THERMAL INTERFACE MATERIAL PART NUMBER GUIDE

All of the heat sinks shown in this catalog are available with any of the following thermal tape and interface materials, pre-applied at the factory. Use the "T" series, thermally enhanced, pressure sensitive adhesives to attach the heat sink to the electronic package and provide a good thermal link to the heat sink. The "S" series interface materials have adhesives on only one side, for pre-attachment to the heat sink, and provide superior thermal performance. Specify these materials in applications where the heat sink will be fixed to the electronic package by some mechanical means other than a tape. Please note that none of these materials are for use in applications requiring electrical isolation from the electronic device. All options other than -T1 and -T4 are RoHS compliant.

Note: To obtain the estimated thermal resistance of the interface material in your application, divide the thermal impedance value by the area of the pad in square inches. For example, a 2" x 2" piece of T4 has a resistance of 1.10 C-in^2/W ÷ 4 in^2=0.275 C/W

"T" SERIES THERMALLY ENHANCED PRESSURE SENSITIVE ADHESIVES

Suffix	Manufacturer Product	Thermal Impedance C-in^2/W	Thickness, Inches	Package Surface, Comments
-T1	Chomerics, T405	0.47	0.006	Metal/ceramic; aluminum carrier
-T1E	Chomerics, T405R	0.47	0.006	RoHS-compliant version of -T1
-T3	Chomerics, T412	0.25	0.009	Metal/ceramic; very good performance and conformity
-T4	Chomerics, T410	1.10	0.007	Plastic
-T4E	Chomerics, T410R	1.10	0.007	RoHS-compliant version of -T4
-T5	Chomerics, T411	1.00	0.011	Plastic; conforms to out-of-flat packages
-T6	3M, 8810	0.88	0.010	Metal/ceramic; very good adhesion and conformity
-T7	Bergquist, BP 108	1.28	0.008	Metal/ceramic; electrically insulating

"S" SERIES THERMAL INTERFACE PADS

Suffix	Manufacturer Product	Thermal Impedance C-in^2/W	Thickness, Inches	Package Surface, Comments
-S4	Berquist Softface	0.06	0.005	All surfaces; requires mechanical fasteners

ORDERING INFORMATION

Once you have chosen heat sink and thermal interface material that meets your thermal & mechanical requirements it is easy to designate the part number. Simply add the interface material suffix referenced on the chart above to the base part number for the heat sink. The base part number already includes information regarding its size and finish.

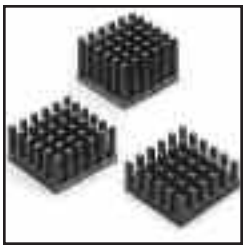
Example:

To order the 658 Series heat sink at .350" tall with the T5 thermal interface material, specify part number:

658-35AB - T5

From Catalog Page ?? — *From Table on Page ??*

HEAT SINKS FOR BGAs, SUPER BGAs, PBGAs, and FPBGAs



624 SERIES

Omnidirectional Pin Fin Heat Sink for BGAs

Standard P/N	Base Dimensions in. Sq.	Fin Height "A" in. (mm)	Typical Applications	Weight lbs. (grams)
624-25AB	.827 (21)	.250 (6.4)	21mm BGA	.009 (4.09)
624-35AB	.827 (21)	.350 (8.9)	21mm BGA	.011 (4.99)
624-45AB	.827 (21)	.450 (11.4)	21mm BGA	.015 (6.81)
624-60AB	.827 (21)	.600 (15.2)	21mm BGA	.026 (11.80)

Material: Aluminum, Black Anodized

The 624 Series is an omnidirectional pin fin heat sink for both natural and forced-convection applications.

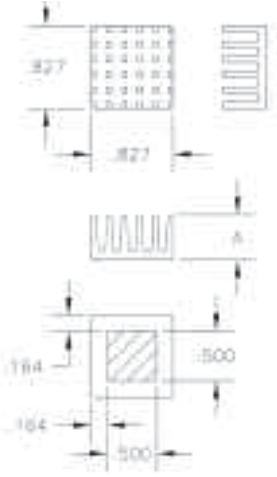
Applications include network routers and switches, high-resolution printers, digital cameras, consumer video games, digital video disks (DVD) and global positioning systems (GPS).

PRODUCT FEATURES

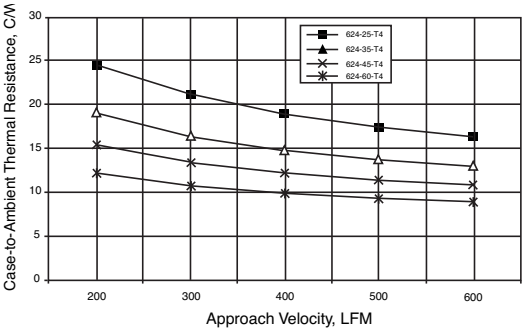
- Available in four standard heights, .25 inch, .35 inch, .45 inch, and .60 inch.
- Available with pressure sensitive adhesives for quick and easy mounting. See Page 3

MECHANICAL DIMENSIONS

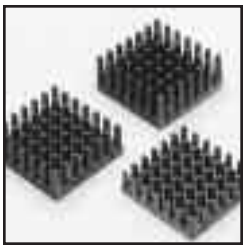
624 SERIES



624 THERMAL PERFORMANCE



Dimensions: in.



625 SERIES

Omnidirectional Pin Fin Heat Sink for BGAs

Standard P/N	Base Dimensions in. Sq.	Fin Height "A" in. (mm)	Typical Applications	Weight lbs. (grams)
625-25AB	.984 (25)	0.250 (6.4)	25 mm BGA	.012 (5.45)
625-35AB	.984 (25)	0.350 (8.9)	25 mm BGA	.014 (6.36)
625-45AB	.984 (25)	0.450 (11.4)	25 mm BGA	.018 (8.17)
625-60AB	.984 (25)	0.600 (15.2)	25 mm BGA	.030 (13.62)

Material: Aluminum, Black Anodized

The 625 Series is an omnidirectional pin fin heat sink for both natural and forced-convection applications.

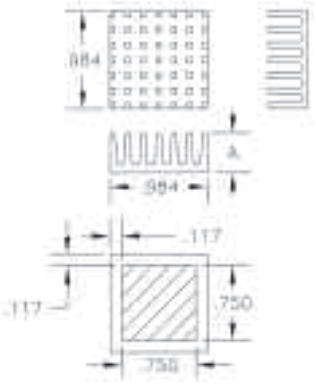
Applications include network routers and switches, high-resolution printers, digital cameras, consumer video games, digital video disks (DVD) and global positioning systems (GPS).

PRODUCT FEATURES

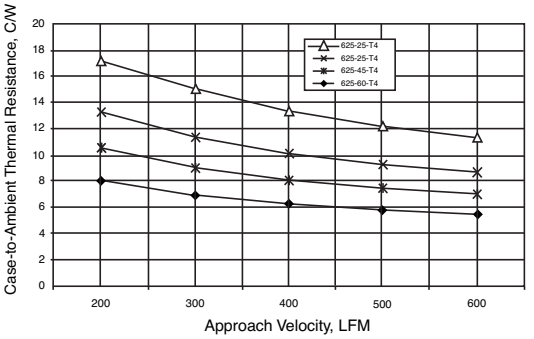
- Available in four standard heights, .25 inch, .35 inch, .45 inch, and .60 inch.
- Available with pressure sensitive adhesives for quick and easy mounting. See Page 3

MECHANICAL DIMENSIONS

625 SERIES



625 THERMAL PERFORMANCE



Dimensions: in.

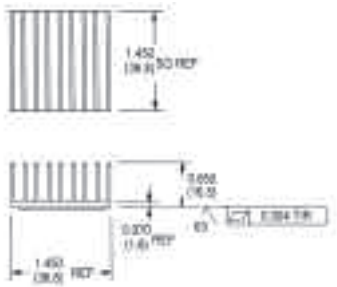
HEAT SINKS FOR BGAs, SUPER BGAs, PBGAs, and FPBGAs

659 SERIES — *Unidirectional Fin Heat Sink for BGAs*

Standard P/N	Base Dimensions in. (mm)	Height in. (mm)	Typical Application	Heat Sink Finish	Weight lbs. (grams)
659-65AB	1.45 (36.8) sq	0.650 (16.5)	37mm BGA	Black Anodized	0.050 (22.68)

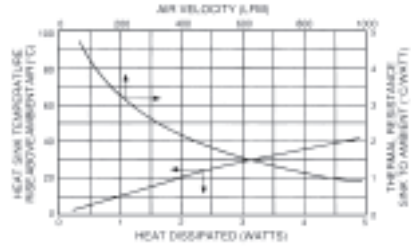
Notes: *1. Optional factory preapplied pressure-sensitive adhesive. See Page 3*

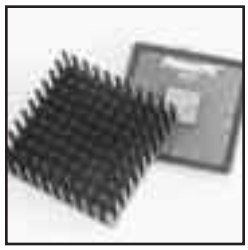
MECHANICAL DIMENSIONS



Dimensions: in. (mm)

NATURAL AND FORCED CONVECTION CHARACTERISTICS



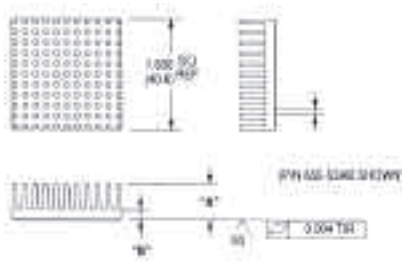


655 SERIES — *Omnidirectional Pin Fin Heat Sink for BGAs and PowerPC™*

Standard P/N	Base Dimensions in. (mm)	Dimension "A" in. (mm)	Dimension "B" in. (mm)	Typical Applications	Heat Sink Finish	Weight lbs. (grams)
655-26AB	1.600 (40.6) sq	0.260 (6.6)	0.125 (3.2)	40mm BGA	Black Anodized	0.038 (17.01)
655-53AB	1.600 (40.6) sq	0.525 (13.3)	0.145 (3.7)	40mm BGA	Black Anodized	0.050 (22.68)

