

## BGA HEAT SINK GUIDE - POWER LESS THAN 5 WATTS

Aavid's family of BGA heat sinks offers a wide range of cooling solutions for motherboard, video card, and networking applications. Aavid's Push-Pin™ attachment, available on many of the heat sinks, uses a standard 3.12 mm diameter hole pattern, allowing accommodation of future cooling requirements without board redesign. Plastic pins provide low-cost attachment, while brass pins provide higher reliability in extreme conditions.

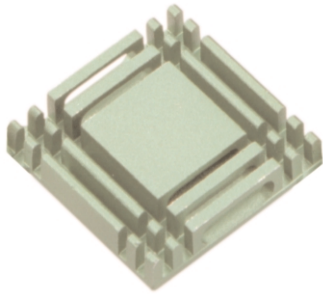
### ORDERING INFORMATION

Use the 6 digit part number in the upper left hand corner for ordering.

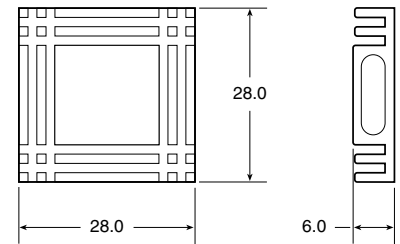
Thermal resistance is calculated at .25 m/s of airflow and does not include the interface. Due to various heat dissipation paths within a BGA device, please test our heat sink in your application.

For different interface material, fan options, color, or clipping variations, please contact your local application engineer.

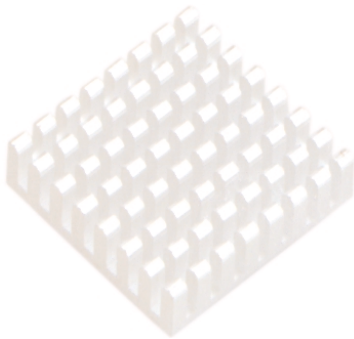
### PART NUMBER 028095 (373224M00000)



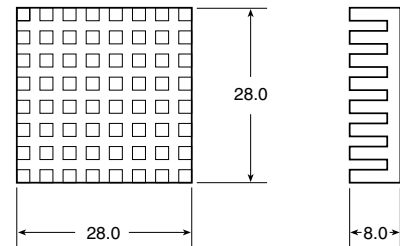
- 28 mm x 28 mm x 6 mm
- Use with epoxy attachment
- 15.2°C/W performance
- Green anodized finish



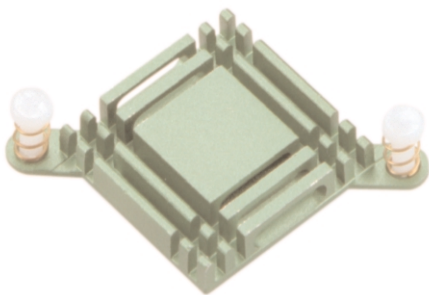
### PART NUMBER 031612 (IBAA-2)



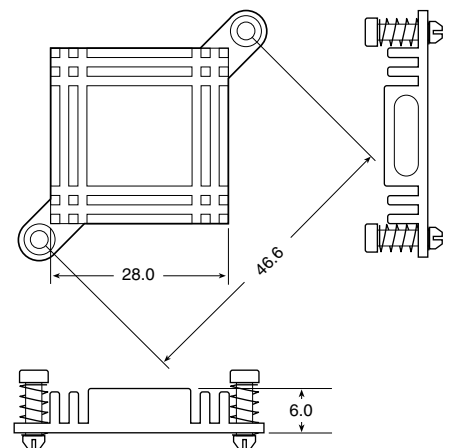
- 28 mm x 28 mm x 8 mm
- Use with epoxy attachment
- 13.5°C/W performance
- Wash finish



### PART NUMBER 030948 (10-6326-27) PLASTIC PUSH-PINS 030949 (10-6326-28) BRASS PUSH-PINS



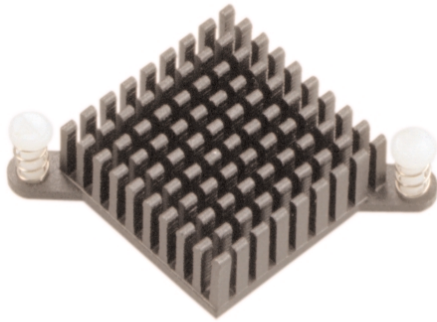
- 28 mm x 28 mm x 6 mm
- Push-Pin attachment
- 15.0°C/W performance
- Pre-applied phase-change interface material
- Black anodized finish



