

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

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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!



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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 |
| 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 |

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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 | |

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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 g²/HZ (5 Hz)

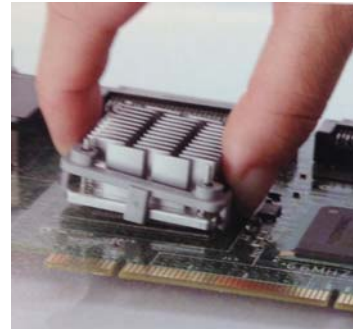
0.02 g²/HZ (20 Hz to 500 Hz)

Test Axis : X, Y, Z axis

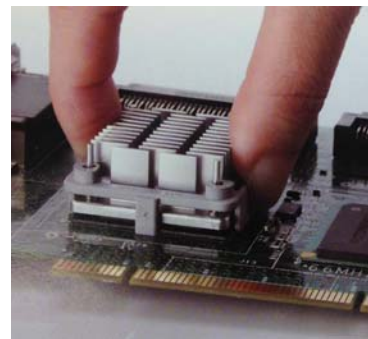
Test Time : 10 mins (Each axis)

Total Test Time : 30 mins

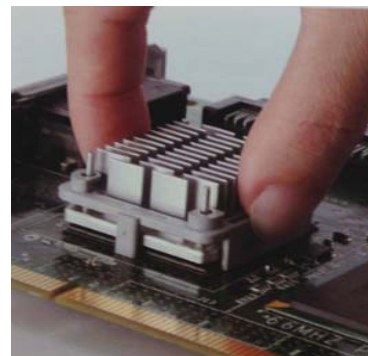

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STEP 1: Center heat Sink onto BGA. Tilt and hook one side of the clip under the BGA chip.



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!



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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



Thermal Cooling Solutions from SMART to FINISH



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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