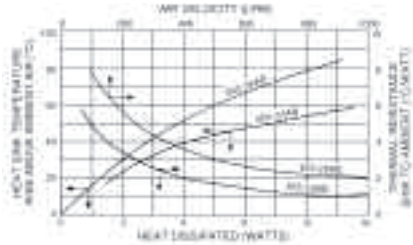
Notes: *1. Optional factory preapplied pressure-sensitive adhesive. See Page 3*

MECHANICAL DIMENSIONS



Dimensions: in. (mm)

NATURAL AND FORCED CONVECTION CHARACTERISTICS

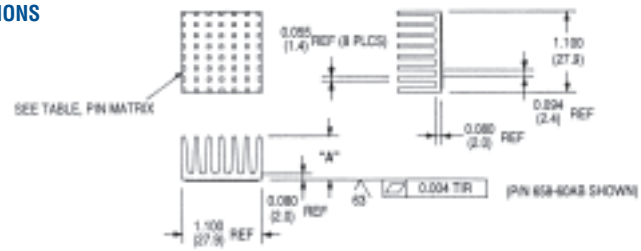


658 SERIES — *Omnidirectional Pin Fin Heat Sink for BGAs and PowerPC™*

Standard P/N	Base Dimensions in. (mm)	Dimension "A" in. (mm)	Typical Applications	Heat Sink Finish	Weight lbs. (grams)
658-25AB	1.100 (27.9) sq	0.250 (6.4)	27mm BGA	Black Anodized	0.013 (5.67)
658-35AB	1.100 (27.9) sq	0.350 (8.9)	27mm BGA	Black Anodized	0.015 (6.70)
658-45AB	1.100 (27.9) sq	0.450 (11.4)	27mm BGA	Black Anodized	0.019 (8.50)
658-60AB	1.100 (27.9) sq	0.600 (15.2)	27mm BGA	Black Anodized	0.031 (14.17)

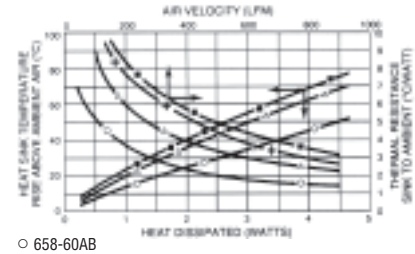
Notes: *1. Optional factory preapplied pressure-sensitive adhesive. See Page 3*

MECHANICAL DIMENSIONS



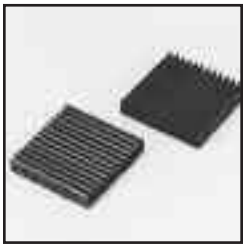
Dimensions: in. (mm)

NATURAL AND FORCED CONVECTION CHARACTERISTICS



KEY: ■ 658-25AB +658-35AB △ 658-45AB ○ 658-60AB

HEAT SINKS FOR BGAs, SUPER BGAs, PBGAs, and FPBGAs



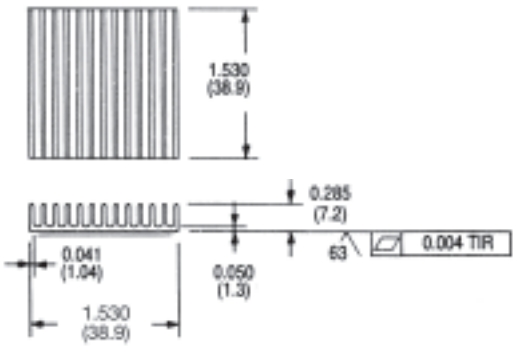
660 SERIES

Unidirectional Fin Heat Sink for BGAs

Standard P/N	Base Dimensions in. (mm)	Height in. (mm)	Typical Application	Heat Sink Finish	Weight lbs. (grams)
660-29AB	1.530SQ. (38.9)SQ.	0.285 (7.2)	37mm BGA	Black Anodized	0.031 (14.17)

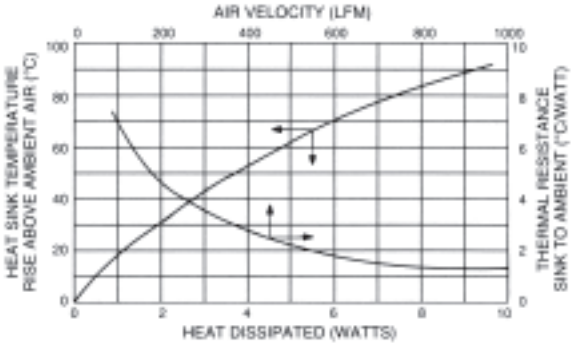
Notes: *1. Optional factory preapplied pressure-sensitive adhesive. See Page 3*

MECHANICAL DIMENSIONS



Dimensions: in. (mm)

NATURAL AND FORCED CONVECTION CHARACTERISTICS



642 SERIES

Unidirectional Fin Heat Sink for BGAs

Standard P/N	Base Dimensions in. Sq.	Fin Height "A" in. (mm)	Typical Applications	Weight lbs. (grams)
642-25AB	1.378 (35)	.250 (6.4)	35 mm BGA	.022 (9.99)
642-35AB	1.378 (35)	.350 (8.9)	35 mm BGA	.027 (12.26)
642-45AB	1.378 (35)	.450 (11.4)	35 mm BGA	.031 (14.07)
642-60AB	1.378 (35)	.600 (15.2)	35 mm BGA	.039 (17.71)

Material: Aluminum, Black Anodized

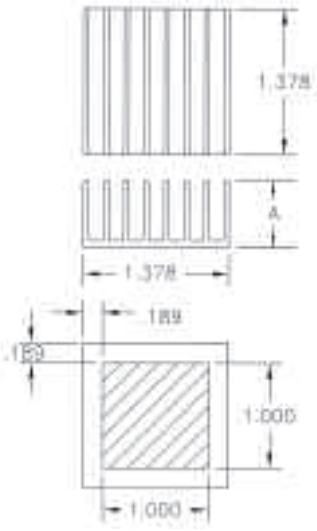
The 642 Series is an unidirectional pin fin heat sink for both natural and forced-convection applications.

Applications include network routers and switches, high-resolution printers, digital cameras, consumer video games, digital video disks (DVD) and global positioning systems (GPS).

PRODUCT FEATURES

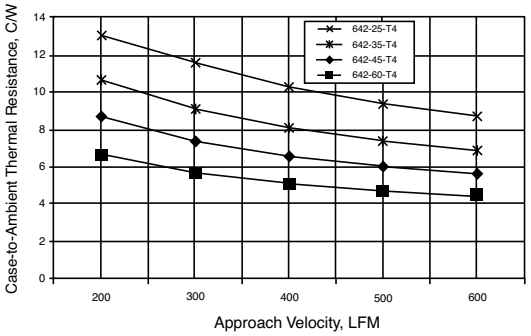
- Available in four standard heights, .25 inch, .35 inch, .45 inch, and .60 inch.
- Available with pressure sensitive adhesives for quick and easy mounting. See Page 3

MECHANICAL DIMENSIONS — 642 SERIES



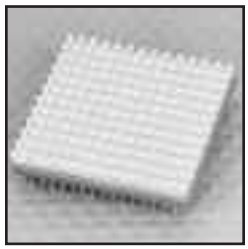
Dimensions: in. (mm)

642 THERMAL PERFORMANCE



Performance shown is with T4 thermal adhesive applied.

HEAT SINKS FOR BGAs, SUPER BGAs, PBGAs, and FPBGAs



662 SERIES

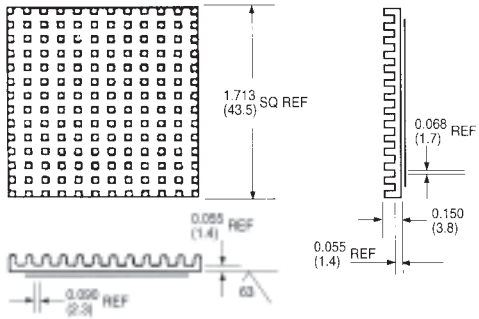
Omnidirectional Pin Fin Heat Sink for Limited Height BGAs

Standard P/N	Base Dimensions in. (mm)	Height in. (mm)	Typical Applications	Heat Sink Finish	Weight lbs. (grams)
662-15AG	1.713 (43.5) sq	0.150 (3.8)	45mm BGA	Gold Iridite	0.019 (8.50)
662-15AB	1.713 (43.5) sq	0.150 (3.8)	45mm BGA	Black Anodized	0.019 (8.50)

Notes: *1. Optional factory preapplied pressure-sensitive adhesive. See Page 3*

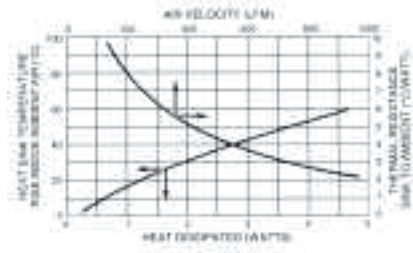
MECHANICAL DIMENSIONS

12 x 14 PINS



Dimensions: in. (mm)

