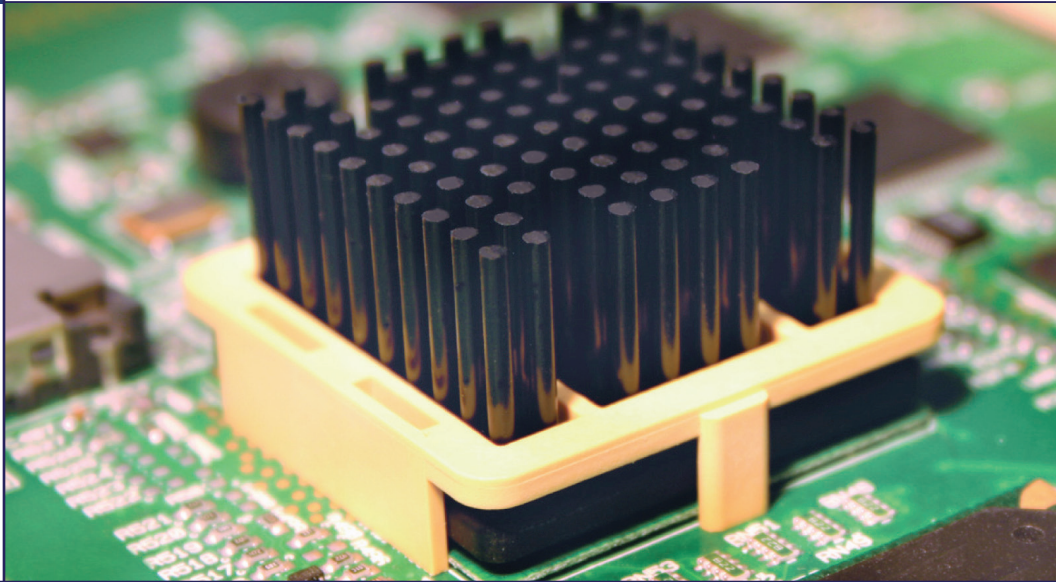




INM-P Series

Round Pin Aluminum BGA Heatsink

Removable Heatsinks for BGA Chipsets



The INM-P Series of aluminum round pin BGA heatsinks are high efficiency cooling products which are ideal for omni-directional air flow.

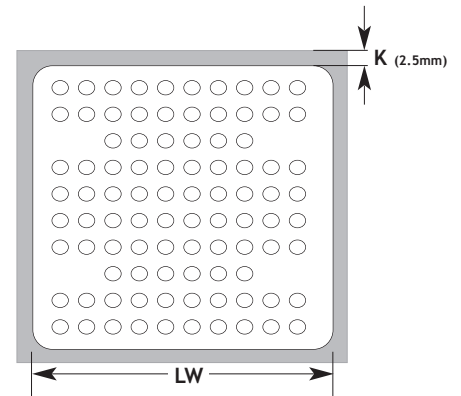
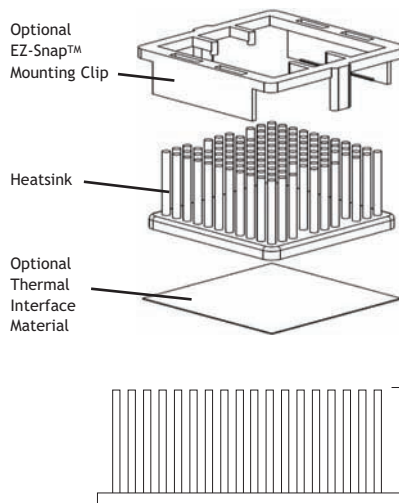
These devices mount with EZ Snap™ mounting clips and / or thermal tape to provide optimum cooling for various package sizes and airflow. These off-the-shelf, high efficiency solutions are easy to install and require no special board modifications or complex assemblies.

Features:

- * High efficiency aluminum round pin design provides low pressure-drop characteristics
- * Constructed of forged aluminum AL6063 for optimum heat transfer
- * Ideal for omni-directional air flow
- * 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

Mechanical Outline Drawing

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



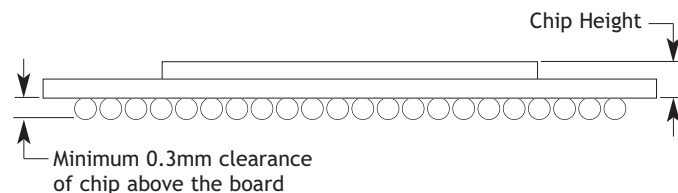
LW = Length & Width of Heatsink
 H = Overall Height of Heatsink
 K = Keep-Out Area* (2.5mm)

* 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 2.5mm around chip for clip to adhere properly



Radian Heatsinks

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INM-P Series Round Pin Aluminum BGA Heatsink