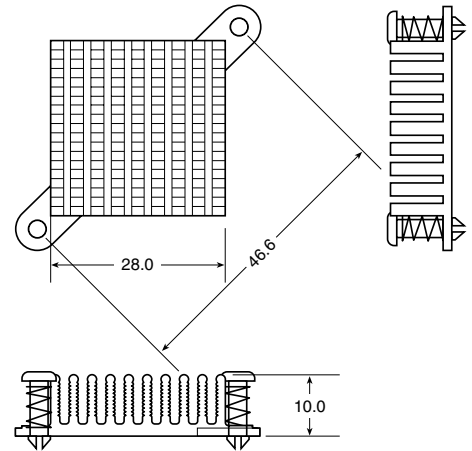


# BGA HEAT SINK GUIDE - POWER LESS THAN 8 WATTS

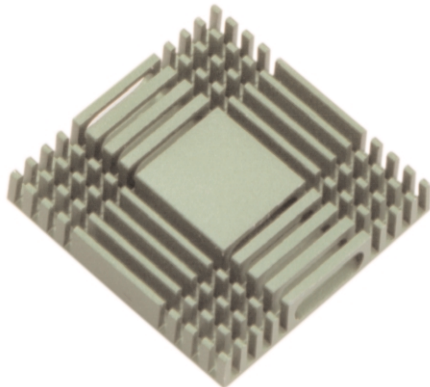
## PART NUMBER 031609 (10-6327-01) PLASTIC PUSH-PINS



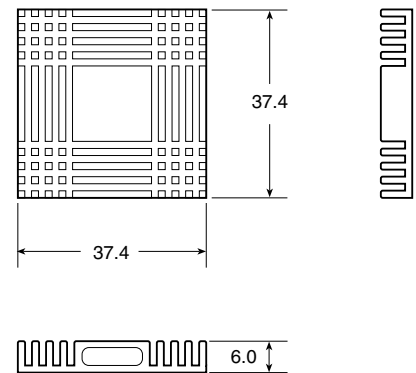
- 28 mm x 28 mm x 10 mm
- Push-Pin attachment
- 12.4°C/W performance
- Black anodized finish



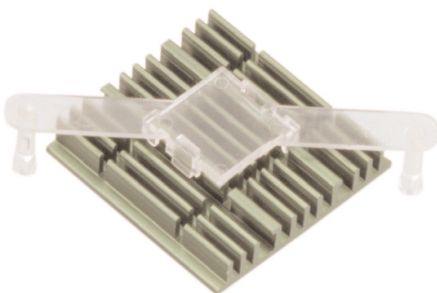
## PART NUMBER 031611 (10-5571-02) DOUBLE-SIDED TAPE 028096 (373324M0000) NO INTERFACE FOR EPOXY ATTACHMENT



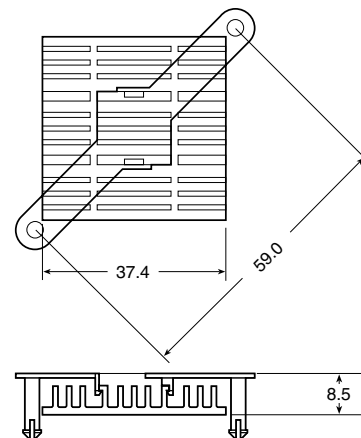
- 37.4 mm x 37.4mm x 6 mm
- 11.2°C/W performance
- Green anodized finish



## PART NUMBER 031610 (10-5610-02)

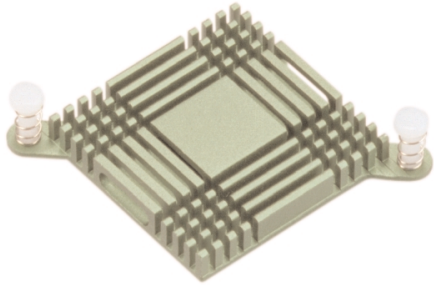


- 37.4mm x 37.4mm x 8.5 mm
- Unique clip attachment
- 11.2 °C/W performance
- Green anodized finish

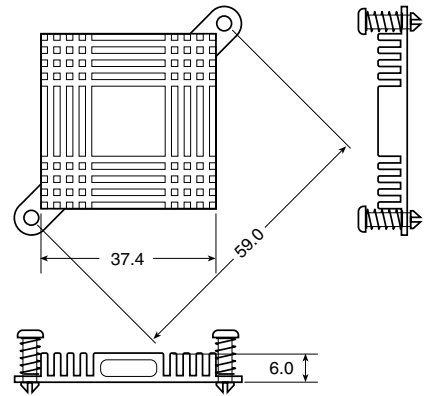


## BGA HEAT SINK GUIDE - POWER LESS THAN 10 WATTS

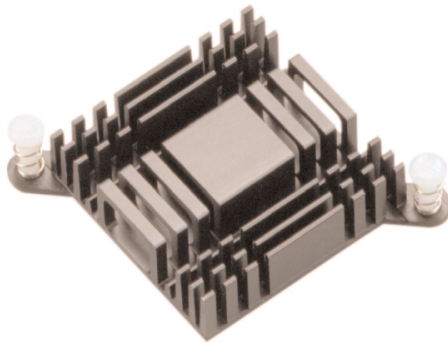
**PART NUMBER 031613 (10-5597-02) PLASTIC PUSH-PIN, NO INTERFACE MATERIAL APPLIED**  
**031614 (10-5597-22) PLASTIC PUSH-PIN, PHASE-CHANGE INTERFACE APPLIED**  
**031615 (10-5597-33) BRASS PUSH-PIN, PHASE-CHANGE INTERFACE APPLIED**



