APPLICATION NOTE PB51

FLYBACK PROTECTION DIODES

Install a low forward drop, high speed diodes from each output to both +Vs and to the corresponding Isense pin. The body diodes of the FETs can 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.

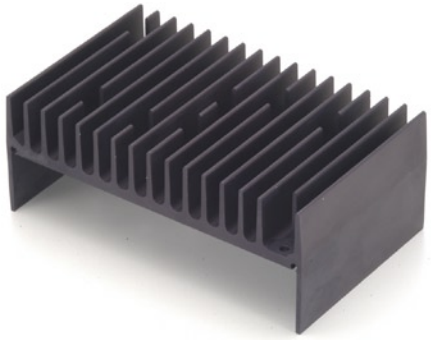
In normal operation, these diodes conduct only during the dead time between pulses. When the FETs are all turned off by external control, energy stored in the filter and load must flow through these diodes. Time constants of this discharge are often orders of magnitude longer than dead time. If this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

EVALUATION KIT

EK29 is an easy to use engineering platform for prototype evaluation. **It accommodates only the straight pin version of the amplifier**. The PC board is also a good starting point for an application specific layout. Provided items include: PC board, heatsink rated at 1.3°C/W, socket, thermal washers, ceramic bypass capacitors and two 0.1 ohm current sense resistors with heatsinks. The amplifier is sold separately. Common hardware such as screws, nuts and user's preference for 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.



HS20 1.3°C/W

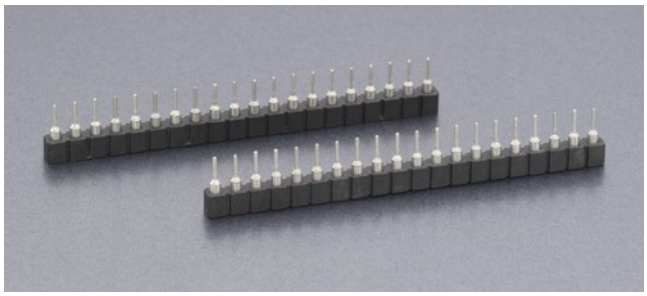
The HS20 is designed to be fastened vertically to a PC board with screws.

HS27 5.3°C/W

The HS27 is designed to be fastened vertically to a PC board by soldering.

Many other heatsinks can be used with this amplifier if a hole is drilled and deburred. Requirements for the potential heatsink or chassis member are flatness of 2 mils per inch in an area large enough to fit the package.

SOCKET



MS06

Part number MS06 consists of 2 socket strips. These are mounted directly in a print circuit board. Use a spacer between the PCB and the heatsink to avoid short circuits.

THERMAL WASHER

TW07

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 TW07 consists of a package of 10 washers.
7. Thermal resistance is 0.1°C/W.

