

HEAT SINKS – PC BOARD

TO-5 & TO-39 PKG. HEAT SINKS



Fig. 1



Fig. 2

Mfg. Part No.	Fig.	Package	Thermal Resistance (°C/W)	Dimensions (mm) Dia. x H	Stock No.	Price Each	
						1-9	10-99
● 2227BG	1	TO-5	21	31.75 x 10.16	89M4413	6.16	5.50
● 321127B00000G	...	TO-5	54	15.88 x 6.88	89M4414	8.82	7.88
● 322605B00000G	2	TO-5	54	19.05 x 6	18M8046	3.03	2.50
● 322505B00000G	1	TO-5	56	19.05 x 10.16	89K0319	2.58	2.31
● 320105B00000G	...	TO-5	63	12.7 x 6.35	79K4100	1.26	1.13
● 311505B00000G	...	TO-5	90	9.52 x 10.16	18M8043	2.24	2.00
● 321527B00000G	...	TO-5, TO-39	35.2	19.05 x 5.33	18M8044	11.80	10.54

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TO-3 PKG. HEAT SINKS



Fig. 1



Fig. 2



Fig. 3

Heat sinks available in a variety of heights for low profile applications or higher power dissipation. Square baskets are made from 0.090" thick aluminum for increased cooling capacity.

Mfg. Part No.	Fig.	Thermal Resistance (°C/W)	Dimension (mm) H x W x L	Features	Stock No.	Price Each	
						1-9	10-99
● 501303B00000G	1	12	12.7 x 35.56 x 47.75	Low Profile	73K6785	0.90	0.81
● 501503B00000G	1	8.4	25.4 x 35.56 x 47.75	Mid Power	18M8143	1.34	1.21
● 501403B00000G	1	10	19.05 x 35.56 x 47.75	Mid Power	18M8142	0.97	0.87
● 500303B00000G	1	5.8	25 x 45.97 x 38.1	High Power	18M8137	6.49	5.39
● 501603B00000G	1	7.8	32 x 35.56 x 47.75	High Power	89K7787	1.37	1.23
● 506107B00000G	2	6	9.52 x 57.15 x 50.8	Low Profile	18M8145	2.44	2.31
● 505403B00000G	2	6	31.75 x 45.21 x 45.21	...	65K8882	1.54	1.46
● 506007B00000G	3	7	10 x 44.45 x 51	Low Profile	78K6649	0.87	0.83
● 552703B00000G	3	9.4	12 x 45.21 x 45	...	45M6089	1.02	0.97

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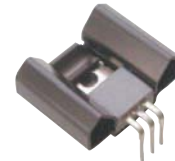
TO-220 FLAT-BACK HEAT SINKS WITH SOLDERABLE FINES



Mfg. Part No.	Thermal Resistance (°C/W)	Dimensions (mm) H x W x L	Stock No.	Price Each		
				1-9	10-99	100-499
● 581102B02500G	16.8	38 x 16.26 x 16.26	18M8202	1.62	1.45	1.13

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TO-220 SNAP-DOWN HEAT SINKS



- Dual side fins
- Black anodized finish

Mfg. Part No.	Thermal Resistance (°C/W)	Dimensions (mm) H x W x L	Stock No.	Price Each		
				1-9	10-99	100-499
● 575102B00000G	16.8	11.18 x 28.45 x 11.18	18M8193	0.47	0.42	0.33

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CHANNEL STYLE HEATSINKS FOR TO-220 DEVICES



- Folded back fins increase cooling surface area for increased performance with a narrow profile
- Black anodize finish

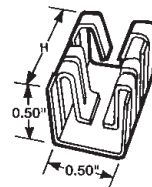
Mfg. Part No.	Thermal Resistance (°C/W)	Dimensions (mm) L x W x H	Tabs	Stock No.	Price Each	
					1-24	25-49
● 7023BG	4.4	24.13 x 48.26 x 50	N	18M8225	2.07	1.52
● 7023B-MTG	4.4	24 x 48.26 x 50	Y	04M8067	1.60	1.23
● 7025B-MTG	6.8	24.13 x 48.26 x 29	N	18M8227	1.33	1.10
● 7020BG	8.7	36.83 x 33.02 x 37	N	18M8224	0.66	0.51
● 7020B-MTG	8.7	11.94 x 33.02 x 35.83	Y	18M8223	1.10	0.85
● 7019B-MTG	11	25.4 x 39.37 x 25	Y	18M8222	0.99	0.76
● 7019BG	11	25.4 x 39.37 x 25	N	45M6093	0.79	0.61

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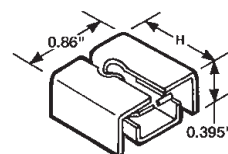
T-SHAPE

● 7024B-MTG	5.6	19.05 x 50.8 x 41	N	18M8226	1.76	1.45
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EASY TO ATTACH HEAT SINKS FOR TO-220 DEVICES & TO-262 DEVICES



Plug-In



Side-On



Clip-On

PLUG-IN

Plug-in style aluminum heat sinks with black anodized finish eliminate need for additional mounting hardware. With or without board mounting tabs.

Mfg. Part No.	Thermal Resistance (°C/W)	Pkg.	Dimensions (mm) L x W x H	PC Mount Style	Stock No.	Price Each
						1-9
● 576802B00000G	27.3	TO-220	19.05 x 12.7 x 12.7	Vertical, No Tabs	89K0438	0.50
● 576802B03100G	27.3	TO-220	19.05 x 12.7 x 12.7	Horizontal, w/Tabs	80K7974	0.72
● 576802B04000G	27.3	TO-220	19.05 x 12.7 x 12.7	Vertical, w/Tabs	66K0258	0.69
● 576802B04100G	27.3	TO-220, TO-262	19.05 x 12.7 x 12.7	Vertical, w/Tabs	18M8194	0.89

SLIDE-ON

Easy-to-install slide-on style aluminum heat sinks with black anodized finish.

● 574902B03300G	16	TO-220	9.02 x 21.84 x 34.93	Vert. PC Mt., Long Tab	18M8192	0.93
● 574502B03300G	21.2	TO-220	9.9 x 20.57 x 19.05		05M6029	0.68

CLIP-ON

Easy-to-install clip-on style aluminum heat sinks with pre-black anodized finish.

● 6043PBG	23	TO-220	6.81 x 20.32 x 25	Vertical, No Tabs	18M8211	0.37
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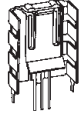
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HEAT SINKS – PC BOARD

CHANNEL STYLE HEAT SINKS WITH INTEGRATED MOUNTING CLIP FOR TO-220 PKG.



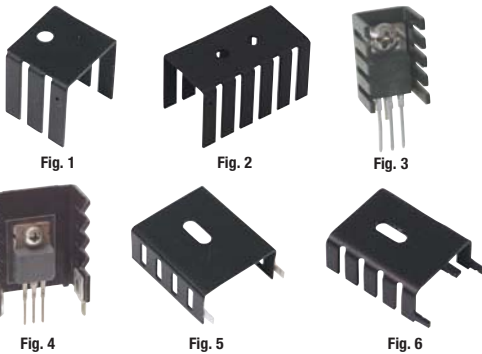
- Solderable heat sinks for TO-220 devices
- Clip-on tabs for device retention
- Material: copper
- Vertical mount



Mfg. Part No.	Dimension (mm) L x W x H	Thermal Resistance (°C/W)	Stock No.	Price Each		
				1-9	10-99	100-499
● 7138DG	15.49 x 25.53 x 26.04	20	18M8247	2.38	2.28	2.07
● 7136DG	13.08 x 13.21 x 21.54	19.7	18M8246	0.86	0.83	0.75
● 7128DG	9.52 x 9.52 x 27.94	19.2	18M8245	1.11	1.07	0.97

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TO-220 PKG. CHANNEL-STYLE HEAT SINKS



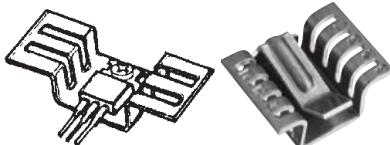
Mfg. Part No.	Fig.	Thermal Resistance (°C/W)	Dimensions (mm) L x W x H	Mounting Tabs	Stock No.	Price Each		
						1-9	10-99	100-499
● 504102B00000G	1	15.6	21.6 x 19.8 x 17.8	No	87K0022	0.42	0.35	
● 530614B00000G	1	16.7	12.7 x 25.4 x 29.97	No	18M8175	0.54	0.45	
● 530714B00000G	1	20.3	12.7 x 25.4 x 18.03	No	18M8176	0.39	0.33	
● 507302B00000G	1	24	9.65 x 19.05 x 19.05	No	01M6666	0.32	0.23	
● 504222B00000G	2	6.4	36.83 x 19.81 x 21.59	No	78K5503	0.66	0.55	
● 530613B00000G	2	16.7	12.7 x 25.4 x 29.97	No	01M5324	0.54	0.45	
● 577002B00000G	3	32	19.05 x 13.21 x 6.35	No	03M6023	0.42	0.30	
● 577102B00000G	3	25.9	19.05 x 13.21 x 9.52	No	18M8196	0.35	0.25	
● 577202B00000G	3	24.4	19.05 x 13.21 x 12.7	No	16M4743	0.38	0.27	
● 577102B04000G	3	25.9	19.05 x 13.21 x 9.52	No	18M8197	0.57	0.47	
● 577304B00000G	3	27.2	19.05 x 13.21 x 9.53	No	18M8199	0.37	0.27	
● 577404B00000G	3	24	19.05 x 13.21 x 12.7	No	18M8200	0.38	0.27	
● 6273BG	3	21	9.52 x 19.05 x 19.05	No	45M7278	0.53	0.38	
● 593002B03400G	4	13.4	12.7 x 23.93 x 30	Yes	18M8203	0.86	0.77	
● 6230B-TT	5	12.5	12.7 x 25.4 x 29.97	Yes	13B7416	2.91	2.24	
● 6021BG	6	12.5	12.7 x 24.38 x 29.97	Yes	18M8206	1.01	0.87	
● 6021PBG	6	12.5	12.7 x 24.4 x 29.97	Yes	79K4595	1.06	1.02	
● 6030B-TT	6	12.5	12.7 x 25.4 x 29.97	Yes	46F4120	2.79	2.39	
● 563002B00000G	6	13	12.7 x 25.4 x 29.97	Yes	18M8189	0.53	0.44	

