

Silicon Labs Launches Industry's Fastest Isolated Current Sense Amplifier

New Si8920 Analog Amplifier Provides Precise Current Shunt Measurement for Power Control Systems Including Industrial Motor Drives and Inverters

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AUSTIN, Texas--([BUSINESS WIRE](#))--[Silicon Labs](#) (NASDAQ: SLAB), a leading provider of [mixed-signal isolation technology](#) for industrial automation and Internet infrastructure, today introduced an isolated current sense amplifier delivering robust isolation and the industry's highest bandwidth and lowest signal delay. Silicon Labs' new Si8920 isolated amplifier provides an ideal current shunt measurement solution for power control systems operating in harsh environments such as industrial motor drives, solar inverters, high-voltage power converters, uninterruptible power supplies (UPS) and electric/hybrid-electric vehicle (EV/HEV) systems.

Fast, accurate current sensing is essential for all high-power systems and power converters with high-voltage stages. Measuring current on high-voltage rails (up to 1200 V) with a galvanically isolated amplifier provides critical information to the low-voltage controller that improves system response time and efficiency. The Si8920 isolated amplifier provides a differential, low-voltage input scaled for connection to current shunt resistors, enabling the controller to make precise measurements of current on high-voltage rails while maintaining best-in-class electrical isolation. The Si8920 device's industry-leading signal bandwidth (up to 750 kHz) ensures rapid, precise dc current measurement and accurate representation of the primary signal and harmonics.

The Si8920 isolated amplifier uses Silicon Labs' proven, CMOS-based isolation technology, which meets stringent UL, VDE, CQC and CSA standards, supports up to 5 kV withstand and 1200 V working voltage, and offers a wider operating temperature range, better noise immunity and longer lifetimes than competing isolation technologies. The Si8920 amplifier's exceptionally low 1 $\mu\text{V}/^\circ\text{C}$ offset drift ensures stable performance over diverse operating conditions.

The Si8920 provides a robust, reliable isolated amplifier solution that meets the product longevity requirements of industrial automation, green energy and Internet infrastructure equipment. Many power systems feature long lifetime warranties and are expected to operate for 25 years or more in the field. Isolation often can be a point of first failure and a lifetime-limiting device in many power systems. Traditional isolators, based on optocoupler technology, suffer from limited temperature range and can degrade with the external environment. In contrast, CMOS-based isolation components such as the Si8920 isolated amplifier operate over a full industrial temperature range and can support product lifetimes of up to 100 years.

The Si8920 isolated amplifier provides very fast response time with an unparalleled 0.75 μs signal delay across the isolation barrier, allowing power control systems to react rapidly to transient load conditions. Ultra-low signal delay enables control loops to respond quickly, resulting in a more efficient and stable system as the controller can take action sooner to maintain the desired performance. Low signal delay also enables the power system to make quick corrective responses to unusual, potentially dangerous events, which helps reduce equipment repair and maintenance costs.

“Silicon Labs designed the Si8920 isolated analog amplifier to meet demanding operating conditions and the reliability and longevity requirements of power conversion systems with high-voltage buses,” said Ross Sabolcik, vice president and general manager of Access and Isolation products at Silicon Labs. “The Si8920 device's high bandwidth and very low signal delay make it a best-in-class isolated current sensing solution for motor drive systems, solar inverters, power converters and today's increasingly popular EV/HEV cars.”

Pricing and Availability

The Si8920 isolated amplifier is available now in standard SOIC and DIP packages, which are easy to handle with automated assembly systems. Si8920 pricing in 10,000-unit quantities begins at \$2.39 (USD). The Si8920ISO-KIT evaluation kit enables developers to connect quickly to a shunt resistor to evaluate Si8920 analog isolation functionality including low-voltage differential input, response times, offset and gain characteristics. Priced at \$29 (USD MSRP), the Si8920ISO-KIT evaluation kit is available now from Silicon Labs

and authorized distributors. For additional Si8920 isolated amplifier product information and to order samples and evaluation boards, please visit www.silabs.com/isolatedamplifier.

Silicon Labs

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