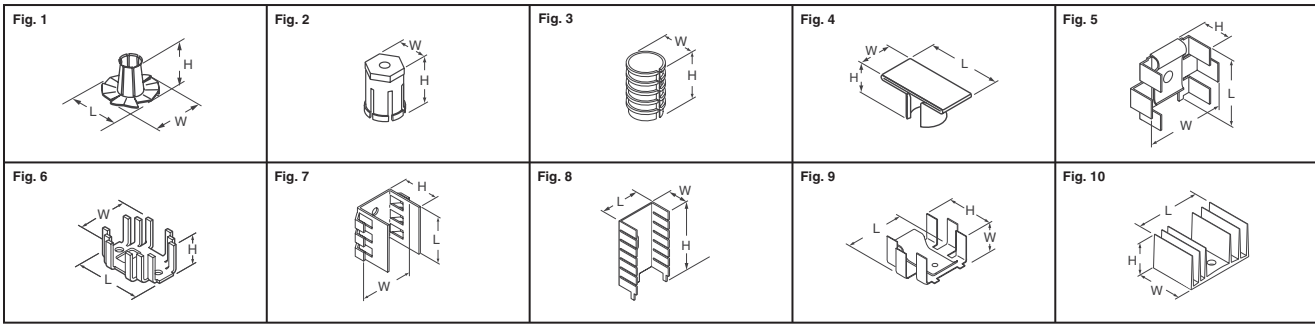


# CTS Heat Sinks

CTS Electronic Components (California) Inc. has helped pioneer the development of semiconductor heat sinks since 1954. Primarily used by all levels of OEM's engaged in the manufacture of commercial and military equipment, CTS maintains stock and support from prototype through production. CTS has prided themselves for their flexible manufacturing,

quality products and on-time delivery. Clip-On versions have a built-in clip for attaching a device to a heat sink without additional hardware, positive locks prevent the semiconductor from sliding out. TO-220 versions will also fit TO-202, TO-218 and TO-126 packages. Wattage values listed are at still air conduction only. Moving air will increase this value.



