

SEMICONDUCTOR REPLACEMENT KITS (CONT.)

Mfg. Part No.	Description	Package	Qty.	Stock No.	Price Each	
					1-24	
NTE289A.	Transistor, NPN, Si, Audio Power Amp, PD = 0.6W	T0-92	5	29C4526	1.50	
NTE290A	Transistor, PNP, Si, Audio Power Amp, PD = 0.6W	T0-92	5	29C4527	1.67	
NTE373	Transistor, NPN, Si, Audio Amp, Driver	T0-126	5	29C4565	1.87	
● NTE385	Transistor, NPN, Si, Audio Power Amp, Switch	T0-3	5	06M7415	12.64	
● NTE393	Transistor, PNP, Si, Power Amp and High Speed Switch	3-T0-218	5	21M5164	6.54	
● NTE396	Transistor, NPN, Si, Power Amp and High Speed Switch	3-T0-39	5	29C5305	2.98	
● NTE399	Transistor, NPN, Si, High Voltage Amp, Video	3-T0-92	5	06M7416	3.08	
● NTE577	Rectifier, Si, General Purpose, Switch, Fast Recovery, 1000 PRV, 5A, 70ns	D0-27	5	06M7467	3.99	
● NTE588	Diode, Si, Switch, Ultra Fast, 200 PRV, 3A, 35ns	D0-27	5	29C4743	1.39	
● NTE2310	Transistor, NPN, Si, High Voltage/High Speed Switch, $t_f = 0.8\mu s$	3-T0-218	3	29C5280	9.20	
● NTE2311	Transistor, NPN, Si, High Voltage/High Speed Switch, $t_f = 0.13\mu s$	3-T0-218	3	29C5281	17.52	
● NTE2353	Transistor, NPN, Si, Color TV Horizontal Deflection w/Damper Diode, $t_f = 0.1\mu s$	T0-3PML	3	06M7392	10.17	
● NTE2394	MOSFET-N-Ch, Enhancement Mode, High Speed Switch	T0-3P	3	06M7398	17.09	
NTE2396	MOSFET-N-Ch, Enhancement Mode, High Speed Switch	T0-220	3	29C4497	7.06	
NTE2397	MOSFET-N-Ch, Enhancement Mode, High Speed Switch	T0-220	3	29C4498	7.56	
NTE2398	MOSFET-N-Ch, Enhancement Mode, High Speed Switch	T0-220	3	29C4499	6.33	
● NTE5127A	Zener Diode, 12V, 5W	D0-41	4	10M6197	1.69	
● NTE5304	Rectifier, Si, Bridge, 400 PRV, 1.5A	T0-5	2	15M1924	1.46	
● NTE5322	Rectifier, Si, Bridge, 200 PRV, 25A	...	2	06M7446	6.20	
● NTE5344	Rectifier, Si, Bridge, 1000 PRV, 40A	...	2	06M7454	16.08	
● NTE5804	Rectifier, 400 PRV, 3A	D0-27	3	06M7470	0.88	

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RICHARDSON ELECTRONICS, LTD.—TUBES



FLASH TUBE

Mfg. Part No.	Stock No.	Price Each	
		1-2	3-4
FX6A	01F2502	678.90	663.40

PHOTOTUBES, PHOTOMULTIPLIERS, AND UV DETECTION TUBES

Mfg. Part No.	Stock No.	1-2	3-4
1P39	05F9396	236.90	231.75
923	01F2509	110.88	108.67
930/CE30C	06F1048	104.98	102.82
931A	06F1049	312.26	305.83
931B	06F1050	205.34	201.11
5581	85T5581	283.50	277.20

POWER TUBES

Mfg. Part No.	Stock No.	1-2	3-4
304TL	05F9565	1632.26	1604.75
3-500Z	83F9210	603.20	591.60
4-400B	83F9213	453.44	444.72
4-400C	83F9214	470.08	461.04
4-1000A	83F9078	1465.20	1432.64
5868/TB4/1250	83F9215	803.70	765.23
3CX1500A7	83F9075	1661.40	1624.48
3CX1500D3	83F9076	1854.00	1812.80
3CX3000-A7	98F4745	2059.46	2024.75
4CX1500B/8660	05F9582	2977.80	2596.04

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RICHARDSON ELECTRONICS, LTD.—TUBES (CONT.)

POWER TUBES

Mfg. Part No.	Stock No.	Price Each	
		1-2	3-4
4CX250B	05F9586	326.25	319.00
4CX350A/8321	05F9588	572.97	562.21
5867A	05F9678	758.55	719.65
5894A	05F9679	210.60	205.92
5CX1500A	01F2511	3080.52	3020.32
7527A	06F1003	541.50	515.85
811A	06F1021	31.92	31.25
833A	06F1032	308.85	303.05
8560AS	06F1040	581.49	570.57
8874/3CX400A7	01F2512	854.10	810.30
A2426	83F9209	224.22	219.17
3CPX800A7	07H3946	1305.94	1305.94
3CPX5000A7	07H3945	9819.60	9819.60
3CPX1500A7	07H3944	3682.35	3682.35
AX3021CJ	07H3822	6782.29	6782.29
AX3060CJ	07H3823	12775.50	12775.50
NL10277	07H3931	602.87	602.87
NL10277-1	07H3932	470.94	470.94
4PR400A	99F4046	1006.20	954.60
3-500ZMP	07H3943	703.07	703.07
4U204	07H3947	2817.29	2817.29
AX5186	07H3825	7439.85	7439.85
AX5184	07H3824	6062.10	6062.10
3-1000H	07H3942	1341.01	1341.01
812A	99F8884	237.90	225.70
4-400A	05F9607	510.90	484.70

READOUT TUBES

Mfg. Part No.	Stock No.	1-2	3-4
NL-5440	05F8338	211.95	207.24
NL5750S	01F2514	121.33	118.69
NL5870ST	01F2515	168.59	164.93
NL-5971	05F8353	495.30	469.90
NL-840/8754	05F8401	146.25	143.00
NL-841	05F8402	171.23	167.42
NL-8422/5991	05F8405	186.75	182.60

RECEIVING TUBES

Mfg. Part No.	Stock No.	1-2	3-4
5691	01F2517	52.74	51.48
5879	52F9018	56.26	54.92
1L4	01F2531	30.71	30.09
2D21	05F9500	21.39	20.98
5R4GA/5R4GB	01F2532	71.54	70.03
5U4GB/5AS4A	05F9647	37.34	36.55
6AN5	01F2533	19.16	18.77
6AR5	01F2534	104.40	102.32
6BG6GA	05F9739	19.69	19.28
6BQ5	05F9756	14.36	14.04
6EJ7/EF184	01F2535	10.95	10.73
6H6	05F9874	38.76	37.95
6HV5A	05F9871	31.07	30.42
6JM6	01F2536	24.93	24.43
6L6CC	05F9920	30.95	30.27
6R3/EY81	01F2537	29.49	28.90
6SN7GTB	05F9936	21.13	20.72
6V6GTA	05F9947	30.19	29.60
6Y6GT	01F2539	28.28	27.71
7027A	99F6329	72.18	70.69
7F7	01F2540	68.27	66.64
12BH7A	05F9438	37.91	37.11
12BY7A	05F9440	27.72	27.18
25AV5GA	01F2518	75.12	73.62
50L6GT	01F2519	54.21	52.91
6146A	05F9969	75.82	74.26
6189W-JAN	01F2520	15.51	15.20
5U4GB/5AS4A	05F9647	37.34	36.55
0A2	05F8415	18.83	18.41
0B2WA-JAN	01F2521	18.72	17.76
0D3/VR150	05F8427	43.12	42.28
0D3A	05F8426	45.59	44.70
5654W-JAN	98B8779	2.93	2.93

AMPEREX BUGLE BOY AUDIO TUBES

Mfg. Part No.	Stock No.	1-2	3-4
6CA7	05F9774	35.42	34.73
6DJ8/ECC88-BB	83F9218	66.27	65.10
6L6CC	05F9920	30.95	30.27
12AT7/ECC81-BB	83F9211	70.50	69.25

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TUBES

RICHARDSON ELECTRONICS, LTD.—TUBES (CONT.)

AMPEREX BUGLE BOY AUDIO TUBES

Mfg. Part No.	Stock No.	Price Each	
		1-2	3-4
12AU7A/ECC82-BB	83F9212	70.50	69.25
6922/E88CC-BB	83F9217	45.83	43.48
12AX7A/ECC83-BB	07H3941	45.26	...