NATURAL AND FORCED CONVECTION CHARACTERISTICS



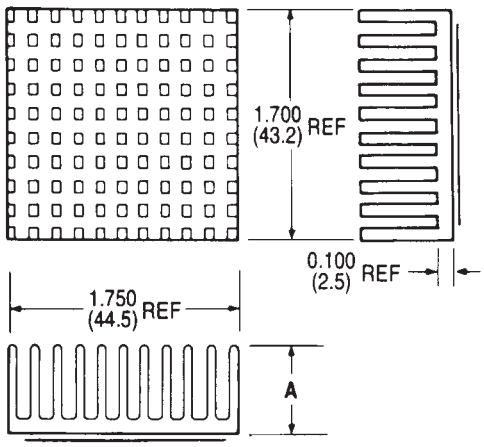
628 SERIES

Omnidirectional Pin Fin Heat Sink for BGAs

Standard P/N	Base Dimensions in. (mm)	Dimensions "A" in. (mm)	Typical Applications	Heat Sink Finish	Weight lbs. (grams)
628-20AB	1.750 (44.5) x 1.700 (43.2)	0.200 (5.1)	45mm BGA	Black Anodized	0.031 (14.17)
628-25AB	1.750 (44.5) x 1.700 (43.2)	0.250 (6.4)	45mm BGA	Black Anodized	0.038 (17.01)
628-35AB	1.750 (44.5) x 1.700 (43.2)	0.350 (8.9)	45mm BGA	Black Anodized	0.044 (19.84)
628-40AB	1.750 (44.5) x 1.700 (43.2)	0.400 (10.2)	45mm BGA	Black Anodized	0.050 (22.68)
628-65AB	1.750 (44.5) x 1.700 (43.2)	0.650 (16.5)	45mm BGA	Black Anodized	0.056 (25.51)

Notes: *1. Optional factory preapplied pressure-sensitive adhesive. See Page 3*

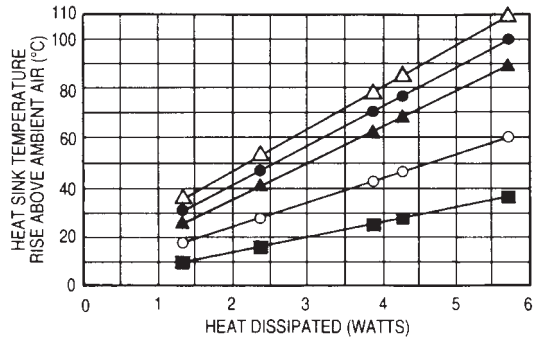
MECHANICAL DIMENSIONS



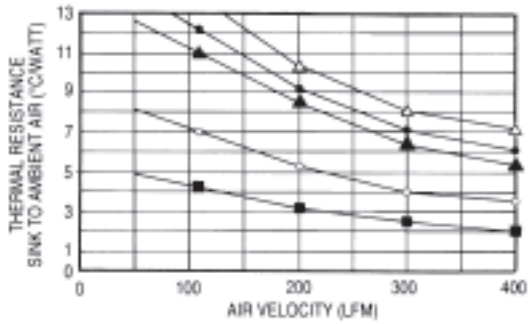
11 x 10 PINS

Dimensions: in. (mm)

NATURAL CONVECTION CHARACTERISTICS

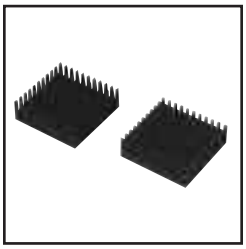


FORCED CONVECTION CHARACTERISTICS



KEY: △ 628-20AB ● 628-25AB ▲ 628-35AB ○ 628-40AB ■ 628-65AB

HEAT SINKS FOR BGAs, SUPER BGAs, PBGAs, and FPBGAs



630 SERIES

Omnidirectional Pin Fin Heat Sink for BGAs

Standard P/N	Base Dimensions in. Sq.	Fin Height "A" in. (mm)	Typical Applications	Weight lbs. (grams)
630-25AB	1.378 (35)	.250 (6.4)	35mm BGA	.009 (4.09)
630-35AB	1.378 (35)	.350 (8.9)	35mm BGA	.011 (4.99)
630-45AB	1.378 (35)	.450 (11.4)	35mm BGA	.015 (6.81)
630-60AB	1.378 (35)	.600 (15.2)	35mm BGA	.026 (11.80)

Material: Aluminum, Black Anodized

The 630 Series is an omnidirectional pin fin heat sink for both natural and forced-convection applications.

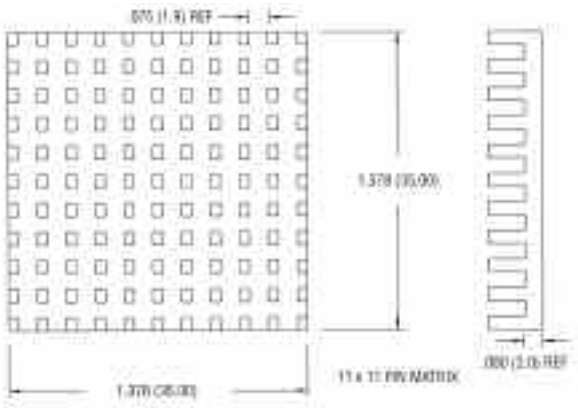
Applications include network routers and switches, high-resolution printers, digital cameras, consumer video games, digital video disks (DVD) and global positioning systems (GPS).

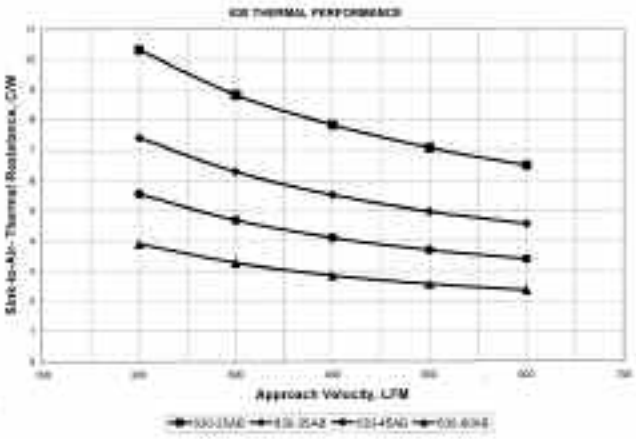
PRODUCT FEATURES

- Available in four standard heights, .25 inch, .35 inch, .45 inch, and .60 inch.
- Available with pressure sensitive adhesives for quick and easy mounting. See Page 3

MECHANICAL DIMENSIONS

630 SERIES





Dimensions: in.

HEAT SINKS FOR BGAs, SUPER BGAs, PBGAs, and FPBGAs

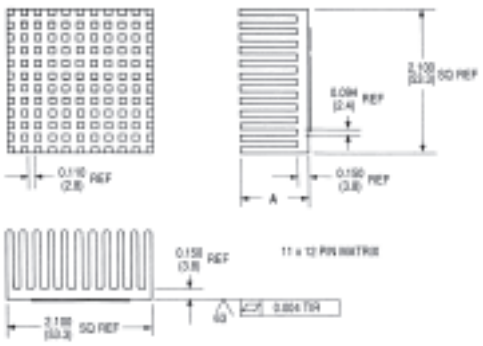
698 SERIES

Omnidirectional Pin Fin Heat Sink For BGAs

Standard P/N	Base Dimensions in. (mm)	Dimensions "A" in. (mm)	Typical Applications	Heat Sink Finish	Weight lbs. (grams)
698-40AB	2.100 (53.3) sq.	0.400 (10.2) sq.	45mm BGA	Black Anodized	0.075 (34.02)
698-65AB	2.100 (53.3) sq.	0.650 (16.5) sq.	45mm BGA	Black Anodized	0.119 (53.86)
698-80AB	2.100 (53.3) sq.	0.800 (20.3) sq.	45mm BGA	Black Anodized	0.125 (56.70)
698-100AB	2.100 (53.3) sq.	1.000 (25.4) sq.	45mm BGA	Black Anodized	0.144 (65.20)

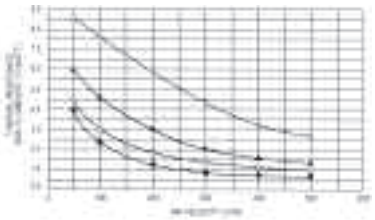
Notes: *1. Optional factory preapplied pressure-sensitive adhesive. See Page 3*

MECHANICAL DIMENSIONS



Dimensions: in. (mm)

FORCED CONVECTION THERMAL PERFORMANCE DATA (FLOW PARALLEL TO EXTRUSION DIRECTION)



KEY: ☐ 698-40AB ▲ 698-65AB ○ 698-80AB ■ 698-100AB

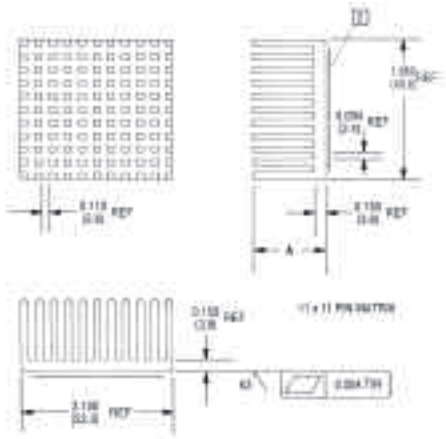
HEAT SINKS FOR BGAs, SUPER BGAs, PBGAs, and FPBGAs

798 SERIES

Pin Fin Heat Sink for BGAs

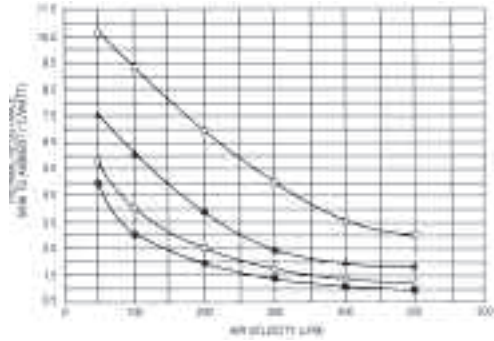
Standard P/N	Base Dimensions in. (mm)	Dimensions "A" in. (mm)	Typical Applications	Heat Sink Finish	Weight lbs. (grams)
798-40AB	2.100 (53.3) x 1.860 (47.2)	0.400 (10.2)	45mm BGA	Black Anodized	0.063 (28.35)
798-65AB	2.100 (53.3) x 1.860 (47.2)	0.650 (16.5)	45mm BGA	Black Anodized	0.106 (48.19)
798-80AB	2.100 (53.3) x 1.860 (47.2)	0.800 (20.3)	45mm BGA	Black Anodized	0.113 (51.03)
798-100AB	2.100 (53.3) x 1.860 (47.2)	1.000 (25.4)	45mm BGA	Black Anodized	0.131 (59.53)