C

Fig.	Description	Dimensions - Inch (mm) L x W x H	Thermal Res. C/Watt	Digi-Key Part No.	Price Each			CTS Part No.
					1	10	100	
1	TO-5, Single Fan Top, Black, .5W	.750 x .750 x .250 (19.05 x 19.05 x 6.35)	81.10	294-1122-ND	5.95	5.36	4.17	TXBF-032-025B
	TO-5, Single Fan Top, Unplated, .5W	.750 x .750 x .250 (19.05 x 19.05 x 6.35)	81.10	294-1144-ND◆	2.33	2.10	1.63	TXBF-032-025U
	TO-18, Single Fan Top, Black, .5W	500 x .500 x .250 (12.70 x 12.70 x 6.35)	150.00	294-1004-ND	5.33	4.80	3.74	TXBF-019-025B
	TO-18, Single Fan Top, Unplated, .5W	500 x .500 x .250 (12.70 x 12.70 x 6.35)	150.00	294-1140-ND◆	1.48	1.33	1.04	TXBF-019-025U
2	TO-5, Press-On Mount, w/Hardware, Black, 1W	— x .380 x .310 (— x 9.65 x 7.87)	73.17	294-1120-ND	20.43	18.39	14.30	TXB2P-032-037B
	TO-5, Press-On Mount, w/Hardware, Nickel, 1W	— x .380 x .310 (— x 9.65 x 7.87)	73.17	294-1142-ND◆	24.35	21.92	17.05	TXB2P-032-037ND
	TO-5, Press-On Mount, Nickel, 1W	— x .380 x .310 (— x 9.65 x 7.87)	73.17	294-1143-ND◆	4.80	4.32	3.36	TXBE-032-031ND
	TO-8, Press-On Mount, w/out Hardware, Black, 1W	— x .380 x .310 (— x 9.65 x 7.87)	73.17	294-1118-ND	16.45	14.81	11.52	TXB2-032-037B
	TO-18, Press-On Mount, w/Hardware Black, 5W	— x .220 x .340 (— x 5.59 x 8.64)	150.26	294-1123-ND	39.30	35.37	27.51	TXP1808B
	TO-18, Press-On Mount, w/Hardware, Black, .6W	— x .220 x .280 (— x 5.59 x 7.11)	150.26	294-1119-ND	18.23	16.41	12.76	TXB2P-019-028B
TO-18, Press-On Mount, w/Hardware, Nickel, .6W	— x .220 x .280 (— x 5.59 x 7.11)	150.26	294-1141-ND◆	19.45	17.51	13.62	TXB2P-019-028ND	
3	TO-5, Press-On Mount, Black, 2W	— x .440 x .500 (— x 11.18 x 12.70)	35.00	294-1105-ND◆	3.23	2.91	2.26	7-120-BA
4	TO-5, Press-On Mount, Black, 1W	.700 x .325 x .250 (17.78 x 8.26 x 6.35)	58.00	294-1106-ND◆	2.35	2.12	1.65	7-175-BA
5	TO-220, Vertical/Horizontal Clip-on Mount, Black, 1.5W	.810 x 1.00 x .310 (20.57 x 25.40 x 7.87)	140.50	294-1115-ND◆	1.51	1.36	1.06	PSC2-2CB
6	TO-220, Power Horizontal Mount, Black 2W	1.63 x 1.29 x .750 (41.40 x 32.77 x 19.05)	13.60	294-1113-ND◆	2.71	2.44	1.90	LAT012783CB
	TO-220, Power Horizontal Mount, 8W	1.31 x .90 x .750 (33.27 x 22.86 x 19.05)	17.00	294-1036-ND◆	2.03	1.83	1.42	LAE66A3CB
7	TO-220, Horizontal/Vertical Mount w/Tabs, Black, 2.5W	.710 x .800 x .500 (18.03 x 20.32 x 12.70)	30.00	294-1107-ND◆	1.27	1.15	.90	7-361-BA
	TO-220, Horizontal/Vertical Mount w/Tabs, Black, 2W	.710 x .800 x .340 (18.03 x 20.32 x 8.64)	38.00	294-1108-ND◆	1.27	1.15	.90	7-362-BA
	TO-220, Horizontal Mount, 3W (No Mounting Hole)	1.09 x .620 x 1.31 (27.69 x 15.75 x 33.27)	30.00	294-1013-ND◆	.66	.52	.39	7-300-000-BA
8	TO-220, Vertical Mount, 3W	.750 x .375 x .750 (19.05 x 9.52 x 19.05)	25.00	294-1011-ND◆	1.32	.95	.67	7-195-2-BA
	TO-220, Vertical/Horizontal Mount w/Tabs, Nickel, 3W	1.25 x .880 x .250 (31.75 x 22.35 x 6.35)	25.40	294-1114-ND◆	2.89	2.61	2.03	PSB2-1ND
	TO-220, Vertical PC Mount w/Tabs, 5W	1.00 x .500 x 1.18 (25.40 x 12.70 x 29.97)	20.00	294-1042-ND◆	1.58	1.42	1.11	PB1-36CB
	TO-220, Vertical PC Mount w/Board Locks	1.00 x .500 x 1.18 (25.40 x 12.70 x 29.97)	28.00	294-1043-ND◆	4.15	3.74	2.91	PB1ST-69CB
	TO-220, Vertical PC Mount w/Tabs, 6W	.880 x .250 x 1.25 (22.35 x 6.35 x 31.75)	25.40	294-1045-ND◆	1.81	1.42	1.06	PSB2-1CB