HYDROGEN THYRATRONS

KU17A	83F9077	1314.00	1284.80
8613-JAN	07H3953	1803.60	1803.60
6130/3C45	18B435	341.25	323.75
HY11/HY11T	07H3896	1900.05	1900.05
7621/HY2-JAN	07H3950	2137.60	2137.60
7665A-JAN	07H3951	1165.66	1165.66
8614/HY5	07H3954	6038.31	6038.31
7322/1802-JAN	07H3949	4024.70	4024.70
HY3002/5948AR	07H3898	5227.10	5227.10
7782-JAN	07H3952	1322.64	1322.64
HY26	07H3897	1306.78	1306.78

THYRATRONS AND RECTIFIERS

3C23	05F9554	195.08	190.74
313C	01F2524	140.64	137.83
481B	01F2525	214.19	209.30
502A	01F2526	73.92	72.45
575A	05F9672	613.20	599.20
866A	06F1041	117.30	114.81
872A	06F1044	276.00	270.00
5557/FG17	01F2529	333.00	325.60
5632/C3J	01F2530	333.00	325.60
5665/C16J	05F9663	1361.70	1338.75
5684	85T5684	261.00	255.20
5684NE	01F2541	282.51	276.06
6693	85T6693	851.20	810.88
6807	85T6807	706.80	673.32
7726	99F9612	238.56	234.08
8020W	06F1019	247.65	234.95
C1K/6014	01F2542	285.75	279.40
EMB20	01F2543	1117.59	1095.75
NL5684/NE	05F8349	315.24	309.32
NL-604/7014	05F8359	449.43	440.99
NL604L/7015	01F2544	474.99	466.07
NL615/7018	01F2546	196.88	192.50
NL-619	05F8366	338.67	332.31
NL-635L/7020	05F8369	543.15	532.95
NL-678	05F8376	889.20	847.08
NL-710/6011	05F8385	333.00	325.60
NL-710A	05F8382	483.99	472.94
NL710L/7509A	05F8383	336.54	330.22
NL-740L/7022	05F8389	521.85	512.05
NL-740P/6857	05F8390	506.94	497.42
NL5632/C3J	05F8347	333.00	325.60
NL5684/NE	05F8349	315.24	309.32
NL-7723-NE	05F8396	298.20	292.60

IGNITRONS AND SPARK GAPS

NL-1051A	05F8335	1092.50	1040.75
NL1052A	83F9220	1188.00	1161.60
NL1053A	01F2508	3904.38	3828.08
5553B	07H3948	2120.90	2120.90
NL8900	07H3934	6012.00	6012.00
NL7218H-100	07H3933	1887.10	1887.10
7703	06H0882	1928.55	1829.65

SOCKET

NL91124	83F9208	15.15	14.85
S331911	01F2523	48.35	47.19

SOLID STATE IGNITRON REPLACEMENT

SSRI-51	07H3938	870.07	...
SSRI-52	07H3939	906.81	906.81
SSRI-53	07H3940	1421.17	1421.17

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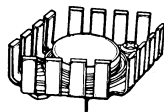
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LOW-COST DIAMOND-SHAPED BASKET HEAT SINK



Space saving TO-3 heatsink available in a variety of heights for low profile applications or higher power dissipation.

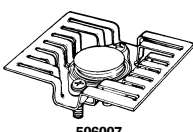


Mfg. Part No.	Description	Height	Width	Stock No.	Price Each		
					1-9	10-99	100-499
● 501303B00000G	Low Profile	0.50" (12.70)	1.88" (47.75)	73K6785	0.89	0.80	0.62
● 501403B00000G	Mid-Power	0.75" (19.05)	1.88" (47.75)	18M8142	0.95	0.86	0.67
● 501503B00000G	Mid-Power	1.00" (25.40)	1.88" (47.75)	18M8143	1.32	1.19	0.93
● 501603B00000G	High-Power	1.25" (31.75)	1.88" (47.75)	89K7787	1.35	1.21	0.95

BASKET HEAT SINKS FOR TO-3 DEVICES



Hat section heatsink provides low profile and clearance for nearby components. Square baskets are made from 0.090" thick aluminum for increased cooling capacity.



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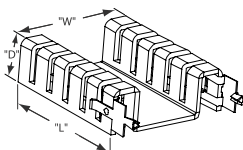
506007

Mfg. Part No.	Type	Height	Width	Stock No.	Price Each	
					1-9999	10000-49999
● 552703B00000G	Square Basket	0.50" (12.70)	1.78" (45.21)	45M6089	0.93	0.88
● 505403B00000G	Square Basket	1.25" (31.75)	1.78" (45.21)	65K8882	1.40	1.33
● 506007B00000G	Hat Section	0.375" (9.52)	1.75" (44.45)	78K6649	0.79	0.75

CHANNEL STYLE HEATSINKS FOR TO-220 DEVICES

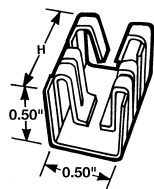


Folded back fins increase cooling surface area for increased performance with a narrow profile. Black anodize finish.

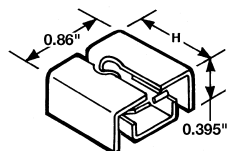


Mfg. Part No.	Description	H x W x D (inches)	Stock No.	Price Each	
				1-24	25-99
● 7019BG	No Tabs	1.00 x 1.55 x 0.375	45M6093	0.60	0.58
● 7019B-MTG	w/ Tabs	1.00 x 1.55 x 0.375	18M8222	0.91	0.88
● 7020BG	No Tabs	1.45 x 1.30 x 0.470	18M8224	0.68	0.65
● 7020B-MTG	w/ Tabs	1.45 x 1.30 x 0.470	18M8223	1.01	0.98
● 7023BG	No Tabs	1.95 x 1.90 x 0.950	18M8225	1.90	1.85
● 7023B-MTG	w/ Tabs	1.95 x 1.90 x 0.950	04M8067	1.47	1.42

EASY TO ATTACH HEAT SINKS FOR TO-220 DEVICES



Slide-On



Clip-On

PLUG-IN STYLE

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.	PC Mount Style	Height	Width	Stock No.	Price Each		
					1-9	10-99	100-499
● 576802B00000G	Vertical, No Tabs	0.75" (19.05)	0.50" (12.70)	89K0438	0.51	0.42	0.32
● 576802B03100G	Horizontal, w/Tabs	0.75" (19.05)	0.50" (12.70)	80K7974	0.73	0.60	0.45
● 576802B04000G	Vertical, w/Tabs	0.75" (19.05)	0.50" (12.70)	66K0258	0.70	0.58	0.43

EASY TO ATTACH HEAT SINKS FOR TO-220 DEVICES (CONT.)

Mfg. Part No.	PC Mount Style	Height	Width	Stock No.	Price Each		
					1-9	10-99	100-499
● 574502B03300G	Vert. PC Mt., Long Tab	0.75" (19.05)	0.50" (12.70)	05M6029	0.69	0.57	0.43
● 574902B03300G	Vert. PC Mt., Long Tab	1.375" (34.93)	0.86" (21.84)	18M8192	0.95	0.78	0.59

CHANNEL STYLE HEAT SINKS WITH INTEGRATED MOUNTING CLIP

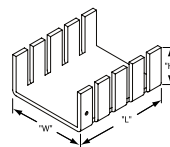


Solderable heat sinks for TO-220 devices have clip-on tabs for device retention. Material: copper.



Mfg. Part No.	Description	Height	Width	Stock No.	Price Each		
					1-9	10-99	100-499
● 7138DG	Copper Vertical PC Mt. w/Tabs	1.075" (27.30)	1.005" (25.53)	18M8247	1.11	1.06	0.97
● 7136DG	Copper Vertical PC Mt. w/Tabs	0.848" (21.54)	0.52" (13.21)	18M8246	0.79	0.76	0.69
● 7128DG	Copper Vertical PC Mt. w/Tabs	1.10" (27.94)	0.866" (22.00)	18M8245	1.02	0.98	0.89

ECONOMY CHANNEL STYLE HEAT SINK FOR TO-220



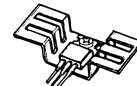
Lightweight, low-cost with a selection of lengths to accept a variety of packages. Models accommodate one or two devices.

Mfg. Part No.	Number of Devices	L x W x H (inches)	Stock No.	Price Each		
				1-9	10-99	100-499
● 530613B00000G	Dual	1.18 x 1.00 x 0.50	01M5324	0.55	0.45	0.34
● 530614B00000G	Single	1.18 x 1.00 x 0.50	18M8175	0.55	0.45	0.34
● 530714B00000G	Single	0.71 x 1.00 x 0.38	18M8176	0.39	0.32	0.24
● 507302B00000G	Single	0.75 x 0.75 x 0.38	01M6666	0.39	0.28	0.20

HAT-SECTION HEAT SINKS FOR TO-220

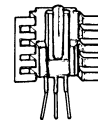


Low-profile cooling for TO-220 plastic power devices. Designed for use on PC boards with 0.50" centering between boards. Mfg. part no. 507102B00000G can be added to mfg. part nos. 507002B00000G or 507222B00000G for double-sided cooling of TO-220 devices.



