/W	LS160	**595-846**					
17°C/W	LS220	**595-858**					
20°C/W	LS305	**595-883**					
Order Multiple=10			10+	100+	1K+		
Clip	CLIP04	**595-895**					

Heatsinks for D PAK and others

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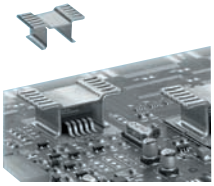
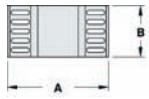
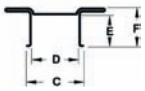






- Material: Copper
- Direct assembly on the board by solderable surface
- Applicable for SMD cases like D PAK (TO252), D2 PAK (TO 263), D3 PAK (TO268), SO-8, SO-14, SO-16, Power SO-10, SOT 23 etc.

Thermal Resistance	Dimensions (mm) A	B	C	D	E	F	Mftrs. List No.	Order Code
25°C/W	14.8	13	13	10	8	10	FK 244 13 D PAK	430-2424
22.8°C/W	17.8	13	13	13	8	10	FK 244 13 D2 PAK	430-2436
19.5°C/W	22.8	13	13	18	8	10	FK 244 13 D3 PAK	430-2448
31.5°C/W	14.8	8	10	10	8	10	FK 244 08 D PAK	431-4001
29.3°C/W	17.8	8	10	13	8	10	FK 244 08 D2 PAK	431-4049
26°C/W	22.8	8	10	18	8	10	FK244 08 D3 PAK	431-4050

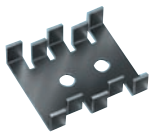
246705

Mftrs. List No.	Order Code	Price Each 1+	10+	25+	+
FK 244 13 D PAK	**430-2424**				
FK 244 13 D2 PAK	**430-2436**				
FK 244 13 D3 PAK	**430-2448**				
FK 244 08 D PAK	**431-4001**				
FK 244 08 D2 PAK	**431-4049**				
FK244 08 D3 PAK	**431-4050**				

Heatsinks for Transistors

fischer elektronik

In Plastic Cases

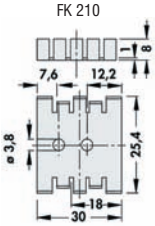


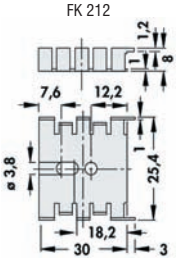
FK 210

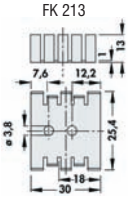
FK 212

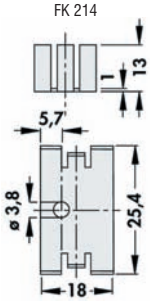
FK 213

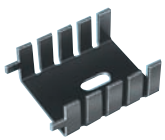
FK 214



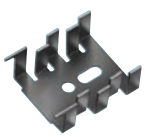






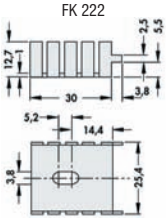


FK 222



FK 216

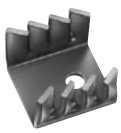
FK 218



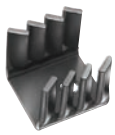
FK 224

FK 227

FK 228

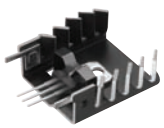


FK 229



FK 230

FK 232



FK 249

FK 252

SA = black anodised, MI = solderable surface

Packages Cooled	Thermal Resistance	Dimensions (mm) Length	Width	Height	Mftrs. List No.	Order Code
SOT-32 / TO-220	18°C/W	30	25.4	8	FK 210 SA-CB	462-1220
SOT-32 / TO-220	18°C/W	30	25.4	8	FK 212 SA-CB	462-1232
SOT-32 / TO-220	21°C/W	18	25.4	13	FK 213 SA-32	462-1244
SOT-32 / TO-220	15°C/W	30	25.4	13	FK 214 SA-CB	462-1256
SOT-32 / TO-220	15°C/W	33	25.4	13	FK 216 SA-CB	462-1268
SOT-32 / TO-220	21°C/W	35.6	22	6.7	FK 218 SA-32	462-1270
TO-220	20°C/W	33.8	25.4	12.7	FK 222 MI 220	462-1281

Heatsinks - Pressed - continued

Heatsinks for Transistors - continued

In Plastic Cases - continued

Packages Cooled	Thermal Resistance	Dimensions (mm) Length	Width	Height	Mftrs. List No.	Order Code
TO-220	20°C/W	33.8	25.4	12.7	FK 222 SA	189-2314
TO-220	18°C/W	29.4	25	8.3	FK 224 MI 220-1	462-1128
TO-220	18°C/W	29.4	25	8.3	FK 224 SA 220-1	462-1116
TO-220	22°C/W	17.8	45	9.8	FK 227 SA L1	189-2315
TO-220	30°C/W	19	20.5	11.5	FK 228 SA L1	189-2316
TO-220	27°C/W	19	20.5	13.5	FK 229 SA L1	189-2317
TO-220	21°C/W	19	20.5	19.5	FK 230 SA L1	189-2318
TO-220	21°C/W	24.5	24	7	FK 232 220 SA	189-2321
TO-220	17°C/W	36.2	30.4	36.2	FK 249 SA 220	189-2323
TO-220	26°C/W	25.4	14.5	13.51	FK 252 SA 220 V	189-2324

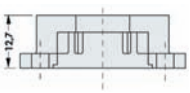
330612

Mftrs. List No.	Order Code	Price Each 1+	100+	250+	500+
FK 210 SA-CB	462-1220				
FK 212 SA-CB	462-1232				
FK 213 SA-32	462-1244				
FK 214 SA-CB	462-1256				
FK 216 SA-CB	462-1268				
FK 218 SA-32	462-1270				
FK 222 MI 220	462-1281				
FK 222 SA	NEW 189-2314				
FK 224 MI 220-1	462-1128				
FK 224 SA 220-1	462-1116				
FK 227 SA L1	NEW 189-2315				
FK 228 SA L1	NEW 189-2316				
FK 229 SA L1	NEW 189-2317				
FK 230 SA L1	NEW 189-2318				
FK 232 220 SA	NEW 189-2321				
FK 249 SA 220	NEW 189-2323				
FK 252 SA 220 V	NEW 189-2324				

Heatsinks for TO-3

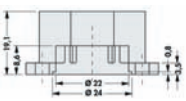
fischer elektronik

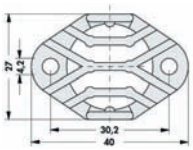
AKK 127



Material: Aluminium
Surface: Black Coated

AKK 191





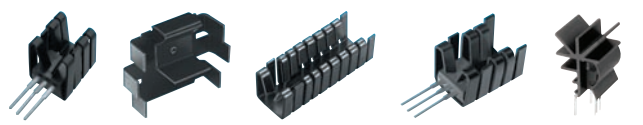
Thermal Resistance	Dimensions (mm) Length	Width	Height	Mftrs. List No.	Order Code
14°C/W	27	40	12.7	AKK 127	AKK 127
12°C/W	27	40	19.1	AKK 191	AKK 191

330596

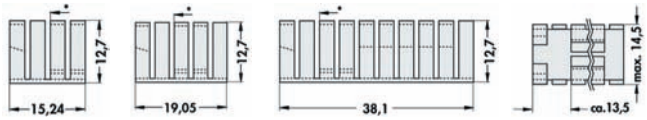
Mftrs. List No.	Order Code	Price Each 1+	100+	250+	500+
AKK 127	462-1360				
AKK 191	462-1372				

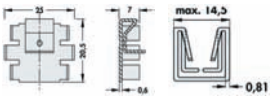
Clip on Heatsinks for TO 220

fischer elektronik



FK 242 SA 220 O | FK 220 SA 220 | FK 240 SA 220 O | FK 237 SA220 O | FK 248 SA 220





- Small version with improved thermal resistance
- Various versions, with or without soldering lug
- Uses less PCB space than other heatsinks
- Easy assembly

Thermal Resistance	Dimensions (mm) Length	Width	Height	Mftrs. List No.	Order Code
25°C/W	7	20.5	20.5	FK 220 SA 220	FK 220 SA 220
21°C/W	19	13	12.7	FK 237 SA 220 V	FK 237 SA 220 V
21°C/W	12.7	15	19	FK 237 SA220 H	FK 237 SA220 H
21°C/W	12.7	14.5	19	FK 237 SA 220 O	FK 237 SA 220 O
16°C/W	12.7	14.5	38.1	FK 240 SA 220 O	FK 240 SA 220 O
16°C/W	12.7	15	38.1	FK 240 SA 220 V	FK 240 SA 220 V
26°C/W	12.7	14.5	15.24	FK 242 SA 220 O	FK 242 SA 220 O
26°C/W	15.24	15	12.7	FK 242 SA 220 H	FK 242 SA 220 H
26°C/W	12.7	15	15.24	FK 242 SA 220 V	FK 242 SA 220 V
9.8°C/W	20	20	36	FK 248 SA 220	FK 248 SA 220

330608

Mftrs. List No.	Order Code	Price Each 1+	100+	250+	500+	+
FK 220 SA 220	462-1104					
FK 237 SA 220 V	122-2496					
FK 237 SA220 H	122-2497					
FK 237 SA 220 O	462-1141					
FK 240 SA 220 O	462-1207					
FK 240 SA 220 V	122-2502					
FK 242 SA 220 O	462-1177					
FK 242 SA 220 H	122-2499					
FK 242 SA 220 V	122-2498					
FK 248 SA 220	NEW 189-2322					

Heatsinks Clip-On

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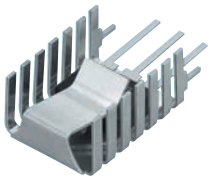
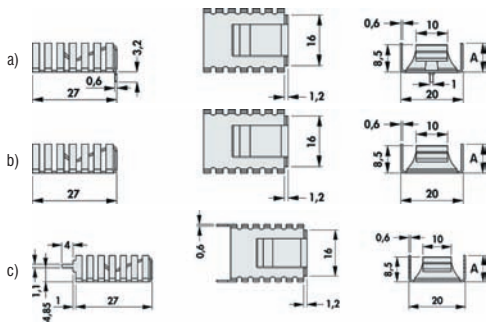


- Universal heatsink for case styles TO-218, TO-220, TO-247, SIP Multiwatt and similar
- Easy assembly
- Sizes in mm



Case Style	Thermal Resistance	Dimensions (mm) Width	Length	Height	Mftrs. List No.	Order Code
A	20.2°C/W	20	9	27	FK 245 MI 247 O	430-2450
B	20.5°C/W	20	27	9	FK 245 MI 247 H	430-2461
C	19.7°C/W	20	9	28	FK 245 MI 247 V	430-2473
A	18.7°C/W	20	9	27	FK 243 MI 247 O	430-2485
B	19°C/W	20	27	9	FK 243 MI 247 H	430-2497
C	18.4°C/W	20	28	9	FK 243 MI 247 V	430-2503

247178

Mftrs. List No.	Order Code	Price Each 1+	10+	25+
FK 245 MI 247 O	430-2450			
FK 245 MI 247 H	430-2461			
FK 245 MI 247 V	430-2473			
FK 243 MI 247 O	430-2485			
FK 243 MI 247 H	430-2497			
FK 243 MI 247 V	430-2503			

Clips for Transistor Heatsinks

fischer elektronik

189-2310, 189-2349, 189-2352, 189-2353, 189-2354

189-2349

For Use With	Dimensions (mm) Length	Width	Depth	Mftrs. List No.	Order Code
TO-218 / TO-220 / TO-247 / TO-248 / TO-3P	17.2	10	10.3	THFU 1	189-2310
TO-218 / TO-220 / TO-247 / TO-248 / TO-3P	17.8	10	10.6	THFU 2	134-4123
Transistor Design TO-218, TO-220, TO-247, TO-264	20.5	10	10.4	THFU 3	189-2352
TO-218 / TO-220 / TO-247 / TO-248 / TO-3P	23.6	10	10.4	THFU 4	189-2353
TO-218 / TO-220 / TO-247 / TO-248 / TO-3P	27.8	10	10.4	THFU 5	189-2354
TO-220, TO-247, TO-248, TO-3 P	7.8	4	38.5	THF 104	189-2349

457044

Mftrs. List No.	Order Code	Price Each 5+	10+	50+	100+
THFU 1	NEW 189-2310				
THFU 2	134-4123				
THFU 3	NEW 189-2352				
THFU 4	NEW 189-2353				
THFU 5	NEW 189-2354				
THF 104	NEW 189-2349				

RoHS ● Compliant ▲ Non-compliant

Heatsinks - Extruded

To calculate the size of heatsink you need for a device (Thermal Resistance in °C/W), the following equation may be used:

$R_{SA} = (T_J - T_A)/Pd - (R_{jc}+R_{cs})$

Where:

R_{jc} = Thermal resistance of the junction (°C/W)

R_{cs} = Thermal resistance of the case (°C/W)

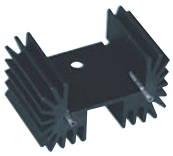
P_d = Maximum power dissipated by the device (°C/W)

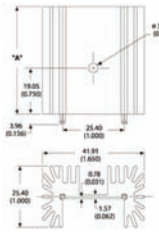
T_J = Maximum temperature of the junction (at full Pd) (°C/W)

T_A = Maximum ambiant temperature (°C)

TO-218 / TO-220 / TO-247 / Multiwatt Compatable

Drilled, Black Anodised





High power extruded heat sink with large radial fins and straight pins.