MECHANICAL DIMENSIONS



Dimensions: in. (mm)

FORCED CONVECTION THERMAL PERFORMANCE DATA (FLOW PARALLEL TO EXTRUSION DIRECTION)



KEY: □ 798-40AB ▲ 798-65AB ○ 798-80AB ■ 798-100AB

Notes:

1 . Heat sink mounting surface flatness: 0.004" TIR

2. Optional factory preapplied pressure-sensitive adhesive. See Page 3

643 SERIES

Omnidirectional Pin Fin Heat Sink for BGAs

Standard P/N	Base Dimensions in. (mm)	Fin Height in. (mm)	Typical Applications	Weight lbs. (grams)
643-35AP	1.60 (40.64) x 1.10 (27.94)	0.350 (8.89)	40 mm BGA	.070 (31.78)

Material: Aluminum, Plain Finish

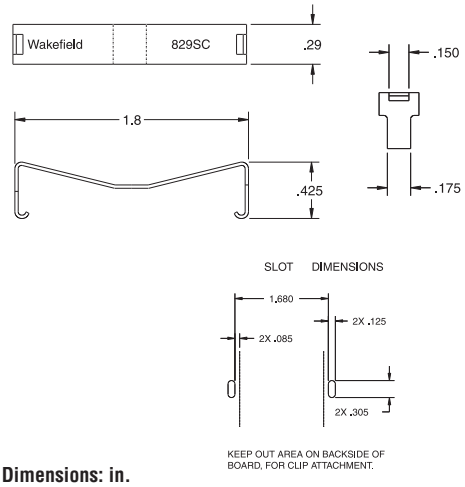
The Series 643-35AP is an omnidirectional pin fin heat sink for both natural and forced-convection applications designed to fit a 40 mm BGA.

Applications include network routers and switches, high-resolution printers, digital cameras, consumer video games, digital video disks (DVD) and global positioning systems (GPS).

PRODUCT FEATURES

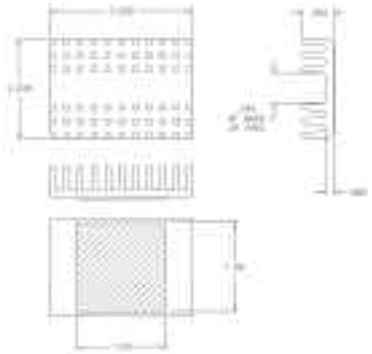
- Available with pressure sensitive adhesives to ensure good thermal performance. See page 3
- Can be ordered with the 829SC clip. Order clip separately. (Clip cannot be purchased without heat sink)

MECHANICAL DIMENSIONS

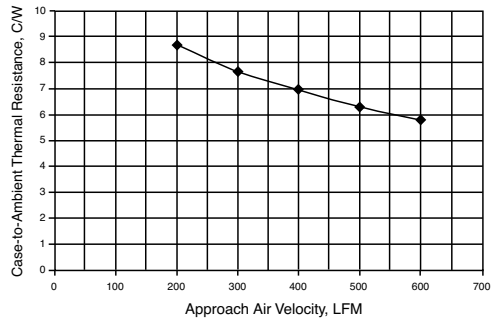


Dimensions: in.

643-35AP SERIES

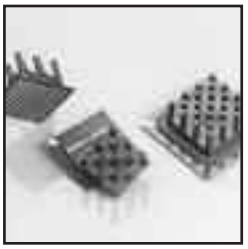


643 THERMAL PERFORMANCE



Performance shown is with S5 interface material applied.

DELTEM™ COMPOSITE HEAT SINKS FOR BGAs



Deltem™ D10650-40 *Pin Fin Heat Sink*

Standard P/N	Base Dimensions in. (mm)	Height in. (mm)	Weight lbs. (grams)
D10650-40	0.650 (16.5) sq	0.400 (10.2)	0.004 (1.91)

Notes: *Available with pressure sensitive adhesives for quick and easy mounting. See Page 3*

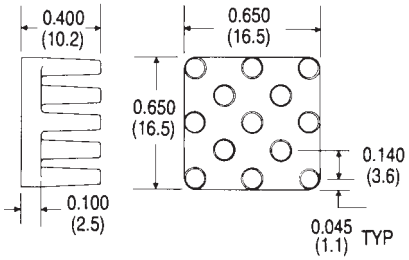
Deltem™ D10850-40 *Pin Fin Heat Sink*

Standard P/N	Base Dimensions in. (mm)	Height in. (mm)	Typical Applications	Weight lbs. (grams)
D10850-40	0.850 (21.6) sq	0.400 (10.2)	21mm BGA	0.006 (3.9)

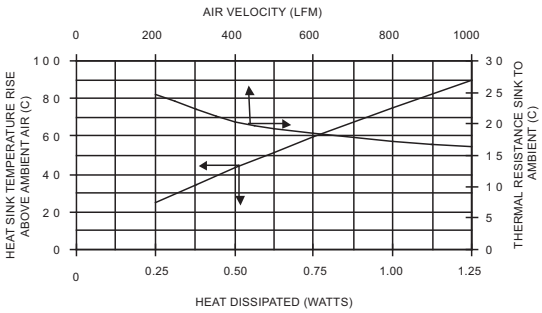
Notes: *Available with pressure sensitive adhesives for quick and easy mounting. See Page 3*

MECHANICAL DIMENSIONS

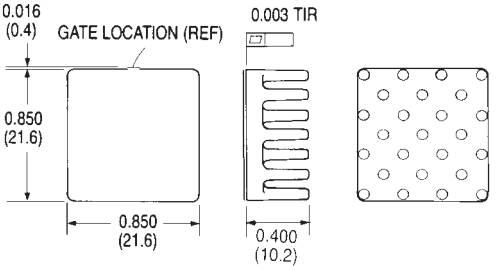
DELTEM™ D10650-40 PIN FIN HEAT SINK



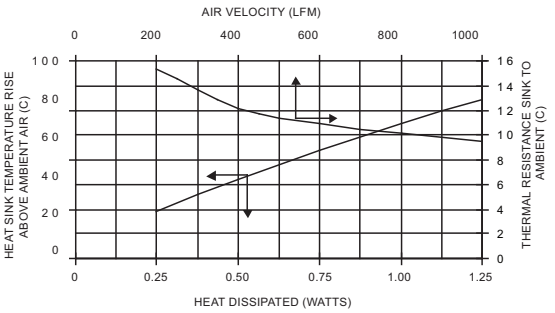
NATURAL AND FORCED CONVECTION CHARACTERISTICS



DELTEM™ D10850-40 PIN FIN HEAT SINK

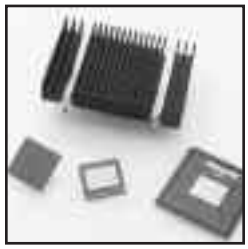


NATURAL AND FORCED CONVECTION CHARACTERISTICS



Dimensions: in. (mm)

HEAT SINKS FOR BGAs, SUPER BGAs, PBGAs, and FPBGAs



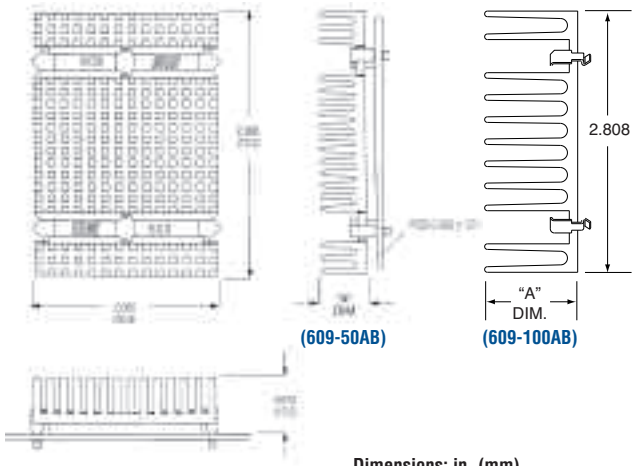
609 SERIES

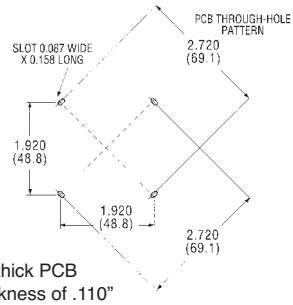
Pin Fin Heat Sink/Clip Assembly for BGAs and PowerPC™ Packages

Standard P/N	Base Dimensions in. (mm)	Dimensions "A" in. (mm)	Typical Applications	Heat Sink Finish	Weight lbs. (grams)
609-50AB	2.895 (73.5) x 2.000 (50.8)	0.500 (12.7)	40&45mm BGA	Black Anodized	0.094 (42.5)
609-100AB	2.808 (71.32) x 1.700 (43.2)	1.00 (25.4)	40&45mm BGA	Black Anodized	0.130 (59.0)

Note: Optional factory preapplied thermal interface material.
S3 (Bergquist Q-Pad 3, 0.14 °C in²/w)
S4 (Bergquist Softface, 0.07 °C in²/w)

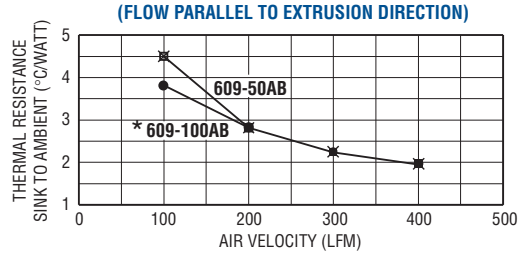
MECHANICAL DIMENSIONS





Designed to fit a .063" thick PCB electronic package thickness of .110"

FORCED CONVECTION THERMAL PERFORMANCE DATA (FLOW PARALLEL TO EXTRUSION DIRECTION)



*Performance is for shrouded conditions. 609-100 will perform better than 609-50 in cases with bypass.

