

## 904 Series

Wakefield-Vette's 900 Series Heat Sinks for Chipset can match up to devices from Intel, Broadcom, Xilinx, TI, Motorola, ATI, AMD, Nvidia, Vishay, Pow erex, Infineon, Microsemi, and many more.

These heat sinks are designed for air flow applications in the Telecom, Data Center, Networking, Cloud Computing, and many more Industries.

**Material:** AL 6063

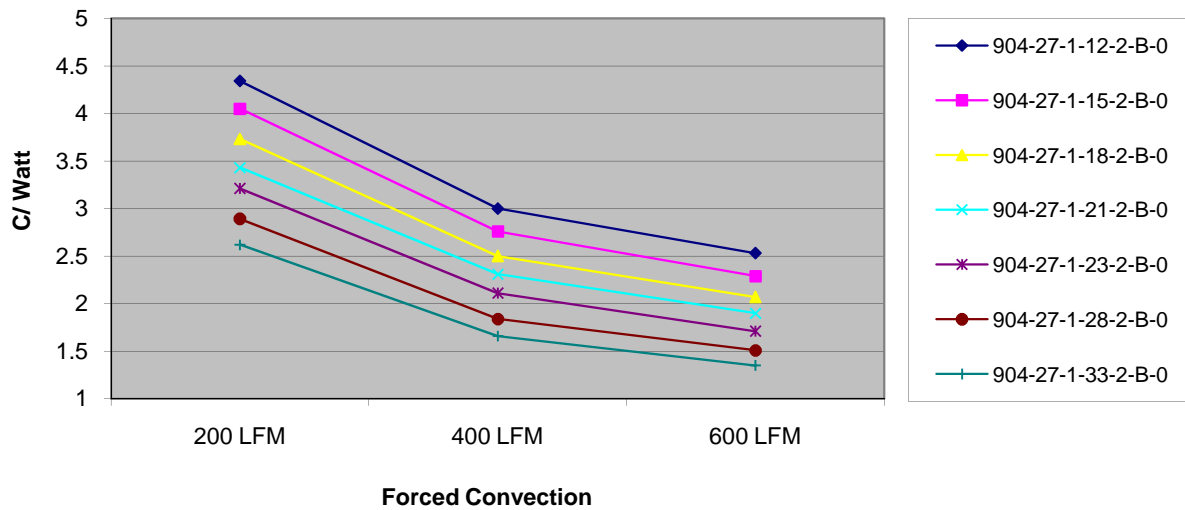


**Finish:** Black Anodize

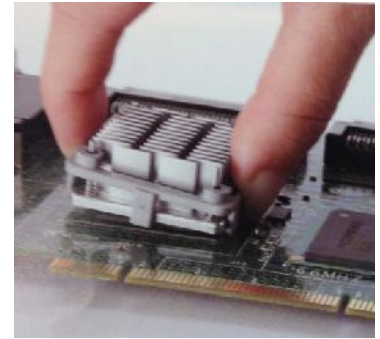
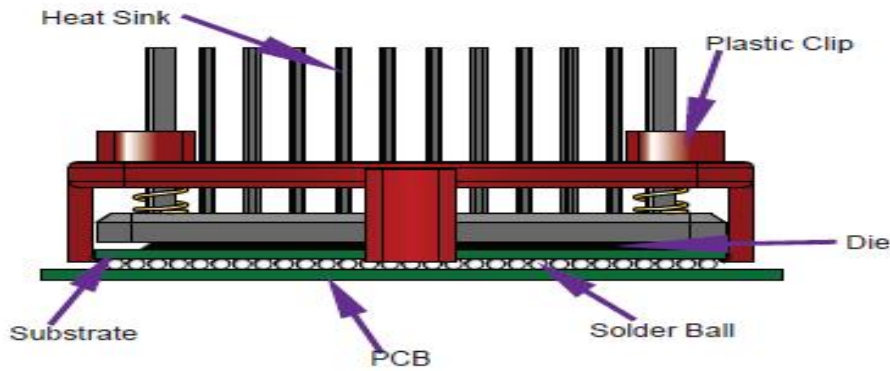