Mfg. Part No.	Number of Devices	Height	Width	Stock No.	Price Each		
					1-9	10-99	100-499
● 507002B00000G	Single	0.375" (9.52)	1.75" (44.50)	96K2979	0.42	0.30	0.21
● 507102B00000G	Single	0.500" (12.70)	1.75" (44.50)	05M3752	0.46	0.33	0.23
● 507222B00000G	Dual	0.375" (9.52)	1.75" (44.50)	05M3652	0.75	0.54	0.38

HAT-SECTION HEAT SINK WITH INTEGRATED CLIP



Clip-on heat sink for TO-220 devices. Black anodized finish per MIL-A-8625, type II.



Mfg. Part No.	Description	Height	Width	Stock No.	Price Each
● 6237BG	Vert. PC Mount, No Tabs	0.700" (17.78)	0.900" (22.86)	18M8219	0.43

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.	Description	Height	Width	Stock No.	Price Each
● 6022PBG	Pre-Anodized Black Finish	1.21"	0.875"	18M8207	0.91
● 6025DG	Copper w/ Tin Plate Finish	1.25"	0.875"	45M6138	1.44
● 593202B03500G	Black Anodize Finish	2.00"	1.380"	45M6137	1.01

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HEATSINKS

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CHANNEL STYLE HEAT SINKS FOR TO-220 DEVICES

Vertical PC mount heat sinks feature wave solderable tabs.

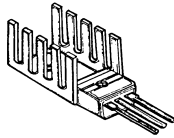


Mfg. Part No.	Description	Height	Width	Stock No.	Price Each
● 6021BG	Black Anodized Finish	1.18" (29.97)	1.00" (25.40)	18M8206	0.90
6030B-TT	Black Enamel Finish	1.18" (29.97)	1.00" (25.40)	46F4120	1.66
● 6021PBG	Black Anodized Finish	1.18" (29.97)	1.00" (25.40)	79K4595	0.97

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SLIM CHANNEL STYLE HEAT SINKS FOR TO-220 DEVICES

Low cost heatsink ideal where space is limited. Attach with standard hardware. Black anodized finish.

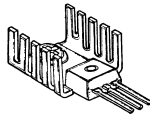


Mfg. Part No.	Description	Height	Width	Depth	Stock No.	Price Each		
						1-9	10-99	100-499
● 577002B00000G	Vertical PC Mount, No Tabs	0.750"	0.520"	0.250"	03M6023	0.42	0.30	0.22
● 577102B00000G		0.750"	0.520"	0.375"	18M8196	0.38	0.27	0.19
● 577202B00000G		0.750"	0.520"	0.500"	16M4743	0.39	0.28	0.20

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SLIM CHANNEL STYLE HEAT SINKS FOR TO-202

Low-profile heat sinks for TO-202 devices. Designed for use in applications where board spacing or maximum component height is critical. Black anodized finish.

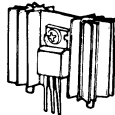


Mfg. Part No.	Description	Height	Width	Stock No.	Price Each		
					1-9	10-99	100-499
● 6273BG	Low-Profile, No Tabs	0.375" (9.52)	0.750" (19.05)	45M7278	0.52	0.37	0.31
● 577304B00000G		0.375" (9.52)	0.520" (13.21)	18M8199	0.38	0.27	0.23
● 577404B00000G		0.500" (12.70)	0.520" (13.21)	18M8200	0.38	0.27	0.23

(4489)

EXTRUDED HEAT SINK WITH RADIAL FINS FOR TO-220 AND TO-202

Extruded heat sinks for TO-202 and TO-220 devices feature wave solderable pins and black anodized finish.

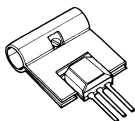


Mfg. Part No.	Description	Height	Width	Stock No.	Price Each		
					1-9	10-99	100-499
● 531002B02500G	Vertical PC Mount	1.00" (25.40)	1.375" (34.92)	73K3927	1.31	1.19	0.92
● 531102B02500G		1.50" (29.97)	1.375" (34.92)	18M8178	1.39	1.26	0.98
● 529802B02500G		1.50" (29.97)	1.65" (41.91)	18M8164	1.67	1.51	1.17
● 529902B02500G		2.00" (50.8)	1.65" (41.91)	18M8165	2.04	1.84	1.43

(73824)

COMPACT SLIDE-ON HEAT SINK FOR TO-202

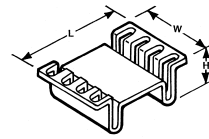
Economical, slide-on heat sink for TO-202 devices. Easy installation with positive device catch to lock device into heatsink.



Mfg. Part No.	Height	Width	Stock No.	Price Each		
				1-18	19-50	51-135
● 6046PBG	0.850" (21.59)	0.800" (20.32)	18M8212	0.76	0.61	0.44
● 6047PBG	0.850" (21.59)	0.800" (20.32)	18M8213	1.17	0.94	0.67

(4483)

SURFACE MOUNT HEAT SINKS FOR D-PAK DEVICES



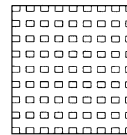
Pretinned, auto-insertable heat sinks for D-Pak packages. Compatible with automated pick-and-place equipment. Help maximize board space and minimize assembly costs. Tape & Reel packaging also available.

Mfg. Part No.	Description	L x W x H	Stock No.	Price Each
● 573400D00000G	Surface Mount D3 Pak	1.22 x 0.50 x 0.40"	80K7735	0.69
● 7106DG	Surface Mount D2 Pak	0.59 x 1.02 x 0.375"	18M8244	1.28
● 7109DG	Surface Mount D2 Pak	0.763 x 1.00 x 0.45"	21M5225	1.17

(70279)

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.



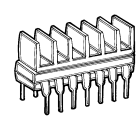
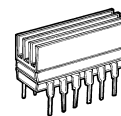
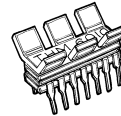
Mfg. Part No.	For Package Type	Height	L x W	Stock No.	Price Each	
					1-9	10-99
● 374024B00035G	Plastic	0.394" (10.0)	0.906" (23.0) Sq.	82K9207	2.16	1.94
● 374124B00035G	Plastic	0.709" (18.0)	0.906" (23.0) Sq.	83K9811	2.20	1.98
● 374324B00035G	Plastic	0.394" (10.0)	1.063" (27.0) Sq.	18M8051	2.55	2.29
● 374424B00035G	Plastic	0.709" (18.0)	1.063" (27.0) Sq.	18M8052	2.72	2.45
● 335824B00034G	Plastic	0.370" (9.4)	1.181" (30.0) Sq.	82K8189	2.64	2.38
● 371824B00032G	Metal/Ceramic	0.276" (7.0)	1.378" (35.0) Sq.	18M8050	3.07	2.76
● 374624B00032G	Metal	0.394" (10.0)	1.378" (35.0) Sq.	45M6206	3.04	2.74
● 374724B00032G	Metal	0.709" (18.0)	1.378" (35.0) Sq.	45M6207	3.00	2.70
● 373324M00032G	Metal	0.236" (6.0)	1.472" (37.4) Sq.	45M6205	3.13	2.82
● 375024B00032G	Metal/Ceramic	0.709" (18.0)	1.575" (40.0) Sq.	05M6208	3.88	3.49

(73826)

HEAT SINKS FOR DIP DEVICES



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.



50100

50110

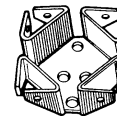
50120

Mfg. Part No.	Description	Height	Width	Stock No.	Price Each	
					1-9999	10000-49999
● 501000B00000G	Bond-On Heat Sink	0.212" (5.38)	0.604" (15.34)	18M8138	0.47	0.44
● 501100B00000G	Bond-On Heat Sink	0.190" (4.83)	0.250" (6.35)	18M8140	0.54	0.51
● 501200B00000G	Bond-On Heat Sink	0.190" (4.83)	0.250" (6.35)	18M8141	0.57	0.54

(73829)

690 SERIES HEAT SINKS

690 series circuit-board heat sinks are aluminum alloy with black anodized finish in mounting patterns for TO-3 packages. Outline dimensions: 1.860" (47.2) sq. Sold in multiples of 10.



