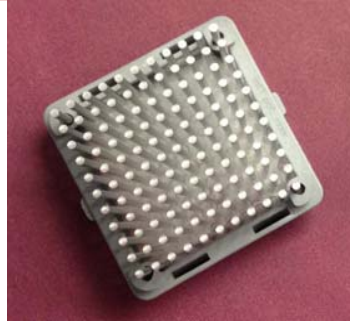


901-910 SERIES CHIPSET HEAT SINKS

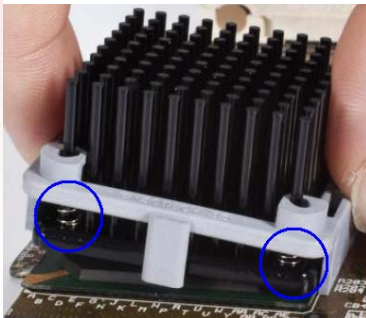


PIN FIN &
ELLIPTICAL
HEAT SINKS

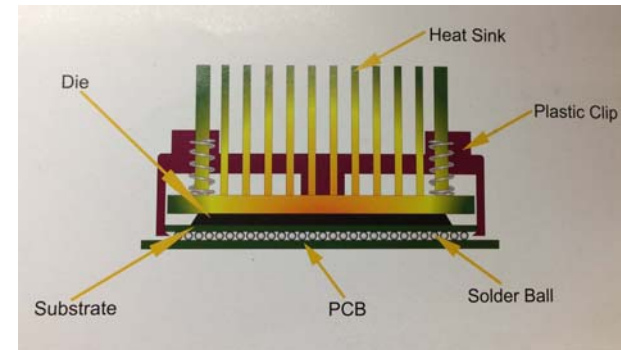


Wakefield-Vette's 901-910 Series Heat Sinks for Chipset can match up to devices from Intel, Broadcom, Xilinx, TI, Motorola and many more! These heat sinks are designed for air flow applications. Enclosed pages have thermal performance data for natural forced convection values.

**4 Springs at
each corner**



wakefield-vette New Chip Set Heat Sinks

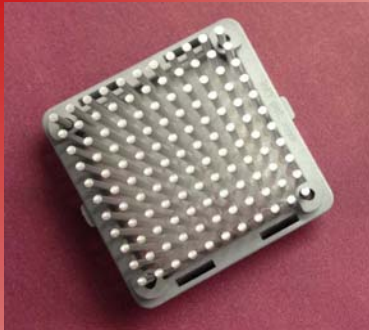


Wakefield-Vette heat sink assembles onto chip set using the space that is between the PCB and the substrate of the solder balls. The solder balls provide a minimal gap of .5mm to .7mm. Attachment feature is below a .4mm thickness. The clipping system will not interfere or damage chip. Contact area is the edge of chip.



Thermal Cooling Solutions from SMART to FINISH

901-910 SERIES CHIPSET HEAT SINKS



Material: AL 6063

Finish: Black Anodize

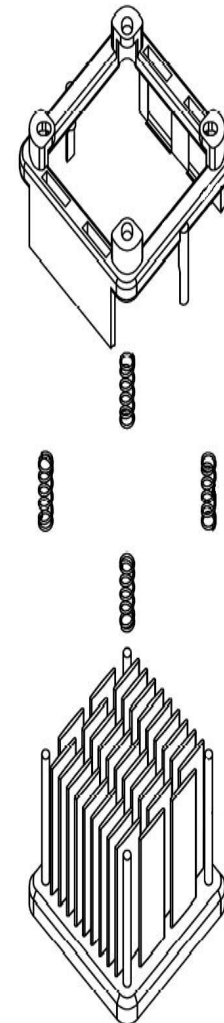
All dimensions in millimeters (mm)



Part Numbering System

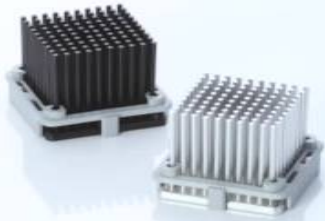
Series	Chip Size	Construction	Height	Spring Type *	Finish	Interface
<u>901-</u> XXX	<u>19-</u> XX	<u>1-</u> X	<u>12-</u> XX	<u>1-</u> X	<u>B-</u> X	<u>1</u> X
901	19	1= Elliptical Fin	12 = 11.6	1 = .9-2.1 CST	B = BLK ANO	0 = None
902	21	2= Pin Fin	15 = 14.6	2 = 2.2-3.4 CST		1 = T725
903	23		18 = 17.6			
904	27		21 = 20.6			
905	29		23 = 22.6			
906	31		28 = 27.6			
907	33		33 = 32.6			
908	35					
909	37.5					
910	40					

*Note: When selecting part number chip set thickness (CST) relates to spring selection!