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TO-220 PKG. HAT SECTION HEAT SINKS



- Low-profile cooling for TO-220 plastic power devices
- Designed for use on PC boards with 0.50" centering between boards
- **507102B00000G** has a notch and can be added to **507002B00000G** or **507222B00000G** for double-sided cooling of TO-220 devices
- **6237BG** has integrated clip



Mfg. Part No.	Fig.	Thermal Resistance (°C/W)	Dimensions (mm) H x W x L	Number of Devices	Stock No.	Price Each		
						1-9	10-99	100-499
● 507002B00000G	1	15.6	9.52 x 44.45 x 44.45	Single	96K2979	0.41	0.29	
● 507102B00000G	...	15.6	12.7 x 44.45 x 17.78	Single	05M3752	0.45	0.32	
● 6237BG	2	25	9.52 x 22.86 x 17.78	Single	18M8219	0.42	0.36	
● 507222B00000G	...	7	9.52 x 44.45 x 37.34	Dual	05M3652	0.74	0.53	

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SPACE SAVER HEAT SINKS FOR TO-220 DEVICES



- Vertical mount heat sinks for TO-220 devices
- include solderable mounting tabs for easy installation



Mfg. Part No.	Thermal Resistance (°C/W)	Dimensions (mm) L x W x H	Finish	Stock No.	Price Each		
					1-9	10-99	100-499
● 593202B03500G	10.4	12.2 x 35.05 x 51	Black Anodize	45M6137	1.03	0.93	
● 6022PBG	16.7	6.35 x 22.23 x 30.73	Pre-Anodized Black	18M8207	0.92	0.84	
● 6025DG	17.9	6.34 x 22.22 x 32	Copper w/ Tin Plate	45M6138	1.32	1.20	
● 6025B-TT	17.9	6.34 x 22.22 x 31.75	Black Paint	46F4117	2.95	2.69	

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SLIM CHANNEL STYLE HEAT SINKS FOR TO-202



- Low-profile, no tabs
- Black anodized finish



Mfg. Part No.	Thermal Resistance (°C/W)	Dimension (mm) H x W	Stock No.	Price Each		
				1-9	10-99	100-499
● 6273BG	21	19.05 x 19.05	45M7278	0.53	0.38	0.32
● 577404B00000G	24	12.7 x 13.21	18M8200	0.38	0.27	0.23
● 577102B04000G	25.9	9.52 x 13.21	18M8197	0.57	0.47	0.36
● 577304B00000G	27.2	9.53 x 13.21	18M8199	0.37	0.27	0.22

(4489)

EXTRUDED HEAT SINK WITH RADIAL FINS FOR TO-220 AND TO-218



Just Added

- Extruded heat sinks for TO-218 and TO-220 devices
- Feature wave solderable pins
- Vertical PC mount
- Black anodized finish



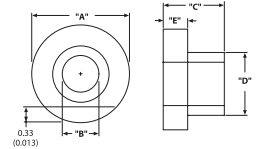
Mfg. Part No.	Pkg.	Thermal Resistance (°C/W)	Dimensions (mm) L x W x H	Stock No.	Price Each		
					1-9	10-99	100-499
● 530002B02500	TO-220	2.6	25.4 x 41.91 x 63.5	02E7795	1.86	1.68	1.31
● 530002B02500G	TO-220	2.6	25.4 x 41.91 x 63.5	99K1617	1.93	1.74	1.35
● 529802B02500G	TO-220	3.7	38.1 x 41.91 x 38.1	18M8164	1.70	1.54	1.19
● 529902B02500G	TO-220	4.5	50.8 x 41.91 x 50.8	18M8165	2.07	1.87	1.45
● 529801B02500G	TO-218	5	38.1 x 41.91 x 38	18M8163	1.73	1.56	1.21
● 529702B02500G	TO-220	5.5	25.4 x 41.91 x 25	18M8162	1.63	1.47	1.14
● 533702B02552G	TO-220	5.7	25.4 x 41.91 x 25.4	86K0322	2.33	2.11	1.64
● 531102B02500G	TO-220	10.4	38.1 x 34.92 x 12.7	18M8178	1.41	1.28	0.99
● 531002B02500G	TO-220	13.4	25.4 x 34.92 x 12.7	73K3927	1.34	1.21	0.94

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INSULATING SHOULDER WASHERS FOR TO-220 PKG.



- Fits the tab of a TO-220 to provide electrical isolation
- Maximum recommended service temperature of 260°C (500°F)
- Recommended torque of 0.452Nm (4 inch-pounds)



Mfg. Part No.	Mounting Hole Dia. (mm)	Outer Diameter (mm)	Stock No.	Price Each		
				1-18	19-50	51-135
● 7721-7PPSG	2.95	0.215	85K9469	0.45	0.36	0.26
● 7721-15NG	2.90	6.10	18M8265	0.13	0.10	0.08
● 7721-8PPSG	3.56		14M4330	0.29	0.23	0.19

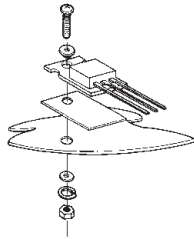
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HEAT SINKS – PC BOARD

MOUNTING KITS



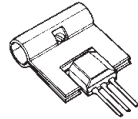
Mounting kit for DO-4 devices contains 2 thermal insulators, 1 teflon bushing, 1 flat washer, 1 10-32 UNF-2B hex nut and 1 locking terminal. Also available with mica insulator; add **M suffix** to mfg. part no. number before "G". **488DG** mounting kit for TO-220 devices contains 1 thermal insulator, 1 shoulder washer, 1 flat washer, 1 hex nut, 1 4-40 UNCB x 0.50 long PPH screw and 1 lock washer. Also available with alternative insulator material; add **M suffix** to mfg. part no. for mica or **S suffix** for Thermalsil III silicon rubber.



Mfg. Part No.	Description	Stock No.	Price Each	
			1-99	1-999
4860	DO-4 w/Thermalfilm	97F6997	2.41	
● 4880G	TO-220 w/Thermalfilm	82K6096	2.41	
● 4880MG	TO-220 w/Mica Insulator	02M5407	1.01	
● 4880SG	TO-220 w/Silicon Rubber	10M7230	0.77	

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COMPACT SLIDE-ON HEAT SINK FOR TO-202



- Economical, slide-on heat sink for TO-202 devices
- Easy installation with positive device catch to lock device into heatsink

Mfg. Part No.	Dimensions (mm) H x W	Thermal Resistance (°C/W)	Stock No.	Price Each		
				1-18	19-50	51-135
● 6046PBG	21.59 x 7.62	25	18M8212	0.89	0.71	0.52
● 6047PBG	21.59 x 7.62	25	18M8213	1.36	1.09	0.79

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SURFACE MOUNT HEAT SINKS



- Pretinned, auto-insertable heat sinks for D-Pak packages
- Compatible with automated pick-and-place equipment
- Help maximize board space and minimize assembly costs
- Tape & Reel packaging also available

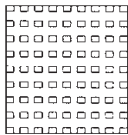


D1-Pak D2-Pak

Mfg. Part No.	Package	Thermal Resistance (°C/W)	Dimensions (mm) L x W x H	Stock No.	Price Each	
					1-9	10-99
● 7109DG	D2-PAK (TO-263)	11	25 x 19.38 x 11	21M5225	1.29	
● 573400D00000G	D3-PAK (TO-268)	14	31 x 12.7 x 10	80K7735	0.76	
● 573100D00010G	D-PAK (TO-252)	15	8 x 22.86 x 10	83K8890	0.93	
● 7106DG	D2-PAK (TO-263)	15	26 x 15 x 10	18M8244	1.41	
● 573300D00010G	D2-PAK (TO-263)	18	26.16 x 12.7 x 10.16	18M8190	1.12	

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HEAT SINKS FOR BALL GRID ARRAYS



- Tape mounting eliminates the need for mounting holes in the PC board
- Available for a wide variety of BGA packages, both plastic and ceramic

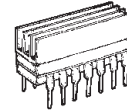
Mfg. Part No.	Thermal Resistance (°C/W)	Dimensions (mm) L x W x H	Material	Stock No.	Price Each		
					1-9	10-99	100-999
● 375024B00032G	12.2	40 x 40 x 18	Metal/Ceramic	05M6208	4.30	3.86	
● 374724B00032G	15.3	35 x 35 x 18	Metal	45M6207	3.22	2.88	
● 374424B00035G	20.3	27 x 27 x 18	Plastic	18M8052	2.91	2.61	
● 374124B00035G	23.4	23 x 23 x 18	Plastic	83K9811	2.36	2.12	
● 374624B00032G	23.4	35 x 35 x 10	Metal	45M6206	3.25	2.92	
● 335824B00034G	29.4	30 x 30 x 9	Plastic	82K8189	2.93	2.62	
● 374324B00035G	30.6	27 x 27 x 10	Plastic	18M8051	2.72	2.44	
● 371824B00032G	31.9	35 x 35 x 7	Metal/Ceramic	18M8050	3.28	2.94	
● 373324M00032G	32.6	37 x 37.4 x 6	Metal	45M6205	3.35	3.01	
● 374024B00035G	40	23 x 23 x 10	Plastic	82K9207	2.31	2.07	

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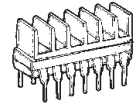
HEAT SINKS FOR DIP DEVICES



Angled Fins



Straight Fins Along The Length



Straight Fins Along the Width

- Bond-on heat sinks for 14 or 16-pin DIPs require no additional PC board space
- Heat sink may be added after assembly
- Black anodized finish

Mfg. Part No.	Thermal Resistance (°C/W)	Dimensions (mm) L x W x H	Fin Style	Stock No.	Price Each
● 580200B00000G	20	23 x 15.24 x 10	Angled	18M8201	0.33
● 501000B00000G	67	19.05 x 15.34 x 5.39	Angled	18M8138	0.45
● 501000J00000G	60	19.05 x 15.34 x 5.39	Angled	02E7623	0.44
● 501100B00000G	67	19.05 x 6.35 x 4.82	Straight (Length)	18M8140	0.53
● 501200B00000G	68	18.57 x 6.35 x 4.82	Straight (Width)	18M8141	0.57

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DOUBLE SURFACE HEAT SINKS



For space-critical applications where high power is dissipated. Black anodized finish aluminum alloy. Mfg. part no. suffixes: A = one TO-3 semi-mounting hole; K = blank (no holes).

