

Power Operational Amplifier



FEATURES

- LOW THERMAL RESISTANCE — 1.4°C/W
- CURRENT FOLDOVER PROTECTION — NEW
- HIGH TEMPERATURE VERSION — PA12H
- EXCELLENT LINEARITY — Class A/B Output
- WIDE SUPPLY RANGE — ±10V to ±50V
- HIGH OUTPUT CURRENT — Up to ±15A Peak

APPLICATIONS

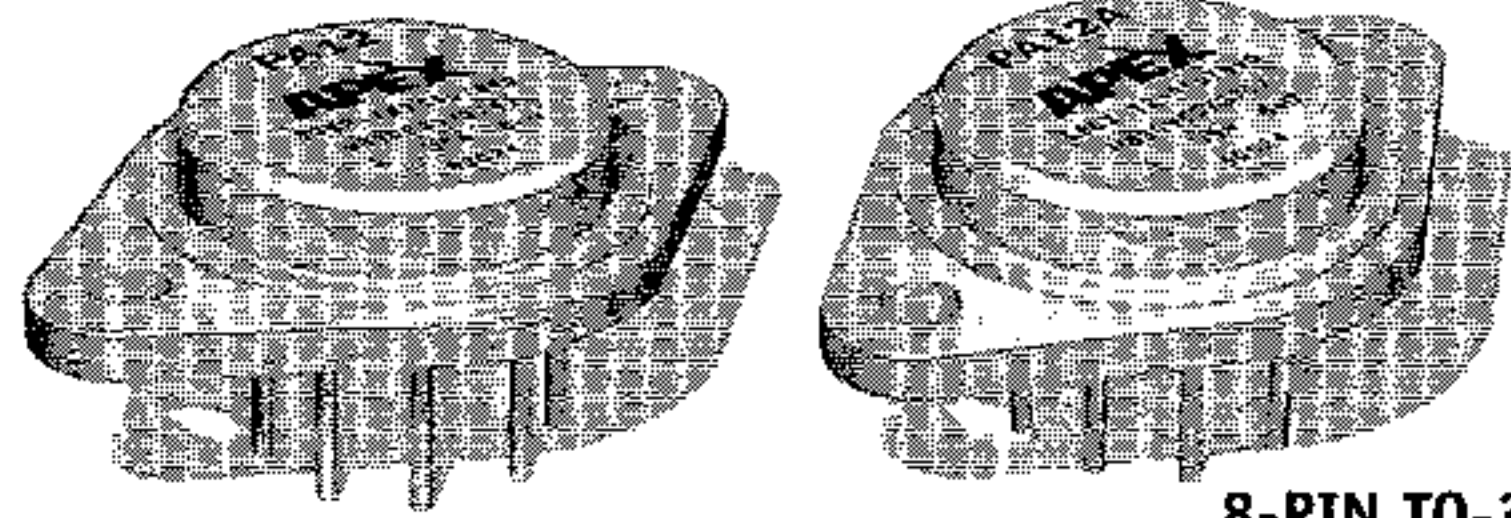
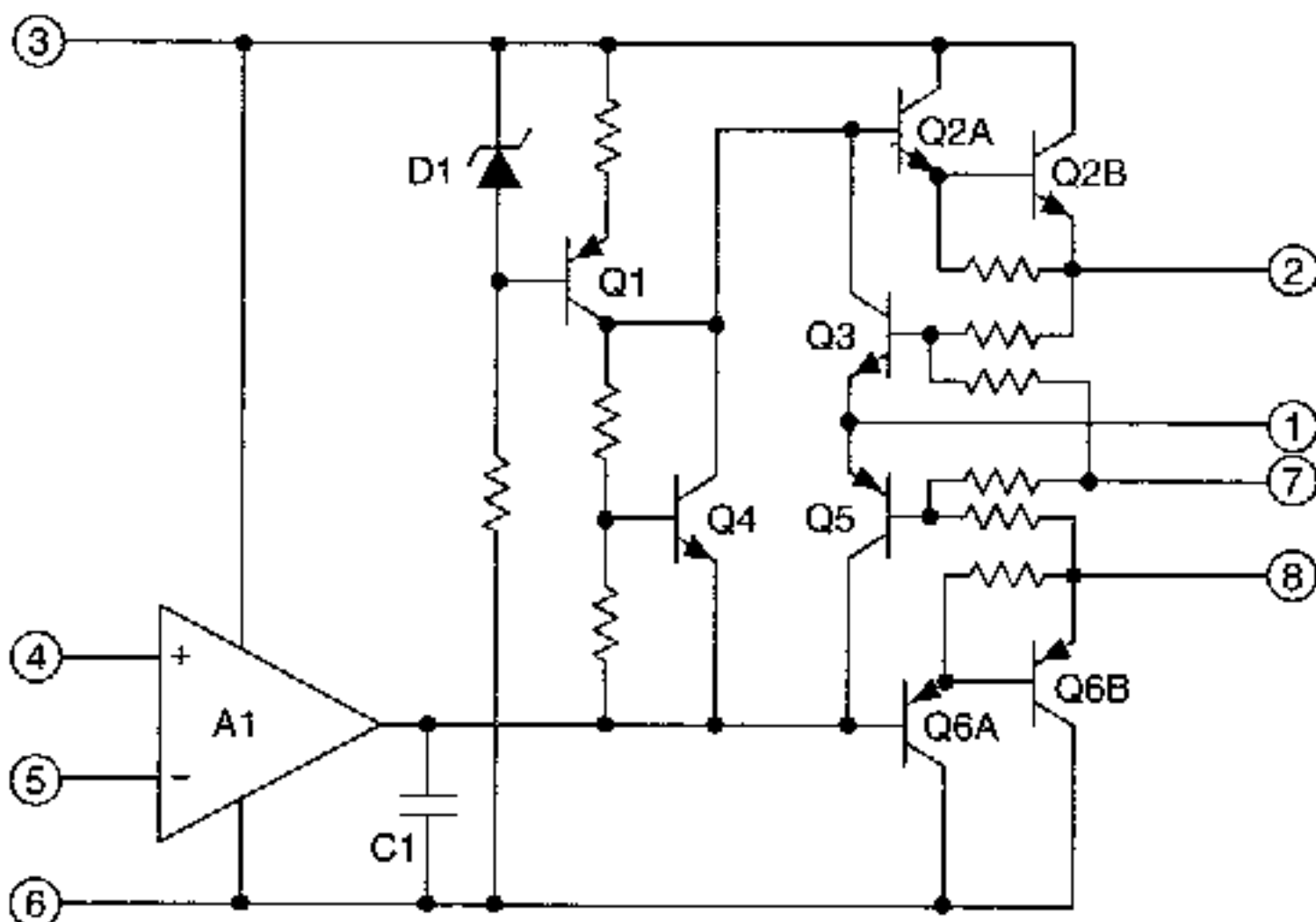
- MOTOR, VALVE AND ACTUATOR CONTROL
- MAGNETIC DEFLECTION CIRCUITS UP TO 10A
- POWER TRANSDUCERS UP TO 100kHz
- TEMPERATURE CONTROL UP TO 360W
- PROGRAMMABLE POWER SUPPLIES UP TO 90V
- AUDIO AMPLIFIERS UP TO 120W RMS