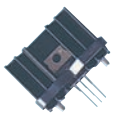
- Radial fins
- Quality Extruded design
- PCB Pins for secure mounting

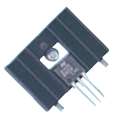
Packages Cooled	Thermal Resistance	Dimensions (mm) Length	Width	Height	Mftrs. List No.	Order Code
TO-218 / TO-220	5.6°C/W	25.4	41.91	25.4	6396BG	121-3472
TO-220	4.4°C/W	25.4	41.91	38.1	6398BG	121-3473
TO-218 / TO-220	3.3°C/W	25.4	41.91	50	6399BG	121-3474
TO-218 / TO-220	2.7°C/W	25.4	41.91	63.5	6400BG	121-3475

457973

		Price Each			
Mftrs. List No.	**Order Code**	1+	25+	100+	1K+
6396BG	**121-3472**				
6398BG	**121-3473**				
6399BG	**121-3474**				
6400BG	**121-3475**				

TO-202 / TO-218 / TO-220 / TO-247





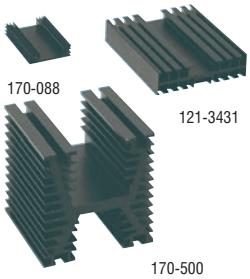
Solderable tabs 2.6 dia on 25.4 fixing centres

Packages Cooled	Mounting Type	Thermal Resistance	Dimensions (mm) Length	Width	Height	Mftrs. List No.	Order Code
SW Series							
TO-218 / TO-220 / TO-247	Clip	13°C/W	12.5	34.5	25	SW25-2	121-3435
TO-218 / TO-220 / TO-247	Clip	10°C/W	12.5	34.5	38	SW38-2G	121-3437
TO-218 / TO-220 / TO-247	Clip	8.6°C/W	12.5	34.5	50	SW50-2	121-3439
TO-218 / TO-220 / TO-247	Clip	6.8°C/W	12.5	34.5	63	SW63-2	121-3457
TO-218 / TO-220 / TO-247	Screw	13°C/W	12.5	34.5	25	SW25-4	121-3436
TO-218 / TO-220 / TO-247	Screw	10°C/W	12.5	34.5	38	SW38-4	121-3438
TO-218 / TO-220 / TO-247	Screw	8.6°C/W	12.5	34.5	50	SW50-4	121-3442
TO-218 / TO-220 / TO-247	Screw	6.8°C/W	12.5	34.5	63	SW63-4	121-3458
BW Series							
TO-218 / TO-220	Clip	7.2°C/W	25.4	35	38	BW38-2G	121-3446
TO-218 / TO-220 / TO-247	Clip	5.8°C/W	25.4	35	50	BW50-2G	121-3447
TO-218 / TO-220 / TO-247	Screw	7.2°C/W	25.4	35	38	BW38-4G	121-3449
Clips							
SW Series	–	–	7.24	37.08	3.99	5901	121-3445
BW Series	–	–	37.1	7.54	14.25	6801	177-008

211566

		Price Each			
Mftrs. List No.	**Order Code**	1+	25+	100+	1K+
SW Series					
SW25-2	**121-3435**				
SW38-2G	**121-3437**				
SW50-2	**121-3439**				
SW63-2	**121-3457**				
SW25-4	**121-3436**				
SW38-4	**121-3438**				
SW50-4	**121-3442**				
SW63-4	**121-3458**				
BW Series					
BW38-2G	**121-3446**				
BW50-2G	**121-3447**				
BW38-4G	**121-3449**				
Clips					
5901	**121-3445**				
6801	**177-008**				

Undrilled

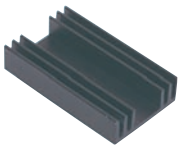


Thermal Resistance	Dimensions (mm) Length	Width	Height	Mftrs. List No.	Order Code
3.4°C/W	89	60	16	3.5Y-1	170-088
1.1°C/W	152	130	32	6W-1	121-3431
0.5°C/W	115	120	120	NV115-1	170-500

211571

Mftrs.		Price Each			
List No.	**Order Code**	1+	10+	25+	100+
3.5Y-1	**170-088**				
6W-1	**121-3431**				
NV115-1	**170-500**				

TO-218 / TO-220 Undrilled



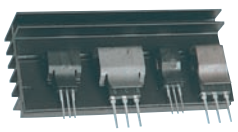
Thermal Resistance	Length	Width	Height	Mftrs. List No.	Order Code
11°C/W	50	29.5	11	MQ50-1	232-968
7.5°C/W	75	29.5	11	MQ75-1	232-970
6.2°C/W	100	29.5	11	MQ100-1	232-981

211440

		Price Each			
Mftrs. List No.	**Order Code**	1+	25+	100+	250+
MQ50-1	**232-968**				
MQ75-1	**232-970**				
MQ100-1	**232-981**				

Multiple TO-218 / TO-220

Clip Fitting



The heatsinks feature a clip retaining slot and are for use with retaining clips for quick and easy fitting. Standard clips have stabilising legs to allow assembly prior to device fitment. Device can be removed and replaced without clip removal. Slim clips are without stabilising legs, allowing devices to be placed closer together.

Fitting: Assemble clip to the retaining rail by thumb pressure applied to the top/front of the clip, this will snap it firmly into place. Clips can be removed and re-used by gripping the clip immediately adjacent to the rail using long nosed pliers or similar and twisting in an upward direction.

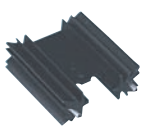
Thermal Resistance	Dimensions (mm) Length	Width	Height	Mftrs. List No.	Order code
5°C/W	50	50	45	KM50-1	265-202
3.7°C/W	75	75	45	KM75-1	265-214
2.9°C/W	100	100	45	KM100-1	265-226

211446

Order Multiple=1		Price Each			
Mftrs. List No.	**Order Code**	1+	10+	25+	100+
KM50-1	**265-202**				
KM75-1	**265-214**				
KM100-1	**265-226**				
		10+	**50+**	**100+**	**500+**
4525	**121-3455**				

Multiple TO-202 / TO-220

Screw or Clip Fixing



Incorporating tin plated roll pins for additional support and / or earthing points. Clips supplied separately.

Thermal Resistance	Dimensions (mm) Length	Width	Height	Mftrs. List No.	Order code
14°C/W	12.8	34.92	25.4	6098BG	121-3463
11°C/W	12.8	34.92	38	6099BG	121-3464
9°C/W	12.8	34.92	50.8	6100BG	121-3466

211499

			Price Each			
	Mftrs. List No.	**Order Code**	1+	25+	100+	1K+
	6098BG	**121-3463**				
	6099BG	**121-3464**				
	6100BG	**121-3466**				
			5+	**25+**	**100+**	**1K+**
Clip	CLP-204	**707-442**				

Heatsinks - Extruded - continued

Vertical Max Clip System™

AAVID THERMALLOY ONE COOL IDEA AFTER ANOTHER

BS595 Series

Max15-V clip

- High thermal performance, low assembly cost
- Top mounted clip for easy access
- Max Clip System™ maintain constant assembly force despite thermal cycling and interface material compression
- Consistent thermal performance over the life of the product which results in maximum component reliability
- 3 different lengths available 50mm, 100mm and 150mm

Thermal Resistance	Dimensions (mm) Width	Length	Height	Mftrs. List No.	Order Code
5.17°C/W	31.0	50	39.8	BS595-50-B	177-3345
3.19°C/W	31.0	100	39.8	BS595-100-B	177-3342
2.46°C/W	31	150	39.8	BS595-150-B	177-3344

Clips For Package	Force	Width	Thickness	Mftrs. List No.	Order Code
TO220	60N	18mm	0.6mm	MAX15-V	177-3351
M4 standoff for Max series				M4 STANDOFF - 1MM	177-3347

551645

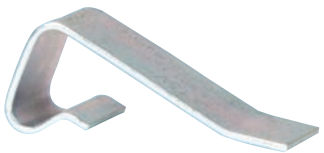
Order Code	Price Each 1+	10+	100+	250+
Heatsinks				
177-3345				
177-3342				
177-3344				
Clips				
177-3351				
Standoffs				
177-3347				

Rail Mounted Clips

For Use With Aavid Thermalloy Max Clip Systems

AAVID THERMALLOY ONE COOL IDEA AFTER ANOTHER

NEW



Dimensions (mm) Length	Width	Mftrs. List No.	Order Code
14.7	10	MAX01NG	208-2840
14.7	15	MAX03NG	208-2841
19.7	12	MAX10NG	208-2842

655837

Mftrs. List No.	Order Code	Price Each 1+	10+	100+	250+	500+
MAX01NG	**208-2840**					
MAX03NG	**208-2841**					
MAX10NG	**208-2842**					

Heatsinks - Double Sided

Indian Chief and Big Chief Series

AAVID THERMALLOY ONE COOL IDEA AFTER ANOTHER

ML516 (Indian Chief)

ML524 (Big Chief)

- Black anodised, double sided Max Clip System™
- Indian Chief for TO220/252 and 262 packages
- Big Chief for TO247 and 218 packages

Resistance	Width	Length	Height	offs	List No.	Code
8.97°C/W	25	19.4	28	M3	ML516-25-B	177-3353
6.26°C/W	35	22.0	35	M3	ML524-30-B	177-3354

551880

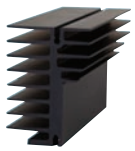
Order Code	Price Each 1+	10+	100+	250+
177-3353				
177-3354				
177-3346				

Standard Max Clip System™

OS5xx Series

AAVID THERMALLOY ONE COOL IDEA AFTER ANOTHER

OS533

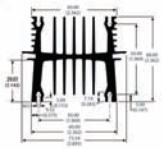


OS518

OS512

OS520

OS515



OS509

- Part no. appendix B: black anodised, U: unfinished
- High performance, low cost
- Eliminates need for screws, washers and holes
- Provides consistent mounting force
- Compatible with a wide range of Max Clips for different component styles and mounting pressures
- Attachment to board with self tapping screws or M3 / M4 solderable standoffs

Resistance	Width	Length	Height	off	List No.	Code
1.21°C/W	73.54	140	60	M3	OS509-140-U	177-3356
1.87°C/W	73.54	75	60	M3	OS509-75-U	177-3357
2.76°C/W	40	100	40	M3	OS512-100-B	177-3358
4.45°C/W	40	50	40	M3	OS512-50-B	177-3360
3.03°C/W	30	100	45	M3	OS515-100-B	177-3361
2.33°C/W	30	150	45	M3	OS515-150-B	177-3362
4.89°C/W	30	50	45	M3	OS515-50-B	177-3363
2.22°C/W	38	100	54	M3	OS518-100-B	177-3364
1.71°C/W	38	150	54	M3	OS518-150-B	177-3365
3.59°C/W	38	50	54	M3	OS518-50-B	177-3366
3.24°C/W	30	100	60	M4	OS520-100-B	177-3368
5.23°C/W	30	50	60	M4	OS520-50-B	177-3370
5.36°C/W	22.0	100	28.5	M3	OS533-100-B	177-3371
4.12°C/W	22.0	150	28.5	M4	OS533-150-B	177-3372
8.65°C/W	22.0	50	28.5	M4	OS533-50-B	177-3373

551968

Order Code	Price Each 1+	10+	100+	250+
177-3356				
177-3357				
177-3358				
177-3360				
177-3361				
177-3362				
177-3363				
177-3364				
177-3365				
177-3366				
177-3368				
177-3370				
177-3371				
177-3372				
177-3373				
Clips				
10mm, 22N	**177-3348**			
15mm, 45N	**177-3349**			
12mm, 40N	**177-3350**			
Standoffs				
M3, 1mm	**177-3346**			
M4, 1mm	**177-3347**			

C Series

OHMITE

TO-247, TO-220 and TO-264 Package Heatsinks

NEW

This series offers high performance, low cost and a compact heat sink with an integrated camming clip system for TO-247 packages (TO-220 and TO-264 available). This powerful heat sink provides tool and fixture free assembly operation, largest surface areas and smallest space occupation. It is the ideal type of heat sink for high power density and small size (1U or 2U) electronic packaging with forced convection cooling.