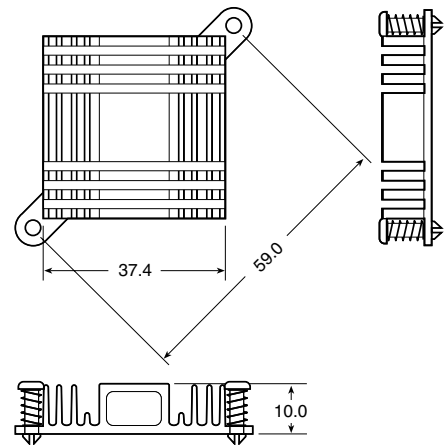
- 37.4 mm x 37.4 mm x 6 mm
- Push-Pin attachment
- 11.0°C/W performance
- 031613 has green anodized finish
- 031614 and 031615 have gold anodized finishes



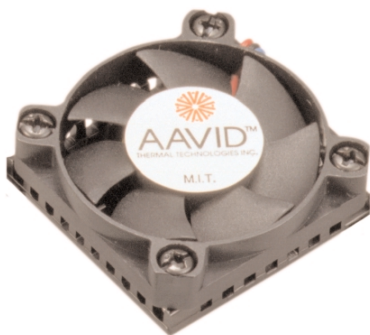
**PART NUMBER 030818 (10-5607-04) PLASTIC PUSH-PIN**  
**030819 (10-5607-05) BRASS PUSH-PIN**



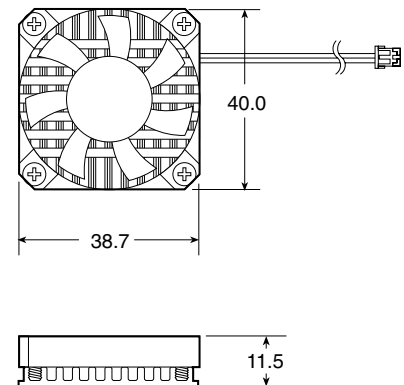
- 37.4 mm x 37.4 mm x 10 mm
- 9.7°C/W performance
- Black anodized finish
- Phase-change interface material: 28 mm x 28 mm



**PART NUMBER 031746 SINGLE-BALL FAN, DOUBLE-SIDED TAPE**



- 40 mm x 40 mm x 11.5 mm
- 5-Volt, 40 mm x 40 mm x 7 mm DC fan
- 3-Pin connector: 1-red(+), 2-black(-), 3-sensor
- Sensor provides two pulses per revolution
- 3.8°C/W performance
- Black anodized finish



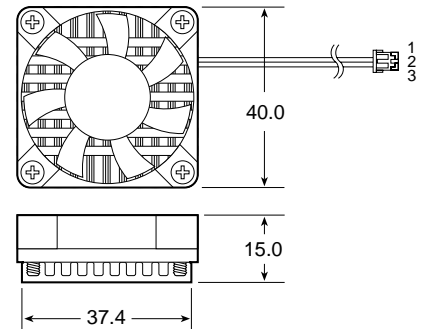
Note: All Aavid fans can be customized to your application. Customizable features include: fan wiring, fan speed, sensor options, bearing style, voltage, connector type, etc. Contact your local application engineer for information.

## BGA HEAT SINK GUIDE - POWER LESS THAN 15 WATTS

### PART NUMBER 031608 (11-5602-48) SINGLE-BALL FAN 031607 (11-5602-47) DUAL-BALL FAN



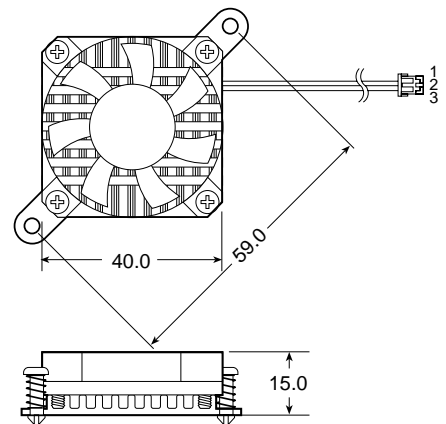
- 40 mm x 40 mm x 15 mm
- 5-Volt, 40 mm x 40 mm x 10 mm DC fan
- 3-pin Molex connector:  
1-red(+), 2-black(-), 3-sensor
- 1-black(-), 2-red(+), 3-sensor
- 3.5°C/W performance
- Black anodized finish