Mfg. Part No.	W x H	Ht. Above PC Board	Thermal Performance at Typical Load		Stock No.	Price Each		
			Natural Convection	Forced Convection		1-49	50-99	100-499
● 690-3B	1.80 x 1.31"	1.310" (33.3)	1.80 x 1.31"	1.80 x 1.31"	58F1312	2.58	2.30	2.05

(4472)

DOUBLE SURFACE HEAT SINKS

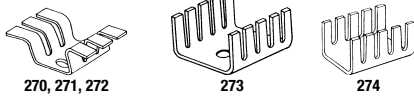
For space-critical applications where high power is dissipated. Black anodized finish aluminum alloy. Type suffixes: A = one TO-3 semi-mounting hole; K = blank (no holes).



Mfg. Part No.	Thermal Performance		W x L x H	Stock No.	Price Each	
	Natural Convection	Forced Convection			1-9	10-99
● 401K	80°C @ 30W	1.5°C/W @ 250 LFM	4.750 x 1.500 x 1.250"	58F502	9.78	
● 403A	55°C @ 30W	0.9°C/W @ 250 LFM	4.750 x 3.000 x 1.250"	58F503	17.47	
● 403K	55°C @ 30W	0.9°C/W @ 250 LFM	4.750 x 3.000 x 1.250"	58F505	13.77	
● 421K	58°C @ 50W	0.7°C/W @ 250 LFM	4.750 x 3.000 x 2.625"	58F508	17.47	
● 423K	47°C @ 50W	0.5°C/W @ 250 LFM	4.750 x 5.000 x 2.625"	58F511	26.43	

(4575)

ECONOMY HEAT SINKS

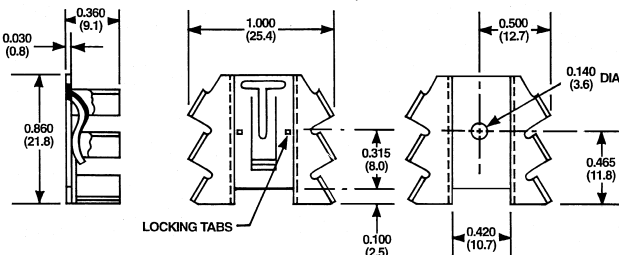


270 and 272 series heat sinks for plastic-case TO-220 devices. 272 series accepts two TO-220 devices. Provide two-sided cooling by adding 271 series heat sink to 270 or 272 heat sink on top of TO-220 device. 273 and 274 series heat sinks for plastic-case power SOCs and transistors. Black anodized finish aluminum. Also available with wave-solderable tabs; go online or call. Sold in multiples of 10.

Mfg. Part No.	L x H x W	Stock No.	Price Each		
			1-9	10-99	100-499
● 270-AB	1.75 x 0.375 x 0.53"	81F042	0.56	0.40	0.28
● 271-AB	1.75 x 0.500 x 0.70"	81F043	0.56	0.40	0.28
● 272-AB	1.75 x 0.375 x 1.45"	81F044	0.76	0.54	0.38
● 273-AB	0.75 x 0.375 x 0.75"	81F046	0.64	0.45	0.32
● 274-2AB	0.75 x 0.500 x 0.52"	81F048	0.48	0.34	0.24

(4577)

291 SERIES CLIP-ON HEAT SINKS

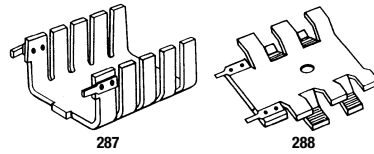


For cooling plastic semiconductors in case styles TO-202, TO-220. 0.140" diameter mounting hole. Black anodized aluminum.

Mfg. Part No.	Thermal Performance at Typical Load		Stock No.	Price Each	
	Natural Convection	Forced Convection		1-9	10-99
● 291-H36AB	68°C @ 2W	16°C/W @ 600 LFM	58F156	0.94	

(4474)

286-288 SERIES WAVE-SOLDERABLE HEAT SINKS

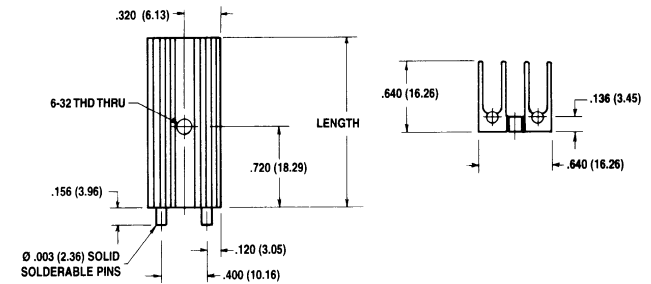


Cost-effective TO-220 heat sinks mount vertically into pre-drilled printed circuit boards. Can be wave-soldered directly to the board. Sold in multiples of 10.

Mfg. Part No.	Height Above PC Board	Maximum Footprint	Thermal Performance* - Convection		Stock No.	Price Each	
			Natural	Forced		1-24	1-99
● 287-1ABE	1.180" (30.0)	1.000 x 0.500" (25.4 x 12.7)	65°C @ 4W	7.8°C/W @ 200LFM	42M0655	1.86	
● 288-1ABE	1.250" (31.8)	0.875 x 0.215" (22.2 x 5.5)	85°C @ 4W	12°C/W @ 200LFM	42M0656	1.69	
● 286-AB	1.19" (30.2)	1.000 x 0.500" (25.4 x 12.7)	58°C @ 4W	7.4°C/W @ 200LFM	46F7866	0.52	

*@ Typical load (4465)

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



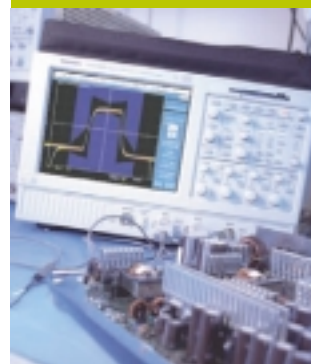
Vertical mount, slim profile, unidirectional fin heat sinks offer two assembly alternatives for vertically mounting TO-220 and TO-218 components. Ideal for a variety of applications where quick assembly and space are considerations. Footprint: 0.640" x 0.640" (16.26 x 16.26). Material: black anodized aluminum. Note: Thermal compound is assumed between device and heat sink. Tab temperature with mfg. part no. 634-20ABP/20ABPE heat sink will typically be about 15% lower. Tab temperature with mfg. part no. 634-10ABP/10ABPE heat sink will typically be about 25% higher.

PLAIN PIN

Mfg. Part No.	PC Board Clearance ("Length")	Stock No.	Price Each	
			1-9	10-99
● 634-10ABPE	1.000" (25.4)	42M0657	1.99	
● 634-20ABPE	2.000" (50.8)	42M0658	2.25	

(17826)

Buy calibrated new test equipment.

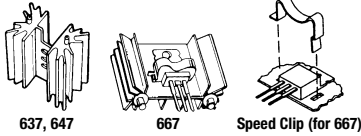


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(94632)

HEATSINKS

637/647/657/667 SERIES WAVE-SOLDERABLE



637, 647 series for plastic power transistors. 657 series for TO-218 devices. 667 series for TO-220 plastic-case transistors. Speed clips enable fast, vertical PC board mounting. Black anodized aluminum. Sold in multiples of 5. Order speed clips separately below. NOTE: E suffix in mfg. part no. denotes RoHS compliant part.

Mfg. Part No.	L x W x H	Stock No.	Price Each		
			1-9	10-99	100-499
● 637-10ABPE	1.0H x 1.375W x 0.500L"	93K7986	2.40	1.73	1.52
● 637-15ABPE	1.5H x 1.375W x 0.5L"	83K8262	2.48	1.79	1.57
637-20ABP	2.0H x 1.375W x 0.500L"	81F057	2.69	1.94	1.70
● 637-20ABPE	2.0H x 1.375W x 0.500L"	93K7937	1.40	1.01	0.89
● 647-10ABPE	1.0H x 1.650W x 1.0L"	42M0659	3.13	2.25	1.98
● 647-15ABPE	1.5H x 1.65W x 1.0L"	80K7229	3.33	2.40	2.11
● 647-20ABPE	2.0H x 1.65W x 1.0L"	42M0660	4.24	3.05	2.68
● 647-25ABPE	2.5H x 1.65W x 1.0L"	42M0661	4.39	3.17	2.78