Dimensions (mm) Width	Length	Height	Packages Cooled	No. of Clips	Finish	Mftrs. List No.	Order Code
20.47	30	38	TO-264	1	No finish	C264-030-1VE	**209-7707**
20.47	30	38	TO-264	1	Black	C264-030-1AE	**209-7708**
20.47	25	38	TO-247	1	No finish	C247-025-1VE	**209-7715**
20.47	25	38	TO-247	1	Black	C247-025-1AE	**209-7716**
19.94	25	38	TO-220	1	No finish	C220-025-1VE	**209-7721**
19.94	25	38	TO-220	1	Black	C220-025-1AE	**209-7723**
20.47	58	38	TO-264	2	No finish	C264-058-2VE	**209-7705**
20.47	58	38	TO-264	2	Black	C264-058-2AE	**209-7706**
20.47	50	38	TO-247	2	No finish	C247-050-2VE	**209-7713**
20.47	50	38	TO-247	2	Black	C247-050-2AE	**209-7714**
19.94	50	38	TO-220	2	No finish	C220-050-2VE	**209-7719**
19.94	50	38	TO-220	2	Black	C220-050-2AE	**209-7720**
20.47	85	38	TO-264	3	No finish	C264-085-3VE	**209-7703**
20.47	85	38	TO-264	3	Black	C264-085-3AE	**209-7704**
20.47	75	38	TO-247	3	No finish	C247-075-3VE	**209-7711**
20.47	75	38	TO-247	3	Black	C247-075-3AE	**209-7712**
19.94	75	38	TO-220	3	No finish	C220-075-3VE	**209-7717**
19.94	75	38	TO-220	3	Black	C220-075-3AE	**209-7718**

655899

RoHS ● Compliant ▲ Non-compliant

Mftrs. List No.	Order Code	Price Each 1+	25+	100+	250+
C264-030-1VE	**209-7707**				
C264-030-1AE	**209-7708**				
C247-025-1VE	**209-7715**				
C247-025-1AE	**209-7716**				
C220-025-1VE	**209-7721**				
C220-025-1AE	**209-7723**				
C264-058-2VE	**209-7705**				
C264-058-2AE	**209-7706**				
C247-050-2VE	**209-7713**				
C247-050-2AE	**209-7714**				
C220-050-2VE	**209-7719**				
C220-050-2AE	**209-7720**				
C264-085-3VE	**209-7703**				
C264-085-3AE	**209-7704**				
C247-075-3VE	**209-7711**				
C247-075-3AE	**209-7712**				
C220-075-3VE	**209-7717**				
C220-075-3AE	**209-7718**				

W Series

For TO-220, TO-247, and TO-264 Devices

NEW

OHMITE

The unique design of the W Series heatsinks combines a tin plated, solderable, integral spring clip with an extruded aluminum heat sink body for an all-in-one solution to through-hole mounting of TO-220, TO-247, and TO-264 packages.
These self-aligning heat sinks feature solderable feet and an integrated clip with 13.2 (lbf) of force on the center of the device to enhance thermal performance.

Thermal Resistance	Dimensions (mm) Width	Length	Height	Packages Cooled	Finish	Mftrs. List No.	Order Code
7°C/W	43.4	16	32	TO-220 / TO-247	Black	WA-DT2-101E	**209-7669**
8°C/W	43.4	16	32	TO-220 / TO-247	No finish	WV-DT2-101E	**209-7665**
11°C/W	23.4	16	32	TO-247	Black	WA-T247-101E	**209-7666**
12°C/W	23.4	16	32	TO-247	No finish	WV-T247-101E	**209-7663**
12°C/W	18.3	16	30.5	TO-220	Black	WA-T220-101E	**209-7668**
13°C/W	18.3	16	30.5	TO-220	No finish	WV-T220-101E	**209-7664**

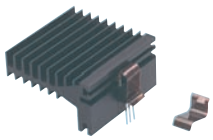
655911

Mftrs. List No.	Order Code	Price Each 1+	25+	100+	250+
WA-DT2-101E	**209-7669**				
WV-DT2-101E	**209-7665**				
WA-T247-101E	**209-7666**				
WV-T247-101E	**209-7663**				
WA-T220-101E	**209-7668**				
WV-T220-101E	**209-7664**				

Multiple TO-218 / TO-220

Clip Fitting

ABL HEAT SINKS



A simple, reliable and convenient alternative to screw attachment. The heatsinks also include slots to allow the option of screw connections.

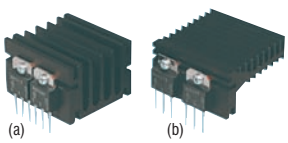
Thermal Resistance	Dimensions (mm) Length	Width	Height	Mftrs. List No.	Order Code
5°C/W	50	50	28	PPN0500B	526-873
3.7°C/W	75	75	28	PPN0750B	526-885
3.1°C/W	100	100	28	PPN1000B	526-897

211484

	Mftrs. List No.	Order Code	Price Each 1+	10+	25+	100+
	PPN0500B	**526-873**				
	PPN0750B	**526-885**				
	PPN1000B	**526-897**				
			10+	**100+**	**1K+**	
Clip	CLIP02	**526-903**				

Multiple TO-218 / TO-220

ABL HEAT SINKS



(a) (b)

Serrated slot for TO-218 / TO-220 screw fixing. Accepts M3 or No. 6 self tapping screw sizes.

(a) 177-011, 177-012, 523-173
(b) 253-911, 253-923, 253-935

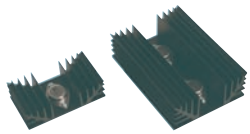
Thermal Resistance	Dimensions (mm) Length	Width	Height	Mftrs. List No.	Order Code
5°C/W	50	50	28	PPL0500B	253-911
4.9°C/W	50	46	33	205AB0500B	177-011
3.7°C/W	75	50	28	PPL0750B	253-923
3.4°C/W	100	46	33	205AB1000B	177-012
3.25°C/W	150	46	33	205AB1500B	523-173
3.1°C/W	100	50	28	PPL1000B	253-935

211567

Mftrs. List No.	Order Code	Price Each 1+	10+	25+	100+	500+
PPL0500B	**253-911**					
205AB0500B	**177-011**					
PPL0750B	**253-923**					
205AB1000B	**177-012**					
205AB1500B	**523-173**					
PPL1000B	**253-935**					

TO-3

ABL HEAT SINKS



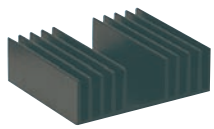
Thermal Resistance	Dimensions (mm) Length	Width	Height	Holes Drilled	Mftrs. List No.	Order Code
2.5°C/W	50	88	25	1 x TO-3	515AB0500MB(T03)	253-698
1.9°C/W	50	88	25	1 x TO-3	515AB0750MB(T03)	253-704
1.65°C/W	75	88	35	1 x TO-3	520AB0750MB(T03)	253-716
1.4°C/W	100	88	35	1 x TO-3	520AB1000MB(T03)	253-728
1.2°C/W	125	88	35	2 x TO-3	520AB1250MB(TO-3X2)	253-730

211442

Mftrs. List No.	Order Code	Price Each 1+	10+	30+	100+
515AB0500MB(T03)	**253-698**				
515AB0750MB(T03)	**253-704**				
520AB0750MB(T03)	**253-716**				
520AB1000MB(T03)	**253-728**				
520AB1250MB(TO-3X2)	**253-730**				

Undrilled

ABL HEAT SINKS



Thermal Resistance	Dimensions (mm) Length	Width	Height	Mftrs. List No.	Order Code
2.9°C/W	100	93	14	325AB1000B	150-014
2.2°C/W	150	93	14	325AB1500B.	No Order Code
1°C/W	100	120	37	345AB1000B	150-016
0.9°C/W	150	120	37	345AB1500B...	No Order Code
0.85°C/W	200	120	37	345AB2000B...	No Order Code
0.67°C/W	100	125	50	350AB1000B.	No Order Code
0.5°C/W	150	125	50	350AB1500B	150-019
0.42°C/W	200	125	50	350AB2000B..	No Order Code
0.36°C/W	250	125	50	350AB2500B	150-020

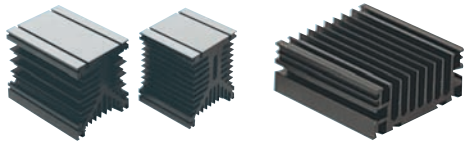
211573

Mftrs. List No.	Order Code	Price Each 1+	10+	30+	100+
325AB1000B	**150-014**				
325AB1500B.	**150-015**				
345AB1000B	**150-016**				
345AB1500B...	**150-017**				
345AB2000B...	**150-018**				
350AB1000B.	**523-185**				
350AB1500B	**150-019**				
350AB2000B..	**523-197**				
350AB2500B	**150-020**				

Undrilled with Tee-Slots

AAVID THERMALLOY
ONE COOL IDEA AFTER ANOTHER

ABL HEAT SINKS



Heatsinks - Extruded - continued

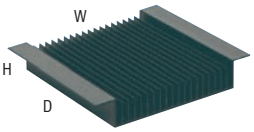
Undrilled with Tee-Slots - continued

Thermal Resistance	Dimensions (mm) Length	Width	Height	Slot Pitch	Mftrs. List No.	Order Code
0.87°C/W	200	96	40	47.6	150AB2000B	523-380
1.1°C/W	150	96	40	47.6	150AB1500MB	175-648
1.3°C/W	100	96	40	47.6	150AB1000MB	175-647
0.32°C/W	180	125	135	80	DB180-20	179-956
0.33°C/W	180	125	135	80	D180-20	170-753
0.41°C/W	120	125	135	80	DB120-20	179-955

211580

Mftrs. List No.	Order Code	Price Each 1+	10+	25+	100+	1K+
ABL Heatsinks						
150AB2000B	523-380					
150AB1500MB	175-648					
150AB1000MB	175-647					
Aavid Thermalloy						
DB180-20	179-956					
D180-20	170-753					
DB120-20	179-955					

Comb Section

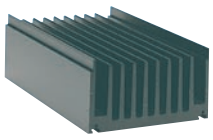


Thermal Resistance	Dimensions (mm) H	W	D	Mftrs. List No.	Order Code
0.4°C/W	150	240	46	193AB1500B	253-613
0.32°C/W	250	240	46	193AB2500B	253-625

211443

Mftrs. List No.	Order Code	Price Each 1+	10+	25+	100+
193AB1500B	253-613				
193AB2500B	253-625				

Comb Section Assembly



Fin-to-Fin Assembly

Two sections may be assembled fin-to-fin, providing a highly efficient force cooled assembly.