### PART NUMBER 031606 (11-5602-46) SINGLE-BALL FAN 031605 (11-5602-45) DUAL-BALL FAN



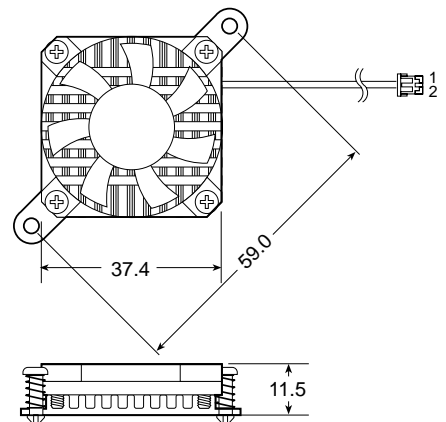
- Plastic Push-Pin
- 40 mm x 40 mm x 15.0 mm
- 5 Volt 40 mm x 40 mm x 10 mm DC fan
- 3-pin Molex connector:  
1-black(-), 2-red(+), 3-sensor
- Sensor is two pulses per revolution
- 3.4°C/W performance
- Black anodized finish



### PART NUMBER 031660 (11-5602-50) PLASTIC PUSH-PIN 031661 (11-5602-51) BRASS PUSH-PIN

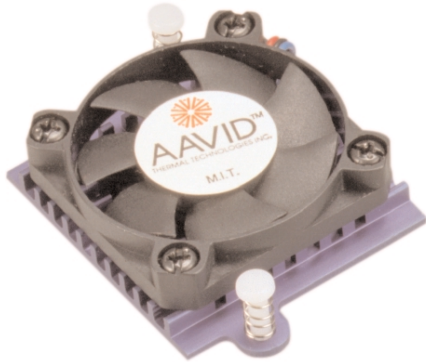


- One ball bearing
- 40 mm x 40 mm x 11.5 mm
- 12 Volt DC fan
- 2-pin Molex connector:  
1-red(+), 2-black(-)
- Phase-change interface material
- 3.7°C/W performance
- Black anodized finish

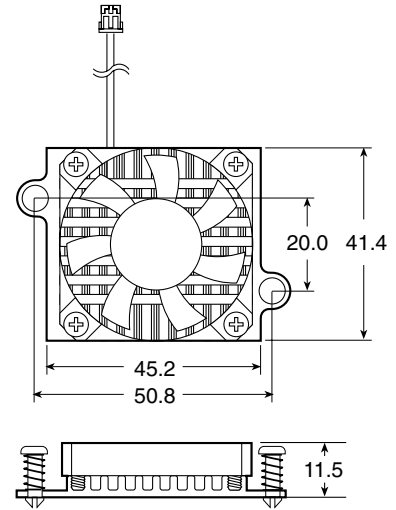


# BGA HEAT SINK GUIDE - POWER LESS THAN 15 WATTS

## PART NUMBER 031659 (11-5608-13) PLASTIC PUSH-PIN 031658 (11-5608-07) BRASS PUSH-PIN



- 40 mm x 40 mm x 11.5 mm
- 12 Volt, 40 mm x 40 mm x 7 mm DC fan
- 3-pin Molex connector:  
1-red(+), 2-black(-), 3-sensor
- Sensor provides two pulses per revolution
- 3.5 °C/W performance
- Black anodized finish



Note: Aavid has several passive heat sinks using this alternate Push-Pin hole pattern. Contact your local application engineer for information.



This data sheet represents only one of a broad range of products we make to cool electronics. Our representatives can help you configure a complete cooling solution for your individual applications. For assistance, contact any one of them from our web site or at the locations below.

Aavid Thermal Products, Inc., along with Fluent Inc.'s Icepak thermal design software and Applied Thermal Technologies, Inc. thermal design and validation services, make up

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visit our web site at: <http://www.aavid.com>; TEL: (603) 224-9988,

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**For technical assistance, or placing an order, please visit our web site for the**

**local sales representative:** <http://www.aavid.com/rep/index.html>

**or distributor near you:** <http://www.aavid.com/distrib/index.html>

**Corporate Office - Aavid USA:** 143 N. Main Street, Concord, NH 03301 TEL: (603) 224-9988 FAX: (603) 223-1738

#### International Locations:

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**Aavid Taiwan/Japan:** 3F, No. 25, Lane 228, AnKang Road, NeiHu, Taipei • 114 Taiwan R.O.C. • TEL: (886) 22-793-5677 • FAX: (886) 22-793-3460

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