401 / 403 SERIES

Mfg. Part No.	Thermal Performance		Dimensions (in.) W x L x H	Stock No.	Price Each
	Natural Convection (°C @ 30W)	Forced Convection (°C/W @ 250 LFM)			
● 401K	80	1.5	4.75 x 1.50 x 1.250	58F502	12.97
● 403A	55	0.9	4.75 x 3.00 x 1.250	58F503	15.56
● 403K	55	0.9	4.75 x 3.00 x 1.250	58F505	12.27

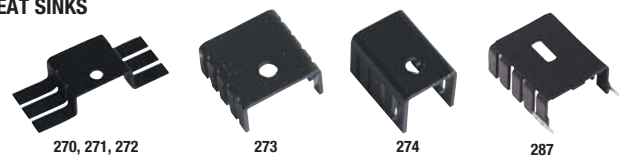
421 / 423 SERIES

Mfg. Part No.	Thermal Performance		Dimensions (in.) W x L x H	Stock No.	Price Each
	Natural Convection (°C @ 50W)	Forced Convection (°C/W @ 250 LFM)			
● 421K	58	0.7	4.75 x 3.00 x 2.625	58F508	15.56
● 423K	47	0.5	4.75 x 5.00 x 2.625	58F511	23.58

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TO-220 PKG. CHANNEL-STYLE HEAT SINKS

Just Added



- 272 series accepts two devices
- Provide two-sided cooling by adding 271 series heat sink to 270 or 272 heat sink on top of TO-220 device
- 273 and 274 series heat sinks for plastic-case power SCRs and transistors
- 286, 287, 288 series have wave-solderable pins
- Black anodized finish aluminum
- E suffix denotes RoHS compliant

Mfg. Part No.	Thermal Performance		Dimensions (mm) H x W x L	Stock No.	Price Each		
	Natural	Forced			1-9	10-99	100-999
● 270-AB	70°C @ 4W	6.0°C/W @ 400LFM	9.4 x 17.8 x 44.5	81F042	0.50	0.36	
● 271-AB	62°C @ 4W	5.1°C/W @ 400LFM	12.7 x 17.8 x 44.5	81F043	0.57	0.41	
● 272-AB	42°C @ 4W	3.6°C/W @ 400LFM	9.4 x 36.8 x 44.5	81F044	0.68	0.49	
● 273-AB	49°C @ 2W	7.2°C/W @ 400LFM	9.5 x 19.1 x 19.1	81F046	0.57	0.41	
● 274-1AB	56°C @ 2W	8.0°C/W @ 400LFM	9.5 x 19.1 x 13.2	50B8304	0.41	0.31	
● 274-1ABE-01	56°C @ 2W	8.0°C/W @ 400LFM	19.1 x 13.2 x 9.5	03P0725	0.79	0.56	
● 274-2AB	50°C @ 2W	7.0°C/W @ 400LFM	12.7 x 46 x 13.2	81F048	0.43	0.31	
● 274-2ABE-01	50°C @ 2W	7.0°C/W @ 400LFM	19.1 x 13.2 x 12.7	03P0726	0.75	0.54	
● 286-AB	58°C @ 4W	7.4°C/W @ 200LFM	30.2 x 12.7 x 25.4	46F7866	0.74	0.54	
● 287-1AB	65°C @ 4W	7.8°C/W @ 200LFM	30 x 12.7 x 25.4	30F1286	1.81	1.36	
● 287-1ABE	65°C @ 4W	7.8°C/W @ 200LFM	30 x 12.7 x 25.4	42M0655	1.89	1.39	
● 287-2AB	55°C @ 4W	6.4°C/W @ 200LFM	30 x 25.4 x 25.4	50B8305	1.89	1.39	

CONTINUED

TO-220 PKG. CHANNEL-STYLE HEAT SINKS (CONT.)

Mfg. Part No.	Thermal Performance		Dimensions (mm) H x W x L	Stock No.	Price Each	
	Natural	Forced			1-9	10-99
● 288-1ABE	85°C @ 4W	12°C/W @ 200LFM	31.8 x 22.2 x 22.2	42M0656	1.47	1.08
● 291-H36AB	68°C @ 2W	16°C/W @ 600 LFM	21.9 x 9.1 x 27	58F156	0.53	0.42

(4577)

BOARD LEVEL HEAT SINKS FOR TO-220 AND TO-218 COMPONENTS



Just Added

Vertical mount, slim profile, unidirectional fin heat sinks offer wave solderable pins on 0.4" (10.2mm) centers for vertically mounting TO-220 and TO-218 components. Ideal for a variety of applications where quick assembly and space are considerations. Material: black anodized aluminum. Note: Thermal compound is assumed between device and heat sink. Tab temperature with **mfg. part nos. 634-20ABP/20ABPE** heat sink will typically be about 15% lower. Tab temperature with **mfg. part nos. 634-10ABP/10ABPE** heat sink will typically be about 25% higher. E suffix in mfg. part no. indicates RoHS compliant.



Mfg. Part No.	Dimensions (mm) H x W x L	Stock No.	Price Each		
			1-9	10-99	100-499
634-10ABP	25.4 x 16.26 x 16.26	91F3673	1.91	1.44	1.19
● 634-10ABPE	25.4 x 16.26 x 16.26	42M0657	2.18	1.58	1.37
● 634-10ABEP	25.4 x 16.26 x 16.26	03P0729	2.18	1.58	1.37
634-15ABP	38.1 x 16.26 x 16.26	91F3674	2.78	2.10	1.73
● 634-15ABEP	38.1 x 16.26 x 16.26	03P0730	2.34	1.71	1.48
634-20ABP	50.8 x 16.26 x 16.26	91F3675	2.92	2.20	1.81
● 634-20ABPE	50.8 x 16.26 x 16.26	42M0658	2.46	1.79	1.55
● 634-20ABEP	50.8 x 16.26 x 16.26	03P0731	2.46	1.79	1.55

(17826)

WAVE-SOLDERABLE HEAT SINKS

Just Added



- **626, 627** series for TO-218, TO-220 devices
- **637, 647, 667** series for TO-220 devices
- **657, 677** series for TO-218, TO-220, TO-247 devices
- **667** series for TO-220 plastic-case devices
- Black anodized aluminum

NOTE: E suffix in mfg. part no. denotes RoHS compliant part. N suffix in 657 series denotes notch at bottom of heat sink. Speed clips enable fast, vertical PC board mounting; order separately below.

Mfg. Part No.	Thermal Convection		Dimensions (mm) L x W x H	Stock No.	Price Each		
	Natural @ 6W	Forced @ 200 LFM			1-9	10-99	100-499
● 626-20ABEP	55°C	4.7°C/W	12.7 x 34.9 x 50.8	03P0727	2.46	1.78	1.56
● 627-20ABEP	55°C	4.7°C/W	12.7 x 34.9 x 50.8	03P0728	2.46	1.78	1.56
● 637-10ABEP	76°C	5.8°C/W	12.7 x 34.9 x 25.4	03P0732	1.79	1.29	1.13
637-10ABP	76°C	5.8°C/W	12.7 x 34.9 x 25.4	81F055	1.55	1.16	0.96
● 637-10ABPE	76°C	5.8°C/W	12.7 x 34.9 x 25.4	93K7986	1.16	0.84	0.74
● 637-15ABEP	65°C	5.5°C/W	12.7 x 34.9 x 38.1	03P0733	1.92	1.39	1.22
● 637-15ABPE	65°C	5.5°C/W	12.7 x 34.9 x 38.1	83K8262	1.31	0.95	0.83
637-20ABP	55°C	4.7°C/W	12.7 x 34.9 x 50.8	81F057	2.13	1.54	1.35
● 647-10ABEP	42°C	3.8°C/W	25.4 x 41.9 x 25.4	42M0659	1.42	1.03	0.90
● 647-15ABEP	37°C	3.5°C/W	25.4 x 41.9 x 38.1	03P0734	2.30	1.66	1.46
● 647-15ABPE	37°C	3.5°C/W	25.4 x 41.9 x 38.1	80K7229	2.23	1.62	1.42
● 647-20ABPE	31°C	3.1°C/W	25.4 x 41.9 x 50.8	42M0660	2.49	1.81	1.58
● 647-25ABPE	25°C	2.8°C/W	25.4 x 41.9 x 63.5	42M0661	2.68	1.94	1.70
● 657-15ABEP	38°C	3.3°C/W	25.4 x 41.9 x 38.1	03P0735	1.89	1.37	1.20
657-15ABP	38°C	3.3°C/W	25.4 x 41.9 x 38.1	46F7863	2.35	1.77	1.46
● 657-15ABPE	38°C	3.3°C/W	25.4 x 41.9 x 38.1	06M4224	1.99	1.42	1.26
● 657-20ABEP	32°C	2.9°C/W	25.4 x 41.9 x 50.8	03P0736	2.30	1.66	1.46
● 657-20ABPE	32°C	2.9°C/W	25.4 x 41.9 x 50.8	42M0662	2.23	1.62	1.42
657-20ABPN	32°C	2.9°C/W	25.4 x 41.9 x 50.8	52F6226	2.84	2.13	1.76
● 657-25ABEP	25°C	2.7°C/W	25.4 x 41.9 x 63.5	03P0737	2.43	1.76	1.54
● 657-25ABPE	25°C	2.7°C/W	25.4 x 41.9 x 63.5	42M0663	2.56	1.82	1.62
● 667-10ABPPE	76°C	5.8°C/W	12.7 x 34.9 x 25.4	42M0664	2.36	1.71	1.50
● 667-15ABPPE	66°C	5.5°C/W	12.7 x 34.9 x 38.1	41M6814	2.65	1.92	1.68
● 667-20ABPPE	58°C	4.7°C/W	12.7 x 34.9 x 50.8	42M0665	2.94	2.13	1.86
● 677-10ABEP	52°C	3.1°C/W	41.9 x 25.4 x 25.4	03P0738	2.57	1.86	1.63
● 677-15ABPE	46°C	2.8°C/W	25.4 x 41.9 x 38.1	42M0666	2.70	1.96	1.71