PART #	HEIGHT (mm)	CHIP SIZE (mm)	NATURAL CONVECTION	FORCED CONVECTION (C/W)		
				200 LFM	400 LFM	600 LFM
904-27-1-12-2-B-0	12	27	12.93 C/W	4.34 C/W	3 C/W	2.53 C/W
904-27-1-15-2-B-0	15	27	12.29 C/W	4.05 C/W	2.76 C/W	2.29 C/W
904-27-1-18-2-B-0	18	27	11.64 C/W	3.73 C/W	2.5 C/W	2.07 C/W
904-27-1-21-2-B-0	21	27	11 C/W	3.43 C/W	2.31 C/W	1.9 C/W
904-27-1-23-2-B-0	23	27	10.58 C/W	3.21 C/W	2.11 C/W	1.71 C/W
904-27-1-28-2-B-0	28	27	9.54 C/W	2.89 C/W	1.84 C/W	1.51 C/W
904-27-1-33-2-B-0	33	27	8.51 C/W	2.62 C/W	1.66 C/W	1.35 C/W

### THERMAL PERFORMANCE:

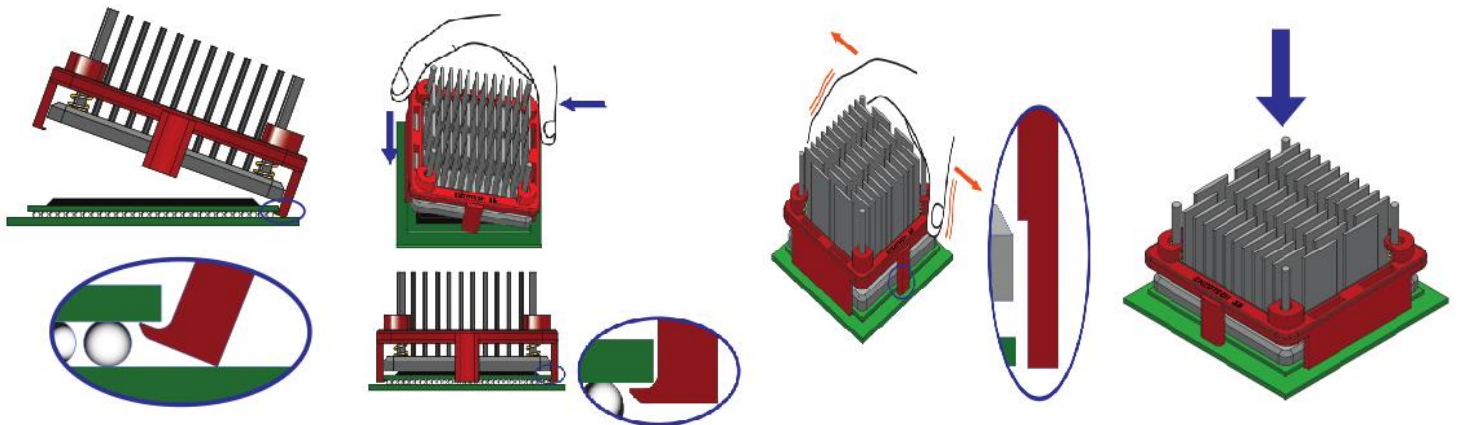


Series	Chip Size	Construction	Height	Chip Height	Finish	Interface
904-	19-	1-	12-	1-	B-	1
	19	1= Elliptical Fin	12 = 11.6	1 = .9-2.1	B = BLK ANO	0 = None
	21		15 = 14.6	2 = 2.2-3.4		1 = T725
	23		18 = 17.6			
	27		21 = 20.6			
	29		23 = 22.6			
	31		28 = 27.6			
	33		33 = 32.6			
	35					
	37.5					
40						



Wakefield-Vette's 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.

**ASSEMBLY INSTRUCTION:**



**Step 1:** Hook the clip under one side of the BGA chip set.

**Step 2:** Rotate assembly down until opposite side clip engages substrate edge of BGA chip set.

**Step 3:** Make sure the solder rods are clearing from edges of BGA chip set.

**Step 4:** Press firmly down to make sure clips fully engage edges of chip set. Heat Sink should not move around easily.