9	TO-220, High Efficiency, 3W	.710 x .310 x 1.00 (18.03 x 7.87 x 25.40)	30.00	294-1040-ND◆	1.77	1.39	1.04	PA2-1CB
	TO-220, High Efficiency, 4W	.710 x .500 x 1.00 (18.03 x 12.70 x 25.40)	26.80	294-1039-ND◆	1.78	1.40	1.04	PA1-1CB
	TO-220, Low Profile Clip-On, w/ Antirodation, Black	.810 x .310 x 1.00 (20.57 x 7.87 x 25.40)	40.50	294-1049-ND	1.33	.95	.67	PSC2T-2CB
10	TO-220, Power Vertical Mount, 7W	1.15 x .460 x .750 (29.21 x 11.68 x 19.05)	14.00	294-1034-ND◆	3.73	3.36	2.62	7-340-1PP-BA
	TO-220, Power Horizontal Mount, 7W	1.15 x .460 x .750 (29.21 x 11.68 x 19.05)	14.00	294-1035-ND◆	3.74	3.37	2.62	7-340-3PP-BA
	Dual TO-220, Universal Mount, 9W	1.50 x 1.15 x .460 (38.10 x 29.21 x 11.68)	7.00	294-1080-ND◆	3.32	2.99	2.33	7-340-2PP-BA
11	TO-220, Power Vertical Mount w/Pins, 11W	1.38 x .500 x 1.50 (35.05 x 6.35 x 38.10)	13.00	294-1024-ND◆	6.93	6.24	4.85	7-338-1PP-BA
	TO-220, Power Vertical Mount w/Pins, 11W	1.65 x 1.00 x 1.50 (41.91 x 25.40 x 38.10)	11.00	294-1029-ND◆	8.44	7.60	5.91	7-339-1PP-BA
	TO-220, Power Vertical Mount w/Pins, 15W	1.65 x 1.00 x 2.00 (41.91 x 25.40 x 50.80)	5.00	294-1031-ND◆	8.91	8.02	6.24	7-339-3PP-BA
	TO-220, Power Vertical Mount w/Pins, 17W	1.38 x .500 x 2.50 (35.05 x 6.35 x 63.50)	4.00	294-1027-ND◆	7.88	7.09	5.52	7-338-4PP-BA
	TO-220, Power Vertical Mount w/Pins, 17W	1.65 x 1.00 x 2.50 (41.91 x 25.40 x 63.50)	4.00	294-1032-ND◆	9.37	8.44	6.56	7-339-4PP-BA
12	TO-220, Power Horizontal/Vertical Mount, 12W	.750 x 2.00 x .553 (19.05 x 50.80 x 14.05)	9.00	294-1067-ND◆	3.55	3.20	2.49	7-345-1PP-BA
	TO-220, Power Horizontal Mount, 12W	.750 x 2.00 x .553 (19.05 x 50.80 x 14.05)	9.00	294-1068-ND◆	3.55	3.20	2.49	7-345-3PP-BA
	Dual TO-220, Power Universal Mount, 15W	1.50 x 2.00 x .553 (38.10 x 50.80 x 14.05)	4.00	294-1082-ND◆	3.95	3.56	2.77	7-345-2PP-BA
13	Dual TO-220, Vertical w/Tabs, Black, 4W	1.50 x .500 x 1.18 (38.10 x 12.70 x 29.97)	15.00	294-1117-ND◆	1.13	1.02	.79	PSE1-2CB
14	Triple TO-220, Vertical Mount, 7W	1.61 x .750 x .690 (40.89 x 19.05 x 17.53)	9.00	294-1085-ND◆	8.55	7.70	5.99	7-342-1PP-BA
	Six TO-220, Horizontal Mount, 15W	1.61 x 1.50 x .690 (40.89 x 38.10 x 17.53)	4.00	294-1086-ND◆	4.34	3.91	3.04	7-342-2PP-BA
15	TO-3, Power Cap, Spacesaver, 2W	1.56 x 1.06 x .500 (39.62 x 26.92 x 12.70)	32.00	294-1095-ND◆	6.59	5.93	4.62	7-423-BA
16	TO-3, Power Horizontal Mount, Black, 8W	1.78 x 1.78 x 1.00 (45.21 x 45.21 x 25.40)	7.10	294-1124-ND◆	3.87	3.49	2.71	UP-T03-CB
	TO-3, Power Horizontal Mount, 15W	2.50 x 2.50 x .900 (63.50 x 63.50 x 22.86)	5.40	294-1088-ND◆	5.19	4.67	3.64	HP1-T03-CB
17	TO-3, Power Horizontal Mount, 12W	1.63 x 1.29 x 1.25 (41.40 x 32.77 x 31.75)	11.10	294-1092-ND◆	3.99	3.59	2.79	LA36385CB
18	Various Semiconductor, Adhesive Backed	.910 x .910 x .355 (23.11 x 23.11 x 9.02)	26.90	294-1097-ND◆	2.95	2.66	2.07	BDN09-3CB/A01
	Various Semiconductor, Adhesive Backed	1.01 x 1.01 x .355 (25.65 x 25.65 x 9.02)	26.40	294-1098-ND◆	3.03	2.73	2.12	BDN10-3CB/A01
	Various Semiconductor, Adhesive Backed	1.11 x 1.11 x .355 (28.19 x 28.19 x 9.02)	20.90	294-1109-ND◆	3.05	2.75	2.14	BDN11-3CB/A01
	Various Semiconductor, Adhesive Backed	1.21 x 1.21 x .355 (30.73 x 30.73 x 9.02)	19.60	294-1099-ND◆	3.15	2.84	2.21	BDN12-3CB/A01
	Various Semiconductor, Adhesive Backed	1.21 x 1.21 x .555 (30.73 x 30.73 x 14.10)	16.50	294-1110-ND◆	3.35	3.02	2.35	BDN12-5CB/A01