➔ CONTINUED ➔

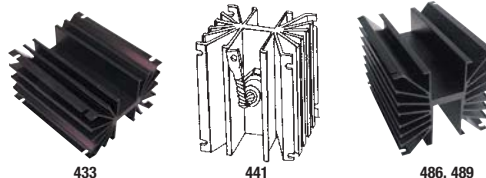
WAVE-SOLDERABLE HEAT SINKS (CONT.)

SPEED CLIPS FOR 667 SERIES

Mfg. Part No.	Material	Force (lbs.)	Stock No.	Price Each		
				1-9	10-99	100-499
● 330SC	Stainless Steel	4	90F1417	0.71	0.52	0.45
● 285SC	Spring Steel	10	46F7897	0.35	0.25	0.22

(4466)

HEAT SINKS FOR 30-100W METAL POWER SEMICONDUCTORS & HIGH-POWER HEX-TYPE RECTIFIERS & DIODES



433 high-performance heat sink for minimum space. **441** high density heat sink for mounting on vertical surface (no brackets required) for better natural convection. **486** and **489** heat sink for mounting and efficient heat dissipation. Black anodized aluminum alloy. "K" suffix indicates blank semiconductor mounting hole pattern.

Mfg. Part No.	Thermal Performance	Dimensions (mm) H x W x L	Package	Stock No.	Price Each	
					1-4	5-9
● 433K	42°C @ 50W	76.2 x 120.7 x 139.7	TO-3	58F334	42.90	39.44
● 441K	47°C @ 80W	114.3 x 120.7 x 139.7	1.75" (44.5) Hex-Type Devices	58F521	51.38	47.23
● 486K	24°C @ 50W 86°C @ 250W	158.8 x 158.8 x 152.4		58F425	79.03	75.31
● 489K	19°C @ 50W 75°C @ 250W	158.8 x 158.8 x 228.6		58F428	135.70	129.32

(4469)

621, 623 AND 641 SERIES SINGLE-CHANNEL HEAT SINKS FOR METAL-CASED SEMICONDUCTORS



Replace marginal flat plate dissipators. Fin design provides large surface area for maximum natural convection. Black anodized finish aluminum alloy. Type suffixes: A = 1 TO-3 semi mounting hole; K = blank (no holes).

621,623

Mfg. Part No.	Dimensions (mm) L x W x H	Stock No.	Price Each		
			1-9	10-99	100-499
● 621A	120.6 x 120.6 x 11.7	58F482	5.73	5.43	5.08
● 621K	120.6 x 120.6 x 11.7	58F538	4.97	4.71	4.41
● 623K	120.6 x 120.6 x 11.7	58F539	7.15	6.77	6.34
● 641A	76.2 x 104.8 x 25.4	58F467	12.76	12.09	11.31
● 641K	76.2 x 104.8 x 25.4	58F540	8.32	7.88	7.37

(4468)

HIGH-PERFORMANCE HEAT SINKS FOR POWER MODULES



392 series heat sinks are designed for effective cooling of single and multiple isolated power modules, IGBTs, relays, and rectifiers. Standardized 80mm mounting in both natural and forced convection. Base width: 4.921" (125.0). Height: 5.346" (135.8). Black anodized finish.

Mfg. Part No.	Length	Thermal Resistance (°CW)		Stock No.	Price Each	
		Natural Convection	Forced Convection		1-9	10-99
● 392-120AB	4.725" (120mm)	0.50	0.16 @ 100 CFM	92F4663	106.77	80.32
● 392-180AB	7.087" (180mm)	0.43	0.11 @ 100 CFM	92F4664	130.21	117.95
● 392-300AB	11.811" (300mm)	0.33	0.08 @ 100 CFM	97F953	185.22	167.79

(4588)

HARDWARE • HEAT SINKS – PC BOARD

TO-3 INSULATING COVERS



Insulating covers are designed to provide protection from accidental shock during field service or repair. Included are No.6 split washers as inserts to provide electrical connection of mounting screws to the TO-3 collector and an insulating snap-in cover for the screw heads. A test probe hole is provided in the top of the cover.



Mfg. Part No.	Color	Dimensions (mm) L x W x D	Stock No.	Price Each		
				1-18	19-50	51-135
● 8909NGB	Black	40.26 x 26.54 x 8.38	18M8294	0.61	0.49	0.35
● 8903VBG	Black	41.91 x 28.45 x 8.38	18M8293	0.66	0.51	0.42
● 8903NWB	White	41.91 x 28.45 x 8.38	18M8292	3.03	2.42	1.74

(82454)

TO-3 & TO-220 PKG. MAXIMUM EFFICIENCY OMNIDIRECTIONAL HEAT SINKS



- Black anodized aluminum alloy
- *K* suffix indicates blank mounting hole pattern (usable with one TO-3 device or two TO-220 devices)



Mfg. Part No.	Dimensions (mm) H x W x L	Thermal Performance @ Typ. Load		Stock No.	Price Each	
		Natural Convection	Forced Convection		1-9	1-9
● 680-5A	12.7 x 46 x 46	70°C @ 7.5W	3.0°C/W @ 400LFM	58F401		7.25
● 680-75A	19.1 x 46 x 46	58°C @ 7.5W	2.4°C/W @ 400LFM	58F398		8.88
● 680-10A	25.4 x 46 x 46	52°C @ 7.5W	2.0°C/W @ 400LFM	97F2148		9.65
● 680-125A	31.8 x 46 x 46	45°C @ 7.5W	1.5°C/W @ 400LFM	58F392		9.80
● 680-125K	31.8 x 46 x 46	45°C @ 7.5W	1.5°C/W @ 400LFM	01F7289		11.43

(4581)

TRANSISTOR PADS



- MPX02P spreads to 0.1" (2.54mm) inline or 0.2" (5.08mm) PCB
- MPX05GFNB spreads to 0.2" (5.08mm) PCB
- M1802D TO Type 1B
- M518-01N spread TO-18 to TO-5

Sold in multiples of 100 pieces.



Mfg. Part No.	Package	Dimensions (mm)		Stock No.	Price Each		
		Height	Diameter		1-249	250-499	500-999
● MPX02P	TO-92	3.43	6.35	09WX0142	0.03	0.03	0.02
● MPX05GFNB	TO-92	3.81	7.11	09WX0141	0.05	0.04	0.03
● M1802D	TO-18	3.18	6.35	09WX0143	0.03	0.02	0.02
● M518-01N	TO-5/TO-18	3.68	9.37	09WX0152	0.03	0.03	0.02

(116563)

PENGUIN COOLER PIN FIN HEAT SINKS



628 Series

658 Series

624 series for adhesive attachment to 21x21mm BGAs. 625 series for adhesive attachment to 25x25mm BGAs. 628 series for adhesive attachment to 17x17mm ceramic PGAs. 630 series for adhesive attachment to 35x35mm BGAs. 658 series designed for heat dissipation for Olin Corporation MQuad™ aluminum Quad flat packs and Amkor Power Quad thermally enhanced PQFPs. Aluminum sink material with black anodized finish.

THERMALLY ENHANCED PRESSURE SENSITIVE ADHESIVES

Suffix	Thermal Impedance (°C-in²/W)	Thickness (mm)	Semiconductor Surface
-T1	0.47	0.152	Metal/Ceramic
-T3	0.25	0.229	Metal/Ceramic
-T4	1.10	0.178	Plastic

Mfg. Part No.	Forced Convection @ 200 LFM (°C/W)	Height in. (mm)	Base Dim. in. (mm)	Stock No.	Price Each
					1-9
● 624-25ABT3	24.0	0.25 (6.4)	0.827 (21) Sq.	08C3363	1.87
● 624-25ABT4	24.0	0.25 (6.4)	0.827 (21) Sq.	08C3364	3.15
● 624-35AB	18.5	0.35 (8.9)	0.827 (21) Sq.	08C3365	1.22
● 624-45AB	16.0	0.45 (11.4)	0.827 (21) Sq.	08C3370	1.97
● 624-45ABT3	16.0	0.45 (11.4)	0.827 (21) Sq.	08C3373	3.09

▶ CONTINUED ▶

PENGUIN COOLER PIN FIN HEAT SINKS (CONT.)