Thermal Resistance	Dimensions (mm) Length	Width	Height	Mftrs. List No.	Order Code
0.63°C/W	200	119	64.5	173AB2000B	526-812
0.48°C/W	300	119	64.5	173AB3000B	526-915

211485

Mftrs. List No.	Order Code	Price Each 1+	10+	25+
173AB2000B	526-812			
173AB3000B	526-915			

LED Heat Sinks

Round

205-7034

205-7035

205-7036

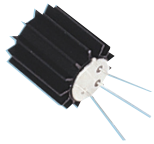
Thermal Resistance	Dimensions (mm) Length	Diameter	Mfftrs List No.	Order Code
1°C/W	60	105	SK584 60 SA	205-7034
1°C/W	40	145	SK592 40 SA	205-7035
1°C/W	30	178	SK590 30 SA	205-7036

648585

Order Code	Mftrs. List No.	Price Each 1+	10+	50+	+
205-7034	SK584 60 SA				
205-7035	SK592 40 SA				
205-7036	SK590 30 SA				

TROUBLESHOOTING TIPS
Chat online to one of our technical engineers at **farnell.com**

TO-5 / TO-18 / TO-39



170-065
(metal clamp screw)
H= 10.8mm, Dia= 23.8mm

170-066
H= 12.7mm, Dia= 14.3mm

170-754
H= 6.3mm, Dia= 14.3mm

631469

	RTH °C/W	Mftrs. List No.	Order Code	Price Each 5+	25+	100+	1K+
TO-5 / TO-39	62.2	5F-2..	170-754				
	45.2	5F..	170-066				
				1+	25+	100+	1K+
	30	5C-20	170-065				

S Series

LED Heatsinks

NEW

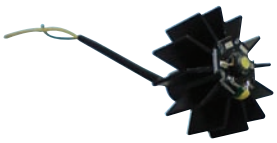
The S Series LED heatsinks are easy assembly heat sinks for "Star" LED packages supplied by Cree, Lumileds, Osram and others. This simple heatsink can hold LED modules and can be mounted simply with some thread forming screws. The heatsink has two types of surface finish and can be used in either natural (free) or forced convection cooling applications.

Thermal Resistance	Dimensions (mm) Diameter	Height	Packages Cooled	Finish	Mftrs. List No.	Order Code
2.49°C/W	69.8	76.2	LED	Black	SA-LED-176E	209-7674
3.11°C/W	69.8	76.2	LED	No finish	SV-LED-176E	209-7670
3.2°C/W	69.8	50.8	LED	Black	SA-LED-151E	209-7675
4°C/W	69.8	50.8	LED	No finish	SV-LED-151E	209-7671
4.27°C/W	69.8	25.4	LED	Black	SA-LED-125E	209-7676
5.33°C/W	69.8	25.4	LED	No finish	SV-LED-125E	209-7672
5.33°C/W	69.8	12.7	LED	Black	SA-LED-113E	209-7677
6.67°C/W	69.8	12.7	LED	No finish	SV-LED-113E	209-7673

655909

Mftrs. List No.	Order Code	Price Each 1+	25+	100+	250+
SA-LED-176E	209-7674				
SV-LED-176E	209-7670				
SA-LED-151E	209-7675				
SV-LED-151E	209-7671				
SA-LED-125E	209-7676				
SV-LED-125E	209-7672				
SA-LED-113E	209-7677				
SV-LED-113E	209-7673				

Heatsink, Star



Features & Benefits:
- Designed for high-performance convection cooling of high heat flux LEDs
- Base includes inner and outer threads for attachment of lens mounts, brackets and other hardware
- Each Star series heat sink is made from lightweight, anodized aluminum for maximum thermal performance

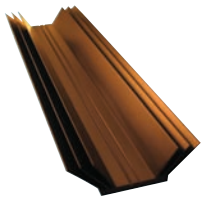
523965

Mftrs. List No.	Order Code	Price Each 1+	10+	50+	100+
25mm					
ATSEU-077C-C1-R0	165-0393				
ATSEU-077C-C2-R0	165-0394				
ATSEU-077C-C3-R0	165-0395				
ATSEU-077C-C4-R0	165-0396				
45mm					
ATSEU-077D-C1-R0	165-0398				
ATSEU-077D-C2-R0	165-0399				
ATSEU-077D-C3-R0	165-0400				
ATSEU-077D-C4-R0	165-0401				

RoHS ● Compliant ▲ Non-compliant

Mftrs. List No.	Order Code	Price Each 1+	10+	50+	100+
50mm					
ATSEU-077B-C1-R0	**165-0389**				
ATSEU-077B-C2-R0	**165-0390**				
ATSEU-077B-C3-R0	**165-0391**				
ATSEU-077B-C4-R0	**165-0392**				
75mm					
ATSEU-077A2-C1-R1	**165-0338**				
ATSEU-077A2-C2-R0	**165-0386**				
ATSEU-077A-C4-R0	**165-0388**				

Heatsink, Maxiflow

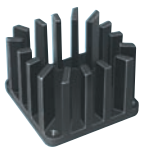


Thermal Resistance	Height mm	Width mm	Depth mm	Mftrs. List No.
0.5°C/W	26	45	330	ATS-58000-C1-R0
0.5°C/W	26	87	305	ATS-58001-C1-R0
0.4°C/W	26	87	305	ATS-58003-C2-R0

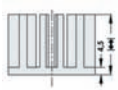
527328

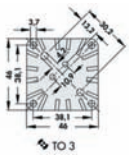
Mftrs. List No.	Thermal Resistance	Order Code	Price Each 1+	10+	50+	100+
ATS-58000-C1-R0	0.5°C/W	**166-9146**				
ATS-58001-C1-R0	0.5°C/W	**166-9147**				
ATS-58003-C2-R0	0.4°C/W	**166-9149**				

TO-3 Heatsinks

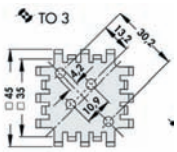


FK 318 SA-3





FK 201 SA3



- Material: Aluminium
- Surface finish: black coated

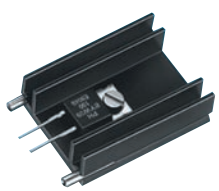
Thermal Resistance	Dimensions (mm) Length	Width	Height	Mftrs. List No.	Order Code
4.8°C/W	46	46	31.8	FK 318 SA-3	462-1384
6°C/W	45	45	25.4	FK 201SA-3	462-1359

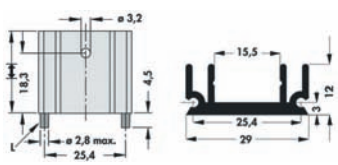
330610

Mftrs. List No.	Order Code	Price Each 1+	100+	250+	500+
FK 318 SA-3	**462-1384**				
FK 201SA-3	**462-1359**				

Heatsinks with soldering lugs

Extruded heatsinks



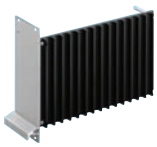


Thermal Resistance	Dimensions (mm) Length	Width	Height	Packages Cooled	Mftrs. List No.	Order Code
13.5°C/W	12	29	25	TO-218 / TO-220 / TO-247 / TO-248	SK 145/25 STS-220	462-1402
12°C/W	12	29	37.5	TO-218 / TO-220 / TO-247 / TO-248	SK 145/37,5 STS-220	462-1414

330605

Mftrs. List No.	Order Code	Price Each 1+	100+	250+	500+
SK 145/25 STS-220	**462-1402**				
SK 145/37,5 STS-220	**462-1414**				

Heatsinks for prototyping boards

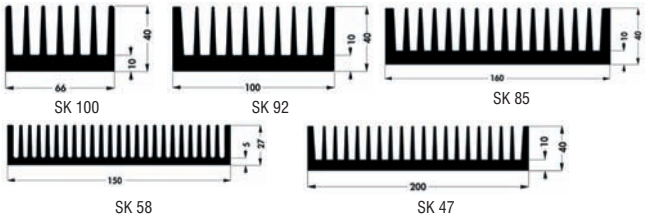


Thermal Resistance	Dimensions (mm) Length	Width	Height	Order Code
2.2°C/W	100	100	10	462-1440
1.9°C/W	150	150	10	462-1475
1.6°C/W	100	100	15	462-1426
1.4°C/W	150	150	15	462-1438

330601

Mftrs. List No.	Order Code	Price Each 1+	100+	250+	500+
SK 105/100 SA	**462-1440**				
SK 105/150 SA	**462-1475**				
SK 44/100 SA	**462-1426**				
SK 44/150 SA	**462-1438**				

Extruded Heatsinks



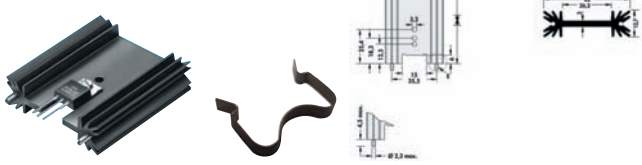
Thermal Resistance	Dimensions (mm) Length	Width	Height	Mftrs. List No.	Order Code
2.5°C/W	50	66	40	SK 100/50 SA	462-1608
1.9°C/W	75	66	40	SK 100/75 SA	462-1827
1.5°C/W	100	66	40	SK 100/100 SA	462-1839
1.9°C/W	50	100	40	SK 92/50 SA	462-1566
1.6°C/W	75	75	40	SK 92/75 SA	462-1578
1.4°C/W	100	100	40	SK 92/100 SA	462-1580
1.2°C/W	150	150	40	SK 92/150 SA	462-1591
1.4°C/W	50	160	40	SK 85/50 SA	462-1840
1.2°C/W	75	160	40	SK 85/75 SA	462-1852
0.9°C/W	100	160	40	SK 85/100 SA	462-1864
0.7°C/W	150	160	40	SK 85/150 SA	462-1876
1.7°C/W	50	150	27	SK 58/50 SA	462-1918
1.25°C/W	100	150	27	SK 58/100 SA	462-1920
1.1°C/W	150	150	27	SK 58/150 SA	462-1931
0.85°C/W	75	200	40	SK 47/75 SA	462-1888
0.7°C/W	100	200	40	SK 47/100 SA	462-1890
0.5°C/W	150	200	40	SK 47/150 SA	462-1906

311908

Typ	Order Code	Price Each 1+	100+	250+	500+
SK 100/50 SA	**462-1608**				
SK 100/75 SA	**462-1827**				
SK 100/100 SA	**462-1839**				
SK 92/50 SA	**462-1566**				
SK 92/75 SA	**462-1578**				
SK 92/100 SA	**462-1580**				
SK 92/150 SA	**462-1591**				
SK 85/50 SA	**462-1840**				
SK 85/75 SA	**462-1852**				
SK 85/100 SA	**462-1864**				
SK 85/150 SA	**462-1876**				
SK 58/50 SA	**462-1918**				
SK 58/100 SA	**462-1920**				
SK 58/150 SA	**462-1931**				
SK 47/75 SA	**462-1888**				
SK 47/100 SA	**462-1890**				
SK 47/150 SA	**462-1906**				

Heatsinks - Extruded

PCB Mounting



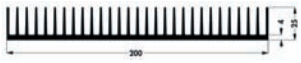
Thermal Resistance	Dimensions (mm) Length	Width	Height	Packages Cooled	Mftrs. List No.	Order Code
8.2°C/W	12.7	45	25.4	TO-3P / TO-220	SK 409/25,4 STS	462-1293
7°C/W	12.7	45	38.1	TO-3P / TO-220	SK 409/38,1 STS	462-1300
6.2°C/W	12.7	45	50.8	TO-3P / TO-220	SK 409/50,8 STS	462-1311

330598

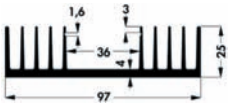
Mftrs. List No.	Order Code	Price Each 1+	100+	250+	500+
SK 409/25,4 STS	**462-1293**				
SK 409/38,1 STS	**462-1300**				
SK 409/50,8 STS	**462-1311**				
THF 409 TO 220	NEW **189-2351**				