◆ RoHS Compliant

(Continued)

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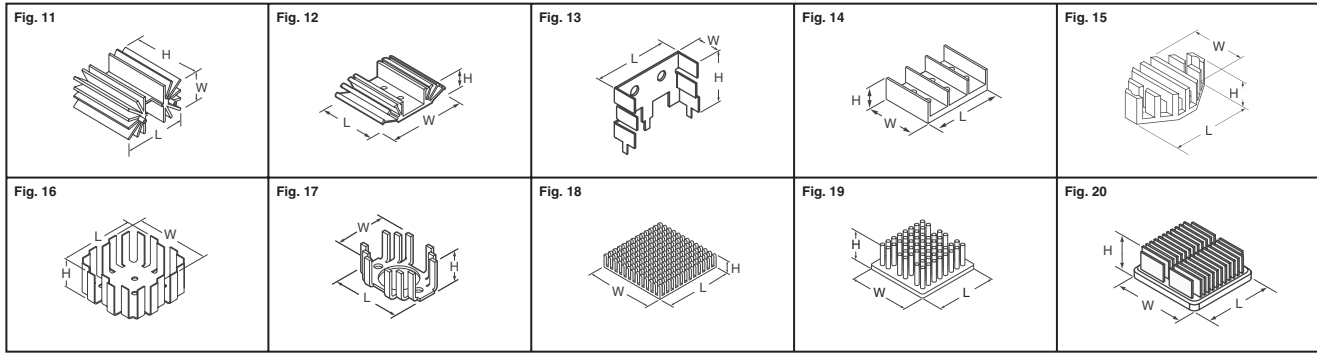


