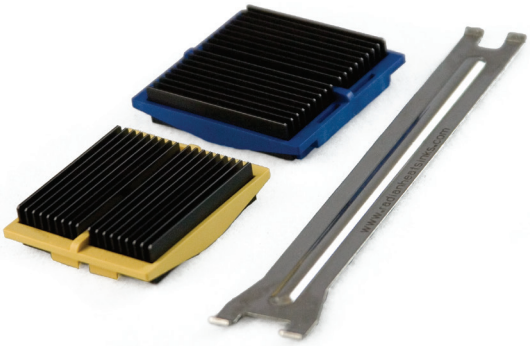
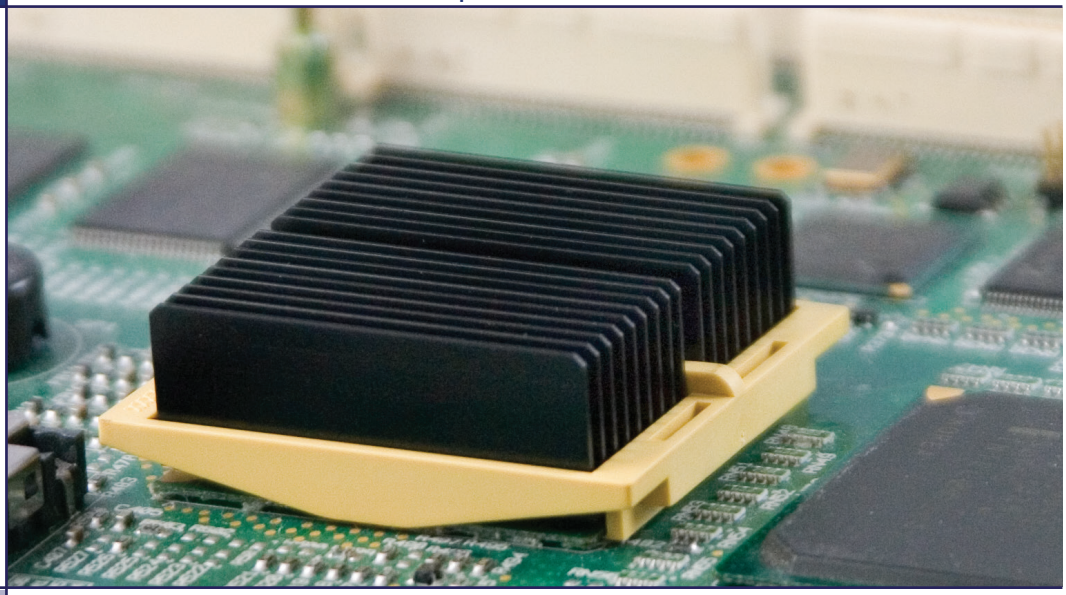
INL Series

Aluminum Plate Fin BGA Heatsink

Removable Heatsinks for BGA Chipsets





The INL Series of aluminum plate fin BGA heatsinks are low profile, high efficiency cooling products which are ideal for linear air flow environments.

These devices mount with EZ Snap™ mounting clips to provide optimum cooling for various package sizes and airflow. These off-the-shelf, high efficiency solutions are easy to install and require no special board modifications or complex assemblies.

Features:

* Low profile high density heatsink
* High efficiency aluminum plate fin design provides low pressure-drop characteristics
* Constructed of extruded aluminum AL6063 for optimum heat transfer
* Ideal for linear air flow environments
* Designed specifically for BGAs and other surface mount packages
* Optional EZ-Snap™ mounting clip is constructed of UL94-V0 rated nylon
* Use clip tool HS8132 to attach or remove heatsink assembly directly to BGA chip
* Finished with black anodize plating
* Selected clip & thermal pad options are pre-assembled at the factory

Radian Heatsinks
A division of Intricast Co., Inc.
www.radianheatsinks.com

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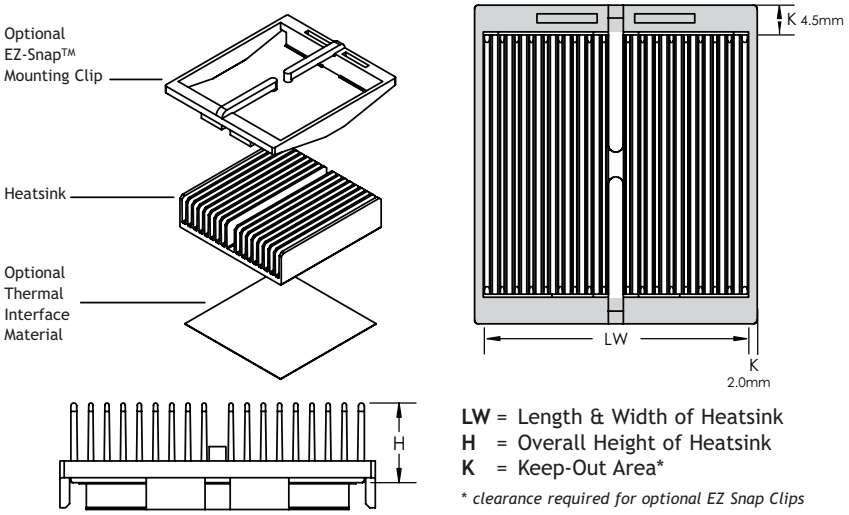
www.radianstore.com