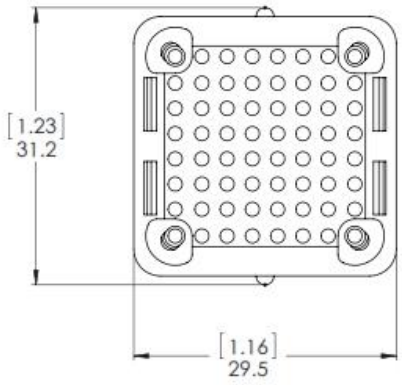
**Random Vibration Test**

Frequency : 5 Hz to 500 Hz  
 Acceleration : 3.13 grms  
 P.S.D : 0.01 g<sup>2</sup>/HZ (5 Hz)  
 0.02 g<sup>2</sup>/HZ (20 Hz to 500 Hz)  
 Test Axis : X, Y, Z axis  
 Test Time : 10 mins (Each axis)  
 Total Test Time : 30 mins

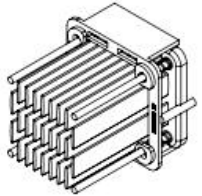
**SHOCK TEST SPECIFICATION :**

Wave Form : Half sine wave  
 Acceleration : 50 g  
 Duration Time : 11 ms  
 No. of Shock : Each axis 3 times  
 Shock Direction : ±X, ±Y, ±Z axis  
 Reliability & Communication  
 Testing Instruments

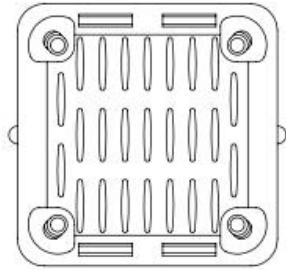
8 7 6 5 4 3 2 1



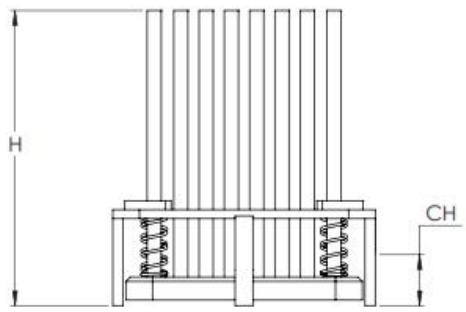
CONSTRUCTION CODE- 2  
PIN FINS  
8 X 8 PIN ARRAY =  
64 FINS, 1.6 mm DIA.



CONSTRUCTION CODE- 1  
ELLIPTICAL FINS  
25 FINS, 6 Lg X 0.8 W mm  
4 CORNER PIN FINS

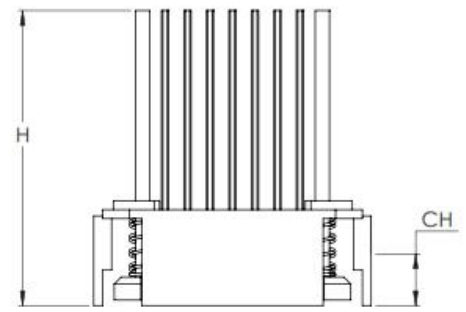


SHOWN ROTATED 90 DEG



HEIGHT ( H ) CODE	ACTUAL mm
12-	11.6
15-	14.6
18-	17.6
21-	20.6
23-	22.6
28-	27.6
33-	32.6

CHIP HEIGHT ( CH ) CODE	ACTUAL RANGE mm
1-	0.9 to 2.1
2-	2.2 to 3.4



**904 SERIES FOR 27mm CHIPS**

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	APPROVALS DRAWN:	DATE: 10/22/2014	DRAWING NOT TOSCALE	
	CHK: DSGN ENG:	10/22/2014	REVISION:	
	MFG ENG: QA:		SCALE: 2:1	
MODEL INFO: MBA27052-no lp				

A

A

SH\_SIZE: B

8 7 6 5 4 3 2 1