Fig.	Description	Dimensions - Inch (mm) L x W x H	Thermal Res. C/Watt	Digi-Key Part No.	Price Each			CTS Part No.
					1	10	100	
18	Various Semiconductor, Adhesive Backed	1.31 x 1.31 x .355 (33.27 x 33.27 x 9.02)	16.10	294-1100-ND	3.30	2.97	2.31	BDN13-3CB/A01
	Various Semiconductor, Adhesive Backed	1.41 x 1.41 x .355 (35.81 x 35.81 x 9.02)	16.20	294-1101-ND	3.48	3.13	2.44	BDN14-3CB/A01
	Various Semiconductor, Adhesive Backed	1.51 x 1.51 x .355 (38.35 x 38.35 x 9.02)	15.10	294-1102-ND	3.98	3.58	2.79	BDN15-3CB/A01
	Various Semiconductor, Adhesive Backed	1.61 x 1.61 x .355 (40.89 x 40.89 x 9.02)	13.50	294-1103-ND	4.08	3.67	2.86	BDN16-3CB/A01
	Various Semiconductor, Adhesive Backed	1.71 x 1.71 x .355 (43.43 x 43.43 x 9.02)	11.50	294-1111-ND	4.18	3.77	2.93	BDN17-3CB/A01
	Various Semiconductor, Adhesive Backed	1.81 x 1.81 x .355 (45.97 x 45.97 x 9.02)	10.80	294-1104-ND	4.43	3.99	3.10	BDN18-3CB/A01
19	Various SMT Semiconductor	1.026 x 1.026 x .457 (26.6 x 26.6 x 11.6)	5.3	294-1125-ND	4.60	4.14	3.22	APR27-27-12CB
	Various SMT Semiconductor, with Thermal Tape	1.026 x 1.026 x .457 (26.6 x 26.6 x 11.6)	5.3	294-1126-ND	6.16	5.55	4.32	APR27-27-12CB/A01
	Various SMT Semiconductor, with Short Clip	1.026 x 1.026 x .457 (26.6 x 26.6 x 11.6)	5.3	294-1127-ND	6.25	5.63	4.38	APR27-27-12CB/S
	Various SMT Semiconductor, with Medium Clip	1.026 x 1.026 x .457 (26.6 x 26.6 x 11.6)	5.3	294-1128-ND	6.25	5.63	4.38	APR27-27-12CB/M
	Various SMT Semiconductor, with Tall Clip	1.026 x 1.026 x .457 (26.6 x 26.6 x 11.6)	5.3	294-1129-ND	6.25	5.63	4.38	APR27-27-12CB/T
	Various SMT Semiconductor	1.284 x 1.284 x .457 (32.6 x 32.6 x 11.6)	3.8	294-1130-ND	5.15	4.64	3.61	APR33-33-12CB
	Various SMT Semiconductor, with Thermal Tape	1.284 x 1.284 x .457 (32.6 x 32.6 x 11.6)	3.8	294-1131-ND	6.20	5.58	4.34	APR33-33-12CB/A01
	Various SMT Semiconductor, with Short Clip	1.284 x 1.284 x .457 (32.6 x 32.6 x 11.6)	3.8	294-1132-ND	6.83	6.15	4.78	APR33-33-12CB/S
	Various SMT Semiconductor, with Medium Clip	1.284 x 1.284 x .457 (32.6 x 32.6 x 11.6)	3.8	294-1133-ND	6.83	6.15	4.78	APR33-33-12CB/M
	Various SMT Semiconductor, with Tall Clip	1.284 x 1.284 x .457 (32.6 x 32.6 x 11.6)	3.8	294-1134-ND	6.83	6.15	4.78	APR33-33-12CB/T
	Various SMT Semiconductor	1.461 x 1.461 x .457 (37.1 x 37.1 x 11.6)	3.3	294-1135-ND	5.30	4.77	3.71	APR38-38-12CB
	Various SMT Semiconductor, with Thermal Tape	1.461 x 1.461 x .457 (37.1 x 37.1 x 11.6)	3.3	294-1136-ND	6.35	5.72	4.45	APR38-38-12CB/A01
	Various SMT Semiconductor, with Short Clip	1.461 x 1.461 x .457 (37.1 x 37.1 x 11.6)	3.3	294-1137-ND	6.95	6.26	4.87	APR38-38-12CB/S
	Various SMT Semiconductor, with Medium Clip	1.461 x 1.461 x .457 (37.1 x 37.1 x 11.6)	3.3	294-1138-ND	6.95	6.26	4.87	APR38-38-12CB/M
Various SMT Semiconductor, with Tall Clip	1.461 x 1.461 x .457 (37.1 x 37.1 x 11.6)	3.3	294-1139-ND	6.95	6.26	4.87	APR38-38-12CB/T	
20	Heatsink Low-Profile Forged	.748 x .748 x .248 (19 x 19 x 6.3)	7.05	294-1145-ND	4.65	4.19	3.26	APF19-19-06CB
	Heatsink Forged with Adhesive Tape	.748 x .748 x .248 (19 x 19 x 6.3)	7.05	294-1146-ND	6.16	5.55	4.32	APF19-19-06CB/A01
	Heatsink Low-Profile Forged	.748 x .748 x .374 (19 x 19 x 9.5)	5.25	294-1147-ND	4.79	4.32	3.36	APF19-19-10CB
	Heatsink Forged with Adhesive Tape	.748 x .748 x .374 (19 x 19 x 9.5)	5.25	294-1148-ND	6.32	5.69	4.43	APF19-19-10CB/A01
	Heatsink Low-Profile Forged	.748 x .748 x .500 (19 x 19 x 12.7)	3.95	294-1149-ND	4.94	4.45	3.46	APF19-19-13CB
	Heatsink Forged with Adhesive Tape	.748 x .748 x .500 (19 x 19 x 12.7)	3.95	294-1150-ND	5.98	5.38	4.19	APF19-19-13CB/A01
	Heatsink Low-Profile Forged	1.181 x 1.181 x .248 (30 x 30 x 6.3)	4.35	294-1151-ND	5.93	5.34	4.15	APF30-30-06CB
	Heatsink Forged with Adhesive Tape	1.181 x 1.181 x .248 (30 x 30 x 6.3)	4.35	294-1152-ND	7.13	6.42	5.00	APF30-30-06CB/A01
	Heatsink Low-Profile Forged	1.181 x 1.181 x .374 (30 x 30 x 9.5)	3.25	294-1153-ND	6.13	5.52	4.30	APF30-30-10CB
	Heatsink Forged with Adhesive Tape	1.181 x 1.181 x .374 (30 x 30 x 9.5)	3.25	294-1154-ND	7.34	6.61	5.14	APF30-30-10CB/A01
	Heatsink Low-Profile Forged	1.181 x 1.181 x .500 (30 x 30 x 12.7)	2.45	294-1155-ND	6.31	5.68	4.42	APF30-30-13CB
	Heatsink Forged with Adhesive Tape	1.181 x 1.181 x .500 (30 x 30 x 12.7)	2.45	294-1156-ND	7.34	6.61	5.14	APF30-30-13CB/A01
	Heatsink Low-Profile Forged	1.575 x 1.575 x .248 (40 x 40 x 6.3)	3.30	294-1157-ND	7.06	6.36	4.95	APF40-40-06CB
	Heatsink Forged with Adhesive Tape	1.575 x 1.575 x .248 (40 x 40 x 6.3)	3.30	294-1158-ND	8.10	7.29	5.67	APF40-40-06CB/A01
	Heatsink Low-Profile Forged	1.575 x 1.575 x .374 (40 x 40 x 9.5)	2.50	294-1159-ND	7.29	6.57	5.11	APF40-40-10CB
	Heatsink Forged with Adhesive Tape	1.575 x 1.575 x .374 (40 x 40 x 9.5)	2.50	294-1160-ND	8.33	7.50	5.84	APF40-40-10CB/A01
	Heatsink Low-Profile Forged	1.575 x 1.575 x .500 (40 x 40 x 12.7)	1.90	294-1161-ND	7.53	6.78	5.27	APF40-40-13CB
	Heatsink Forged with Adhesive Tape	1.575 x 1.575 x .500 (40 x 40 x 12.7)	1.90	294-1162-ND	8.77	7.90	6.14	APF40-40-13CB/A01