Thermal Cooling Solutions from SMART to FINISH

901-910 SERIES CHIPSET HEAT SINKS



wakefield-vette

THERMAL PERFORMANCE



	HT	CHIP SIZE	PIN FIN				ELLIPTICAL FIN			
			NATURAL CONVECTION	FORCED CONVECTION 200 LFM	400 LFM	600 LFM (C/W)	NATURAL CONVECTION	FORCED CONVECTION 200 LFM	400 LFM	600 LFM (C/W)
901	12	19mm	12.74 C/W	6.6 C/W	4.79 C/W	4.16 C/W	14.77 C/W	6.63 C/W	5.09 C/W	4.38 C/W
	15	19mm	12.05 C/W	6.3 C/W	4.51 C/W	3.86 C/W	14 C/W	6.12 C/W	4.63 C/W	3.95 C/W
	18	19mm	11.35 C/W	5.97 C/W	4.16 C/W	3.47 C/W	13.23 C/W	5.67 C/W	4.17 C/W	3.58 C/W
	21	19mm	10.66 C/W	5.66 C/W	3.89 C/W	3.21 C/W	12.46 C/W	5.28 C/W	3.87 C/W	3.24 C/W
	23	19mm	10.55 C/W	5.36 C/W	3.64 C/W	2.99 C/W	11.98 C/W	4.89 C/W	3.58 C/W	3.06 C/W
	28	19mm	10.27 C/W	4.91 C/W	3.36 C/W	2.71 C/W	11.5 C/W	4.38 C/W	3.26 C/W	2.80 C/W
902	33	19mm	9.99 C/W	4.52 C/W	3.07 C/W	2.49 C/W	9.57 C/W	4.04 C/W	2.98 C/W	2.62 C/W
	12	21mm	12.4 C/W	6.61 C/W	4.37 C/W	3.7 C/W	14.31 C/W	5.81 C/W	3.86 C/W	3.16 C/W
	15	21mm	11.73 C/W	5.84 C/W	4.09 C/W	3.42 C/W	13.57 C/W	5.3 C/W	3.5 C/W	2.89 C/W
	18	21mm	11.06 C/W	5.51 C/W	3.76 C/W	3.07 C/W	12.83 C/W	4.95 C/W	3.35 C/W	2.66 C/W
	21	21mm	10.38 C/W	5.20 C/W	3.49 C/W	2.84 C/W	12.09 C/W	4.61 C/W	3.111 C/W	2.47 C/W
	23	21mm	10.27 C/W	4.9 C/W	3.26 C/W	2.62 C/W	11.63 C/W	4.32 C/W	2.91 C/W	2.32 C/W
903	28	21mm	9.98 C/W	4.55 C/W	2.98 C/W	2.42 C/W	10.47 C/W	3.89 C/W	2.61 C/W	2.09 C/W
	33	21mm	9.7 C/W	4.18 C/W	2.73 C/W	2.21 C/W	9.3 C/W	3.57 C/W	2.37 C/W	1.95 C/W
	12	23mm	12.06 C/W	5.72 C/W	3.95 C/W	3.24 C/W	13.85 C/W	4.75 C/W	3.31 C/W	2.79 C/W
	15	23mm	11.41 C/W	5.39 C/W	3.67 C/W	2.99 C/W	13.14 C/W	4.38 C/W	3.05 C/W	2.53 C/W