657/667/677 SERIES

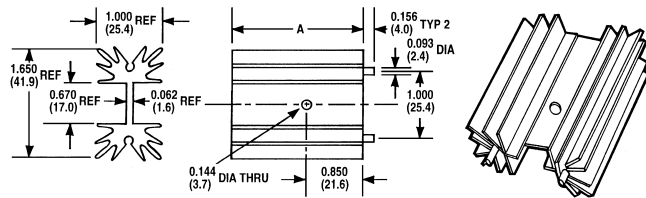
● 657-20ABPE	2.0H x 1.65W x 1.0L"	42M0662	3.69	2.66	2.33
● 667-10ABPE	1.0H x 1.375W x 0.5L"	42M0664	3.05	2.20	1.93
● 667-15ABPE	1.5H x 1.375W x 0.5L"	41M6814	3.49	2.52	2.20
● 667-15ABPPE	1.5H x 1.375W x 0.5L"	41M6814	3.49	2.52	2.20
● 667-20ABPE	2.0H x 1.375W x 0.500L"	42M0665	3.82	2.76	2.42
● 677-15ABPE	1.5H x 1.65W x 1.0L"	42M0666	2.66	1.92	1.68
● 677-15ABPE	1.5H x 1.65W x 1.0L"	42M0666	2.66	1.92	1.68

SPEED CLIPS FOR FAST DEVICE ASSEMBLY

Mfg. Part No.	Stock No.	Price Each		
		1-9	10-99	100-499
● 330SC	90F1417	0.70	0.51	0.45
● 285SC	46F7897	0.34	0.25	0.22

(4466)

657 SERIES HEAT SINKS FOR VERTICAL BOARD MOUNTING

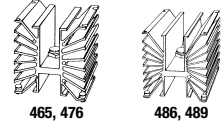


For TO-220, TO-247, and TO-218 devices. Black anodized aluminum. Wave-solderable pins.

Mfg. Part No.	Height A	Thermal Convection		Stock No.	Price Each	
		Natural @ 6W	Forced @ 200 LFM		1-9	100+
● 657-15ABPE	1.500"	38°C	3.3°C/W	06M4224	3.54	
● 657-20ABPE	2.500"	32°C	2.9°C/W	42M0662	3.69	
● 657-25ABPE	2.500"	25°C	2.7°C/W	42M0663	3.90	

(4642)

HEAT SINKS FOR HIGH-POWER SCR/RECTIFIERS

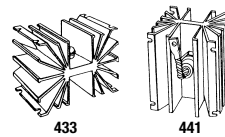


Mount hex-type devices up to 1.75" and utilize decreased conduction path length between semis and fin surface area for maximum cooling of devices. Black anodized finish aluminum alloy. All are blank (no semi mounting holes).

Mfg. Part No.	L x W x H	Thermal Performance at Typical Load		Stock No.	Price Each
		Natural Convection	Forced Convection		
● 486K	6.00 x 6.25 x 6.25"	24°C @ 50W 86°C @ 250W	0.20°C/W @ 250 LFM 0.13°C/W @ 500 LFM	58F425	91.87
● 489K	9.00 x 6.25 x 6.25"	19°C @ 50W 75°C @ 250W	0.15°C/W @ 250 LFM 0.10°C/W @ 500 LFM	58F428	123.52

(4470)

433 AND 441 SERIES HEAT SINKS

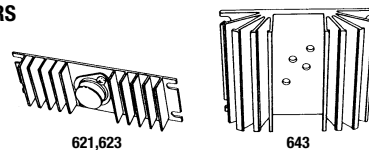


Type 433 high-performance heat sink for minimum space. Type 441 high density heat sink for mounting on vertical surface (no brackets required) for better natural convection. Black anodized aluminum alloy. Both are blank (no semi mounting holes).

Mfg. Part No.	Thermal Performance	L x W x H	Stock No.	Price Each	
				1-4	100+
● 433K	0.37°C/W	5.50 x 4.75 x 3.00"	58F334	38.94	
● 441K	0.40°C/W	5.50 x 4.75 x 4.50"	58F521	46.64	

(4469)

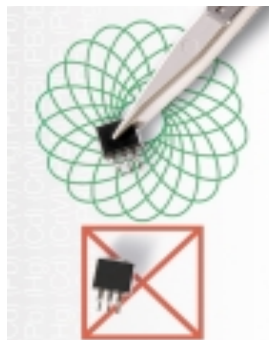
621, 623 AND 641 SERIES SINGLE-CHANNEL HEAT SINKS FOR METAL-CASED SEMICONDUCTORS



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).

Mfg. Part No.	H x W x D	Stock No.	Price Each		
			1-9	10-99	100+
● 621A	1.50 x 4.81 x 0.46"	58F482	4.43	3.99	3.54
● 621K	1.50 x 4.81 x 0.46"	58F538	4.60	4.14	3.68
● 623K	3.00 x 4.81 x 0.46"	58F539	6.26	5.63	5.00
● 641A	3.00 x 4.12 x 1.00"	58F467	9.08	8.17	7.25
● 641K	3.00 x 4.12 x 1.00"	58F540	8.76	7.88	7.00

(4468)



(94638)

Keep up with environmental laws.

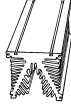
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392 SERIES HIGH-PERFORMANCE HEAT SINKS FOR POWER MODULES

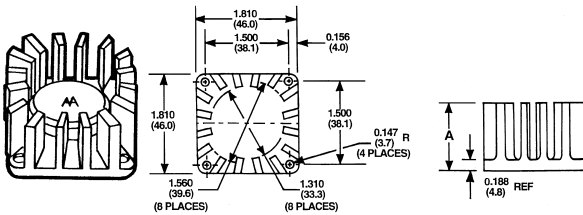


392 series heat sinks are designed for effective cooling of single and multiple isolated power modules, IGBTs, relays, and rectifiers. Standardized 80mm mounting in both natural and forced convection. Base width: 4.921" (125.0). Height: 5.346" (135.8).



Mfg. Part No.	Length	Thermal Resistance at Typical Load		Stock No.	Price Each
		Natural Convection (°C/W)	Forced Convection (°C/W)		
● 392-180AB	7.087" (180.0)	0.43	0.11 @ 100 CFM	92F4664	127.91
● 392-300AB	11.811" (300.0)	0.33	0.08 @ 100 CFM	97F953	216.77

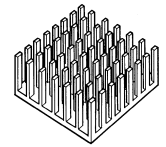
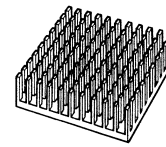
680 SERIES CIRCUIT BOARD HEAT SINKS



Black anodized aluminum alloy. Case style TO-3. Sold in multiples of 5.

Mfg. Part No.	Height Above PC Board ("A")	Thermal Performance @ Typ. Load		Stock No.	Price Each
		Natural Convection	Forced Convection		
● 680-5A	0.50"	70°C @ 7.5W	3.0°C/W @ 400LFM	58F401	8.16
● 680-75A	0.750"	58°C @ 7.5W	2.4°C/W @ 400LFM	58F398	5.49
● 680-10A	1.00"	52°C @ 7.5W	2.0°C/W @ 400LFM	97F2148	5.46
● 680-125A	1.25"	45°C @ 7.5W	1.5°C/W @ 400LFM	58F392	5.83
● 680-125K	1.25"	45°C @ 7.5W	1.5°C/W @ 400LFM	01F7289	6.18

628 SERIES AND 658 SERIES PIN FIN HEAT SINKS



628 series for adhesive attachment to 17x17 ceramic PGAs. These omnidirectional pin fin heat sinks are for Intel 80486 microprocessors, AMD Am29K microprocessors, and TI TMS320C40. Black anodized finish. 658 series designed for heat dissipation for Olin Corporation MQuad™ aluminum Quad flat packs and Amkor Power Quad thermally enhanced PQFPs. Pre-applied, pressure-sensitive adhesive versions available; go online or call.

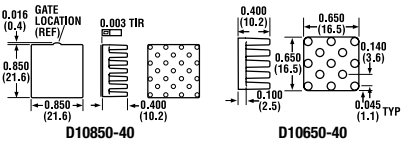
Mfg. Part No.	Height	Base Dimensions	Stock No.	Price Each
● 628-40AB	0.400" (10.16)	1.750" (44.5) x 1.700" (43.2)	95F3501	3.29
● 628-65AB	0.650" (16.51)	1.750" (44.5) x 1.700" (43.2)	95F3502	4.42

Mfg. Part No.	Height	Base Dimensions	Stock No.	Price Each
● 658-25AB	0.250" (6.35)	1.100" (27.9) Sq.	93F6542	1.45
● 658-45AB	0.450" (11.43)	1.100" (27.9) Sq.	93F6543	1.58
● 658-60AB	0.600" (15.24)	1.100" (27.9) Sq.	93F6544	1.84

DELTEM™ & DELTEM™ II COMPOSITE HEAT SINKS



Mfg. part no. D10850-40 is specifically designed for the Intel 80486SX microprocessor (196-lead PQFP), i960KA embedded controller (196-lead PQFP), and Cyrix486 microprocessor. Mfg. part no. D10650-40 is for the Intel 80386SX microprocessor (100-lead PQFP) and Intel 82489/82491 cache RAM. Works with 168- to 208-pin PQFPs, PowerQuad™ 2, and PBGAs and CBGAs.