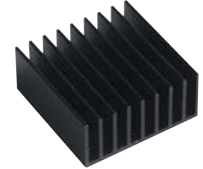
Mfg. Part No.	Forced Convection @ 200 LFM (°C/W)	Height in. (mm)	Base Dim. in. (mm)	Stock No.	Price Each
● 624-60AB	11.5	0.60 (15.2)	0.827 (21) Sq.	08C3375	2.20
625-25ABT4	17.0	0.25 (6.4)	0.984 (25) Sq.	08C3384	3.48
● 625-45AB	10.5	0.45 (11.4)	0.984 (25) Sq.	08C3390	2.17
● 628-40AB	5.25	0.40 (10.16)	1.75 (44.5) x 1.70 (43.2)	95F3501	2.50
● 628-65AB	3.25	0.65 (16.51)	1.75 (44.5) x 1.70 (43.2)	95F3502	2.63
● 630-45AB	5.50	0.45 (11.4)	1.378 (35) Sq.	73H5115	2.43
● 658-25AB	8.50	0.25 (6.35)	1.10 (27.9) Sq.	93F6542	1.48
● 658-25ABT1	8.50	0.25 (6.35)	1.10 (27.9) Sq.	08C3430	3.15
● 658-25ABT3	8.50	0.25 (6.35)	1.10 (27.9) Sq.	08C3431	3.35
● 658-25ABT4	8.50	0.25 (6.35)	1.10 (27.9) Sq.	92B5976	3.30
● 658-35AB	7.75	0.35 (8.9)	1.10 (27.9) Sq.	52F4987	1.55
● 658-35ABT3	7.75	0.35 (8.9)	1.10 (27.9) Sq.	51B1423	3.35
● 658-35ABT4	7.75	0.35 (8.9)	1.10 (27.9) Sq.	08C3433	3.42
● 658-45AB	6.00	0.45 (11.43)	1.10 (27.9) Sq.	93F6543	1.61
● 658-60AB	3.80	0.60 (15.24)	1.10 (27.9) Sq.	93F6544	1.87
● 658-60ABT1	3.80	0.60 (15.24)	1.10 (27.9) Sq.	08C3434	3.51
● 658-60ABT3	3.80	0.60 (15.24)	1.10 (27.9) Sq.	52F4988	3.87
● 658-60ABT4	3.80	0.60 (15.24)	1.10 (27.9) Sq.	97B3959	3.71

(4591)

655 AND 659 SERIES HEAT SINKS



Made for 40mm BGA applications. Material: black anodized aluminum. 659 series heat sinks are for AMD and PowerPC™ devices. 655 series heat sinks are for PowerPC™ 601 and PowerPC™ 603 devices.



UNIDIRECTIONAL FIN HEAT SINK FOR BGAs

Mfg. Part No.	Length (mm)	Height (mm)	Stock No.	Price Each		
				1-24	25-49	50-99
● 659-65AB	36.8	16.5	93F6549	2.23	2.12	2.06

OMNIDIRECTIONAL PIN FIN HEAT SINKS FOR BGAs AND POWERPC™

Mfg. Part No.	Length (mm)	Height (mm)	Stock No.	Price Each		
				1-24	25-49	50-99
● 655-26AB	40.6	6.6	93F6540	2.82	2.69	2.61
● 655-53AB	40.6	13.3	93F6541	3.31	3.15	3.06

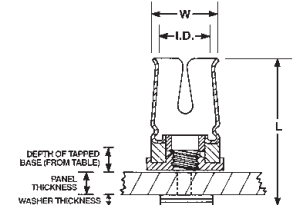
(70396)

CUP CLIPS FOR TO-5 DEVICES



Tapped 260-4T5E

Tapped Hex 260-4TH5E



- Thread Size: #4-40 UNC
- Continuous Operating Temperature: 300°F Max.

Mfg. Part No.	Mounting Style	Depth of Tapped Base (in.)	Outline Dimensions L x W x Dia. (in.)	Stock No.	Price Each
● 260-4T5E	Tapped	0.093	0.37 x 0.38 x 0.29	65H6127	16.71
● 260-4TH5E	Tapped Hex	0.125	0.40 x 0.37 x 0.29	58F1058	16.47

(4478)



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(148833)

HEAT SINKS – PC BOARD

HEAT SINKS FOR POWER LEDs



- For use with "Star" LED packages on page 1297
- 0.09" mounting holes accommodate LED module with 4-40 screws
- 0.153" mounting holes accommodate a multi-LED circuit board, mount to a panel with 10-32 screws, or act as a conduit for wires
- 0.201" mounting holes can mount to a panel with ¼-20 screws



0.50 in. (12.7 mm)

Mfg. Part No.	Thermal Resistance (°C/W)		Dia. x H in. (mm)	Stock No.	Price Each	
	Normal Convection	Forced Convection @ 200 LFM			1-9	10-99
● 882-300AB	3	1.55	2.76 x 3.0 (70.1 x 76.2)	96M8767	9.48	6.88
● 882-200AB	3.5	1.89	2.76 x 2.0 (70.1 x 50.8)	96M8766	6.32	4.59
● 882-100AB	4.92	2.88	2.76 x 1.0 (70.1 x 25.4)	96M8765	3.16	2.30
● 882-50AB	6.25	4.33	2.76 x 0.5 (70.1 x 12.7)	96M8768	2.65	1.92

(113744)

TO-220 PKG. CHANNEL STYLE HEAT SINKS

Just Added



Fig. 1

Fig. 2

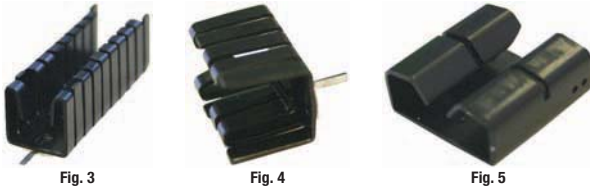


Fig. 3

Fig. 4

Fig. 5

- Clip-on assembly except for mfg. part no. MC33278 which has twisted vane fins and accepts two devices
- Black anodized finish

Heat sink clips available on page 2382.

Mfg. Part No.	Fig.	Thermal Resistance (°C/W)	Dimensions (mm) H x W x L	Stock No.	Price Each		
					1-99	100-249	250-499
● MC33279	1	7.1	25 x 42 x 38	09R3164	1.03	0.80	0.72
● MC33278	1	7.6	20 x 42 x 38	09R3163	1.07	0.81	0.72
● MC33283	2	16	38.1 x 12.8 x 12.7	09R3168	1.12	0.87	0.78
● MC33282	2	21	19 x 12.8 x 12.7	09R3167	0.79	0.60	0.53
● MC33284	3	16	38.1 x 12.8 x 12.7	09R3169	1.68	1.34	1.22
● MC33280	3	21	19 x 12.8 x 12.7	09R3165	1.01	0.79	0.71
● MC33281	4	21	12.7 x 12.8 x 19	09R3166	0.96	0.75	0.67
● MC33277	5	28	20 x 19.7 x 8.1	09R3162	0.59	0.45	0.40

(148498)

TO-220/TO-126 & SOT-23 PKG. CHANNEL STYLE HEAT SINKS



Just Added

- Slotted mounting hole
- Integral mounting tabs
- Black anodized finish



Mfg. Part No.	Thermal Resistance (°C/W)	Dimensions (mm) H x W x L	Stock No.	Price Each		
				1-249	250-499	1000-4999
● MC33260	13.6	29.97 x 25.4 x 12.7	09R3145	0.64	0.49	0.39

(148494)

TO-218/TO-220/TO-247 PKG. HEAT SINKS

Just Added

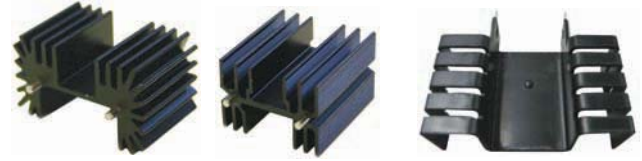


Fig. 1

Fig. 2

Fig. 3

- Screw or clip mount
- Solderable mounting pins or tabs
- Black anodized finish

Heat sink clips available on page 2382.

Mfg. Part No.	Fig.	Thermal Resistance (°C/W)	Dimensions (mm) H x W x L	Use With Clip	Stock No.	Price Each		
						1-99	100-249	250-499
● MC33271	1	2.7	63.5 x 42 x 25	MC33295	09R3156	2.19	1.75	1.60
● MC33269	1	4.4	38.1 x 42 x 25	MC33295	09R3154	1.63	1.27	1.14
● MC33270	1	4.4	50.8 x 42 x 25	MC33295	09R3155	1.89	1.51	1.38
● MC33268	1	5.6	25.4 x 42 x 25	MC33295	09R3153	1.51	1.17	1.06
● MC33274	2	5.9	50 x 35 x 25.4	MC33294	09R3159	1.59	1.24	1.12
● MC33275	2	5.9	50 x 35 x 25.4	...	09R3160	1.59	1.24	1.12
● MC33272	2	7.2	38 x 35 x 25.4	MC33294	09R3157	1.50	1.17	1.05
● MC33273	2	7.2	38 x 35 x 25.4	...	09R3158	1.50	1.17	1.05
● MC33276	3	7	35 x 51 x 29.44	...	09R3161	1.24	0.97	0.87

(148497)

TO-220 PKG. EXTRUDED HEAT SINKS

Just Added

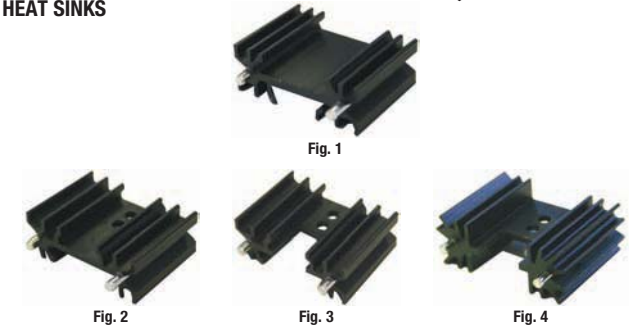


Fig. 1

Fig. 2

Fig. 3

Fig. 4

- Screw or clip mount
- Solderable mounting pins
- Black anodized finish

Heat sink clips available on page 2382.