Mechanical Outline Drawing

(See 2nd page for "LW" & "H" dimensional values)



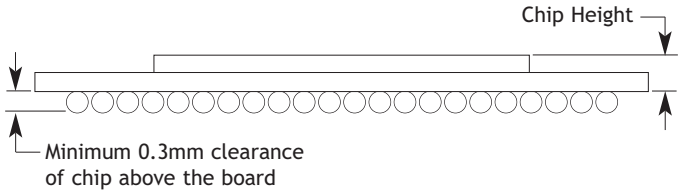
LW = Length & Width of Heatsink
H = Overall Height of Heatsink
K = Keep-Out Area*

** clearance required for optional EZ Snap Clips*

EZ Snap™ Mounting Clip

CLIPS DIRECTLY TO BGA CHIP WITH HS8063 CLIP TOOL

See page 2 for fitting chip heights. Consult factory for unique chip height requirements



Note 1: Chip height measurements exclude ball dimensions (0.3mm)
Note 2: Chip must have 0.3mm clearance above the board for clip to adhere properly
Note 3: Maintain keep-out clearance of 2mm Length side and 4.5mm Width side around chip for clip to adhere properly

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Length & Width of Heatsink (mm)	Part Number[1]			Optional Thermal Tape/Pad Part #[2]	Heatsink Height (mm)	Weight (g)	Thermal Resistance Theta_SA (C/W)		
	Heatsink Part Number	Optional Mounting Clip					200 LFM	400 LFM	600 LFM
		Part Number[3]	Fits Chip Heights (mm)						
19	INL19001-6/1.7	O	0.9-1.4*	+T725	6.3	4.6	5.5	4.6	4.1
	INL19001-10/1.7	-or- BU -or-	-or- 1.5-2.0* -or-		9.5	5.7	4.9	3.9	3.5
	INL19001-13/1.7	Y	2.1-2.6*		12.7	6.8	4.1	3.4	3.1
21	INL21001-6/1.7	O	0.9-1.4*	+T725	6.3	5.3	5.4	4.3	3.8
	INL21001-10/1.7	-or- BU -or-	-or- 1.5-2.0* -or-		9.5	6.7	4.7	3.7	3.2
	INL21001-13/1.7	Y	2.1-2.6*		12.7	8.0	3.9	3.3	2.8
23	INL23001-6/1.7	O	0.9-1.4*	+T725	6.3	6.2	5.3	4.1	3.6
	INL23001-10/1.7	-or- BU -or-	-or- 1.5-2.0* -or-		9.5	7.7	4.5	3.5	3.0
	INL23001-13/1.7	Y	2.1-2.6*		12.7	9.2	3.7	3.0	2.6
24	INL24001-6/1.7	O	0.9-1.4*	+T725	6.3	6.4	5.0	3.9	3.3
	INL24001-10/1.7	-or- BU -or-	-or- 1.5-2.0* -or-		9.5	8.0	4.3	3.3	2.7
	INL24001-13/1.7	Y	2.1-2.6*		12.7	9.5	3.6	2.6	2.3
25	INL25001-6/1.7	O	0.9-1.4*	+T725	6.3	7.3	4.7	3.6	3.2
	INL25001-10/1.7	-or- BU -or-	-or- 1.5-2.0* -or-		9.5	9.1	4.1	3.1	2.6
	INL25001-13/1.7	Y	2.1-2.6*		12.7	11.0	3.4	2.5	2.1
27	INL27001-6/1.7	O	0.9-1.4*	+T725	6.3	8.1	4.6	3.5	3.0
	INL27001-10/1.7	-or- BU -or-	-or- 1.5-2.0* -or-		9.5	10.0	3.8	2.6	2.2
	INL27001-13/1.7	Y	2.1-2.6*		12.7	12.2	3.1	2.1	1.8
29	INL29001-6/1.7	O	0.9-1.4*	+T725	6.3	9.4	4.5	3.4	2.7
	INL29001-10/1.7	-or- BU -or-	-or- 1.5-2.0* -or-		9.5	11.9	3.7	2.5	2.1
	INL29001-13/1.7	Y	2.1-2.6*		12.7	14.4	3.0	2.0	1.7
31	INL31001-6/1.7	O	0.9-1.4*	+T725	6.3	10.4	4.3	3.2	2.6
	INL31001-10/1.7	-or- BU -or-	-or- 1.5-2.0* -or-		9.5	13.1	3.3	2.2	1.8
	INL31001-13/1.7	Y	2.1-2.6*		12.7	15.7	2.8	1.9	1.5
33	INL33001-6/1.7	O	0.9-1.4*	+T725	6.3	11.9	4.3	3.1	2.6
	INL33001-10/1.7	-or- BU -or-	-or- 1.5-2.0* -or-		9.5	15.2	2.9	2.1	1.6
	INL33001-13/1.7	Y	2.1-2.6*		12.7	18.5	2.3	1.5	1.3
35	INL35001-6/1.7	O	0.9-1.4*	+T725	6.3	12.8	4.2	3.1	2.5
	INL35001-10/1.7	-or- BU -or-	-or- 1.5-2.0* -or-		9.5	16.1	2.6	1.8	1.4
	INL35001-13/1.7	Y	2.1-2.6*		12.7	19.5	2.0	1.4	1.2
37.5	INL37.5001-6/1.7	O	0.9-1.4*	+T725	6.3	14.9	3.8	2.7	2.2
	INL37.5001-10/1.7	-or- BU -or-	-or- 1.5-2.0* -or-		9.5	19.3	2.4	1.7	1.3
	INL37.5001-13/1.7	Y	2.1-2.6*		12.7	23.4	2.0	1.3	1.1
40	INL40001-6/1.7	O	0.9-1.4*	+T725	6.3	18.1	3.7	2.5	2.0
	INL40001-10/1.7	-or- BU -or-	-or- 1.5-2.0* -or-		9.5	23.7	2.6	1.6	1.3
	INL40001-13/1.7	Y	2.1-2.6*		12.7	29.3	2.0	1.2	1.0
42.5	INL42.5001-6/1.7	O	0.9-1.4*	+T725	6.3	20.0	3.5	2.3	1.8
	INL42.5001-10/1.7	-or- BU -or-	-or- 1.5-2.0* -or-		9.5	26.1	2.5	1.6	1.2
	INL42.5001-13/1.7	Y	2.1-2.6*		12.7	32.2	1.9	1.1	1.0
45	INL45001-6/1.7	O	0.9-1.4*	+T725	6.3	22.6	3.2	2.1	1.5
	INL45001-10/1.7	-or- BU -or-	-or- 1.5-2.0* -or-		9.5	29.8	2.4	1.5	1.2
	INL45001-13/1.7	Y	2.1-2.6*		12.7	36.9	1.8	1.1	0.9