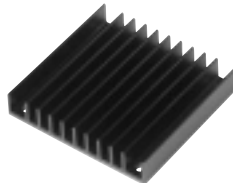


Mfg. Part No.	Description	Dimensions	Stock No.	Price Each
● D10650-40	Pin Fin	0.650" Sq. x 0.400" H	93F6545	2.49
● D10850-40	Pin Fin	0.850" Sq. x 0.400" H	93F6546	3.09

HEAT SINKS FOR "HALF BRICK" DC/DC CONVERTERS



Standard mounting hole pattern allows mating with AT&T JC/JW/BF series and Computer Products BXB series power modules with output power ratings of 30 to 150 watts. 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. Integral thermal interface pad option eliminates need to order and install pad separately. Material: black anodized aluminum.



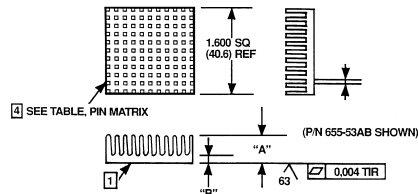
HORIZONTAL FIN ORIENTATION — 2.28" x 2.40" (57.9 x 61.0) FOOTPRINT

Mfg. Part No.	Height	No. of Fins	Typical Thermal Performance		Stock No.	Price Each
			Natural Convection Power Dissipation*	Forced Convection Thermal Resistance†		
● 527-45AB	0.45" (11.4)	11	7W	3.2°C/W	91F3670	3.48
● 527-24AB	0.24" (6.1)	11	5W	5.8°C/W	91F3669	2.88

VERTICAL FIN ORIENTATION — 2.40" x 2.28" (61.0 x 57.9) FOOTPRINT						
● 528-45AB	0.45" (11.4)	11	7W	3.2°C/W	91F3672	3.79

* @ 60°C rise heat sink to ambient † @ 300'/min. (17927)

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.

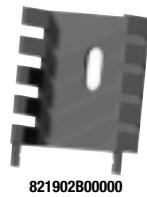
Mfg. Part No.	Base Dimensions	Height	Stock No.	Price Each
● 659-65AB	1.45" (36.8) Sq.	0.650" (16.5)	93F6549	2.54

Mfg. Part No.	Base Dimensions	Dimension "A"	Dimension "B"	Stock No.	Price Each
● 655-26AB	1.600" (40.6) Sq.	0.260" (6.6)	0.125" (3.2)	93F6540	2.51
● 655-53AB	1.600" (40.6) Sq.	0.525" (13.3)	0.145" (3.7)	93F6541	2.94

HEATSINKS

HEAT SINKS

- Board level stampings and extrusions
- Custom options are available



Just Added

THRU-HOLE EXTRUSIONS FOR TO-202, TO-220

Mfg. Part No.	Body Material	Finish	Thermal Resis. (°C/W)		Dimensions (mm)			Stock No.	Price Each		
			Natural Convection	Forced Convection	L	W	H		1-24	25-99	100-999
● 411915B02500	Aluminum	Black Anodize	10.8	5.5	12.7	34.9	38.1	19M5093	1.11	0.98	0.91
● 411910B02500	Aluminum	Black Anodize	12.6	5.8	12.7	34.9	25.4	19M5092	1.04	0.92	0.85

THRU-HOLE EXTRUSIONS FOR TO-218, TO-220

● 412320B02500	Aluminum	Black Anodize	11.5	1.4	16	16.5	50.8	19M5096	1.56	1.38	1.28
● 412315B02500	Aluminum	Black Anodize	15	5	16	16.5	38.1	19M5095	1.29	1.14	1.06
● 412310B02500	Aluminum	Black Anodize	17.5	6.8	16	16.5	25.4	19M5094	1.13	1.00	0.93

THRU-HOLE EXTRUSIONS FOR TO-218, TO-220, TO-247

● 411626B02500	Aluminum	Black Anodize	4.2	2.8	25	41.6	63.5	19M5091	1.53	1.36	1.26
● 411621B02500	Aluminum	Black Anodize	5.2	3.1	25	41.6	50.8	19M5090	1.71	1.52	1.41
● 412525B02500	Aluminum	Black Anodize	6	3.4	25	42	25.4	19M5097	1.47	1.30	1.21
● 411615B02500	Aluminum	Black Anodize	6.2	3.5	25	41.6	38.1	19M5088	1.38	1.22	1.13
● 411616B02500	Aluminum	Black Anodize	6.2	3.5	25	41.6	38.1	19M5089	1.38	1.22	1.13
● 411320B02500	Aluminum	Black Anodize	9.1	4.7	12.7	34.9	50.8	19M5087	1.11	0.98	0.91

SURFACE MOUNT STAMPINGS FOR D PAK, TO-252

● 83410T00000	Copper	Tin Plate	16	20.5	8	22.8	10.1	19M5147	0.54	0.48	0.45
● 8341TRT00000	Copper	Tin Plate	16	20.5	8	22.8	10.1	19M5146	0.70	0.62	0.58

SURFACE MOUNT STAMPINGS FOR D PAK, TO-263, SO-10, MO-184

● 83390T00000	Copper	Tin Plate	17	6.5	14.9	25.9	9.5	19M5143	1.04	0.92	0.85
● 8339TRT00000	Copper	Tin Plate	17	6.5	14.9	25.9	9.5	19M5142	1.08	0.96	0.89

SURFACE MOUNT STAMPINGS FOR D2 PAK, TO-263

● 83400T00000	Copper	Tin Plate	12	4	19.3	25.4	11.4	19M5145	0.95	0.84	0.78
● 8340TRT00000	Copper	Tin Plate	12	4	19.3	25.4	11.4	19M5144	1.26	1.12	1.04
● 83270T00000	Copper	Tin Plate	19	9.5	26.2	12.7	9.1	19M5132	0.52	0.46	0.43
● 8327TRT00000	Copper	Tin Plate	19	9.5	26.2	12.7	9.9	19M5131	0.57	0.50	0.47