	18	23mm	10.76 C/W	5.05 C/W	3.35 C/W	2.67 C/W	12.44 C/W	4.07 C/W	2.81 C/W	2.32 C/W
	21	23mm	10.11 C/W	4.74 C/W	3.1 C/W	2.46 C/W	11.73 C/W	3.84 C/W	2.57 C/W	2.11 C/W
904	23	23mm	9.99 C/W	4.44 C/W	2.87 C/W	2.31 C/W	11.28 C/W	3.59 C/W	2.4 C/W	1.97 C/W
	28	23mm	9.70 C/W	4.09 C/W	2.62 C/W	2.12 C/W	10.16 C/W	3.22 C/W	2.17 C/W	1.8 C/W
	33	23mm	9.41 C/W	3.83 C/W	2.43 C/W	1.96 C/W	9.04 C/W	2.93 C/W	1.95 C/W	1.64 C/W
	12	27mm	11.38 C/W	4.84 C/W	3.11 C/W	2.32 C/W	12.93 C/W	4.34 C/W	3 C/W	2.53 C/W
	15	27mm	10.78 C/W	4.48 C/W	2.84 C/W	2.12 C/W	12.29 C/W	4.05 C/W	2.76 C/W	2.29 C/W
	18	27mm	10.17 C/W	4.13 C/W	2.56 C/W	1.88 C/W	11.64 C/W	3.73 C/W	2.5 C/W	2.07 C/W
905	21	27mm	9.56 C/W	3.82 C/W	2.32 C/W	1.72 C/W	11 C/W	3.43 C/W	2.31 C/W	1.9 C/W
	23	27mm	9.44 C/W	3.51 C/W	2.11 C/W	1.6 C/W	10.58 C/W	3.21 C/W	2.11 C/W	1.71 C/W
	28	27mm	9.13 C/W	3.26 C/W	1.97 C/W	1.49 C/W	9.54 C/W	2.89 C/W	1.84 C/W	1.51 C/W
	33	27mm	8.82 C/W	3.07 C/W	1.82 C/W	1.39 C/W	8.51 C/W	2.62 C/W	1.66 C/W	1.35 C/W
	12	29mm	11.04 C/W	4.08 C/W	2.55 C/W	1.98 C/W	12.47 C/W	4.09 C/W	2.74 C/W	2.25 C/W
	15	29mm	10.46 C/W	3.82 C/W	2.32 C/W	1.78 C/W	11.86 C/W	3.81 C/W	2.52 C/W	2.02 C/W
905	18	29mm	9.87 C/W	3.58 C/W	2.14 C/W	1.58 C/W	11.25 C/W	3.56 C/W	2.31 C/W	1.84 C/W
	21	29mm	9.28 C/W	3.33 C/W	1.96 C/W	1.44 C/W	10.63 C/W	3.3 C/W	2.12 C/W	1.65 C/W
	23	29mm	9.16 C/W	3.13 C/W	1.82 C/W	1.34 C/W	10.23 C/W	3.06 C/W	1.91 C/W	1.49 C/W
	28	29mm	8.84 C/W	2.82 C/W	1.64 C/W	1.2 C/W	9.24 C/W	2.72 C/W	1.69 C/W	1.33 C/W
	33	29mm	8.53 C/W	2.59 C/W	1.47 C/W	1.07 C/W	8.24 C/W	2.47 C/W	1.49 C/W	1.18 C/W

