

## 901-910 SERIES CHIPSET HEAT SINKS

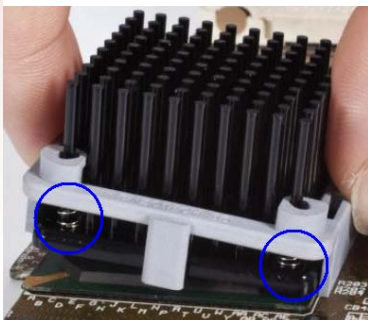


PIN FIN &  
ELLIPTICAL  
HEAT SINKS



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><br>XXX | <u>19-</u><br>XX | <u>1-</u><br>X | <u>12-</u><br>XX | <u>1-</u><br>X | <u>B-</u><br>X | <u>1</u><br>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!



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## 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  |
| 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 |
|     | 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

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## 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                 | 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 |         |
| 910 | 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            | 2.01 C/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

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### 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 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

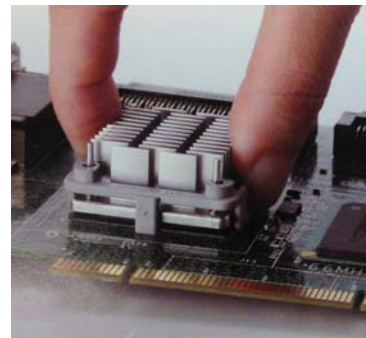
Test Time : 10 mins (Each axis)

Total Test Time : 30 mins

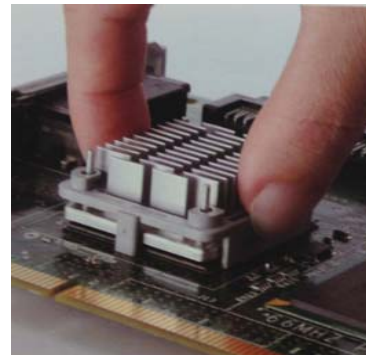
  
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**STEP 1:** Center heat Sink onto BGA. Tilt and hook one side of the clip under the BGA chip.



**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.

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Visit us on the web at: [www.wakefield-vette.com](http://www.wakefield-vette.com)



**Thermal Cooling Solutions from SMART to FINISH**

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



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