619 SERIES

Fan Heat Sink for BGA and PowerPC™ Packages

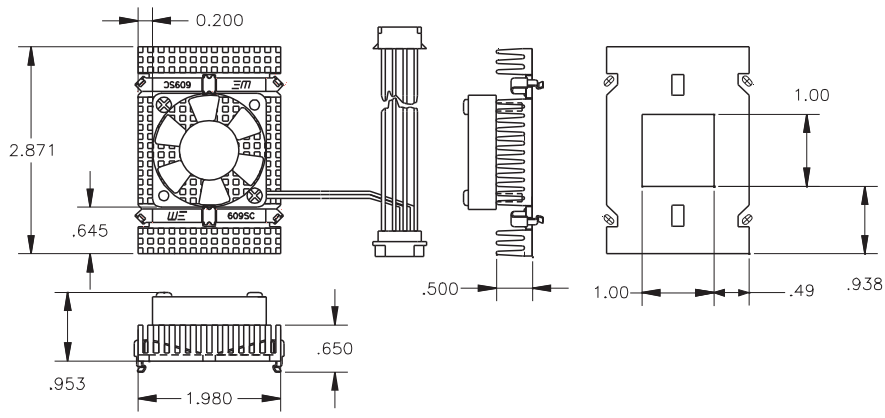
Standard P/N	Base Dimensions in. (mm)	Height in. (mm)	Typical Applications	Heat Sink Finish	Thermal Performance	Weight lbs. (grams)
61995AB124D1	2.871 (72.92) x 1.98 (50.29)	0.953 (24.21)	40&45mm BGA	Black Anodized	1.2° C/W	.150 (68.10)
61995AB054D1	2.871 (72.92) x 1.98 (50.29)	0.953 (24.21)	40&45mm BGA	Black Anodized	1.2° C/W	.150 (68.10)

Note: Optional factory preapplied thermal interface material. See 609 series.

FEATURES AND BENEFITS:

- Captivated clips for ease of assembly
- Low acoustic noise
- Impingement air flow
- Accommodates BGA packages up to 45 mm in size

MECHANICAL DIMENSIONS



Dimensions: in.

See 609 Series for PCB hole layout for clip attachment

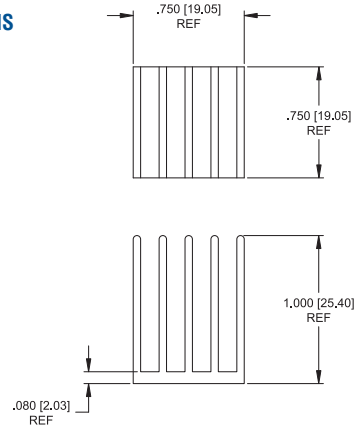
HEAT SINKS FOR BGAs, SUPER BGAs, PBGAs, and FPBGAs

602 SERIES *Unidirectional Fin Heat Sink for BGAs*

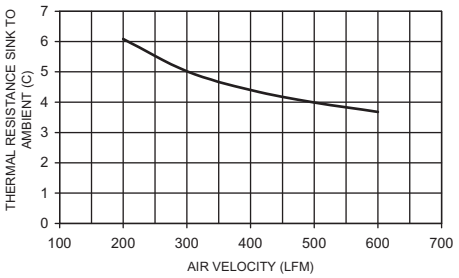
Standard P/N	Base Dimensions in. (mm)	Height in. (mm)	Heat Sink Finish	Weight lbs. (grams)
602-100AP	.750 (19.1) sq	1.000 (25.4)	Plain	.021 (9.59)

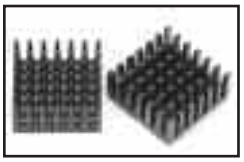
Material: Aluminum, Plain Finish

MECHANICAL DIMENSIONS



602 THERMAL PERFORMANCE



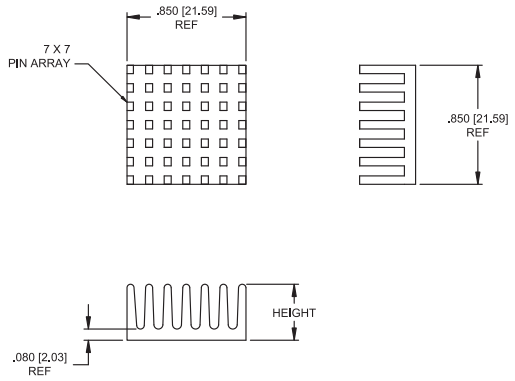


604 SERIES *Omnidirectional Pin Fin Heat Sink for BGAs*

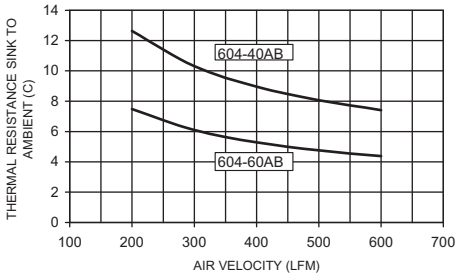
Standard P/N	Base Dimensions in. (mm)	Height in. (mm)	Heat Sink Finish	Weight lbs. (grams)
604-40AB	.850 (21.6) sq	.400 (10.2)	Black Anodized	.012 (5.60)
604-60AB	.850 (21.6) sq	.600 (15.2)	Black Anodized	.016 (7.47)

Material: Aluminum, Black Anodized

MECHANICAL DIMENSIONS



604 THERMAL PERFORMANCE



HEAT SINKS FOR BGAs, SUPER BGAs, PBGAs, and FPBGAs

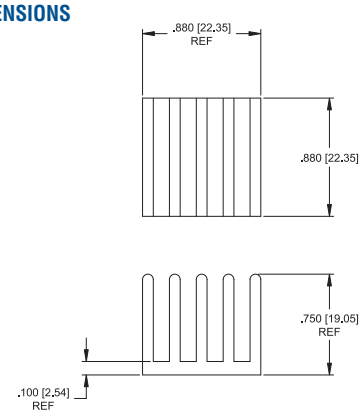
605 SERIES

Unidirectional Fin Heat Sink for BGAs

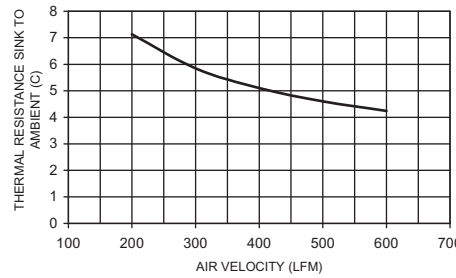
Standard P/N	Base Dimensions in. (mm)	Height in. (mm)	Heat Sink Finish	Weight lbs. (grams)
605-75AB	.880 (22.4) sq	.750 (19.1)	Black Anodized	.030 (13.5)

Material: Aluminum, Black Anodized

MECHANICAL DIMENSIONS



605 THERMAL PERFORMANCE



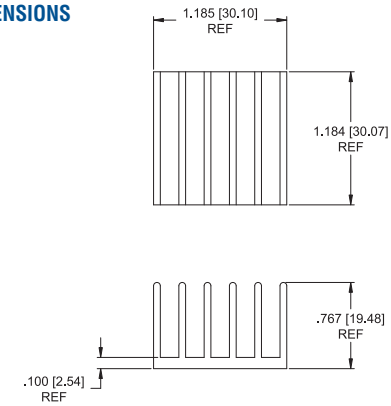
606 SERIES

Unidirectional Fin Heat Sink for BGAs

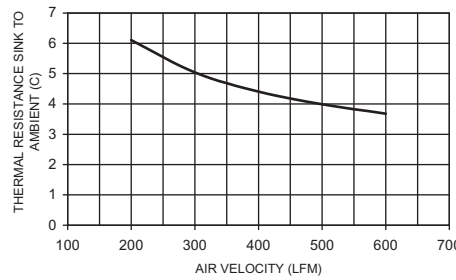
Standard P/N	Base Dimensions in. (mm)	Height in. (mm)	Heat Sink Finish	Weight lbs. (grams)
606-77AB	1.185 (30.1) sq	.767 (19.5)	Black Anodized	.041 (18.7)

Material: Aluminum, Black Anodized

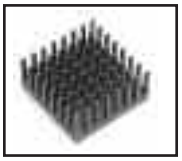
MECHANICAL DIMENSIONS



606 THERMAL PERFORMANCE



HEAT SINKS FOR BGAs, SUPER BGAs, PBGAs, and FPBGAs



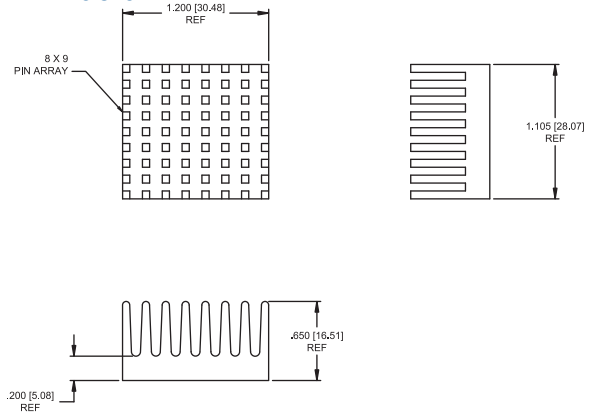
607 SERIES

Unidirectional Fin Heat Sink for BGAs

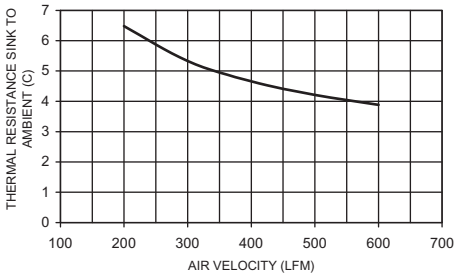
Standard P/N	Base Dimensions in. (mm)	Height in. (mm)	Heat Sink Finish	Weight lbs. (grams)
607-65AB	1.200 (30.5) x 1.105 (28.1)	.650 (16.5)	Black Anodized	.041 (18.7)