Mfg. Part No.	Fig.	Thermal Resistance (°C/W)	Dimensions (mm) H x W x L	Use With Clip	Stock No.	Price Each		
						1-249	250-499	500-999
● MC33285	1	1.4	25 x 34.5 x 12.5	MC33293	09R3170	1.00	0.75	0.67
● MC33287	1	8.8	50 x 34.5 x 12.5	MC33293	09R3172	1.06	0.82	0.74
● MC33286	1	10.2	38 x 34.5 x 12.5	MC33293	09R3171	0.95	0.74	0.67
● MC33288	2	1.4	25 x 34.5 x 12.5	MC33293	09R3173	1.12	0.87	0.79
● MC33290	2	8.8	50 x 34.5 x 12.5	MC33293	09R3175	1.37	1.07	0.96
● MC33289	2	10.2	38 x 34.5 x 12.5	MC33293	09R3174	1.25	0.97	0.88
● MC33291	3	1.4	25 x 34.5 x 12.5	MC33293	09R3176	1.06	0.80	0.71
● MC33292	3	10.2	38 x 34.5 x 12.5	MC33293	09R3177	0.99	0.77	0.70
● MC33264	4	11	38.1 x 34.9 x 12.7	MC33296	09R3149	1.10	0.86	0.78
● MC33263	4	14	25.4 x 34.9 x 12.7	MC33296	09R3148	1.00	0.78	0.70

(148495)

Expert technical support

Chat online to our team of engineers, or connect to them through your representative.

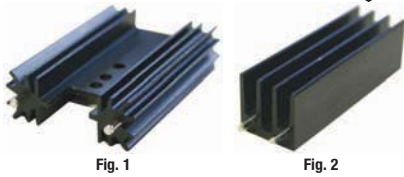
(148838)

HEAT SINKS – PC BOARD • HEAT SINKS – POWER SUPPLIES/CONVERTERS

TO-220/TO-218 PKG. EXTRUDED HEAT SINKS



Just Added



- Solderable mounting pins
- Black anodized finish

Heat sink clips available on this page.

Mfg. Part No.	Fig.	Thermal Resistance (°C/W)	Dimensions (mm) H x W x L	Use With Clip	Stock No.	Price Each		
						1-99	100-249	250-499
● MC33267	1	3.1	63.5 x 41.6 x 25	MC33297	09R3152	1.89	1.51	1.38
● MC33266	1	3.6	50.8 x 41.6 x 25	MC33297	09R3151	1.65	1.32	1.21
● MC33265	1	3.9	38.1 x 41.6 x 25	MC33297	09R3150	1.65	1.28	1.16
● MC33262	2	12.9	38.1 x 16.6 x 16.26	...	09R3147	1.00	0.78	0.70
● MC33261	2	16.7	25.4 x 16.6 x 16.26	...	09R3146	0.95	0.74	0.67

(148496)

HEAT SINK CLIPS

Just Added



Mfg. Part No.	For Use With	Stock No.	Price Each		
			1-249	250-499	500-999
● MC33293	Mfg. part nos. MC33285, MC33286, MC33287, MC33291, MC33292	09R3178	0.35	0.26	0.23
● MC33294	Mfg. part nos. MC33272, MC33273, MC33274, MC33275	09R3179	0.45	0.34	0.30
● MC33295	Mfg. part nos. MC33268, MC33269, MC33270, MC33271	09R3180	0.30	0.23	0.20
● MC33296	Mfg. part nos. MC33263, MC33264	09R3181	0.35	0.26	0.23
● MC33297	Mfg. part nos. MC33265, MC33266, MC33267	09R3182	0.45	0.34	0.30

(148493)

TO-220 & TO-247 PKG. HEAT SINKS

NEW TECHNOLOGY



- Self-aligning
- Solderable feet for vertical thru-hole placement
- Integrated clip provides 13.2 (lb) of force



These devices are for use with Ohmite products on pages 532-537.

Mfg. Part No.	Thermal Resistance (°C/W)	Dimensions (mm) H x W x L	Package	Stock No.	Price Each		
					1-9	10-24	25-49
● WV-T220-101E	10	30.5 x 18.3 x 16	TO-220	10R0489	1.99	1.58	1.35
● WV-T247-101E	7	32 x 23.4 x 16	TO-247	10R0490	2.26	1.79	1.53

(147907)

HEAT SINKS FOR DC/DC CONVERTERS



Standard mounting hole pattern for "half-brick" mates with the majority of "half-brick" DC/DC converters. Standard mounting hole pattern for "full-brick" mates with Vicor DC/DC converters. Aluminum extruded fin construction keeps DC/DC converter modules cool in both forced and natural convection applications. Vertical and horizontal fin configurations are available in a variety of fin heights. MS4 suffix includes M3 x 8 Phillips head screws with captive washer and DeltaLink IV thermal interface pad. Material: black anodized aluminum.



Half Brick

FULL BRICK

Mfg. Part No.	Height (mm)	Footprint Dimensions (mm)	No. of Fins	Thermal Performance		Stock No.	Price Each
				Natural Convection	Forced Convection†		
● 557-140AB	35.6	116.8 x 61.0	6	14W*	1.3°C/W	37K6011	8.05
● 558-75AB	19.1	61.0 x 116.8	16	12W*	1.8°C/W	21M6797	9.65
● 559-50AB	12.7	61.0 x 116.8	27	10W*	2.2°C/W	78M7610	15.28

HALF BRICK

● 527-45AB	11.4	61.0 x 57.9	11	7W‡	3.2°C/W	91F3670	3.23
● 527-45AB-MS4	11.4	61.0 x 57.9	11	7W‡	3.2°C/W	73H4936	8.41

➤ CONTINUED ➤

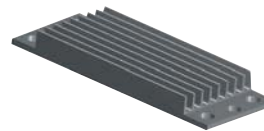
HEAT SINKS FOR DC/DC CONVERTERS (CONT.)

HALF BRICK

Mfg. Part No.	Height (mm)	Footprint Dimensions (mm)	No. of Fins	Thermal Performance		Stock No.	Price Each
				Natural Convection	Forced Convection†		
● 527-24AB	6.1	61.0 x 57.9	11	5W‡	5.8°C/W	91F3669	3.02
● 518-95AB-MS4	24.1	57.9 x 61.0	8	11W‡	2.0°C/W	73H4924	9.28
● 528-45AB	11.4	57.9 x 61.0	11	7W‡	3.2°C/W	91F3672	3.75

* @ 40°C. ‡ @ 60°C. † @ 300 LFM. (17827)

HEAT SINKS FOR DC/DC CONVERTERS



Eighth Brick



Quarter Brick

- Complete off-the-shelf cooling solution for industry standard DC-to-DC converters
- Thin film geometry for increased thermal performance and reduced pressure drop
- Factory-installed QPad3™ interface pas

FOR EIGHTH BRICK DC/DC CONVERTERS

Mfg. Part No.	Approx. Thermal Resistance @ 300 LFM (°C/W)*	Fin Configuration	Dimensions (in.) H x W x L	Stock No.	Price Each	
					1-9	10-99
● 241802B91200G	6.60	Lengthwise	6.1 x 22.9 x 57.9	51M4836	4.65	4.19
● 241802B92200G	4.30	Crosswise	6.1 x 22.9 x 57.9	51M4837	4.65	4.19

FOR QUARTER BRICK DC/DC CONVERTERS

● 241402B91200G	4.30	Lengthwise	6 x 37 x 58	51M4830	5.96	5.36
● 241404B91200G	2.30	Lengthwise	11.4 x 37 x 58	51M4832	6.37	5.73
● 241409B91200G	1.30	Lengthwise	22.9 x 37 x 58	51M4834	7.77	6.99
● 241402B92200G	2.60	Crosswise	6 x 37 x 58	51M4831	5.96	5.36
● 241404B92200G	1.50	Crosswise	11.4 x 37 x 58	51M4833	13.74	12.36
● 241409B92200G	1.80	Crosswise	22.9 x 37 x 58	51M4835	7.77	6.99

FOR HALF BRICK DC/DC CONVERTERS

● 241202B91200G	2.90	Lengthwise	6.1 x 57.9 x 61	51M4824	5.29	4.76
● 241204B91200G	1.80	Lengthwise	11.4 x 57.9 x 61	51M4826	5.80	5.22
● 241214B91200G	0.90	Lengthwise	35.6 x 57.9 x 61	51M4828	7.38	6.64
● 241202B92200G	2.75	Crosswise	6.1 x 57.9 x 61	51M4825	5.29	4.76
● 241204B92200G	1.75	Crosswise	11.4 x 57.9 x 61	51M4827	5.80	5.22
● 241214B92200G	0.90	Crosswise	35.6 x 57.9 x 61	51M4829	7.38	6.64

*Approximate values listed in tables. See datasheets for thermal resistance curves. LFM = linear feet per minute. (100268)

HEAT SINKS FOR AC-TO-DC POWER SUPPLIES



For use with Lambda PFE500-700 series single output full brick AC-DC power supplies on page 1502.

Mfg. Part No.	Dimensions (mm)			Thermal Resistance (°C/W)	Stock No.	Price Each
	L	W	H			
● HAF10L	116.8	61	25.4	2.2	96M0414	16.56
● HAF15L	116.8	61	38.1	1.9	96M0415	19.94
● HAF15T	116.8	61	38.1	1.5	96M0416	19.94

(97517)

HARDWARE • THERMAL COMPOUNDS • INSULATORS

TO-3 POWER TRANSISTOR SOCKETS

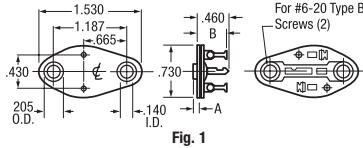


Fig. 1

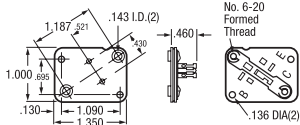


Fig. 2

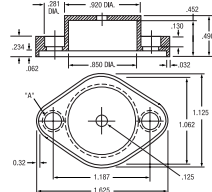


Fig. 3

- Top Plate: Molded Nylon
- Base: Phenolic

Mfg. Part No.	Fig.	Thread Size	Dimensions (inches)				Stock No.	Price Each
			Mounting Hole I.D.	Body Length	Body Width	Socket Height (A)		
● 4600	1	6-20	0.140	1.530	0.730	0.090	94F863	1.29
● 4602	1	6-20	0.140	1.530	0.730	0.045	35F1178	1.44
● 4601	1	6-20	0.140	1.530	0.730	0.090	35F1170	1.44
● 4606*	2	6-20	0.136	1.350	1.000	...	35F1176	1.23
● 4608	2	6-20	0.136	1.350	1.000	0.045	35F1172	1.44

* Top Plate: Phenolic

POWER TRANSISTOR COVERS FIG. 3

Molded nylon covers easily mount over and insulate the power transistor. Will withstand temperatures to approx. 300°F. Available with or without brass eyelets installed in mounting holes to assure proper electrical contact with collector/case.