Length & Width of Heatsink (mm)	Part Number ⁽¹⁾				Heatsink Height (mm)	Weight (g)	Thermal Resistance Theta _{SA} (C/W)				
	Heatsink Part Number	Optional Mounting Clip		Optional Thermal Tape/Pad Part # ⁽²⁾			100 LFM	200 LFM	400 LFM	600 LFM	
		Part Number ⁽³⁾	Fits Chip Heights (mm)								
19	INM19002-12P/2.6	O	0.6-1.2*	+3M8815	11.6	4.0	11.0	7.7	5.5	4.5	
	NM19002-15P/2.6	-or- BU	-or- 1.4-2.0*		-or-	14.6	4.8	10.5	7.5	5.0	4.4
	INM19002-20P/2.6	-or- Y	-or- 3.0-3.6*		+T710	19.6	5.7	7.5	5.1	3.7	3.0
	NM19002-25P/2.6					24.6	6.9	6.7	4.7	3.4	2.7
27	INM27002-12P/2.6	O	0.6-1.2*	+3M8815	11.6	7.6	7.9	5.3	3.8	3.1	
	INM27002-15P/2.6	-or- BU	-or- 1.4-2.0*		-or-	14.6	8.5	6.6	4.4	3.2	2.6
	INM27002-20P/2.6	-or- K32	-or- 2.3-2.9		+T710	19.6	10.0	4.6	3.1	2.2	1.9
	INM27002-25P/2.6	-or- Y	-or- 3.0-3.6*			24.6	11.5	3.9	2.8	2.0	1.7
29	INM29002-12P/2.6	O	0.6-1.2*	+3M8815	11.6	9.3	6.1	3.9	2.6	2.1	
	INM29002-15P/2.6	-or- BU	-or- 1.4-2.0*		-or-	14.6	10.4	5.7	3.7	2.5	2.0
	INM29002-20P/2.6	-or- Y	-or- 3.0-3.6*		+T710	19.6	11.7	4.1	2.6	1.8	1.5
	INM29002-25P/2.6					24.6	13.5	3.9	2.5	1.8	1.4
33	INM33002-12P/2.6	O	0.6-1.2*	+3M8815	11.6	11.0	5.9	3.8	2.7	2.2	
	INM33002-15P/2.6	-or- BU	-or- 1.4-2.0*		-or-	14.6	12.3	4.9	3.2	2.2	1.8
	INM33002-20P/2.6	-or- K33	-or- 2.3-2.9		+T710	19.6	13.8	3.5	2.3	1.6	1.3
	INM33002-25P/2.6	-or- Y	-or- 3.0-3.6*			24.6	16.5	2.9	1.9	1.4	1.2
35	INM35002-12P/2.6	O	0.6-1.2*	+3M8815	11.6	13.4	5.3	3.4	2.5	1.9	
	INM35002-15P/2.6	-or- BU	-or- 1.4-2.0*		-or-	14.6	15.1	4.4	2.9	2.0	1.7
	INM35002-20P/2.6	-or- K29	-or- 2.3-2.9		+T710	19.6	17.9	3.2	2.0	1.5	1.2
	INM35002-25P/2.6	-or- Y	-or- 3.0-3.6*			24.6	20.7	2.6	1.8	1.3	1.0
37.5	INM37.5002-12P/2.6	O	0.6-1.2*	+3M8815	11.6	15.7	5.0	3.4	2.3	1.8	
	INM37.5002-15P/2.6	-or- BU	-or- 1.4-2.0*		-or-	14.6	17.8	4.1	2.7	1.9	1.6
	INM37.5002-20P/2.6	-or- Y	-or- 3.0-3.6*		+T710	19.6	21.3	3.0	1.8	1.4	1.2
	INM37.5002-25P/2.6					24.6	24.8	2.4	1.6	1.2	1.0
40	INM40002-12P/2.6	O	0.6-1.2*	+3M8815	11.6	17.8	4.3	2.8	1.9	1.5	
	INM40002-15P/2.6	-or- BU	-or- 1.4-2.0*		-or-	14.6	20.0	3.6	2.4	1.6	1.3
	INM40002-20P/2.6	-or- K30	-or- 2.3-2.9		+T710	19.6	24.0	2.5	1.7	1.2	0.9
	INM40002-25P/2.6	-or- Y	-or- 3.0-3.6*			24.6	28.0	2.1	1.4	1.0	0.8
42.5	INM42.5002-12P/2.6	O	0.6-1.2*	+3M8815	11.6	20.6	4.0	2.5	1.7	1.3	
	INM42.5002-15P/2.6	-or- BU	-or- 1.4-2.0*		-or-	14.6	23.0	3.3	2.1	1.4	1.1
	INM42.5002-20P/2.6	-or- Y	-or- 3.0-3.6*		+T710	19.6	28.0	2.4	1.5	1.0	0.8
	INM42.5002-25P/2.6					24.6	33.0	1.9	1.3	0.8	0.7

Notes:

1) Example Part Numbers:
 INM27002-15P/2.6 27 x 14.6mm Heatsink only
 INM35002-20P/2.6O 35 x 19.6mm Heatsink with "O" (orange) mounting clip (0.6-1.2mm chip height)
 INM40002-15P/2.6+3M8815 40 x 14.6mm Heatsink with 3M8815 thermal tape
 INM42.5002-25P/2.6BU+T710 42.5 x 24.6mm Heatsink with "BU" (blue) mounting clip for 1.4-2.0mm chip heights and T710 thermal pad

2) Optional thermal interface materials are defined as follows:
 T710 - Thermally conductive phase change pad for use with mounting clip (Chomerics Part # T710)
 3M8815 - Thermally conductive adhesive tape

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.



Passive BGA Cooler Products:

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

INL Series:
27-37.5mm 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-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:

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- * 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

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