

## *PWM Amplifier Support Components*

### **FLYBACK PROTECTION DIODES**

Install a low forward drop, high speed diodes from each output to both +Vs and to the corresponding Isense pin. Internal protection circuits coupled with programmable current limiting following data sheet recommendations do a good job of protecting the switch portion of the output FETs. However, the body diodes can still be destroyed in specific circumstances because they cannot be turned “off”, and the SOA of this portion of the structure is smaller than the SOA of the switch portion.

In normal operation, these diodes conduct only during the dead time between pulses. When the FETs are all turned off by internal protection circuits or by external control, energy stored in the filter and load must flow through these diodes. Time constants of this discharge are often orders of magnitude longer than dead time. If this action was triggered by the internal protection circuits, energy levels even higher than normal will have been stored because of the finite response time of the protection circuits.

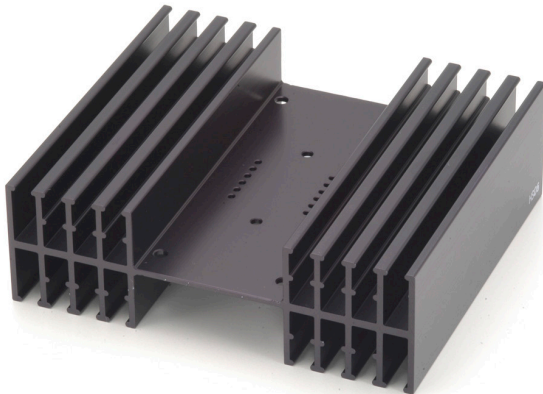
### **EVALUATION KIT**

EK17 is an easy to use engineering platform for prototype evaluation. The PC board is also a good starting point for an application specific layout. Provided items include: PC board, heatsink rated at 1°C/W, cage jacks, thermal washers, ceramic bypass capacitors, an electrolytic bypass capacitor, a screw connection terminal strip for high current I/O, two values of current limit resistors with heatsinks, and spacers. The amplifier is sold separately. Common hardware such as screws, nuts and user’s preference for low current I/O connectors are not provided.

### **HEATSINKS**

The following heatsinks are mechanically compatible with this amplifier. Thermal ratings are for optimum mounting in free air.

**HS06 0.96°C/W**



**HS11 0.68°C/W**

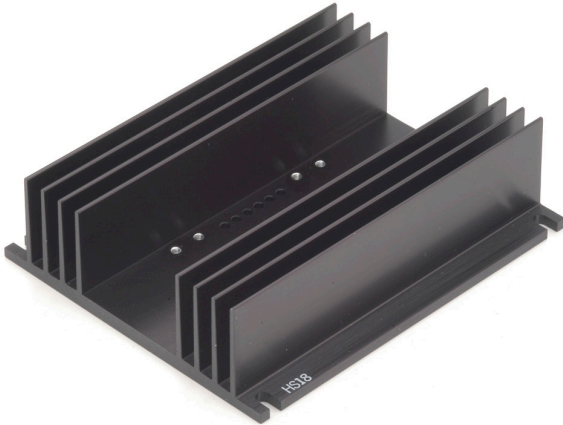
With liquid cooling the HS11 thermal rating can be reduced to 0.1°C/W.



# AN SA12

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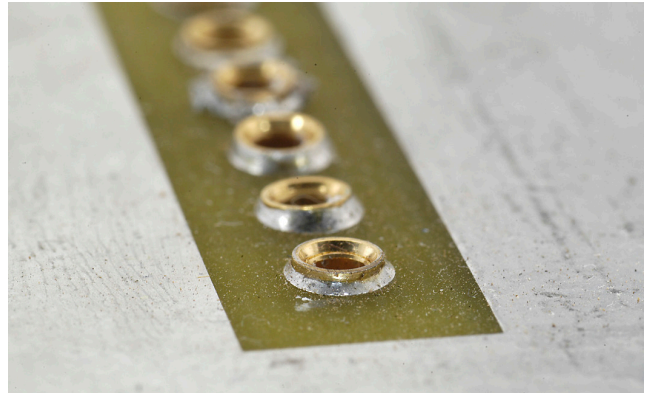
HS18 1°C/W



## CAGE JACKS

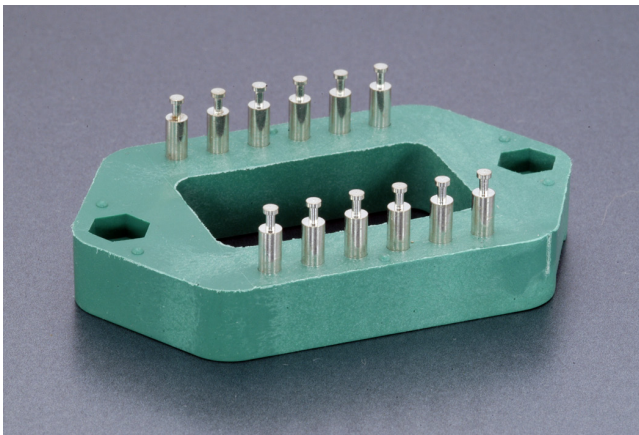
**MS04**

Part number MS04 consists of a package of 12 cage jacks. These are mounted directly in a print circuit board. Use a spacer between the PCB and the heatsink to avoid short circuits.



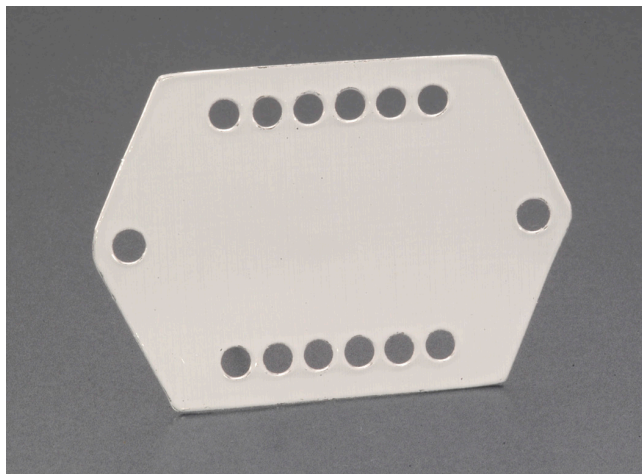
## SOCKET

**MS05**



## THERMAL WASHER

### TW05



#### NOTES:

1. Base material is aluminum, 0.002" thick. Do not allow the washer to touch pins of the amplifier.
2. For optimum thermal transfer, avoid abrasive handling of washers which can damage their 0.5mil thick layer of thermal compound with which each side is coated.
3. The dry thermal compound will flow filling header to heatsink voids as soon as the material reached 60°C.
4. Do not store unused thermal washers above 40°C.
5. A new washer must be used for each mounting.
6. Part number TW05 consists of a package of 10 washers.
7. Thermal resistance is 0.05°C/W.

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## NEED TECHNICAL HELP? CONTACT APEX SUPPORT!

For all Apex Microtechnology product questions and inquiries, call toll free 800-546-2739 in North America.

For inquiries via email, please contact [apex.support@apexanalog.com](mailto:apex.support@apexanalog.com).

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