Silicon Labs 5 kV Digital Isolators Offer Robust, Reliable Upgrade for Traditional Optocouplers

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AUSTIN, Texas, Jun 23, 2010 (BUSINESS WIRE) -- Silicon Laboratories Inc. (NASDAQ: SLAB), a leader in high-performance, analog-intensive, mixed-signal ICs, today introduced a line of 5 kV digital isolators designed to replace traditional optocouplers in harsh application environments and systems powered from universal mains supplies. Silicon Labs' new 5 kV Si84xx digital isolators provide a smaller, faster and more reliable isolation solution than optocouplers without the wear-out mechanisms, aging effects or temperature dependencies that plague optocoupler-based designs. They also offer best-in-class electromagnetic immunity among digital isolation solutions.

The 5 kV Si84xx digital isolators target industrial automation and drives, motor control and medical device applications that require robust operation and high levels of protection. The Si84xx digital isolators are also ideal for systems powered from 220 V mains supplies such as isolated ac-dc and dc-dc power supplies, solar power inverters, lighting systems, data communications, and test and measurement equipment.

Leveraging Silicon Labs' patented architecture, the Si84xx digital isolators are designed to minimize data errors while enabling lower emissions than transformer-based isolation designs. In addition to offering superior performance versus optocouplers, the Si84xx family's robust RF architecture also outperforms competing digital isolator products, providing better electrostatic discharge (ESD) immunity, higher tolerance to electromagnetic noise, reduced jitter and more precise overall timing characteristics.

"With industry-leading electromagnetic field immunity and best-in-class RF emissions, the Si84xx digital isolators offer bullet-proof performance in the harshest operating environments," said Mark Thompson, vice president of Embedded Mixed-Signal products at Silicon Labs. "The new 5 kV devices enable customers to replace their optocoupler-based designs with a more reliable, high-performance digital isolation solution."

As the industry's highest performance isolators, the Si84xx family offers the following advantages:

- Highest data rate: The Si84xx isolators offer the industry's highest data rate at 150 Mbps across the widest temperature range (-40 to +125 °C), making them suitable to replace optocouplers in a wide variety of industrial applications.
- Ultra-low power: Optimized for "green" applications, the Si84xx isolators combine best-in-class power consumption with high data rates.
- Lowest jitter: Si84xx devices offer 2x better jitter performance than competing devices, minimizing data transmission errors and bit-error-rates (BERs).
- Highest ESD reliability: Exceptional ESD performance enables the highest reliability in harsh application environments: 4 kV human body model (HBM), 2 kV charged device model (CDM) and 400 V machine model (MM).
- Best transient immunity: The Si84xx devices offer more than 25 kV/microsecond of common mode transient immunity (CMTI) - a 50 to 100 percent improvement over the CMTI performance of optocouplers.
- Strongest RF immunity: Si84xx isolators are a significant upgrade over competing digital isolator solutions in demanding industrial applications, delivering immunity against electric fields up to 300 V/m and magnetic fields up to 1000 A/m.
- Lowest RF emissions: The Si84xx devices' RF emissions are up to 20 dB lower than other digital isolators.

Silicon Labs' Si84xx digital isolator family provides greater flexibility and more design options for system developers. In addition to offering new 5 kV devices, the Si84xx family includes 2-channel options with industry-standard pin-outs that are compatible with other widely used digital isolator products, enabling easy drop-in replacement and dual sourcing for critical power system applications.

The Si84xx digital isolators also can be combined with Silicon Labs' Si82xx ISOdrivers, Si85xx AC current sensors, Si3226 Dual ProSLIC single-chip SLIC/codec ICs and mixed-signal MCUs to provide comprehensive isolation solutions.

Silicon Labs has shipped more than 75 million digital isolator channels to date, and its market-proven RF isolation architecture has been validated in numerous industrial, energy management, communications and broadcast applications. The use of proven CMOS manufacturing technology enables an aggressive digital isolator product roadmap and higher levels of integration to meet the future isolation challenges of system manufacturers.

Pricing and Availability

Samples and production quantities of the 5kV Si84xx digital isolators are available now. Pricing in 10,000-unit quantities for 5 kV Si84xx devices in wide-body SOIC-16 packages begins at $0.86 (USD).

To accelerate application development, Silicon Labs offers the Si84xxISO-KIT evaluation kit to support basic functional testing and engineering

validation of 5 kV isolation products. The Si84xxCOM-RD communications reference design showcases isolated RS-232, RS-485, CAN and USB interfaces with 2.5 and 5 kV isolators. The Si84xxISO-KIT and Si84xxCOM-KIT are both available for $40 (USD).

For additional information about Silicon Labs' Si84xx digital isolators and to purchase samples and development tools, please visit www.silabs.com/pr/isolation.

Silicon Laboratories Inc.

Silicon Laboratories is an industry leader in the innovation of high-performance, analog-intensive, mixed-signal ICs. Developed by a world-class engineering team with unsurpassed expertise in mixed-signal design, Silicon Labs' diverse portfolio of highly-integrated, easy-to-use products offers customers significant advantages in performance, size and power consumption. These patented solutions serve a broad set of markets and applications including consumer, communications, computing, industrial and automotive.

Headquartered in Austin, TX, Silicon Labs is a global enterprise with operations, sales and design activities worldwide. The company is committed to contributing to our customers' success by recruiting the highest quality talent to create industry-changing innovations. For more information about Silicon Labs, please visit www.silabs.com.

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