Extruded Heatsinks

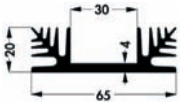
fischer elektronik



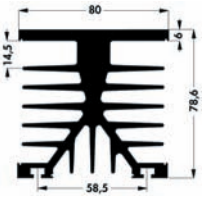
SK 42



SK 04



SK 48



SK 89

Thermal Resistance	Dimensions (mm) Length	Width	height	Mftrs. List No.	Order Code
1.5°C/W	50	200	25	SK 42/50 SA	462-1943
1.2°C/W	75	200	25	SK 42/75 SA	462-1955
0.9°C/W	100	200	25	SK 42/100 SA	462-1980
0.75°C/W	150	200	25	SK 42/150 SA	462-1992
2.8°C/W	50	65	20	SK 48/50 SA-3	462-1347
0.4°C/W	100	300	40	SK 56/ 100 SA	121-1720
0.34°C/W	150	300	40	SK 56/ 150 SA	121-1721
0.3°C/W	200	300	40	SK 56/ 200 SA	121-1722
0.8°C/W	100	143	80	SK 61/100 SA	462-2030
2.4°C/W	50	50	25	SK 04/50 SA	462-1505
1.9°C/W	75	75	25	SK 04/75 SA	462-1517
1.5°C/W	100	100	25	SK 04/100 SA	462-1529
3°C/W	50	100	15	SK 81/ 50 SA	121-1718
2.5°C/W	75	75	15	SK 81/ 75 SA	121-1716
2.1°C/W	100	100	15	SK 81/ 100 SA	121-1719
0.7°C/W	150	150	78.6	SK 89/150 SA	462-1499

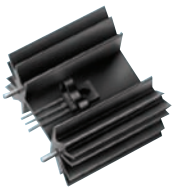
335466

Mftrs. List No.	Order Code	Price Each 1+	100+	250+	500+
SK 42/50 SA	462-1943				
SK 42/75 SA	462-1955				
SK 42/100 SA	462-1980				
SK 42/150 SA	462-1992				
SK 48/50 SA-3	462-1347				
SK 56/ 100 SA	121-1720				
SK 56/ 150 SA	121-1721				
SK 56/ 200 SA	121-1722				
SK 61/100 SA	462-2030				
SK 04/50 SA	462-1505				
SK 04/75 SA	462-1517				
SK 04/100 SA	462-1529				
SK 81/ 50 SA	121-1718				
SK 81/ 75 SA	121-1716				
SK 81/ 100 SA	121-1719				
SK 89/150 SA	462-1499				

Heatsinks, Extruded

fischer elektronik

PCB Mounting - Transistor Screw Mounting



SK 129 25,4 STS

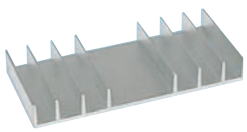
- For TO-220, SOT-32 and TO-3 screw mounting
- With soldering lug
- Black anodized

Thermal Resistance	Dimensions (mm) Height	Width	Depth	Mftrs. List No.	Order Code
7.8°C/W	25	42	25.4	SK 129 25,4 STS	131-9810
6.5°C/W	25	42	38.1	SK 129 38,1 STS	131-9811
5.3°C/W	25	42	50.8	SK 129 50,8 STS	131-9813
4.5°C/W	25	42	63.5	SK 129 63,5 STS	131-9812

496941

Mftrs. List No.	Order Code	Price Each 1+	10+	25+	50+
SK 129 25,4 STS	131-9810				
SK 129 38,1 STS	131-9811				
SK 129 50,8 STS	131-9813				
SK 129 63,5 STS	131-9812				

Undrilled - 05DN Series

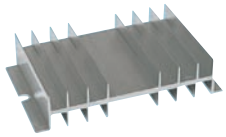


Thermal Resistance	Dimensions (mm) Length	Width	Height	Mftrs. List No.	Order Code
Black Anodised Finish					
4.5°C/W	50	108	14	05DN-00500-A-200	414-189
2.9°C/W	100	108	14	05DN-01000-A-200	414-220
2.3°C/W	150	108	14	05DN-01500-A-200	414-244
Plain Non-Anodised Finish					
3.2°C/W	100	108	14	05DN-01000-A-100	414-219
2.6°C/W	150	108	14	05DN-01500-A-100	414-232
1.75°C/W	300	108	14	05DN-03000-A-100	414-256

211575

Mftrs. List No.	Order Code	Price Each 1+	10+	30+	100+
Black Anodised Finish					
05DN-00500-A-200	414-189				
05DN-01000-A-200	414-220				
05DN-01500-A-200	414-244				
Plain Non-Anodised Finish					
05DN-01000-A-100	414-219				
05DN-01500-A-100	414-232				
05DN-03000-A-100	414-256				

Plain Finish - 10DN Series

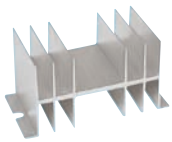


Thermal Resistance	Dimensions (mm) Length	Width	Height	Hole Pattern	Mftrs. List No.	Order Code
2.72°C/W	75	124	26.7	None	10DN-00750-A-1SX	414-281
2.3°C/W	100	124	26.7	2 x TO-3	10DN-01000-C-1SX	414-323

211576

Mftrs. List No.	Order Code	Price Each 1+	10+	30+	100+
10DN-00750-A-1SX	414-281				
10DN-01000-C-1SX	414-323				

11DN Series

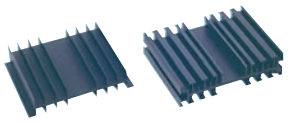


Thermal Resistance	Dimensions (mm) Length	Width	Height	Hole Pattern	Mounting Notches	Mftrs. List No.	Order Code
Black Anodised Finish							
1.78°C/W	100	98.4	53.2	None	Yes	11DN-01000-A-2SX	414-438
Plain Non-Anodised Finish							
2.75°C/W	50	98.4	53.2	None	Yes	11DN-00500-A-1SX	414-359
1.97°C/W	100	98.4	53.2	None	Yes	11DN-01000-A-1SX	414-396
1.58°C/W	150	98.4	53.2	None	Yes	11DN-01500-A-1SX	414-451
1.58°C/W	150	98.4	53.2	2 x TO-3	Yes	11DN-01500-C-1SX	414-463

211577

Mftrs. List No.	Order Code	Price Each 1+	10+	30+	100+
Black Anodised Finish					
11DN-01000-A-2SX	414-438				
Plain Non-Anodised Finish					
11DN-00500-A-1SX	414-359				
11DN-01000-A-1SX	414-396				
11DN-01500-A-1SX	414-451				
11DN-01500-C-1SX	414-463				

Undrilled



Thermal Resistance	Dimensions (mm) Length	Width	Height	Mftrs. List No.	Order Code
2°C/W	100	123.8	26.7	10DN-01000-A-200	170-090
1.2°C/W	100	130	32	44DN-01000-A-200	148-117

211570

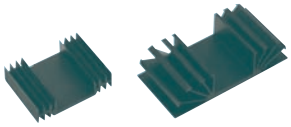
Mftrs. List No.	Order Code	Price Each 1+	10+	25+	100+
10DN-01000-A-200	170-090				
44DN-01000-A-200	148-117				

IMPROVED BACK ORDER DELIVERY

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

RoHS Compliant Non-compliant

Undrilled



Thermal Resistance	Dimensions (mm) Length	Width	Height	Mftrs. List No.	Order Code
5.7°C/W	50	63.5	15.6	02HN-00500-A-200	170-761
3.9°C/W	100	63.5	15.6	02HN-01000-A-200	170-089
3°C/W	150	63.5	15.6	02HN-01500-A-200	170-762
2.8°C/W	50	104.8	25.4	07WN-00500-A-200	170-763
1.8°C/W	100	104.8	25.4	07WN-01000-A-200	170-764
1.5°C/W	150	104.8	25.4	07WN-01500-A-200	170-765

211572

Mftrs. List No.	Order Code	Price Each 1+	10+	25+	100+
02HN-00500-A-200	**170-761**				
02HN-01000-A-200	**170-089**				
02HN-01500-A-200	**170-762**				
07WN-00500-A-200	**170-763**				
07WN-01000-A-200	**170-764**				
07WN-01500-A-200	**170-765**				

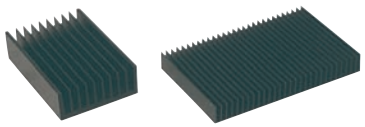
Undrilled

	Thermal Resistance	Dimensions (mm) Length	Width	Height	Mftrs. List No.	Order Code
Anodised	0.75°C/W	100	114.3	114.3	60DN-01000-A-200	148-126
Non anodised	0.55°C/W	200	114.3	114.3	60DN-02000-A-100	148-128

211579

Mftrs. List No.	Order Code	Price Each 1+	10+	25+	100+
60DN-01000-A-200	**148-126**				
60DN-02000-A-100	**148-128**				

Comb Section



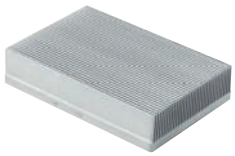
Thermal Resistance	Dimensions (mm) Length	Width	Height	Mftrs. List No.	Order Code
1.7°C/W	100	80	30	47DN-01000-A-200	738-906*
1.5°C/W	100	100	40	43DN-01000-A-200	738-890
1.2°C/W	150	100	40	43DN-01500-A-200	151-283
1°C/W	125	200	25	150CN-01250-A-200	148-124
1°C/W	250	100	40	43DN-02500-A-200	150-013
0.9°C/W	150	123	40	94DN-01500-A-200	526-769
0.7°C/W	200	123	40	94DN-02000-A-200	526-770
0.65°C/W	200	200	25	150CN-02000-A-200	254-204
0.6°C/W	250	123	40	94DN-02500-A-200	526-782
0.6°C/W	150	160	40	938SP-01500-A-200	526-794
0.54°C/W	100	200	40	97CN-01000-A-200	148-122
0.53°C/W	200	160	40	938SP-02000-A-200	526-800
0.42°C/W	100	300	40	96CN-01000-A-200	148-119
0.4°C/W	150	200	40	97CN-01500-A-200	148-123
0.36°C/W	150	300	40	96CN-01500-A-200	148-120
0.34°C/W	200	200	40	97CN-02000-A-200	168-683
0.33°C/W	250	200	40	97CN-02500-A-200	170-769
0.31°C/W	200	300	40	96CN-02000-A-200	168-695
0.29°C/W	250	300	40	96CN-02500-A-200	148-121
0.28°C/W	300	300	40	96CN-03000-A-200	168-701

*Includes 2 x 3.75 dia extruded holes, 70.5 slot spacing, along the base

211582

Mftrs. List No.	Order Code	Price Each 1+	10+	30+	100+
47DN-01000-A-200	**738-906**				
43DN-01000-A-200	**738-890**				
43DN-01500-A-200	**151-283**				
150CN-01250-A-200	**148-124**				
43DN-02500-A-200	**150-013**				
94DN-01500-A-200	**526-769**				
94DN-02000-A-200	**526-770**				
150CN-02000-A-200	**254-204**				
94DN-02500-A-200	**526-782**				
938SP-01500-A-200	**526-794**				
97CN-01000-A-200	**148-122**				
938SP-02000-A-200	**526-800**				
96CN-01000-A-200	**148-119**				
97CN-01500-A-200	**148-123**				
96CN-01500-A-200	**148-120**				
97CN-02000-A-200	**168-683**				
97CN-02500-A-200	**170-769**				
96CN-02000-A-200	**168-695**				
96CN-02500-A-200	**148-121**				
96CN-03000-A-200	**168-701**				

Ultra-Fin™



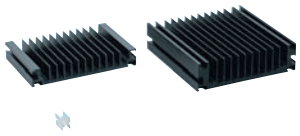
- Latest generation extrusion technology
- Exceptional fin height/space ratio
- Increased thermal performance from a lower mass
- Optimum performance achieved when force air cooled
- Recommended 12V fan: Papst 3312 **order code 149-426**, or equivalent

Thermal Resistance	Dimensions (mm) Length	Width	Height	Mftrs. List No.	Order Code
0.12°C/W	100	101.6	32	890SP-01000-A-100	410-5977
0.08°C/W	150	101.6	32	890SP-01500-A-100	410-5989
0.07°C/W	200	101.6	32	890SP-02000-A-100	410-5990
0.05°C/W	250	101.6	32	890SP-02500-A-100	410-6003
0.04°C/W	300	101.6	32	890SP-03000-A-100	410-6015