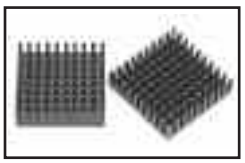
Material: Aluminum, Black Anodized

MECHANICAL DIMENSIONS



607 THERMAL PERFORMANCE





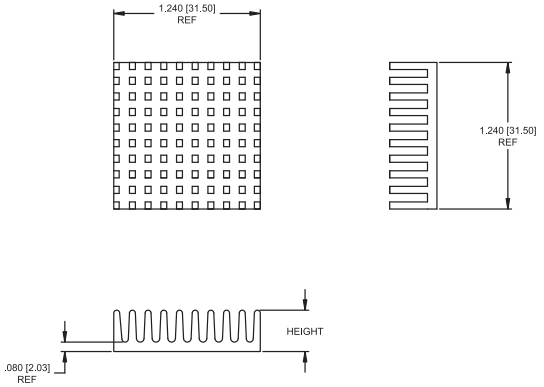
610 SERIES

Omnidirectional Pin Fin Heat Sink for BGAs

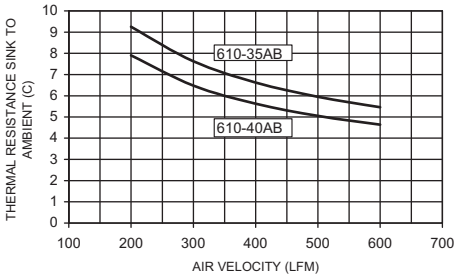
Standard P/N	Base Dimensions in. (mm)	Height in. (mm)	Heat Sink Finish	Weight lbs. (grams)
610-35AB	1.240 (31.5) sq	.350 (8.9)	Black Anodized	.022 (10.0)
610-40AB	1.240 (31.5) sq	.400 (10.2)	Black Anodized	.024 (10.8)

Material: Aluminum, Black Anodized

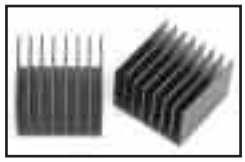
MECHANICAL DIMENSIONS



610 THERMAL PERFORMANCE



HEAT SINKS FOR BGAs, SUPER BGAs, PBGAs, and FPBGAs



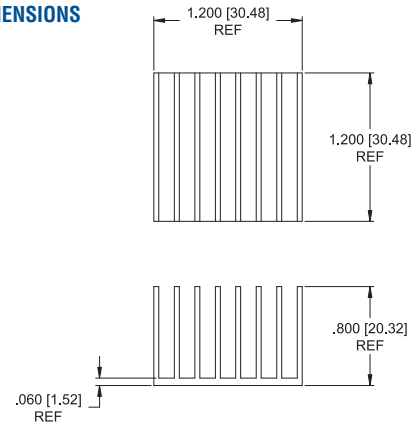
611 SERIES

Unidirectional Fin Heat Sink for BGAs

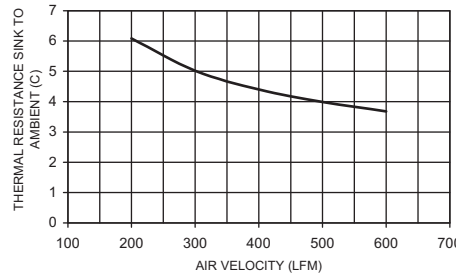
Standard P/N	Base Dimensions in. (mm)	Height in. (mm)	Heat Sink Finish	Weight lbs. (grams)
611-80AB	1.200 (30.5) sq	.800 (20.3)	Black Anodized	.036 (16.3)

Material: Aluminum, Black Anodized

MECHANICAL DIMENSIONS



611 THERMAL PERFORMANCE



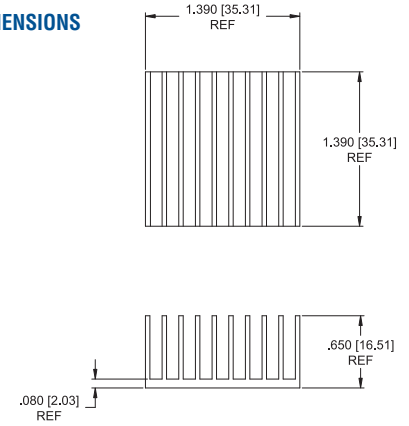
612 SERIES

Unidirectional Fin Heat Sink for BGAs

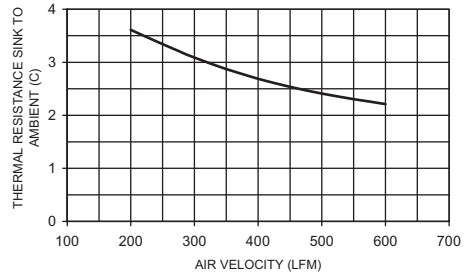
Standard P/N	Base Dimensions in. (mm)	Height in. (mm)	Heat Sink Finish	Weight lbs. (grams)
612-65AB	1.390 (35.3) sq	.650 (16.5)	Black Anodized	.054 (24.5)

Material: Aluminum, Black Anodized

MECHANICAL DIMENSIONS



612 THERMAL PERFORMANCE



HEAT SINKS FOR BGAs, SUPER BGAs, PBGAs, and FPBGAs

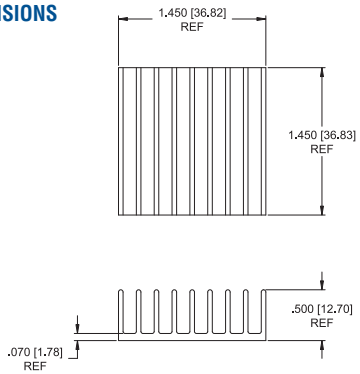
613 SERIES

Unidirectional Fin Heat Sink for BGAs

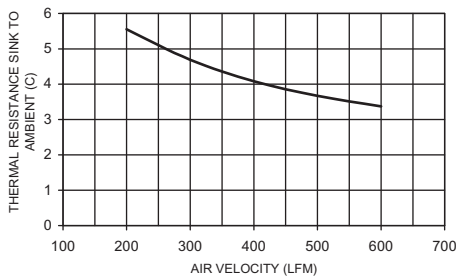
Standard P/N	Base Dimensions in. (mm)	Height in. (mm)	Heat Sink Finish	Weight lbs. (grams)
613-50AB	1.450 (36.8) sq	.500 (12.7)	Black Anodized	.046 (20.8)

Material: Aluminum, Black Anodized

MECHANICAL DIMENSIONS



613 THERMAL PERFORMANCE



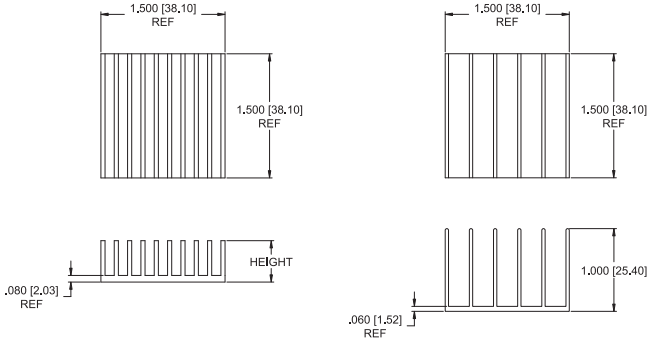
614 SERIES

Unidirectional Fin Heat Sink for BGAs

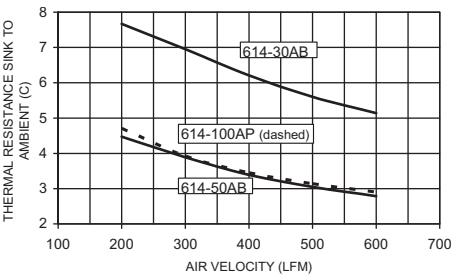
Standard P/N	Base Dimensions in. (mm)	Height in. (mm)	Heat Sink Finish	Weight lbs. (grams)
614-30AB	1.500 (38.1) sq	.300 (7.6)	Black Anodized	.030 (13.8)
614-50AB	1.500 (38.1) sq	.500 (12.7)	Black Anodized	.048 (21.8)
614-100AP	1.500 (38.1) sq	1.000 (25.4)	Plain	.046 (20.9)

Material: Aluminum, Black Anodized or Plain

MECHANICAL DIMENSIONS



614 THERMAL PERFORMANCE



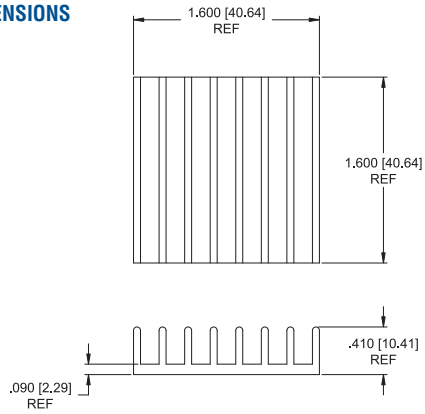
HEAT SINKS FOR BGAs, SUPER BGAs, PBGAs, and FPBGAs

615 SERIES *Unidirectional Fin Heat Sink for BGAs*

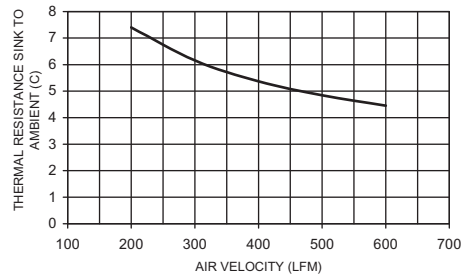
Standard P/N	Base Dimensions in. (mm)	Height in. (mm)	Heat Sink Finish	Weight lbs. (grams)
615-41AB	1.600 (40.6) sq	.410 (10.4)	Black Anodized	.046 (21.0)