Notes:

1) Example Part Numbers:
   - INL27001-6/1.7 — 27mm x 6.3mm Heatsink only
   - INL35001-10/1.7BU — 35mm x 9.5mm Heatsink with "BU" (blue) mounting clip (1.5-2.0mm chip height)
   - INL27001-13/1.7BU+T725 — 27 x 12.7mm Heatsink with "BU" (blue) mounting clip (1.5-2.0mm chip height) and T725 thermal pad
2) Optional thermal interface materials are defined as follows:
   - T725 - Thermally conductive phase change pad for use with mounting clip (Chomerics Part # T725)
3) Mounting clips are constructed of UL94-VO rated nylon material.
4) Thermal data provided are for reference only. Actual cooling performance may vary by application.
5) Contact Radian to discuss unique heatsink, clip and interface requirements.
6) Specifications are subject to change without notice.

*Contact Radian for mounting clips to fit chip heights not displayed above.

RoHS compliant

INL Series
Aluminum Plate Fin BGA Heatsinks

Passive BGA Cooler Products:

HS1800 Series:
21-45mm plate fin (aluminum) ideal for linear air flow

INM-W Series
19-45mm elliptical fin (aluminum) ideal for linear airflow and where multiple heatsinks are utilized

HS2000-60 Series:
21-45mm round pin (aluminum) ideal for omni directional air flow

HS2000-80 Series:
21-45mm round pin (aluminum) ideal for omni directional air flow

INM-P Series:
27-42.5mm round pin (aluminum) ideal for omni-directional airflow

INM-PCU Series:
19-42.5mm round pin (copper) ideal for omni directional air flow

Small Round Pin:
12.7-25.4mm round pin (aluminum) ideal for omni directional air flow

37.5004 Series:
37.5mm round pin (aluminum or copper) ideal for omni directional air flow

Pushpin Heatsinks:
Pushpin heatsinks (aluminum) ideal for linear air flow

Custom Design and Manufacturing Services:

Our experienced engineers and production specialists are dedicated to the design and manufacture of cooling solutions to match our customers specific thermal issues, quickly and cost-effectively.

Features of our services include:

* Free engineering consultation
* Complimentary thermal analysis (computational fluid dynamics and design simulation/modeling)
* Wide range of technologies including: investment casting; die casting; precision forging; skived fin; extrusions; stamped fin; and custom machining
* Rapid prototyping services to deliver concept models in as little as 2-5 business days and working prototypes in 1-3 weeks

Contact Radian Heatsinks to discuss your specific requirement today.

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