DESCRIPTION

The PA12 is a state of the art high voltage, very high output current operational amplifier designed to drive resistive, inductive and capacitive loads. For optimum linearity, especially at low levels, the output stage is biased for class A/B operation using a thermistor compensated base-emitter voltage multiplier circuit. The safe operating area (SOA) can be observed for all operating conditions by selection of user programmable current limiting resistors. For continuous operation under load, a heatsink of proper rating is recommended. The PA12 is not recommended for gains below -3 (inverting) or +4 (non-inverting).

This hybrid integrated circuit utilizes thick film (cermet) resistors, ceramic capacitors and semiconductor chips to maximize reliability, minimize size and give top performance. Ultrasonically bonded aluminum wires provide reliable interconnections at all operating temperatures. The 8-pin TO-3 package is hermetically sealed and electrically isolated. The use of compressible isolation washers voids the warranty.

EQUIVALENT SCHEMATIC



8-PIN TO-3
PACKAGE STYLE CE

POWER RATING

Not all vendors use the same method to rate the power handling capability of a Power Op Amp. Apex Precision Power rates the internal dissipation, which is consistent with rating methods used by transistor manufacturers and gives conservative results. Rating delivered power is highly application dependent and therefore can be misleading. For example, the 125W internal dissipation rating of the PA12 could be expressed as an output rating of 250W for audio (sine wave) or as 440W if using a single ended DC load. Please note that all vendors rate maximum power using an infinite heatsink.

THERMAL STABILITY

Apex Precision Power has eliminated the tendency of class A/B output stages toward thermal runaway and thus has vastly increased amplifier reliability. This feature, not found in most other Power Op Amps, was pioneered by Apex Precision Power in 1981 using thermistors which assure a negative temperature coefficient in the quiescent current. The reliability benefits of this added circuitry far outweigh the slight increase in component count.

EXTERNAL CONNECTIONS