Mfg. Part No.	For Use With	Eyelets Installed	Dimensions (inches)			Stock No.	Price Each
			Mounting Hole I.D. (A)	Outer Diameter	Height		
● 4632	TO-3	None	0.21	0.92	0.49	97H7266	0.22
● 4634	TO-3	Two	0.14	0.92	0.49	97H7267	0.53

(78680)

122 SERIES HIGH PERFORMANCE THERMAL JOINT COMPOUND



Stable silicone based, thixotropic paste formulated to significantly reduce contact thermal resistance where power densities are concentrated in devices such as flip chip, reduced die size and "overlock" microprocessors. Compatible with automated or manual dispensing methods. Thermal conductivity: 2.5W/m²K. Thermal resistance: 0.02°Cin²/W. Shelf life: 5 years.

Mfg. Part No.	Container Size	Stock No.	Price Each	
			1-9	10-99
● 122-10CC	10cc Syringe	28M8729	70.33	63.86

(90077)

120/126 SERIES THERMAL JOINT COMPOUNDS



120 series silicone oil-based compound fills minute air gaps between major mating surfaces with grease-like material containing zinc oxide in silicone oil carrier. Thermal conductivity @ WC: 0.735W/(m)K; 5.1 (Btu)(in.)/(hr)(ft²)(°F). Thermal resistance: 0.05°C/W for 0.001" film. Operating temperature: -40°C to +200°C. Shelf life: 5 years. 126 series is a non-toxic, synthetic, ester-based (non-silicone) compound with metal-oxide fillers. Thermal conductivity: 19.0 x 10⁻⁴ cal/sec cm °C, min; 4.8 (Btu)(in.)/(hr)(ft²)(°F). Thermal resistance: 0.043°C/W for 0.008" film. Operating temperature: -40°C to +200°C. Shelf life: 5 years. Western Electric approved, specification KS21343. Meets military specification MIL-C-47113.

Mfg. Part No.	Size	Stock No.	Price Each	
			1-9	10-99
● 120-SA	4 gm. Plastic Pack	00Z1244	4.05	3.67
● 120-2	2 oz. Jar	00Z1245	10.03	9.09
● 120-5	5 oz. Tube	00Z1246	22.55	20.42
● 120-8	8 oz. Jar	00Z1247	27.75	25.13
● 120-80	5 lb. Can	00Z1248	171.00	154.88
● 120-320	20 lb. Can	00Z754	422.71	382.86
● 126-2	2 oz. Jar	00Z1252	15.84	14.35

▶ CONTINUED ▶

120/126 SERIES THERMAL JOINT COMPOUNDS (CONT.)

Mfg. Part No.	Size	Stock No.	Price Each	
			1-9	10-99
● 126-4	4 oz. Tube	00Z1253	24.26	21.97
● 126-4S	4 oz. Syringe	00Z1703	42.70	38.68

(4582)

150 SERIES THERMALLY CONDUCTIVE ADHESIVES



Delta Bond 152 thermally bonds components to chassis or heat sinks. Mfg. Part Nos. 152-1A, 152-1B and 152-KA include resin and hardener. For Mfg. Part Nos. 152-Q, 153-Q and 154-Q adhesives, order one bottle of Mfg. Part no. A-4 or B-4 hardener per one quart of resin. Delta Bond 155 thixotropic paste offers high heat transfer, low shrinkage and a coefficient of thermal expansion comparable to copper and aluminum. Includes resin and hardener. Delta Bond 156 is a modified acrylic adhesive for permanent mounting of components where heat must be effectively transmitted. Includes resin and hardener.

Mfg. Part No.	Description	Shelf Life (Years)	Stock No.	Price Each		
				1-4	5-9	10-24
● 152-1A	1 oz. Resin and (A-4) Hardener Bi-Pack	2	00Z745	28.90	26.62	23.02
● 152-1B	1 oz. Resin and (B-4) Hardener Bi-Pack	2	00Z1242	42.81	39.43	34.10
● 152-KA	7 oz. Resin, 0.5 oz. (A-4) Hardener	1	00Z746	114.77	105.72	91.43
● 152-Q	1 qt. Resin	2	00Z1243	145.11	133.67	115.61
● 153-Q	1 qt. Resin	2	00Z1255	133.20	122.70	106.12
● 154-Q	1 qt. Resin	2	00Z1256	120.02	110.56	95.62
● 155	3 oz. Resin, 3 oz. Hardener	1	00Z743	42.15	38.83	33.58
● 156-K	4.2 oz. Resin and Hardener Syringe and Brush	1	00Z1257	61.89	57.01	49.31
● A-4	0.316 lb. Hardener	...	00Z1052	57.96	53.40	46.18
● B-4 (HARDENER)	0.14 lb. Hardener	...	00Z860	35.99	33.15	28.67

(4479)

THERMAL ADHESIVES AND GREASES

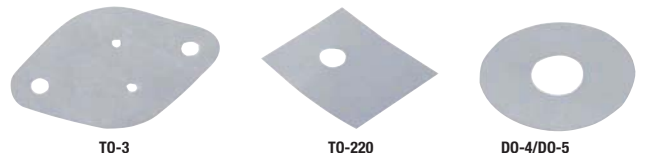


Ther-O-Bond thermally conductive adhesive offers excellent heat transfer high voltage isolation. Readily bonds to metal, ceramics and most plastics. Thermalcote is a silicone based thermally loaded grease for use with all heatsinks. Thermal conductivity: 0.765 W/m²C. Thermalcote II is a silicone free thermal grease. Thermal conductivity: 0.699 W/m²C.

Mfg. Part No.	Size	Description	Stock No.	Price Each
				1-14
● 4949G	25g (0.875 oz) Single Use Plastic Bag	Thermalbond	14M4355	30.81
● 249G	28g (1 oz.) Tube	Thermalcote	45M6145	4.84
● 250G	57g (2 oz) Tube	Thermalcote	45M6146	6.63
● 4951G	100g (3.5 oz) Single Use Plastic Bag	Thermalbond	14M4317	41.25
● 251G	450g (15.9 oz) Can	Thermalcote	45M6147	21.70
● 351G	450g (15.9 oz) Can	Thermalcote II	45M6148	82.67

(73828)

DELTA PAD® AND KAPTON® REINFORCED INSULATORS



Interface transistors to heat sinks and eliminate thermal grease, burr cut-through, and cracked or torn insulators.

Specifications	DeltaPad® 173-7 Series	DeltaPad® 173-9 Series	Kapton® 175-6 Series
Thickness (mm)	0.178	0.229	0.152
Color	Gray	Gray	Gray
Tear Strength, Typ. (lb/in.)	100	100	100
Breakdown Voltage, Min. (V)	4000	5000	6000

▶ CONTINUED ▶

INSULATORS • HARDWARE

DELTAPAD® AND KAPTON® REINFORCED INSULATORS

(CONT.)

Specifications	DeltaPad® 173-7 Series	DeltaPad® 173-9 Series	Kapton® 175-6 Series
Continuous Use Temp. (°C)	-60 to +200	-60 to +200	-60 to +200
Thermal Resistance (°C/W)	0.33	0.50	0.40

TO-3/TO-220

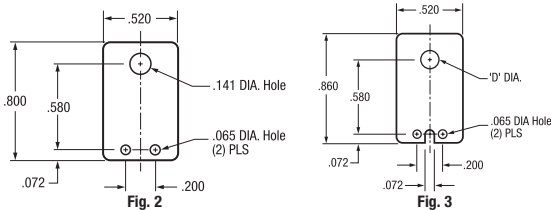
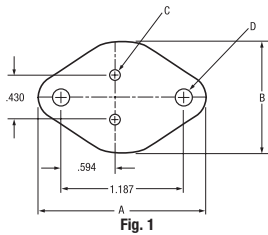
Mfg. Part No.	Pkg.	Dimensions (mm)			Stock No.	Price Each
		Length	Width	Mounting Hole Dia.		1-9
● 175-6-210P	TO-220	17.4	14.3	3.2	46F7846	0.50
● 175-6-220P	TO-220	18	12.7	3.6	46F7847	0.47
● 175-6-230P	TO-220	19.1	12.7	3.2	46F7848	0.37
● 175-6-240P	TO-220	19.1	12.7	3.7	46F7883	0.37
● 175-6-280P	TO-220	21.84	18.79	4.1	84F729	0.64
● 173-7-220P	TO-220	18	12.7	4.1	81F9768	0.54
● 173-7-240A	TO-220	19.05	12.7	3.7	81F9770	0.80
● 173-9-210P	TO-220	14.27	17.45	3.2	81F9782	0.41
● 173-9-230P	TO-220	19.1	12.7	4.8	81F9784	0.37
● 173-9-240P	TO-220	19.1	12.7	4.8	81F9785	0.91
● 175-6-310P	TO-3	40.9	27.9	4.0	46F7842	0.91
● 175-6-320P	TO-3	41.9	29	1.6	46F7843	0.99
● 175-6-330P	TO-3	41.9	29	3.4	46F7844	0.70

DO-4/DO-5

Mfg. Part No.	Pkg.	Dimensions (mm)		Stock No.	Price Each
		Outer Diameter	Inner Diameter		1-9
● 175-6-410P	DO-4, DO-5	15.9	5.1	46F7885	0.76

(4476)

TRANSISTOR MICA INSULATORS



• Material: .003" thick mica

These precision stamped mica insulators provide good thermal conductivity (.009 watts per square inch in thickness). Excellent thermal resistance 1100°F. Dielectric constant of 7 at 1000kHz.