241536

Mftrs. List No.	Order Code	Price Each 1+	10+	30+	100+
890SP-01000-A-100	**410-5977**				
890SP-01500-A-100	**410-5989**				
890SP-02000-A-100	**410-5990**				
890SP-02500-A-100	**410-6003**				
890SP-03000-A-100	**410-6015**				

Comb Section 'Comb-Lok'



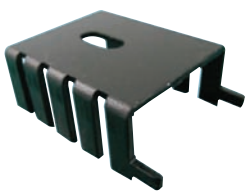
- Matt black anodised
- Incorporate T-slots
- Suitable for M4 cage nuts and M6 bolt heads

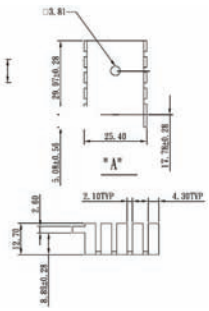
Thermal Resistance	Dimensions (mm) Length	Width	height	Mftrs. List No.	Order Code
0.65°C/W	250	150	40	308CL-02500-A-200	151-291
0.3°C/W	250	250	40	310CL-02500-A-200	151-293

211583

Mftrs. List No.	Order Code	Price Each 1+	10+	30+	100+
308CL-02500-A-200	**151-291**				
310CL-02500-A-200	**151-293**				
M4 Caged Nuts		50+	250+	1K2+	2K5+
WYYD055FA.	**522-697**				

Heatsink Single SOT23 / TO126





- Slotted hole, height 30mm
- Integral fixing tags
- Black anodized finish

536263

Thermal Resistance	Mftrs. List No.	Order Code	Price Each 1+	10+	100+	250+
13.6°C/W	MC33260	**171-0602**				

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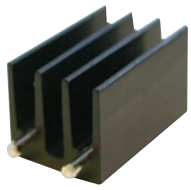
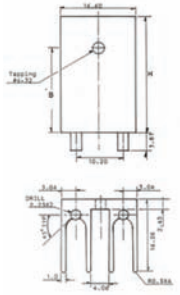
Heatsinks - Extruded - continued

Extruded Heatsink TO218 / TO220



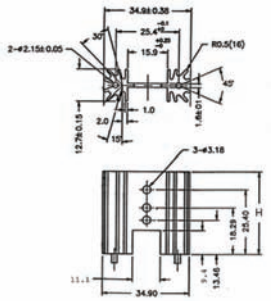


- Flat back, vertical mounting
- Solderable fixing pins
- Pre-drilled for single TO218 / TO220 package
- Black anodized finish
- Small PCB footprint

536264

Thermal Resistance	Mftrs. List No.	Order Code	Price Each 1+	10+	100+	250+
16.7°C/W	MC33261	171-0603				
12.9°C/W	MC33262	171-0604				

Extruded Heatsink Single TO220

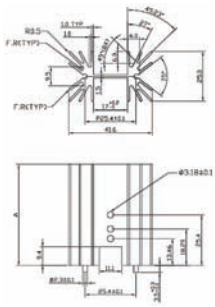


- Compact, vertical mounting
- Solderable mounting pins
- Pre-drilled for single TO220 package
- Black anodized finish
- Screw or clip mount

536265

Thermal Resistance	Mftrs. List No.	Order Code	Price Each 1+	10+	100+	250+
13.4°C/W	MC33263	171-0605				
10.4°C/W	MC33264	171-0607				
Clip 4	MC33296	171-0642				

Extruded Heatsink TO-218 / TO-220

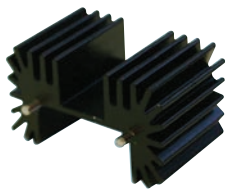


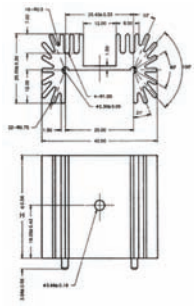
- Compact, vertical mounting
- Solderable fixing pins and notched base
- Pre-drilled for single TO-218 / TO-220 package
- Black anodized finish
- Clip mount and high power dissipation

536279

Thermal Resistance	Mftrs. List No.	Order Code	Price Each 1+	10+	100+	250+
3.9°C/W	MC33265	171-0608				
3.6°C/W	MC33266	171-0609				
3.1°C/W	MC33267	171-0610				
Clip 5	MC33297	171-0644				

Extruded Heatsink TO-218 / 220 / 247

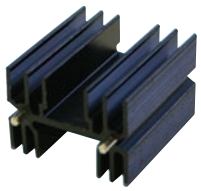


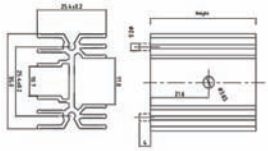


536281

Thermal Resistance	Mftrs. List No.	Order Code	Price Each 1+	10+	100+	250+
5.6°C/W	MC33268	171-0611				
4.4°C/W	MC33269	171-0612				
3.3°C/W	MC33270	171-0613				
2.7°C/W	MC33271	171-0614				
Clip 3	MC33295	171-0641				

Extruded Heatsink TO-218 / 220 / 247



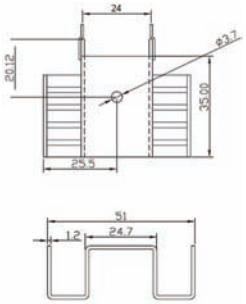


- Compact, vertical mounting
- Solderable fixing pins
- Pre-drilled for single TO-218 / 220 / 247 package
- Screw or clip fitting
- Black anodized finish
- Clip mount and high power dissipation

536282

Thermal Resistance	Mftrs. List No.	Order Code	Price Each 1+	10+	100+	250+
Clip						
7.2°C/W	MC33272	171-0615				
5.9°C/W	MC33274	171-0617				
Hole						
7.2°C/W	MC33273	171-0616				
5.9°C/W	MC33275	171-0619				
Clip 2	MC33294	171-0640				

Extruded Heatsink TO-218 / 220

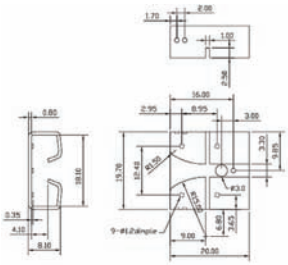


- Solderable tags
- Pre-drilled for single TO-218 / 220 package
- Black anodized finish
- Low thermal resistance and high power dissipation

536283

Thermal Resistance	Mftrs. List No.	Order Code	Price Each 1+	10+	100+	250+
7°C/W	MC33276	171-0621				

Extruded Heatsink TO-218 / 220

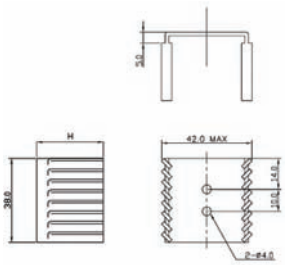


- Easy clip-on heatsink
- No thermal grease necessary

536284

Thermal Resistance	Mftrs. List No.	Order Code	Price Each 1+	10+	100+	250+
28°C/W	MC33277	171-0622				

Heatsink for 2 x TO-220



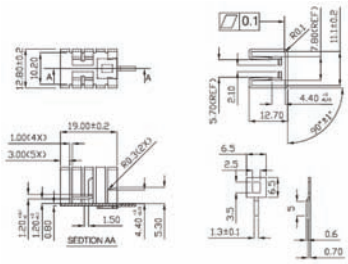
- Twisted vane horizontal heatsinks
- Pre-drilled for one or two TO-200 packages
- Black anodized finish

RoHS Compliant / Non-compliant

536285

Thermal Resistance	Height (mm)	Mftrs. List No.	Order Code	Price Each 1+	10+	100+	250+
7.6°C/W	20	MC33278	**171-0623**				
7.1°C/W	25	MC33279	**171-0624**				

Heatsink for TO-220

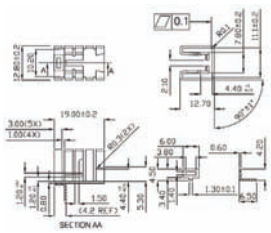


- Clip-on TO-220 heatsink with cooling fins
- Form spring clamps for constant pressure over the entire contact
- Vertical mounting by solderable tags
- Compact size
- Simple clip-on assembly
- Black anodize finish

536286

Thermal Resistance	Height (mm)	Mftrs. List No.	Order Code	Price Each 1+	10+	100+	250+
21°C/W	20	MC33280	**171-0625**				

Heatsink for TO-220

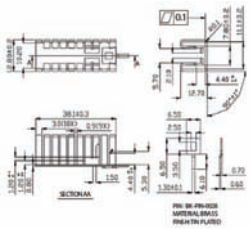


- Clip-on TO-220 heatsink with cooling fins
- Form spring clamps for constant pressure over the entire contact
- Horizontal mounting by solderable tags
- Compact size
- Simple clip-on assembly
- Black anodize finish
- **HHS-1324** version without tags

536287

Thermal Resistance	Height (mm)	Mftrs. List No.	Order Code	Price Each 1+	10+	100+	250+
21°C/W	19.02	MC33281	**171-0626**				
21°C/W	19.02	MC33282	**171-0627**				

Heatsink for TO-220

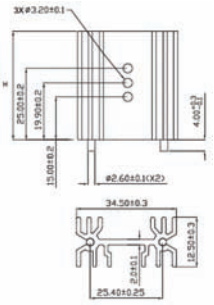


- Clip-on TO-220 heatsink with cooling fins
- Form spring clamps for constant pressure over the entire contact
- Vertical mounting by solderable tags **(only HHS-1340)**
- Compact size
- Simple clip-on assembly
- Black anodize finish

536288

Thermal Resistance	Height (mm)	Mftrs. List No.	Order Code	Price Each 1+	10+	100+	250+
16°C/W	40	MC33283	**171-0628**				
16°C/W	40	MC33284	**171-0629**				

Extruded Heatsink for TO-220

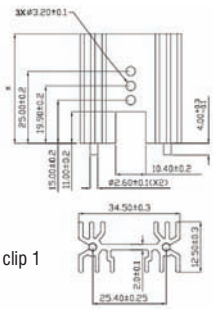


- Compact, vertical mounting
- Extruded heatsink with solderable fixing pins
- Designed for a single TO-220 package via clip 1
- Black anodize finish
- **HHS-3423/ 3444/ 3455** with mounting hole or Clip 1 option

536289

Thermal Resistance	Height (mm)	Mftrs. List No.	Order Code	Price Each 1+	10+	100+	250+
11.4°C/W	25	MC33285	**171-0630**				
10.2°C/W	38	MC33286	**171-0632**				
8.8°C/W	50	MC33287	**171-0633**				
11.4°C/W	25	MC33288	**171-0634**				
10.2°C/W	38	MC33289	**171-0635**				
8.8°C/W	50	MC33290	**171-0636**				
	Clip 1	MC33293	**171-0639**				

Extruded Heatsink for TO-220

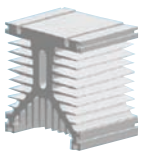


- Compact, vertical mounting extruded heatsink
- With solderable fixing pins and notched base
- Pre-drilled for a single TO-220 package or via clip 1
- Black anodize finish
- Mounting hole or Clip 1 option

536290

Thermal Resistance	Height (mm)	Mftrs. List No.	Order Code	Price Each 1+	10+	100+	250+
11.4°C/W	25	MC33285	**171-0630**				
10.2°C/W	38	MC33292	**171-0638**				
	Clip 1	MC33293	**171-0639**				

P3 Heatsink and Fan Assemblies



Thermal Resistance	Dimensions (mm) Length	Width	Height	Mftrs. List No.	Order Code
0.39°C/W	180	125	135	P3/180B	109-5607
0.33°C/W	300	125	135	P3/300B	109-5608

423070

Mftrs. List No.	Order Code	Price Each 1+	10+	25+
P3/180B	**109-5607**			
P3/300B	**109-5608**			

TO-220 Screw Fixing

Thermal Resistance	Dimensions (mm) Length	Width	Height	Mfftrs List No.	Order Code
5°C/W	12.7	34.9	25.4	637-10ABPE	121-9495
11°C/W	12.7	34.9	38.1	637-15ABPE	121-9491
3.8°C/W	25.4	41.9	25.4	647-10-ABPE	121-9494

