Precision Ultralow Noise, Set Gain, Zero-Drift Differential Amplifier

FEATURES

- Low offset: 2.5 µV maximum
- Low offset voltage drift: 0.015 µV/°C maximum
- Low noise
  - 5.6 nV/√Hz at f = 1 kHz, A_V = +100
  - 97 nV p-p at f = 0.1 Hz to 10 Hz, A_V = +100
- Open-loop voltage gain: 130 dB minimum
- CMRR: 80 dB minimum
- PSRR: 80 dB minimum
- Gain bandwidth product: 4 MHz
- Single-supply operation: 2.2 V to 5.5 V
- Dual-supply operation: ±1.1 V to ±2.75 V
- Rail-to-rail input and output
- Unity-gain stable

APPLICATIONS

- Thermocouple/thermopile
- Load cell and bridge transducer
- Precision instrumentation
- Electronic scales
- Medical instrumentation
- Handheld test equipment

PIN CONNECTION DIAGRAM

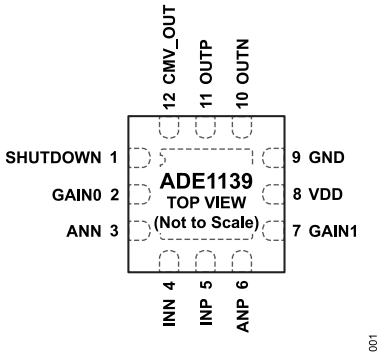

Figure 1. ADE1139 Pin Configuration, 12-Lead LFCSP

GENERAL DESCRIPTION

The ADE1139 is a zero-drift fully-differential programmable-gain amplifier, targeted to interface with a di/dt current sensor. It features a rail-to-rail input and differential output swing. With an output common-mode offset voltage of 8 mV, output common-mode offset voltage drift of 15 µV/°C for all gain conditions, and typical differential noise density of 7 nV/√Hz, the ADE1139 is well suited for applications in which error sources cannot be tolerated.

The ADE1139 has a wide operating supply range of 3.0 V to 5.5 V, high gain, and excellent common-mode rejection ratio (CMRR) and power-supply rejection ratio (PSRR) specifications, which makes it ideal for applications that require precision amplification of low-level signals. The ADE1139 is specified over the extended industrial temperature (−40°C to +125°C), and is available in a 12-lead LFCSP package.

For more information about the ADE1139, contact your local Analog Devices, Inc., sales office at www.analog.com/sales.

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