Mfg. Part No.	Figure	Dimensions (inches)			Stock No.	Price Each
		Width "A"	Length "B"	Mounting Hole Diameter "D"		1-24
● 4651	1	1.625	1.093	4.2	97H7352	0.16
● 4662	1	1.594	1.141	3.6	92B7218	0.17
● 4667*	1	1.655	1.062	2.80	91B3239	0.16
● 4671	2	0.800	0.520	3.60	97H7353	0.09
● 4672	3	0.860	0.520	3.6	92B7630	0.07
● 4673	3	0.860	0.520	2.9	97H7354	0.07
● 4669	...	0.870	0.870	2.80	30C5802	0.16

*NOTE: Dim. 0.594" in Fig. 1 is 0.521" for mfg. part no. 4667 (78690)

THERMALFILM POLYIMIDE PLASTIC FILMS



Thermalfilm™ polyimide plastic insulating films are designed to be an improved replacement for mica. Insulators have an extremely high resistance to flow or thin out under high compressive stresses, particularly at elevated temperatures. Physical, mechanical and electrical properties remain nearly constant over a wide range of temperatures and frequencies. They are radiation resistant, have no melting points, and have no known organic solvents. Thermalfilm is rated 94 V-0.

Mfg. Part No.	Package/Case	Dimensions (mm) L x W	Stock No.	Price Each		
				1-9	10-99	100-499
● 43-77-1G	TO-126, Case 77	11.1 x 7.92	18M8092	0.19	0.17	0.13
● 43-77-9G	TO-220	18.42 x 13.21	83K3539	0.40	0.36	0.28

(110554)

TRANSISTOR MOUNTING KITS

Just Added



Sold in packages of 10.

Mfg. Part No.	For Package	Stock No.	Price per Pkg.		
			1-99	100-249	250-499
● MK3304	TO-3/TO-66	50P9589	3.68	3.03	2.78
● MK3311	TO-220/TO-126/SOT-93	50P9672	1.86	1.49	1.36

(116568)

INSULATORS

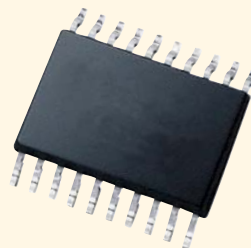


Mica insulators provide high maximum operating temperatures (550°C) and excellent electrical properties. Aluminum oxide has unique thermal conductivity qualities and features low loss factors at high frequencies. It has high compressive strengths, high volume resistivity, low thermal expansion and it resists radiation.

Mfg. Part No.	Package	Material	Dimensions (mm) L x W x H	Stock No.	Price Each
● 4103G	TO-3	Aluminum Oxide Ceramic	39.7 x x	21M5216	4.31
● 4180G	TO-218, TO-247, TO-3P	Aluminum Oxide Ceramic	23.24 x 18.8 x 2.03	21M5217	0.92
● 53-02-103G	TO-218	Silicone Rubber	23.8 x 19.05 x 0.15	89M4417	0.68
● 4003G	TO-3	Beryllium Oxide Ceramic	39.65 x 26.67 x 1.57	89M4415	18.93
● 53-77-2G	TO-220	Silicone Rubber	17.5 x 14.27 x 0.15	24M0269	0.29
● 56-77-11G	TO-220	Mica	13.84 x 18.93 x 0.1	18M8187	0.10
● 56-77-8G	TO-220	Mica	13.84 x 18.93 x 0.1	18M8188	0.10

(82455)

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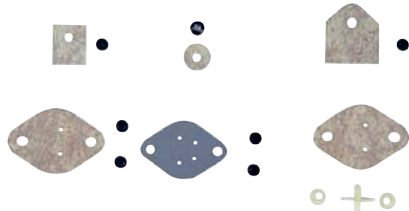
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TRANSISTOR INSULATING KITS

Just Added



- All kits offer 1kV isolation, except MK3303 (2kV)
- MK3301 and MK3301/S use 4.37mm high bushes, shank length 3.2mm
- MK3301/51 uses 6.35mm high bushes, shank length 5.2mm
- Kits with silicone impregnated washer eliminate the need for heat sink compound
- Heat sink compound should be used with Mica washer kits



Sold in packages of 10.

KITS WITH MICA WASHER

Mfg. Part No.	Package	Stock No.	Price per Pkg.		
			1-99	100-249	250-499
● MK3301	TO-3 (4.37mm bush)	50P9585	2.50	2.00	1.83
● MK3301/51	TO-3 (6.35mm bush)	50P9587	2.55	2.04	1.86
● MK3303	TO-3 (2kV isolation)	50P9588	2.50	2.06	1.89
● MK3306	TO-220	50P9593	2.07	1.66	1.52
● MK3309	TO-126	50P9669	2.07	1.66	1.52

KITS WITH SILICONE IMPREGNATED WASHER

● MK3301/S	TO-3 (4.37mm bush)	50P9586	4.11	3.38	3.10
● MK3316/S	TO-126	50P9678	2.07	1.61	1.45
● MK3306/S	TO-220 Fit	45P5588	1.89	1.47	1.32
● MK3306/S	* SOT-93 (TO-3P, TO-218)	50P9591	2.45	1.96	1.79
● K1177-NA-403+BQ35	+ TO-3P, TO-218	07WX1776	0.29	0.22	0.20

* 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) (116569)

TO-3 MOUNTING ACCESSORIES



Fig. 1

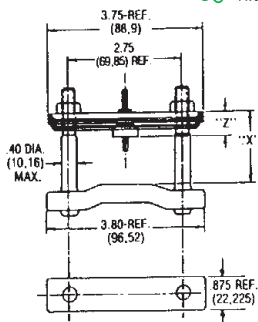


Fig. 2

Mfg. Part No.	Fig.	Description	Stock No.	Price Each		
				1-99	100-249	250-499
● M202/O3	1	Heat Transfer Pad	09WX0144	2.74	2.13	1.92
● M414/T03	2	Snap-On Plastic Cover	09WX0147	0.28	0.21	0.19

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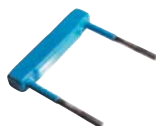
MOUNTING CLAMPS



130



139 Series Spring Assembly



139 Series Cross Bar

- 130 series 2000 lbs. clamping force
- 130-1 has automotive-grade rust-resistant steel springs
- 130-5 has stainless steel springs with force indicator that reads in pounds per leaf
- 139 series available 3000 or 5000 lbs. clamping force and has automotive-grade rust-resistant steel springs
- 144 series available 1000 to 6000 lbs. clamping force
- 5000 VAC
- Order cross bar and spring assembly separately

130 SERIES CROSS BARS

Mfg. Part No.	X Minimum (mm)	X Maximum (mm)	Stock No.	Price Each		
				1-4	5-9	10-24
● 130-B	52.1	61.7	10F8016	39.76	36.95	30.93
● 130-C	59.9	69.9	10F8017	40.00	37.17	31.11
● 130-D	67.8	77.5	10F8018	40.40	37.54	31.42

▶ CONTINUED ▶

MOUNTING CLAMPS (CONT.)

130 SERIES SPRING ASSEMBLIES

Mfg. Part No.	Leaves	Z Dimension (mm)	Max. Force (lbs)	Stock No.	Price Each		
					1-4	5-9	10-24
130-1	2	22.9	2000	10F7991	31.33	29.11	24.37
130-5	5	21.1	2000	46F8610	47.68	44.31	37.09

139 SERIES CROSS BARS

Mfg. Part No.	Dimensions (mm)				Stock No.	Price Each		
	Length	Width	Height Min.	Height Max.		1-4	5-9	10-24
● 139-5E	122.7	25.4	96.3	105.7	10F8001	80.85	75.13	62.88
● 139-5G	122.7	25.4	112	121.7	10F8003	81.32	75.57	63.25
● 139-5H	122.7	25.4	119.9	129.5	10F8004	81.46	75.70	63.36
● 139-5J	122.7	25.4	127.8	137.4	10F8005	82.49	76.66	64.16

139 SERIES SPRING ASSEMBLIES

Mfg. Part No.	Leaves	Height (mm)	Max. Force (lbs)	Stock No.	Price Each		
					1-4	5-9	10-24
139-1	1	22.1	3000	10F8013	49.60	46.10	38.58
139-2	2	31.8	5000	10F8014	68.63	63.78	53.38

144 SERIES CROSS BARS

Mfg. Part No.	X Minimum (mm)	X Maximum (mm)	Stock No.	Price Each		
				1-4	5-9	10-24
● 144-C	63.5	63.5	94F3358	109.26	101.54	84.98

144 SERIES SPRING ASSEMBLIES

Mfg. Part No.	Height (mm)	Max. Force (lbs)	Stock No.	Price Each		
				1-4	5-9	10-24
144-2	31.8	6000	94F3359	61.82	57.45	48.08

(4574)

SEMICONDUCTOR MOUNTING PADS



TO-18

Aligns device leads to facilitate board insertion.

Mfg. Part No.	Pkg.	Leads	O.D. (in.)	Thickness (in.)	Stock No.	Price Each		
						1-4	5-9	10-24
● 7717-7NG	TO-18	4	0.25	0.125	18M8264	0.22	0.21	0.19
● 7717-178NG	TO-5	3	0.35	0.021	18M8263	0.22	0.21	0.19

(82452)

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