*denotes height above pcb

- High thermal efficiency
- Space-saving, vertical mounting
- Wave solderable pins on 25.4mm centres
- Black anodised

211539

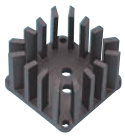
Mftrs. List No.	Order Code	Price Each 1+	10+	25+	50+
647-10-ABPE	**121-9494**				
637-15ABPE	**121-9491**				
637-10ABPE	**121-9495**				

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

Heatsinks - Extruded - continued

TO-3, Omni-directional

Wakefield Engineering



- Compact design
- Very low thermal resistance
- Incorporates mounting holes for std. 40mm fan
- Black anodised

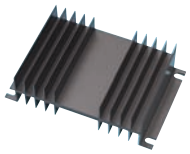
Thermal Resistance	Dimensions (mm) Length	Width	Height	Mftrs List No.	Order Code
6.7°C/W	46.5	46	12.7	680-5A..	335-4234
4.5°C/W	46	46	31.8	680-1.25A.	335-4090

211537

Mftrs. List No.	Order Code	Price Each 1+	25+	50+	100+
680-5A..	335-4234 ●				
680-1.25A.	335-4090 ●				

Double Surface

Wakefield Engineering



- Undrilled
- Very low thermal resistance
- Low height
- Black anodised

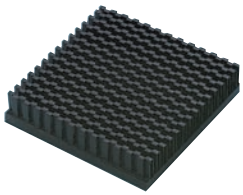
Thermal Resistance	Dimensions (mm) Length	Width	Height	Mftrs. List No.	Order Code
1.68°C/W	76.2	120.7	31.8	403-K.	335-4209
0.95°C/W	140.2	120.7	66.7	423-K.	335-4155

227479

Mftrs. List No.	Order Code	Price Each 1+	10+	25+	50+
403-K.	335-4209 ●				
423-K.	335-4155 ●				

Heatsinks - Multi-Fin

High Performance, Multi-Fin



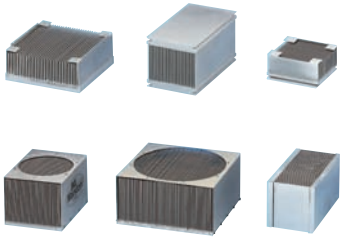
- Highly efficient corrugated design
- Low profile
- For use with miniature d.c. fans, available separately
- Self adhesive fan gasket included
- Skimmed flat rear surface
- Black anodised finish
- Recommended device attachment by self-adhesive thermally conductive sheet
- Suitable for other cooling applications e.g. microprocessors
- Ideal for use with DuraTEC™ Thermoelectric Modules

Thermal Resistance	Dimensions (mm) Length	Width	Height	Fan Order Code	Mftrs. List No.	Order Code
2°C/W	30	30	16		CP464-030-030-04-S-2	936-881
0.7°C/W	60	60	16	960-0302	CP464-060-060-04-S-2	936-900
0.4°C/W	80	80	16	960-0981	CP464-080-080-04-S-2	936-911
0.3°C/W	100	100	16	960-0981	CP464-100-100-04-S-2	936-923

222203

Mftrs. List No.	Order Code	Price Each 1+	25+	100+	250+
CP464-030-030-04-S-2	936-881 ●				
CP464-060-060-04-S-2	936-900 ●				
CP464-080-080-04-S-2	936-911 ●				
CP464-100-100-04-S-2	936-923 ●				

COLDFIN and COLDFIN 2



- Ultra-Low thermal resistance
- Low weight
- Space efficient design
- Low volume
- Fans are available separately

Thermal Resistance	Dimensions (mm) Length	Width	Height	Fan Size	Mftrs. List No.	Order Code
COLDFIN						
0.1°C/W	125	125	51.5	120mm x 120mm	CF1-1250-0515-1250BA	936-418
0.2°C/W	40	81.6	40.75	80mm x 80mm	CF1-0816-0400-0816A	936-431
COLDFIN 2						
0.13°C/W	150	81.6	80.5	80mm x 80mm	CF2-0816-0805-1500NA	936-420

211525

Mftrs. List No.	Order Code	Price Each 1+	10+	30+
CF1-1250-0515-1250BA	936-418 ●			
CF2-0816-0805-1500NA	936-420 ●			
CF1-0816-0400-0816A	936-431 ●			

COLDCUBE™

- Ultra-high performance cooling
- Low weight/volume
- Fits a standard U2 rack
- Operates with 1 or 2 80mm fans, available separately

Thermal Resistance	Dimensions (mm) Length	Width	Height	Mftrs. List No.	Order Code
0.18°C/W	60	75	82	CC002	936-406
0.12°C/W	100	75	82	CC001	567-840

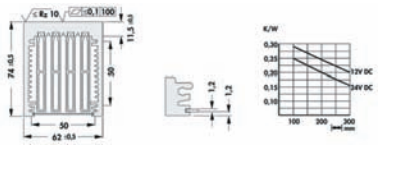
211454

Mftrs. List No.	Order Code	Price Each 1+	10+	30+
CC001	567-840 ●			
CC002	936-406 ●			

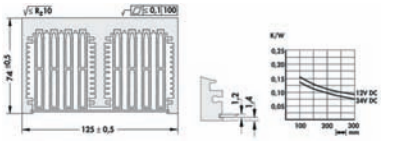
Hollow-fin cooling aggregates

fischer elektronik

LA 6



LA 7



- Less flew loss through good geometry
- Very good thermal efficiency
- Compact assembly with axial fans

Technical data (fans):	12V DC	24V DC
Manufacturer	Papst	Papst
Size (mm)	100x62x74	100x62x74
Voltage	12V DC	24V
Power dissipation	3.6W	3.4W
Flow rate max	40m³/h	46m³/h
Temperature range	-20 to + 65°C	-20 to + 65°C
Noise level	41dBA	41dBA
Rotation frequency	5300 min⁻¹	6400 min⁻¹
Weight	0.636g	1.25g
Failure rate	L_{10}> 70.000 h (40°C)	L_{10}> 70.000 h (40°C)

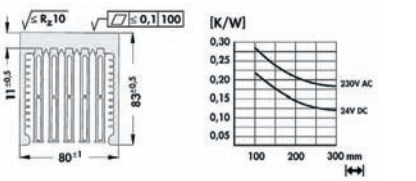
328376

Mftrs. List No.	Order Code	Price Each 1+	10+	+
LA 6/100 12V	122-2505 ●			
LA 6/100 24V	122-2506 ●			
LA 6/150 12V	122-2507 ●			
LA 6/150 24V	122-2509 ●			
LA 7/100 12V	122-2518 ●			
LA 7/100 24V	122-2519 ●			
LA 7/150 12V	122-2524 ●			
LA 7/150 24V	122-2525 ●			

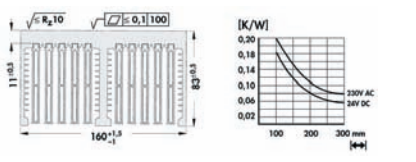
Hollow-fin cooling aggregates

fischer elektronik

LA 9



LA 10



- Less flew loss through good geometry
- Very good thermal efficiency
- Compact assembly with axial fans

328377

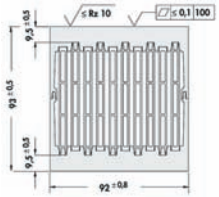
RoHS ● Compliant ▲ Non-compliant

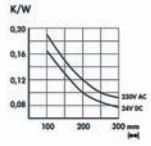
Mftrs. List No.	Order Code	Price Each 1+	10+	+
LA 9/100 230V	122-2512			
LA 9/100 24V	122-2511			
LA 9/150 230V	122-2516			
LA 9/150 24V	122-2513			
LA 9/200 230V	122-2520			
LA 9/200 24V	122-2517			
LA 10/150 24V	122-2530			

Hollow-fin cooling aggregates

fischer elektronik

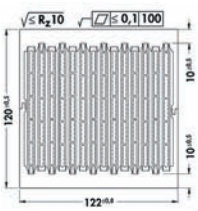
LA 17

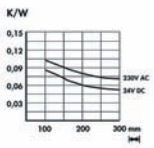




Technical data (fans):	24V DC	230V AC
Manufacturer	Papst	Papst
Size (mm)	150 x 122 x 120	150 x 122 x 120
Voltage	24V DC	230V AC
Power dissipation	11W	19W
Flow rate max	237m³/h	160m³/h
Temperature range	-30 to + 55°C	-40 to +85°C
Noise level	59dBA	47dBA
Rotation frequency	4400 min⁻¹	2650 min⁻¹
Weight	3.6	3.67 g
Failure rate	L_{10}>70.000 h (40°C)	L_{10}>37.500 h (40°C)

LA 21





Technical data (fans):	24V DC	230V AC
Manufacturer	Papst	Papst
Size (mm)	150 x 92 x 93	200 x 92 x 93
Voltage	24V DC	230V AC
Power dissipation	2.4W	12W
Flow rate max	80m³/h	75m³/h
Temperature range	-20 to + 75°C	-40 to +75°C
Noise level	47dBA	37dBA
Rotation frequency	3000 min⁻¹	2700 min⁻¹
Weight	190 g	420 g
Failure rate	L_{10}>70.000 h (40°C)	L_{10}>52.500 h (40°C)

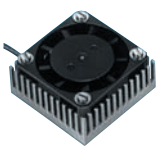
- Less flew loss through good geometry
- Compact assembly with axial fans
- Very good thermal efficiency

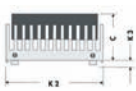
328378

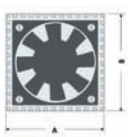
Mftrs. List No.	Order Code	Price Each 1+	+	+
LA 17/150 230V	122-2526			
LA 17/150 24V	122-2527			
LA 17/200 230V	122-2529			
LA 17/200 24V	122-2532			
LA 21/150 24V	122-2514			
LA 21/200 230V	122-2523			
LA 21/200 24V	122-2522			

Cooler fan, universal

fischer elektronik







Mftrs. List No.	Dimensions (mm) A	B	C	Type of fixing	R_W at 85°C
LA ICK 17 X17 W 12V	43.10	43.10	20.00	for thermally conductive adhesives	
LA ICK 17 X17 W 5V	43.10	43.10	20.00	for thermally conductive adhesives	

330602

Mftrs. List No.	Order Code	Price Each 1+	10+	+	+
LA ICK 17 X17 W 12V	122-2503				
LA ICK 17 X17 W 5V	122-2504				

Liquid Tube Cold Plates

AAVID THERMALLOY ONE COOL IDEA AFTER ANOTHER

Hi-Contact™ Design

6-pass

4-pass

2-pass

- Suitable for a variety of power electronic applications
- Copper tubing mechanically interlocked into aluminum plates
- Cost effective cold plates are designed specifically for low to medium power density applications
- Ensure minimum thermal resistance between the device and the cold plate
- Direct contact reduces the number of thermal interfaces between device and fluid thus increasing performance
- Hi-Contact™ designs use a patented mechanical attachment along with a thin layer of thermal epoxy to ensure the best possible thermal performance
- Economical extruded base and continuous tube construction
- Continuous joint free tube reduces chances for leaks
- Thin epoxy joint between tube and plate outperforms dry joints
- Leak free operations

Thermal Resistance	Dimensions (mm) Width	Length	Height	Configuration	Mftrs. List No.	Order code
0.012°C/W	57.2	133.4	17.4	2-pass	416401U00000G	177-3327
0.005°C/W	127	381.2	17.4	4-pass	416601U00000G	177-3329

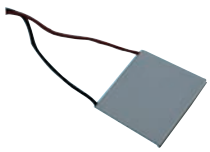
551219

Order Code	Price Each 1+	3+	5+	10+
177-3327				
177-3329				

Thermoelectric Modules

Cooler, Peltier Standard up to 90°C

multicomp



- PE series, max operating temperature for short term 110°C, recommended max 90°C for long lifetime
- Good reliability in ON-OFF power cycling mode
- Recommended operating current 0.7 Imax for long life