Thermal Cooling Solutions from SMART to FINISH

901-910 SERIES CHIPSET HEAT SINKS



wakefield-vette

THERMAL PERFORMANCE



	HT	CHIP SIZE	PIN FIN				ELLIPTICAL FIN				
			NATURAL CONVECTION	FORCED CONVECTION (C/W)			NATURAL CONVECTION	FORCED CONVECTION (C/W)			
				200 LFM	400 LFM	600 LFM		200 LFM	400 LFM	600 LFM	
906	12	31mm	10.71 C/W	3.49 C/W	2.28 C/W	1.69 C/W		12.02 C/W	3.37 C/W	2.25 C/W	1.87 C/W
	15	31mm	10.14 C/W	3.18 C/W	2.03 C/W	1.5 C/W		11.43 C/W	3.13 C/W	2.02 C/W	1.66 C/W
	18	31mm	9.57 C/W	2.93 C/W	1.86 C/W	1.33 C/W		10.85 C/W	2.85 C/W	1.79 C/W	1.45 C/W
	21	31mm	9.01 C/W	2.72 C/W	1.69 C/W	1.2 C/W		10.27 C/W	2.63 C/W	1.63 C/W	1.31 C/W
	23	31mm	8.88 C/W	2.5 C/W	1.54 C/W	1.07 C/W		9.88 C/W	2.44 C/W	1.5 C/W	1.19 C/W
	28	31mm	8.56 C/W	2.26 C/W	1.38 C/W	.96 C/W		8.93 C/W	2.21 C/W	1.36 C/W	1.05 C/W
907	33	31mm	8.24 C/W	2.09 C/W	1.27 C/W	.88 C/W		7.98 C/W	2.02 C/W	1.19 C/W	.93 C/W
	12	33mm	10.37 C/W	3.32 C/W	2.18 C/W	1.62 C/W		11.56 C/W	3.23 C/W	2.09 C/W	1.73 C/W
	15	33mm	9.82 C/W	3.14 C/W	1.99 C/W	1.45 C/W		11 C/W	2.97 C/W	1.88 C/W	1.54 C/W
	18	33mm	9.28 C/W	2.89 C/W	1.78 C/W	1.3 C/W		10.45 C/W	2.69 C/W	1.7 C/W	1.37 C/W
	21	33mm	8.73 C/W	2.67 C/W	1.60 C/W	1.13 C/W		9.9 C/W	2.5 C/W	1.52 C/W	1.22 C/W
	23	33mm	8.60 C/W	2.45 C/W	1.43 C/W	.99 C/W		9.54 C/W	2.3 C/W	1.37 C/W	1.08 C/W
908	28	33mm	8.27 C/W	2.24 C/W	1.28 C/W	.87 C/W		8.62 C/W	2.08 C/W	1.23 C/W	.98 C/W
	33	33mm	7.94 C/W	2.03 C/W	1.15 C/W	.77 C/W		7.71 C/W	1.89 C/W	1.08 C/W	.86 C/W
	12	35mm	10.03 C/W	3.06 C/W	1.97 C/W	1.49 C/W		11.1 C/W	3.07 C/W	2.07 C/W	1.64 C/W
	15	35mm	9.5 C/W	2.85 C/W	1.81 C/W	1.34 C/W		10.58 C/W	2.79 C/W	1.87 C/W	1.46 C/W
	18	35mm	8.98 C/W	2.6 C/W	1.64 C/W	1.19 C/W		10.06 C/W	2.54 C/W	1.69 C/W	1.27 C/W
	21	35mm	8.46 C/W	2.4 C/W	1.5 C/W	1.07 C/W		9.53 C/W	2.35 C/W	1.52 C/W	1.15 C/W
909	23	35mm	8.32 C/W	2.19 C/W	1.34 C/W	.97 C/W		8.75 C/W	2.13 C/W	1.35 C/W	1.01 C/W
	28	35mm	7.99 C/W	1.97 C/W	1.19 C/W	.83 C/W		7.93 C/W	1.94 C/W	1.19 C/W	.86 C/W
	33	35mm	7.65 C/W	1.82 C/W	1.06 C/W	.7 C/W		7.11 C/W	1.69 C/W	1.02 C/W	.72 C/W
	12	37.5mm	9.60 C/W	2.93 C/W	1.90 C/W	1.36 C/W		10.52 C/W	3.11 C/W	2.01 C/W	1.61 C/W
	15	37.5mm	9.11 C/W	2.71 C/W	1.72 C/W	1.19 C/W		10.04 C/W	2.82 C/W	1.79 C/W	1.41 C/W
	18	37.5mm	8.61 C/W	2.52 C/W	1.53 C/W	1.05 C/W		9.56 C/W	2.59 C/W	1.59 C/W	1.22 C/W
910	21	37.5mm	8.11 C/W	2.25 C/W	1.36 C/W	.88 C/W		9.08 C/W	2.38 C/W	1.41 C/W	1.06 C/W
	23	37.5mm	7.98 C/W	2.04 C/W	1.2 C/W	.75 C/W		8.75 C/W	2.15 C/W	1.24 C/W	.94 C/W
	28	37.5mm	7.63 C/W	1.82 C/W	1.01 C/W	.63 C/W		7.93 C/W	1.88 C/W	1.08 C/W	.8 C/W
	33	37.5mm	7.29 C/W	1.6 C/W	.87 C/W	.52 C/W		7.11 C/W	1.64 C/W	.93 C/W	.68 C/W
	12	40mm	9.18 C/W	2.84 C/W	1.86 C/W	1.36 C/W		9.95 C/W	3.09 C/W	1.93 C/W	1.56 C/W
	15	40mm	8.71 C/W	2.64 C/W	1.65 C/W	1.18 C/W		9.51 C/W	2.77 C/W	1.73 C/W	1.37 C/W
	18	40mm	8.24 C/W	2.4 C/W	1.44 C/W	.98 C/W		9.06 C/W	2.74 C/W	1.52 C/W	1.17 C/W
	21	40mm	7.77 C/W	2.21 C/W	1.27 C/W	.86 C/W		8.62 C/W	2.22 C/W	1.35 C/W	.99 C/W
	23	40mm	7.63 C/W	2 C/W	1.15 C/W	.73 C/W		8.3 C/W	2.01C/W	1.19 C/W	.87 C/W
	28	40mm	7.27 C/W	1.77 C/W	.99 C/W	.62 C/W		7.55 C/W	1.8 C/W	1.04 C/W	.75 C/W
	33	40mm	6.92 C/W	1.58 C/W	.85 C/W	.51 C/W		6.78 C/W	1.61 C/W	.88 C/W	.64 C/W