THRU-HOLE STAMPINGS FOR TO-220

● 825802B05300	Aluminum	Black Anodize	6	3.2	24.1	48.2	49.5	19M5122	1.20	1.06	0.98
● 821702B00000	Aluminum	Black Anodize	6.4	5	21.5	19.8	36.8	19M5107	0.43	0.38	0.36
● 824302B00000	Aluminum	Black Anodize	7	5.1	9.4	44.4	36.8	19M5113	0.45	0.40	0.37
● 825902B05300	Aluminum	Black Anodize	7.5	4.7	24.1	48.2	23.6	19M5123	0.86	0.76	0.71
● 826002B05300	Aluminum	Black Anodize	7.6	4.6	9.6	44.4	36.8	19M5124	0.97	0.86	0.80
● 825702B05300	Aluminum	Black Anodize	8.9	6.2	11.9	33	36.8	19M5120	0.86	0.76	0.71
● 825702B05400	Aluminum	Black Anodize	8.9	6.2	11.9	33	36.8	19M5121	0.88	0.78	0.73
● 822812B00000	Aluminum	Black Anodize	10	5	17.7	44.4	12.7	19M5112	0.34	0.30	0.28
● 821902B00000	Aluminum	Black Anodize	13	7	12.7	25.4	29.9	19M5109	0.41	0.36	0.34
● 821902BPT000	Aluminum	Black Paint w/Tin Tabs	13	7	12.7	25.4	29.9	19M5108	2.34	2.08	1.93
● 822202B00000	Aluminum	Black Anodize	13	7	12.7	25.4	29.1	19M5110	0.68	0.60	0.56
● 82560T00000	Copper	Black Paint w/Tin Tabs	13.2	7.2	12.7	25.4	29.9	19M5119	0.95	0.84	0.78
● 8256BPT00000	Copper	Black Paint	13.2	7.2	12.7	25.4	29.9	19M5118	1.67	1.48	1.37
● 825402B03400	Aluminum	Black Anodize	13.8	7	12.7	25.4	29.9	19M5114	0.70	0.62	0.58
● 825502B02853	Aluminum	Black Anodize	13.8	7	12.7	25.4	29.1	19M5116	1.13	1.00	0.93
● 825502B03453	Aluminum	Black Anodize	13.8	7	12.7	25.4	29.1	19M5117	0.77	0.68	0.63
● 833602B05300	Aluminum	Black Anodize	14	9.1	15.4	25.5	24	19M5139	0.99	0.88	0.82
● 822802B00000	Aluminum	Black Anodize	15.6	7.5	17.7	44.4	9.5	19M5111	0.39	0.34	0.32
● 833202B00000	Aluminum	Black Anodize	20	11	10	21.2	19	19M5133	0.34	0.30	0.28
● 833202B03300	Aluminum	Black Anodize	20	11	10	21.2	19	19M5134	0.50	0.44	0.41
● 833202B03700	Aluminum	Black Anodize	20	11	10	21.2	19	19M5135	0.48	0.42	0.39
● 833202B04800	Aluminum	Black Anodize	20	11	10	21.2	19	19M5136	0.61	0.54	0.50
● 833702T00000	Copper	Tin Plate	20	10	9.5	22	27.9	19M5140	0.81	0.72	0.67
● 833802T00000	Copper	Tin Plate	21.7	8	13	13.2	21.5	19M5141	0.81	0.72	0.67
● 832202B00000	Aluminum	Black Anodize	23	6.2	5	20	25	19M5130	0.32	0.28	0.26
● 811102B00000	Aluminum	Black Anodize	24	9	22.2	5.3	31.8	19M5098	0.63	0.56	0.52
● 821502B00000	Aluminum	Black Anodize	24	9.8	9.5	19	19	19M5106	0.27	0.24	0.23
● 821202B00000	Aluminum	Black Anodize	24.4	9.5	12.7	13.2	19	19M5104	0.36	0.32	0.30
● 821202B04000	Aluminum	Black Anodize	24.4	9.5	12.7	13.2	19.1	19M5105	0.47	0.41	0.38
● 833502B00000	Aluminum	Black Anodize	24.5	14.2	9.5	22.8	17.7	19M5138	0.44	0.39	0.36
● 821102B00000	Aluminum	Black Anodize	25.9	12	9.5	13.2	19	19M5101	0.31	0.27	0.25
● 821102B04000	Aluminum	Black Anodize	25.9	12	9.5	13.2	19.2	19M5102	0.45	0.40	0.37
● 821102B04005	Aluminum	Black Anodize	25.9	12	9.5	13.2	19.1	19M5103	0.97	0.86	0.80
● 821002B00000	Aluminum	Black Anodize	32	16	6.3	13.2	19	19M5099	0.32	0.28	0.26
● 821002B04000	Aluminum	Black Anodize	32	16	6.3	13.2	19.1	19M5100	0.45	0.40	0.37

THRU-HOLE STAMPINGS FOR TO-220, TO-262

● 831302B00000	Aluminum	Black Anodize	26.8	10	19	12.8	12.7	19M5125	0.45	0.40	0.37
● 831402B00000	Aluminum	Black Anodize	26.8	10	19	12.8	12.9	19M5126	0.48	0.42	0.39
● 831502B00000	Aluminum	Black Anodize	26.8	10	19	12.8	12.8	19M5127	0.40	0.35	0.33
● 831502B03700	Aluminum	Black Anodize	26.8	10	19	12.8	12.11	19M5128	0.50	0.44	0.41

▶ CONTINUED ▶

HEAT SINKS (CONT.)

THRU-HOLE STAMPINGS FOR TO-220, TO-262

Mfg. Part No.	Body Material	Finish	Thermal Resis. (°C/W)		Dimensions (mm)			Stock No.	Price Each		
			Natural Convection	Forced Convection	L	W	H		1-24	25-99	100-999
● 831502B03900	Aluminum	Black Anodize	26.8	10	12.8	12.7	19M5129	0.45	0.40	0.37	
● 833302B02800	Aluminum	Black Anodize	26.8	10	12.7	12.7	19M5137	0.63	0.56	0.52	

(89620)

122 SERIES HIGH PERFORMANCE THERMAL JOINT COMPOUND



Just Added

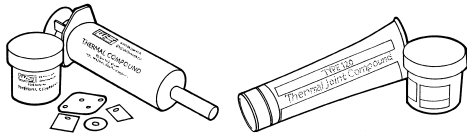


Stable silicone based, thixotropic paste formulated to significantly reduce contact thermal resistance where power densities are concentrated in devices such as flip chip, reduced die size and "overlock" microprocessors. Compatible with automated or manual dispensing methods. Thermal conductivity: 2.5W/m²K. 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	81.00	73.13

(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 10⁴ cal/sec cm² °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	6.81	6.15
● 120-2	2 oz. Jar	00Z1245	10.16	9.17
● 120-5	5 oz. Tube	00Z1246	22.88	20.65
● 120-8	8 oz. Jar	00Z1247	27.91	25.20
● 120-80	5 lb. Can	00Z1248	168.20	151.85
● 120-320	20 lb. Can	00Z754	415.78	375.36
● 126-2	2 oz. Jar	00Z1252	16.07	14.51
● 126-4	4 oz. Tube	00Z1253	24.58	22.20
● 126-4S	4 oz. Syringe	00Z1703	41.99	37.91

(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	27.71	25.45	22.12
● 152-1B	1 oz. Resin and (B-4) Hardener Bi-Pack	2	00Z1242	41.04	37.69	32.76
● 152-KA	7 oz. Resin, 0.5 oz. (A-4) Hardener	1	00Z746	110.06	101.06	87.83
● 152-Q	1 qt. Resin	2	00Z1243	139.16	127.78	111.06
● 153-Q	1 qt. Resin	2	00Z1255	127.74	117.30	101.94
● 154-Q	1 qt. Resin	2	00Z1256	115.09	105.68	91.85
● 155	3 oz. Resin, 3 oz. Hardener	1	00Z743	40.42	37.12	32.26
● 156-K	4.2 oz. Resin and Hardener Syringe and Brush	1	00Z1257	59.35	54.50	47.36

▶ CONTINUED ▶

150 SERIES THERMALLY CONDUCTIVE ADHESIVES (CONT.)

Mfg. Part No.	Description	Shelf Life (Years)	Stock No.	Price Each		
				1-4	5-9	10-24
● A-4	0.316 lb. Hardener	...	00Z1052	55.58	51.04	44.36
● B-4 (HARDENER)	0.14 lb. Hardener	...	00Z860	31.06	28.52	24.79

(4479)

THERMAL ADHESIVES AND GREASES

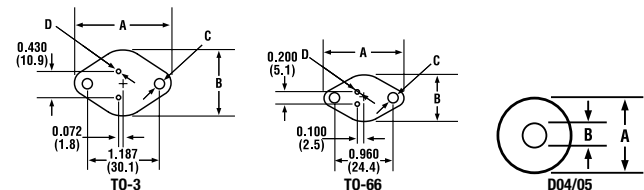


Ther-O-Bond thermally conductive adhesive offers excellent heat transfer high voltage isolation. Readily bonds to metal, ceramics and most plastics. Thermalcote is a silicone based thermally loaded grease for use with all heatsinks. Thermal conductivity: 0.765 W/m²°C. Thermalcote II is a silicone free thermal grease. Thermal conductivity: 0.699 W/m²°C.

Mfg. Part No.	Description	Size	Stock No.	Price Each
				1-4
● 4950G	Ther-O-Bond	50gm—2-Part Bag	45M6149	43.02
● 4951G	Ther-O-Bond	100gm—2-Part Bag	14M4317	45.01
● 249G	Thermalcote	28gm (1 oz.) Tube	45M6145	3.96
● 250G	Thermalcote	57gm (2 oz.) Tube	45M6146	5.42
● 251G	Thermalcote	0.45kg (1 lb.) Can	45M6147	17.76
● 351G	Thermalcote II	0.45kg (1 lb.) Can	45M6148	67.68

(73828)

175 SERIES KAPTON® REINFORCED INSULATORS



Interface transistors to heat sinks and eliminate thermal grease, burr cut-through, and cracked or torn insulators. 3-layer construction, Kapton® film sealed between silicone rubber layers. Dielectric strength: 6000V. Thickness: .006"±.001". Continuous use temperature range -60°C to +200°C.

TO-3

Mfg. Part No.	Dimensions				Stock No.	Price Each
	A	B	C	D		
● 175-6-320P	1.650"	1.140"	0.122"	0.062"	46F7843	1.27
● 175-6-330P	1.650"	1.140"	0.093"	0.093"	46F7844	0.85

TO-220

● 175-6-210P	0.687"	0.562"	0.218"	0.125"	46F7846	0.68
● 175-6-220P	0.710"	0.500"	0.160"	0.141"	46F7847	0.55
● 175-6-230P	0.750"	0.500"	0.187"	0.125"	46F7848	0.43
● 175-6-240P	0.750"	0.500"	0.187"	0.147"	46F7883	0.47

D0-4, D0-5

● 175-6-410P	0.625"	0.200"	46F7885	0.55
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(4476)

THERMO-PAD HEAT SINK INSULATORS



Eliminates mica wafer and conductive grease method of mounting power semiconductors. Sold individually; also available in packages of 100. Go online or call.