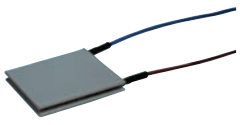
Power Rating (W)	Current DC Max (A)	Voltage Input Max (V)	Depth mm	Length/Height mm	Mftrs. List No.
8.8	3.9	3.8	3.6	15	MCPE-031-10-13
7.5	3.2	3.8	3.8	15	MCPE-031-10-15
19.1	3.9	8.8	3.6	20	MCPE-071-10-13
19.6	2	15.7	4.8	30	MCPE-127-10-25
17	3.2	8.8	3.8	20	MCPE-071-10-15
32.7	6	8.8	3.9	30	MCPE-071-14-16
38.1	3.9	15.7	3.6	30	MCPE-127-10-13
71.8	3.9	29.8	3.6	40	MCPE-241-10-13
112.7	6	29.8	3.9	55	MCPE-241-14-15

521880

Mftrs. List No.	Order Code	Price Each 1+	10+	25+	50+
MCPE-031-10-13	163-9746				
MCPE-031-10-15	163-9747				
MCPE-071-10-13	163-9748				
MCPE-071-10-15	163-9749				
MCPE-071-14-16	163-9750				
MCPE-127-10-13	163-9751				
MCPE-127-10-25	163-9752				
MCPE-241-10-13	163-9753				
MCPE-241-14-15	163-9755				

Cooler, Peltier Standard up to 150°C

multicomp



- PF series, for up to 150°C and high efficiency
- Max temperature for short time 200°C, recommended operation up to 150°C for long life.
- High power cycling applications in ON/OFF mode
- Recommended operation current not higher the 0.7 Imax for long life
- -E modules are epoxy sealed for moisture protection

Power Rating (W)	Current DC Max (A)	Voltage Input Max (V)	Depth mm	Length/Height mm	Mftrs. List No.
4.5	2	3.8	4.8	15	MCPF-031-10-25
19	8.5	3.8	3.8	20	MCPF-031-14-11
37.6	3.9	15.7	4.8	40	MCPF-127-14-25-E
44	8.5	8.8	3.8	30	MCPF-071-14-11
57.9	6	15.7	3.9	40	MCPF-127-14-16-E
61.6	5	20	3.7	40	MCPF-161-12-14-E
79	8.5	15.7	3.8	40	MCPF-127-14-11-E
83	6.7	20	3.3	40	MCPF-161-12-10-E

Thermoelectric Modules - continued

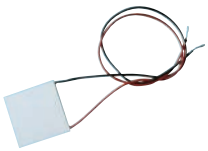
Cooler, Peltier Standard up to 150°C - continued

521881

Mftrs. List No.	Order Code	Price Each 1+	10+	25+	50+
MCPF-031-10-25	163-9756				
MCPF-031-14-11	163-9757				
MCPF-071-14-11	163-9758				
MCPF-127-14-11-E	163-9761				
MCPF-127-14-16-E	163-9762				
MCPF-127-14-25-E	163-9763				
MCPF-161-12-10-E	163-9764				
MCPF-161-12-14-E	163-9765				

Cooler, Peltier High Power Density

multicomp



- HPE series for up to 90°C for long life, high capacity from small surface and long life in power cycling with change of polarity
- With operation close to 0.5 Imax extremely high COP (coefficient of performance) can be achieved
- Epoxy sealed for moisture protection

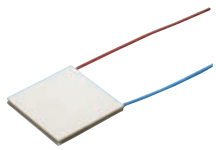
Power Rating (W)	Current DC Max (A)	Voltage Input Max (V)	Depth mm	Length/Height mm	Mftrs. List No.
30	6	8.8	3.1	20	MCHPE-071-10-08-E
55	6	15.7	3.1	30	MCHPE-127-10-08-E
88	9	15.8	3.6	30	MCHPE-128-10-05-E
121	8.5	24.6	3.8	40	MCHPE-200-14-11-E
150	15.4	15.7	3.8	40	MCHPE-127-14-06-E
196	9	35.9	3.1	40	MCHPE-288-10-05-E
222	15.4	24.6	3.7	40	MCHPE-200-14-06-E
340	15.4	35.8	3.9	50	MCHPE-288-14-06-E

521879

Mftrs. List No.	Order Code	Price Each 1+	10+	25+	50+
MCHPE-071-10-08-E	163-9736				
MCHPE-127-10-08-E	163-9737				
MCHPE-200-14-11-E	163-9739				
MCHPE-127-14-06-E	163-9740				
MCHPE-200-14-06-E	163-9741				
MCHPE-288-14-06-E	163-9743				
MCHPE-128-10-05-E	163-9744				
MCHPE-288-10-05-E	163-9745				

Cooler, Peltier Single Stage

multicomp



PE1 and TE1 modules have specification of -40 to +100°C operation, and are silicone sealed for moisture protection

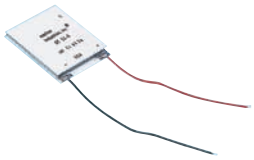
Power Rating (W)	Current DC Max (A)	Voltage Input Max (V)	Depth mm	Length/Height mm	Mftrs. List No.
10.3	8.5	2.1	3.4	15	MCPE1-01708NC-S
18.8	8.5	3.8	3.4	20	MCPE1-03108NC-S
29.7	6	8.8	3.1	20	MCPE1-07106NC-S
31.1	6	8.8	3.95	30	MCPE1-07107AC-S
35.2	3.9	15.7	3.65	30	MCPE1-12704AC-S
43.1	8.5	8.8	3.45	30	MCPE1-07108AC-S
53.1	6	15.7	3.15	30	MCPE1-12706AC-S
55.6	6	15.7	3.95	40	MCPE1-12707AC-S
77.1	8.5	15.7	3.45	40	MCPE1-12708AC-S
110	12	15.4	3.7	40	MCTE1-12712L-S
130	15	15.4	3.5	50	MCTE1-12715L-S
118	8.5	24.1	3.5	40	MCTE1-19908L-S
200	13	24.1	3.5	50	MCTE1-19913L-S

521874

Mftrs. List No.	Order Code	Price Each 1+	10+	25+	50+
MCPE1-12708AC-S	163-9718				
MCPE1-07108AC-S	163-9719				
MCPE1-03108NC-S	163-9720				
MCPE1-01708NC-S	163-9721				
MCPE1-12707AC-S	163-9722				
MCPE1-07107AC-S	163-9723				
MCPE1-12706AC-S	163-9724				
MCPE1-07106NC-S	163-9725				
MCPE1-12704AC-S	163-9726				
MCTE1-12712L-S	163-9727				
MCTE1-12715L-S	163-9728				
MCTE1-19908L-S	163-9731				
MCTE1-19913L-S	163-9732				

DuraTEC, High Power Heat Pumps

marlow industries



- Single stage, Peltier-Effect coolers
- Reliable solid state design
- Sealed against condensation/moisture
- dc powered
- Vibration and noise free
- Small, lightweight package
- Precision temperature control to <0.05°C
- Maintenance free
- Polarity dependent heating/cooloing
- 100mm leads

Heat Pump Capacity W	ΔT_{max} °C	I_{max} A	V_{max} V	H	W	D	Mftrs. List No.
6	68	2.5	3.6	4.04	16	20.5	RC3-2.5-01LS
9	68	3.7	3.6	3.43	16	20.5	RC3-4-01LS
17	68	7.4	3.6	3.63	20	24.5	RC3-8-01LS
20	68	3.7	8.2	3.43	23.5	28	RC6-4-01LS
30	68	5.6	8.2	4.01	30	34	RC6-6-01LS
39	68	7.4	8.2	3.63	30	34	RC6-8-01LS
23	68	2.5	14.7	4.04	30	34	RC12-2.5-01LS
36	68	3.7	14.6	3.43	30	34	RC12-4-01LS
54	68	5.6	14.6	4.01	40	44	RC12-6-01LS
71	68	7.4	14.7	3.63	40	44	RC12-8-01LS
71	68	7.4	14.7	3.63	40	44	RC12-8-01LS

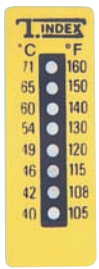
222201

Mftrs. List No.	Order Code	Price Each 1+	10+	25+
RC3-2.5-01LS	115-6591			
RC3-4-01LS	115-6592			
RC3-8-01LS	115-6593			
RC6-4-01LS	115-6594			
RC6-6-01LS	115-6588			
RC6-8-01LS	115-6595			
RC12-2.5-01LS	115-6596			
RC12-4-01LS	115-6598			
RC12-6-01LS	115-6589			
RC12-8-01LS	115-6590			

Temperature Indicators

Non Reversing Labels

THERMINDEX



°C temperature markings

- Self-adhesive
- Non-reversing-records peak temperatures
- Water and oil resistant
- 'Miniature' range has 4 sensing areas
- 'Standard' range has 8 sensing areas
- <1s response time
- ±1°C accuracy (<100°C), ±1% (>100°C)

Miniature H=4,W=11

Standard H=50,W=16

Mftrs. List No. SERIES 4M=522-892 to 522-934
SERIES 8=522-958 to 552-995

Miniature				Order code
40	44	46	49	522-892
54	60	65	71	522-909
77	82	88	93	522-910
99	104	110	116	522-922
121	127	132	138	522-934

Standard								Order code
40.6	43.3	46	49	54.4	60	65.5	71	522-958
77	82	88	93	99	104	110	116	522-960
121	127	132	138	143	149	154	160	522-971
166	171	177	182	188	193	199	204	522-983
210	216	224	232	241	249	254	260	522-995

211587

10 Strips Per Pack		Price Per Pack 1+	25+	50+
Temperature Range	Order Code			
Miniature				
40°C to 49°C	522-892			
54°C to 71°C	522-909			
77°C to 93°C	522-910			
99°C to 116°C	522-922			
121°C to 138°C	522-934			
Standard				
40.6°C to 71°C	522-958			
77°C to 116°C	522-960			
121°C to 160°C	522-971			
166°C to 204°C	522-983			
210°C to 260°C	522-995			

Reversible Strips

THERMINDEX

H=13, W=45

- Self-adhesive
- Thermochromic liquid crystal
- 7 sensing areas, at 5°C intervals
- Correct temperature is indicated in green
- <1s response time, ±1°C accuracy

227492

10 Strips Per Pack		Price Per Pack 1+	10+	25+
Temperature Range	Order Code			
0°C to 30°C	523-010			

RoHS Compliant Non-compliant

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- 0.25W and 0.5W **TheiaLED series** - High Performance White LEDs with CRI 85 and ANSI Color Bin Structure
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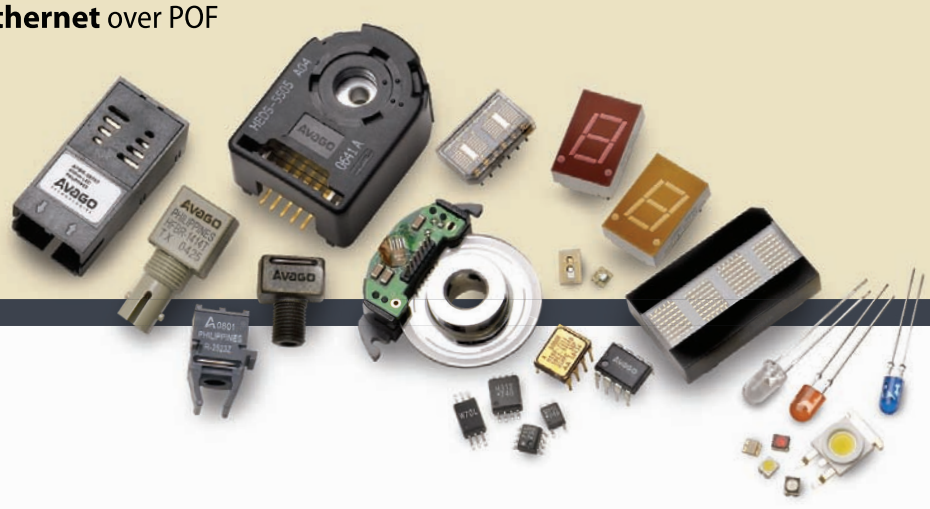
- 650nm **transceiver for Fast Ethernet** over POF

For more information and to order a sample product, click on a featured product above.



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