



## **60V Current Sense Amplifier Offers Adjustable Fault Flags**

MILPITAS, CA – July 6, 2011 – Linear Technology announces the [LT6109](#), a complete high side current sense device that incorporates a current sense amplifier, dual comparators and a precision 400mV voltage reference. When connected to a current shunt resistor, the high side current sense amplifier precisely extracts the shunt voltage, amplifies it, and translates it to ground. This output is available for monitoring and can be connected to either of the on-chip comparators. The LT6109 is ideal for current measurement and load current fault monitoring, especially since each element of the LT6109 offers outstanding precision and speed. The current sense amplifier has less than 350 $\mu$ V of offset and the combined threshold error of the comparators and reference is less than 2%. From the input of the amplifier to the output of the comparators, the LT6109 responds to threshold exceeding events within 1.4 $\mu$ sec.

External resistors set the amplifier gain and comparator trip points, and since the gain resistors are the primary determinants of the amplifier's accuracy, using precision resistors enables accuracy better than 1%. Two versions of the LT6109 are available, the LT6109-1 and the LT6109-2. The comparator inputs of the LT6109-1 are connected to the internal reference in opposing polarity, allowing for window comparison, such as for overcurrent and undercurrent conditions. The comparator inputs of the LT6109-2 are connected in the same polarity, allowing for two threshold levels, such as "warning" and "emergency disconnect." The open-drain outputs ensure easy interface to other system components, and comparator latching enables detection of high speed events. The LT6109 is fully specified for operation from  $-40^{\circ}\text{C}$  to  $125^{\circ}\text{C}$  and is available in a small 10-lead MSOP.

"The LT6109 is not simply an integration of separate devices," says Kris Lokere, Design Manager for Linear Technology. "Each element offers outstanding performance, and in combination, this part sets a new standard in current monitoring."


All versions of the LT6109 are in full production, priced starting at \$1.84 each in 1,000-piece quantities. For more information, visit [www.linear.com/product/LT6109](http://www.linear.com/product/LT6109)

**Photo Caption:** Precision Circuit Fault Protection and Warning**Summary of Features: LT6109**

- Current Sense Amplifier
  - Fast Step Response: 500ns
  - Low Offset Voltage: 350 $\mu$ V Maximum
  - Low Input Bias Current: 300nA Maximum
- Internal 400mV Precision Reference
- Internal Latching Comparators with Reset
  - Fast Response Time: 500ns
  - Total Threshold Error:  $\pm 2\%$  Maximum
  - Two Comparator Polarity Options
- Wide Supply Range: 2.7V to 60V
- Supply Current: 550 $\mu$ A
- Low Shutdown Current: 5 $\mu$ A
- Specified for Operation from  $-40^{\circ}\text{C}$  to  $125^{\circ}\text{C}$
- Available in 10-Lead MSOP Package

**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  $\mu$ Module<sup>®</sup> subsystems.

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