Material: Aluminum, Black Anodized

MECHANICAL DIMENSIONS



615 THERMAL PERFORMANCE

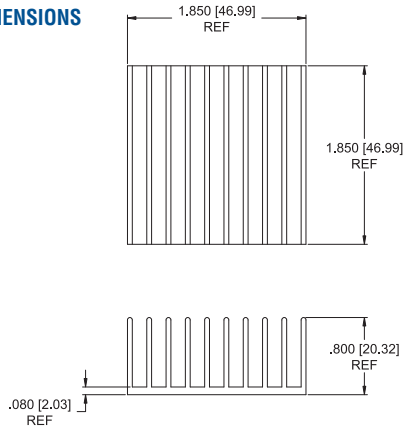


616 SERIES *Unidirectional Fin Heat Sink for BGAs*

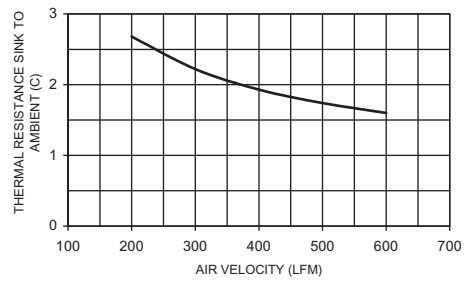
Standard P/N	Base Dimensions in. (mm)	Height in. (mm)	Heat Sink Finish	Weight lbs. (grams)
616-80AB	1.85 (47.0) sq	.800 (20.3)	Black Anodized	.054 (24.5)

Material: Aluminum, Black Anodized

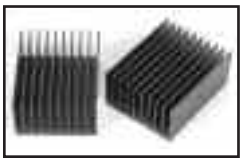
MECHANICAL DIMENSIONS



616 THERMAL PERFORMANCE



HEAT SINKS FOR BGAs, SUPER BGAs, PBGAs, and FPBGAs



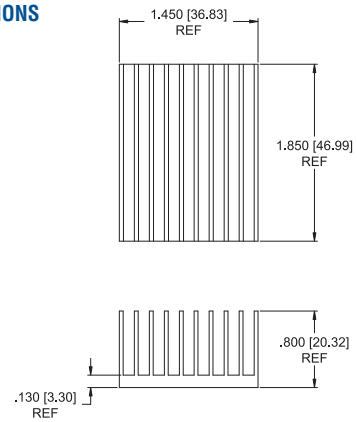
617 SERIES

Unidirectional Fin Heat Sink for BGAs

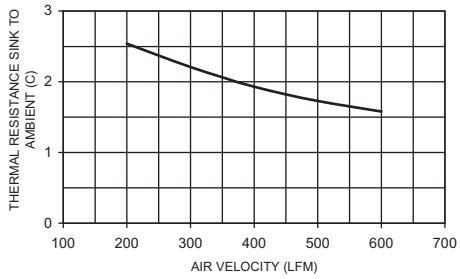
Standard P/N	Base Dimensions in. (mm)	Height in. (mm)	Heat Sink Finish	Weight lbs. (grams)
617-80AB	1.450 (36.8) x 1.850 (47.0)	.800 (20.3)	Black Anodized	.082 (37.2)

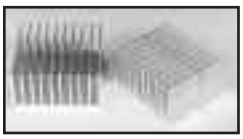
Material: Aluminum, Black Anodized

MECHANICAL DIMENSIONS



617 THERMAL PERFORMANCE





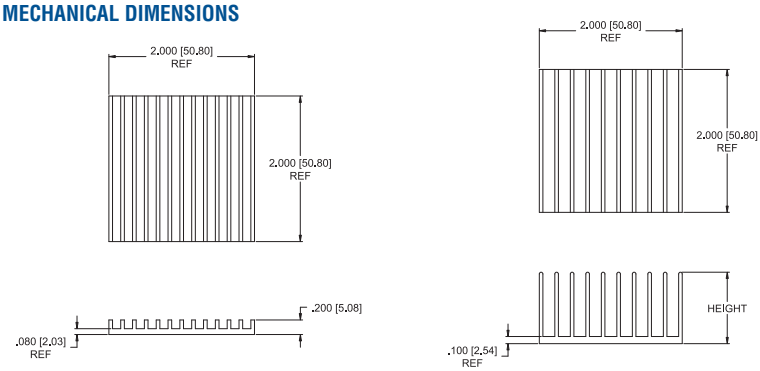
618 SERIES

Unidirectional Fin Heat Sink for BGAs

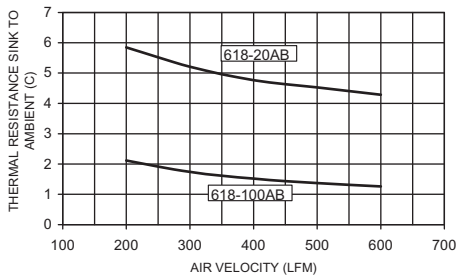
Standard P/N	Base Dimensions in. (mm)	Height in. (mm)	Heat Sink Finish	Weight lbs. (grams)
618-20AB	2.00 (50.8) sq	.200 (5.1)	Black Anodized	.046 (21.0)
618-100AP	2.00 (80.8) sq	1.000 (25.4)	Plain	.122 (55.5)

Material: Aluminum, Black Anodized or Plain

MECHANICAL DIMENSIONS



618 THERMAL PERFORMANCE



HEAT SINKS FOR BGAs, SUPER BGAs, PBGAs, and FPBGAs

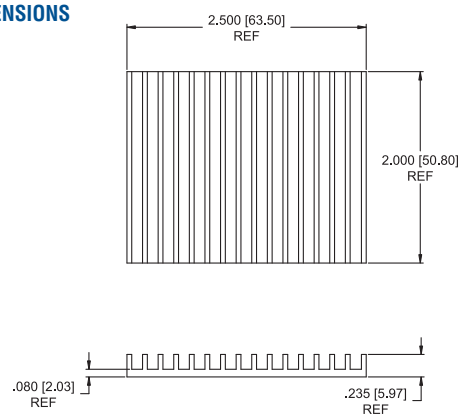
620 SERIES

Unidirectional Fin Heat Sink for BGAs

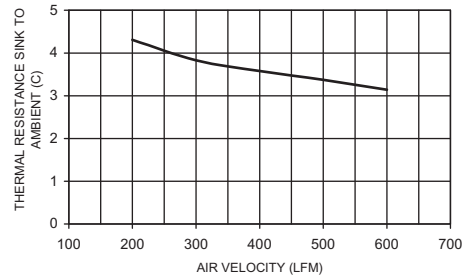
Standard P/N	Base Dimensions in. (mm)	Height in. (mm)	Heat Sink Finish	Weight lbs. (grams)
620-24AB	2.500 (63.5) x 2.000 (50.8)	.235 (6.0)	Black Anodized	.063 (28.6)

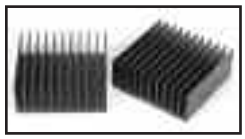
Material: Aluminum, Black Anodized

MECHANICAL DIMENSIONS



620 THERMAL PERFORMANCE





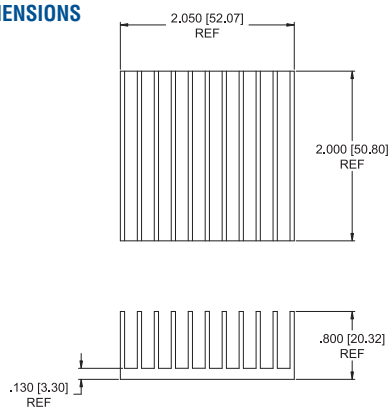
622 SERIES

Unidirectional Fin Heat Sink for BGAs

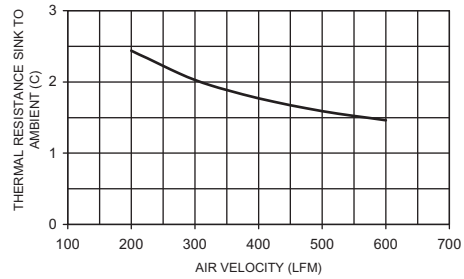
Standard P/N	Base Dimensions in. (mm)	Height in. (mm)	Heat Sink Finish	Weight lbs. (grams)
622-80AB	2.050 (52.1) x 2.000 (50.8)	.800 (20.3)	Black Anodized	.123 (56.0)

Material: Aluminum, Black Anodized

MECHANICAL DIMENSIONS



622 THERMAL PERFORMANCE



HEAT SINKS FOR MICROPROCESSORS AND ASICs

569, 579, 589, 599 SERIES

Heat Sinks & Clip for Intel's Pentium, Pentium MMX, AMD's K6 & K62, CYRIX's 6x86 & Media GX, Centaur/IDT's WinChip C6

Standard P/N	Base Dimensions in. (mm)	Fin Height in. (mm)	Thermal Resistance at 200 LFM (°C/W)	Interface Material Options
569-100AK	2.34 (59.44) x 2.68 (67.95)	1.00 (25.4)	1.7	Pages 74–76
579-150AK	2.15 (54.71) x 1.95 (49.53)	1.50 (38.10)	1.6	Pages 74–76
589-150AK	2.15 (54.71) x 3.10 (78.74)	1.50 (38.10)	1.5	Pages 74–76
599X-100AB	1.96 (49.78) x 2.67 (67.95)	1.00 (25.4)	1.9	Pages 74–76

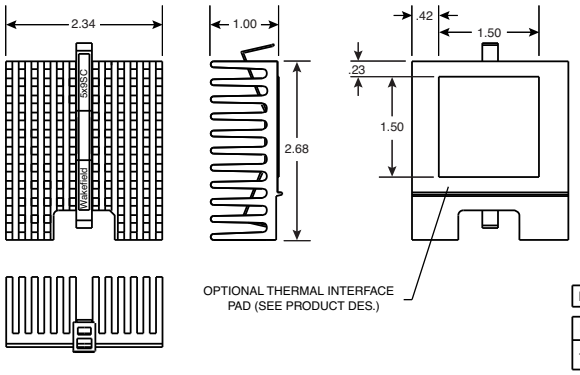
Material: Aluminum, Black Anodized

PRODUCT FEATURES

- Compact design heat sinks can comfortably fit a variety of Robust Socket 7-based PC boxes
- Robust clip attachments
- Clips are not captive to sink
- To order heat sink with optional interface material pre-applied at the factory, add S4 or S5 suffix to the part number. (See Product Designation)

569-100AK SERIES

MECHANICAL DIMENSIONS



Dimensions: in.