Thermal Cooling Solutions from SMART to FINISH

901-910 SERIES CHIPSET HEAT SINKS



SHOCK TEST SPECIFICATION :

Wave Form : Half sine wave

Acceleration : 50 g

Duration Time : 11 ms

No. of Shock : Each axis 3 times

Shock Direction : $\pm X$, $\pm Y$, $\pm Z$ axis

Reliability & Communication Testing
Instruments

Random Vibration test

Frequency : 5 Hz to 500 Hz

Acceleration : 3.13 grms

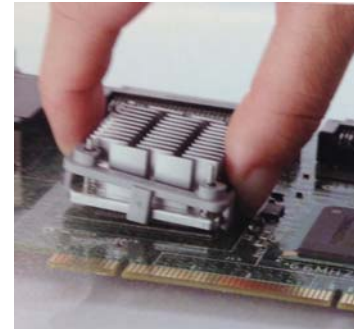
P.S.D : 0.01 g²/HZ (5 Hz)

0.02 g²/HZ (20 Hz to 500 Hz)

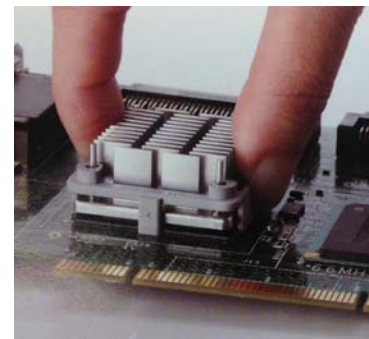
Test Axis : X, Y, Z axis

Test Time : 10 mins (Each axis)

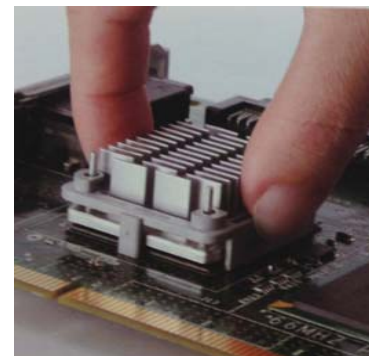
Total Test Time : 30 mins



STEP 1: Center heat Sink onto BGA. Tilt and hook one side of the clip under the BGA chip.



STEP 2: Press down the other side of clip to snap it onto the BGA chip.



STEP :3 Make sure the stop pin is not on top of the chip set. Installation Done!



Thermal Cooling Solutions from SMART to FINISH

901-910 SERIES CHIPSET HEAT SINKS



Contact Us / Corporate Location Information

Wakefield-Vette is Global. Global presence means our engineering, design, sales and support are close to our customers, in the Americas, Europe, Middle East and Asia. It means multi-national manufacturing and delivery. And it means a global Wakefield-Vette supply chain that can deliver, and provide support quickly, anywhere, with the highest quality solutions.

Contact sales for a list of Distributors that carry stock.

East Coast Operations

New Hampshire

33 Bridge Street

Pelham.NH 03076

Phone: 603-635-2800

Fax: 603-635-1900

Info@wakefield-vette.com

(Wakefield-Vette Headquarters)

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Visit us on the web at: www.wakefield-vette.com



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