



Bidirectional Current Sense Amplifier Operates from -5V to 80V with 80db of CMRR at 100 kHz

MILPITAS, CA – November 15, 2010 – Linear Technology announces the [LT1999](#), a high-voltage amplifier designed for bidirectional current sensing in the presence of fast switching common-mode voltages from -5V to 80V. This wide input common-mode range is obtained with standard low voltage op amp supplies. A 2MHz bandwidth enables the LT1999 to monitor currents in H-bridge motor controls, switching power supplies, solenoid, and battery chargers. To maintain outstanding accuracy, even when monitoring motor and solenoid current, the LT1999 guarantees more than 80dB of common-mode rejection at 100kHz. This ensures that the LT1999 remains insensitive to the large square wave input common-mode voltages present in these applications.

The LT1999 features a buffered output with three fixed-gain options for 10V/V, 20V/V and 50V/V. By default, the LT1999 output voltage is referenced halfway between the supply voltage and ground, enabling the output to indicate both the magnitude and direction of the sensed current. In addition, the output bias level can be set via a separate input. Gain error is guaranteed at less than 0.5% and input offset voltage is guaranteed at less than 1.5mV over the full temperature range of -40°C to 125°C. The LT1999 operates with an independent 5V supply voltage, drawing only 1.5mA while active and only 10μA in shutdown mode.

“The outstanding AC performance ensures smooth, continuous operation over the entire common mode range,” says Mike Kultgen, Design Manager for Linear Technology. “And the differential amplifier architecture makes the LT1999 adaptable to a wide range of applications.”

Offered in an 8-lead MSOP package and 8-lead SOP package, the LT1999 family is fully specified over four temperature ranges: 0°C to 70°C, -40°C to 85°C, -40°C to 125°C, and -55°C to 150°C. The LT1999 is in full production, with prices starting at \$1.92 each in 1,000-piece quantities. For more information, visit www.linear.com/1999.


Photo Caption: Precision Bidirectional Current Sense for Motor & Solenoid Applications

Summary of Features: LT1999

- Buffered Output with 3 Gain Options: 10V/V, 20V/V, 50V/V
- Gain Error: 0.5% Max
- Input Common-Mode Voltage Range: -5V to 80V
- AC CMRR > 80dB at 100kHz
- Input Offset Voltage: 1.5mV Max from -40°C to 125°C
- 2MHz Bandwidth
- 4kV HBM Tolerant & 1kV CDM Tolerant
- Shutdown Reduces Supply Current to <10µA
- -55°C to 150°C Operating Temperature Range
- 8-Lead MSOP & 8-Lead SO (Narrow) Packages

About Linear Technology

Linear Technology Corporation, a member of the S&P 500, has been designing, manufacturing and marketing a broad line of high performance analog integrated circuits for major companies worldwide for three decades. The Company's products provide an essential bridge between our analog world and the digital electronics in communications, networking, industrial, automotive, computer, medical, instrumentation, consumer, and military and aerospace systems. Linear Technology produces power management, data conversion, signal conditioning, RF and interface ICs, and µModule[®] subsystems.

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