PRODUCT DESIGNATION

569 - 100 XX - XX

- **MODEL NUMBER**
- **HEIGHT**: 100 = 1.00"
- **THERMAL INTERFACE**: S4 = DELTALINK IV; BLANK = NO THERMAL PAD
- **CLIP**: AK = SPRING CLIP

650/651 SERIES

Low-Cost Heat Sinks for DIPs and SRAMs

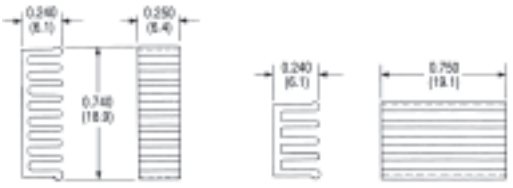
14-16 Pin DIPs

Standard P/N	Length in. (mm)	Width in. (mm)	Height in. (mm)	Typical Applications	Weight lbs. (grams)
650B	0.250 (6.4)	0.740 (18.9)	0.240 (6.1)	14-Pin, 16-Pin DIP	0.003 (1.36)
651B	0.750 (19.1)	0.415 (10.5)	0.240 (6.1)	14-Pin, 16-Pin DIP	0.005 (2.27)

These extruded heat sinks serve as low-cost heat dissipation solutions for DIPs with pin counts from 14 to 16. Use an epoxy such as Wakefield Engineering DeltaBond™ 152 or 155, or use Wakefield 2-part DeltaBond™ 156 modified acrylic adhesive. The 650 and 651 are also available in natural aluminum finish. They can be ordered as 650P or 651P.

MECHANICAL DIMENSIONS

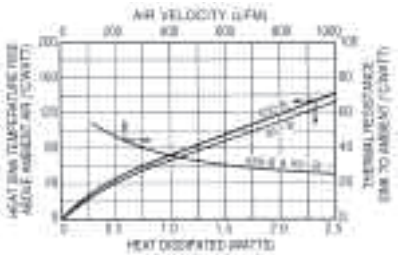
Notes:
1. Finish: black anodize
2. TIR: Total Indicator Reading. This is a measure of flatness across the greatest dimension of a surface.



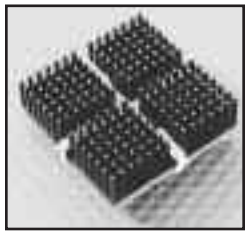
650B 651B

Dimensions: in. (mm)

NATURAL AND FORCED CONVECTION CHARACTERISTICS



HEAT SINKS FOR MICROPROCESSORS AND ASICs



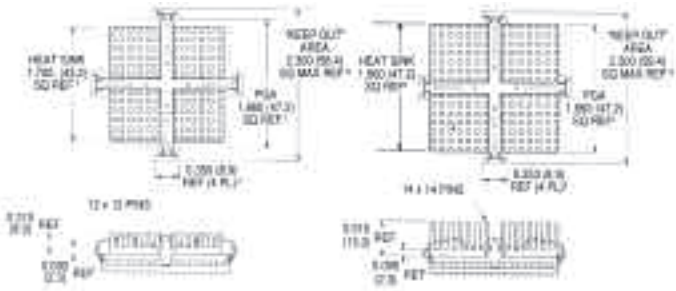
649 SERIES

SpiderClip™ Heat Sink Assembly for Motorola MC68040™, MC68060

18 x 18 PGA

Standard P/N	Base Dimensions in. (mm)	Height in. (mm)	Base Thickness in. (mm)	Clip Color	Heat Sink Finish	Weight lbs. (grams)
649-33AB	1.70 (43.2) sq	0.315 (8.0)	0.090 (2.3)	Gray	Black Anodized	0.044 (19.84)
649-51AB	1.86 (47.2) sq	0.510 (13.0)	0.090 (2.3)	Gray	Black Anodized	0.056 (25.51)

MECHANICAL DIMENSIONS

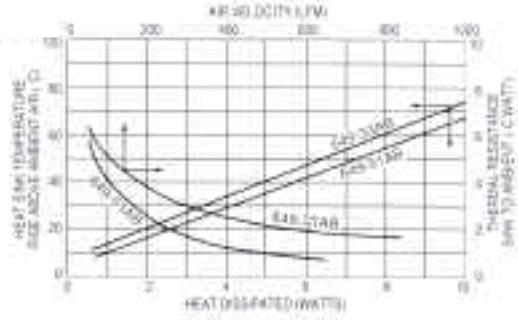


649-33AB SPIDERCLIP™ ASSEMBLY

649-51AB SPIDERCLIP™ ASSEMBLY

Dimensions: in. (mm)

NATURAL AND FORCED CONVECTION CHARACTERISTICS



669 SERIES
661 SERIES

SpiderClip™ Heat Sink Assembly for IntelDX4™, AMD AM486DX2, and AM486DX4

Heat Sink without clip

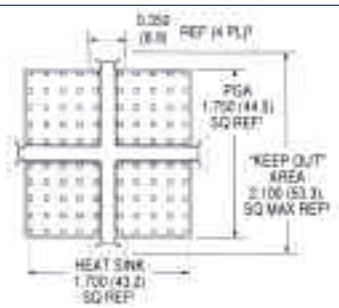
17 x 17 SPGA

Standard P/N	Base Dimensions in. (mm)	Dimensions "A" Height in. (mm)	Base Thickness in. (mm)	Clip Color	Standard Finish	Weight lbs. (grams)
669-32AG	1.70 (43.2) sq	0.315 (8.0)	0.090 (2.3)	Black	Gold Iridite	0.044 (19.84)
669-33AB	1.70 (43.2) sq	0.315 (8.0)	0.090 (2.3)	Black	Black Anodized	0.044 (19.84)
669-40AB	1.70 (43.2) sq	0.400 (10.2)	0.090 (2.3)	Black	Black Anodized	0.044 (19.84)
669-52AB	1.70 (43.2) sq	0.520 (13.2)	0.090 (2.3)	Black	Black Anodized	0.050 (22.68)
661-32AG	1.70 (43.2) sq	0.315 (8.0)	0.090 (2.3)	N/A	Gold Iridite	0.044 (19.84)
661-33AB	1.70 (43.2) sq	0.315 (8.0)	0.090 (2.3)	N/A	Black Anodized	0.044 (19.84)
661-40AB	1.70 (43.2) sq	0.400 (10.2)	0.090 (2.3)	N/A	Black Anodized	0.044 (19.84)
661-52AB	1.70 (43.2) sq	0.520 (13.2)	0.090 (2.3)	N/A	Black Anodized	0.050 (22.68)

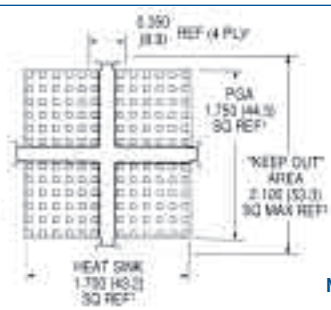
669 Series SpiderClip™ Heat Sink Assemblies may be applied to the following:

- Intel 80486DX and 80486DX2™ (168 PGA)
- AMD Am 29000 Microcontrollers
- Intel 82495 Cache Controller
- Intel 80486SX (168 PGA) and I860XR (208 PGA)
- Intel I960CA, I960CF Enbedded Controllers
- Intel DX4™ (168 PGA)
- AMD Am 486 Microprocessors AM486DX2, AM486DX4

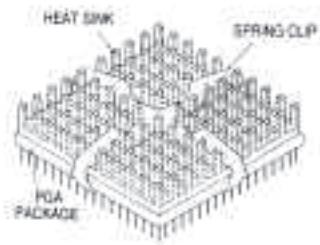
MECHANICAL DIMENSIONS



669-32AG

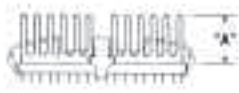


669-33AB
669-40AB
669-52AB

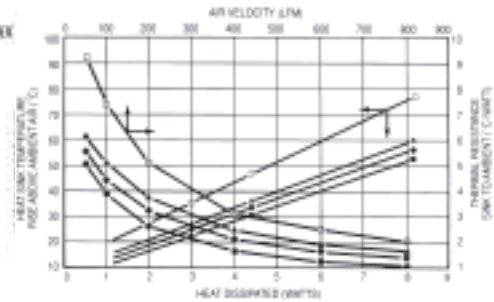


NATURAL AND FORCED CONVECTION CHARACTERISTICS

669-32AG SPIDERCLIP™ ASSEMBLY



669-52AB SPIDERCLIP™ ASSEMBLY



Dielectric Breakdown (Nylon Clip Coating)

Dielectric Strength: 100 VDC/mil
Breakdown Voltage: 200 VDC (minimum)

Dimensions: in. (mm)

KEY:

- □ 669-32AG 0.315 (8.0) Pin Height, low density pin pattern
- ▲ 669-33AB 0.315 (8.0) Pin Height, high density pin pattern
- ◆ 669-40AB 0.400 (10.2) Pin Height, high density pin pattern
- ■ 669-52AB 0.520 (13.2) Pin Height, high density pin pattern