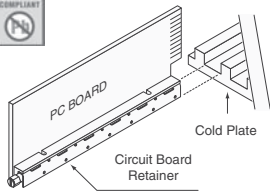
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## ZIF III Circuit Board Retainers

The ZIF retainer is a self-contained, precision assembly that provides highly effective thermal interface between the circuit board and cold plate. CTS ZIF III features a quick, quarter-turn locking mechanism that provides for a positive and fast assembly. The unique locking design produces a uniform pressure distribution along the PCB edge for optimal heat transfer and resistance to extreme shock and vibration.

**Features:**

- PCB board mountable (screw mounting)
- Positive 1/4 turn locking
- Field maintainable
- Superior mechanical retention
- Thermally efficient, 1.2°C-inch/Watt



Description	Digi-Key Part No.	Price Each			CTS Part No.
		1	10	100	
PCB Retainer – Hex Head Drive, 4.50" Housing Assembly, Left Hand Part	294-1163-ND	66.24	55.20	48.76	Z3A45SBSBNL
PCB Retainer – Hex Head Drive, 4.50" Housing Assembly, Right Hand Part	294-1164-ND	66.24	55.20	48.76	Z3A45SBSBNR
PCB Retainer – Hex Head Drive, 5.25" Housing Assembly, Left Hand Part	294-1165-ND	69.35	57.80	51.06	Z3A52SBSBNL
PCB Retainer – Hex Head Drive, 5.25" Housing Assembly, Right Hand Part	294-1166-ND	69.35	57.80	51.06	Z3A52SBSBNR

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