Mfg. Part No.	Style	Stock No.	Price Each
			1-24
● TP0001	TO3	10M0668	2.05
TP0004	TO126	29C4866	1.04
TP0006	TO220	30C0379	2.22
TP0008	TO3P	29C4869	1.87
TP0010	TO3PML	29C4870	2.79

(70313)

HEATSINK ACCESSORIES

1

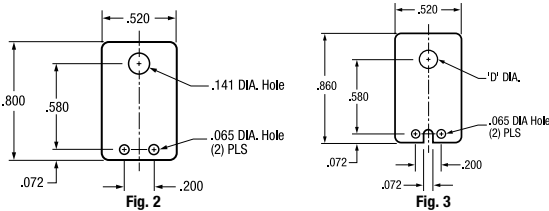
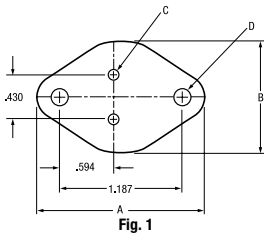
INSULATOR KITS



Mfg. Part No.	Description	Stock No.	Price Each
NTE422	Hardware/Insulator Kit for TO-220 Package	30C0292	1.79
NTE413	Hardware/Insulator Kit for TO-3 Package	86H9154	1.52

(74717)

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"		
● 4651	1	1.625	1.093	0.166	97H7352	0.14
● 4662	1	1.594	1.141	0.142	92B7218	0.16
● 4667*	1	1.655	1.062	0.110	91B3239	0.14
● 4671	2	0.8	0.52	0.140	97H7353	0.08
● 4672	3	0.86	0.52	0.141	92B7630	0.06
● 4673	3	0.86	0.52	0.115	97H7354	0.06
● 4669	...	0.87	0.87	0.110	30C5802	0.14

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

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.	Material	Stock No.	Price Each
● 4103G	Aluminum Oxide Ceramic	21M5216	2.19

(82455)

TO-3 POWER TRANSISTOR SOCKETS

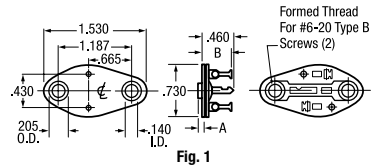


Fig. 1

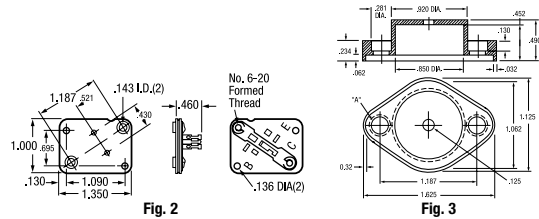


Fig. 2

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	0.14	1.53	0.73	0.09	94F863	1.11
● 4602	1	6-20	0.14	1.53	0.73	0.045	35F1178	1.24
● 4601	1	6-20	0.14	1.53	0.73	0.09	35F1170	1.24
● 4606*	2	6-20	0.136	1.35	1	...	35F1176	1.06
● 4608	2	6-20	0.136	1.35	1	0.045	35F1172	1.24

* 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	0.19
● 4634	TO-3	Two	0.14	0.92	0.49	97H7267	0.46

(78690)

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	Stock No.	Price Each
			1-18
● 8909NBG	Black	18M8294	0.62
● 8903NWG	White	18M8292	1.96

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(94643)

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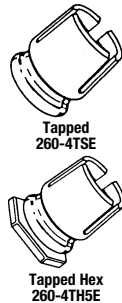
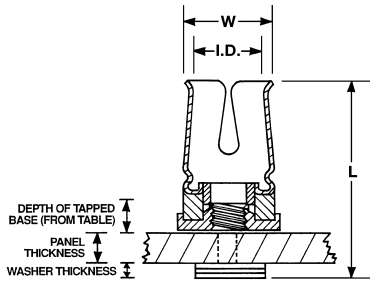
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HEATSINK ACCESSORIES

1

CUP CLIPS FOR TO-5 DEVICES



Features:

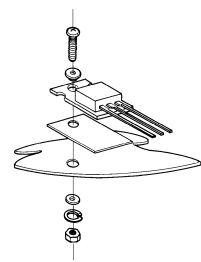
- Thread Size: #4-40 UNC
- Continuous Operating Temperature: 300°F Max.

Stock No.	Mfg. Part No.	Depth of Tapped Base	Outline Dimensions L x W x Dia.
65H6127	● 260-4T5E	0.093	0.370 x 0.380 x 0.290"
58F1058	● 260-4TH5E	0.125	0.400 x 0.370 x 0.290"

Mfg. Part No.	Mounting Style	Stock No.	Price Each
● 260-4T5E	Tapped	65H6127	14.09
● 260-4TH5E	Tapped Hex	58F1058	15.50

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MOUNTING KITS



Mfg. part no. 4860 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. Mfg. part no. 4860 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 Thermasil III silicon rubber.

Mfg. Part No.	Description	Stock No.	Price Each
4860	Mounting Kit for DO-4 w/Thermalfilm	97F6997	1.53
4860M	Mounting Kit for DO-4 w/Mica Insulator	46F4080	1.37
● 4880G	Mounting Kit for TO-220 w/Thermalfilm	82K6096	1.12
● 4880MG	Mounting Kit for TO-220 w/Mica Insulator	02M5407	1.02
● 4880SG	Mounting Kit for TO-220 w/Thermasil III	10M7230	1.17

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INSULATING SHOULDER WASHER FOR TO-220

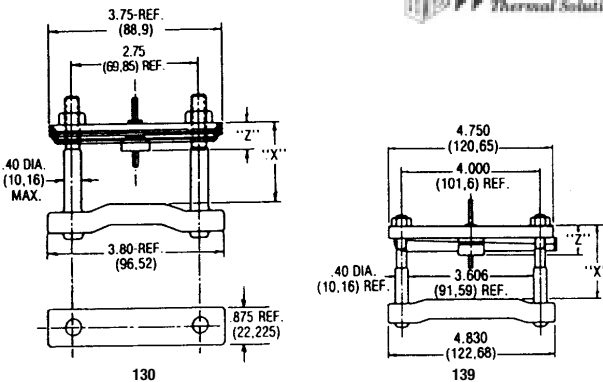


- Fits the tab of a TO-220 to provide electrical isolation
- Maximum recommended service temperature of 260°C (500°F)
- Recommended torque of 0.452Nm (4 inch-pounds)

Mfg. Part No.	Mounting Hole Dia.	Outer Dia.	Stock No.	Price Each
				1-18
● 7721-7PPSG	0.116"	0.215"	85K9469	0.41

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130, 139 SERIES MOUNTING CLAMPS



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. 5000VAC. Order cross bar and spring assembly separately.

130 SERIES CROSS BARS

Mfg. Part No.	"X" Minimum	"X" Maximum	Stock No.	Price Each		
				1-4	5-9	10-24
130-C	2.36"	2.74"	10F8017	30.24	27.89	23.36

139 SERIES CROSS BARS

139-5E	2.77"	3.14"	10F8001	73.57	67.85	56.81
139-5G	3.39"	3.77"	10F8003	74.00	68.25	57.15
139-5H	3.70"	4.08"	10F8004	74.13	68.36	57.24
139-5J	4.01"	4.39"	10F8005	75.06	69.23	57.97

130 SERIES SPRING ASSEMBLIES

Mfg. Part No.	Leaves	"Z" Dim.	Max. Force	Stock No.	Price Each		
					1-4	5-9	10-24
130-1	2	0.90"	2000 lbs.	10F7991	28.52	26.30	22.02
130-5	5	0.83"	2000 lbs	46F8610	43.40	40.03	33.52

139 SERIES SPRING ASSEMBLIES

139-1	1	0.87"	3000 lbs.	10F8013	45.13	41.62	34.85
139-2	2	1.25"	5000 lbs.	10F8014	62.45	57.59	48.22

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SEMICONDUCTOR MOUNTING PADS



Aligns device leads to facilitate board insertion.

Mfg. Part No.	Device	Leads	O.D. (in.)	Thickness (in.)	Stock No.	Price Each
						1-4
● 7717-7NG	TO-18	4	0.25	0.125	18M8264	0.18
● 7717-178NG	TO-5	3	0.35	0.530	18M8263	0.18

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