New Isolated Smart Switches from Silicon Labs Drive Any Load in Harsh Industrial Environments

-- Si834x Family Offers the Most Rugged, Reliable Switches on the Market with Best-in-Class Protection and Diagnostic Reporting Features --

AUSTIN, Texas, Aug. 28, 2019 /PRNewswire/ **--** Silicon Labs (NASDAQ: SLAB) has introduced a family of compact, robust isolated smart switches designed to drive any load, even in the harshest industrial environments. The new Si834x isolated switches are ideal for driving resistive and inductive loads such as solenoids, relays and lamps used in industrial control systems including programmable logic controllers (PLCs), I/O modules, relay drivers and servo motor controllers. Each switch is galvanically isolated for safety using Silicon Labs' groundbreaking CMOS-based isolation technology, offering better reliability and performance than legacy optocoupler-based isolation, including high common-mode transient immunity (CMTI) of more than 100 kV/µs.

The Si834x isolated switch family supports high-side and low-side switch options, low on-resistance (145 mΩ R_{ON}), up to 700 mA of continuous current compliant with the IEC 61131-2 standard, comprehensive protection and diagnostic reporting, and advanced configuration, monitoring and control for industrial automation systems. The switch logic interface can be as simple as four low-power CMOS digital inputs or as rich and flexible as a full serial peripheral interface (SPI) capable of controlling up to 128 channels with four MCU pins.

"The new Si834x isolated smart switch family embodies three generations of Silicon Labs' isolation innovation for industrial automation," said Brian Mirkin, Vice President and General Manager of Silicon Labs' power products. "The Si834x family expands our broad isolator portfolio, complementing our PLC input isolators and isolated FET drivers to provide a complete solution. The Si834x switches outperform opto-isolators, power FETs and other competing options by offering a fully integrated 24 V digital output solution with best-in-class switch protection, flexible configuration and comprehensive diagnostic feedback."

Sophisticated switch and load monitoring techniques combined with fast responses to changing conditions make the Si834x switches extremely robust, flexible solutions for driving a wide range of loads. Each switch can detect an open-circuit condition and is protected against over-current, over-voltage from demagnetization (inductive kick or flyback voltage) and over-temperature conditions. An innovative multi-voltage smart clamp efficiently handles an unlimited amount of demagnetization energy. Over-current protection includes an inrush current mode not found in competing products, allowing the switch to drive challenging loads.

The Si834x switches achieve better inductive load-driving performance than competing devices and safer overload protection without the same inefficiency, loss of lifetime reliability, or the need for complicated cooling solutions by employing an innovative, rapid manipulation of switch impedance and clamp voltage. While other solutions entering into a fault state may shut down, the Si834x switches can continue operation in a constrained but functional state with reduced channel performance, dramatically improving system uptime.

The isolated switches feature a sophisticated logic interface with eight separate diagnostic reports, offering an unprecedented level of detail and control for each switch and making the Si834x devices the most flexible switches on the market. Diagnostics are configured, monitored and cleared through SPI or exposed on active-low, open-drain indicator pins for easy access. Diagnostic communication is independent of the switch control signals across the isolation barrier. Separate isolation channels and constant fault monitoring ensure the highest level of device reliability, providing system operators with detailed information about how the switches and their loads are behaving on the other side of the isolation barrier.

Pricing and Availability
Samples and production quantities of the 4-channel Si834x isolated smart switches are available now in a compact 9 mm x 9 mm DFN-32 package with an exposed center pad (ePAD). The Si834x4x switches with a parallel interface are priced at $1.90 each (USD) in 100,000-unit quantities. The Si834x8x switches supporting SPI are priced at $2.09 each in 100,000-unit quantities. To simplify development and accelerate time to market, Silicon Labs offers Si834x evaluation kits with either a parallel or SPI interface and sinking/sourcing output options. For more information and to request device samples, visit silabs.com/isolated-smart-switch.

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