

# Silicon Labs Delivers Best-in-Class Digital Isolators for Consumer Electronics Market

## New Si80xx Isolators Outperform Optocouplers for Household Appliance Applications Requiring Multi-Channel 1 kV Functional Isolation

“*The Si80xx family enables developers to upgrade their optocoupler-based applications with a more reliable, power-efficient and higher-performance digital isolation solution designed to reduce system cost and complexity.*”

AUSTIN, Texas--([BUSINESS WIRE](#))--[Silicon Labs](#) (NASDAQ: SLAB), a leader in high-performance, analog-intensive, mixed-signal ICs, today introduced a family of digital isolators offering the highest channel count, performance, reliability and data rates for cost-sensitive consumer electronics applications requiring functional isolation of up to 1 kV. Based on Silicon Labs' patented [CMOS-based digital isolation technology](#), the new [Si80xx family](#) provides a superior alternative to optocouplers for washers, dryers, food mixers, vacuum cleaners and other household appliances, as well as test and measurement equipment requiring functional isolation.

Used for more than 40 years, optocouplers are inherently limited by an antiquated LED-based technology resulting in significant output variations over input current, temperature and age. These variations reduce the operating performance of optocouplers over their lifetime, causing increased design complexity and reduced product reliability. Silicon Labs' Si80xx digital isolators overcome these limitations through capacitive isolation based on mainstream CMOS process technology. Higher reliability and longer device lifetimes enable manufacturers to support longer product warranties and reduce costs associated with repair or replacement. Less variability, especially in the input turn-on current, simplifies system design.

Developers no longer need to anticipate aging effects when they [switch from using optocouplers](#) to Si80xx digital isolators in their product designs. The operating parameters of the Si80xx digital isolators remain stable across wide temperature ranges and throughout their long service life for ease of system design and highly uniform performance in consumer applications.

The Si80xx family offers a superior functional isolation solution than other digital isolators for applications that require multiple isolated signal channels. Available in a choice of 3- to 6-channel configurations, the Si80xx family is the industry's widest channel count series of unidirectional isolators supporting up to 1 kV isolation ratings. The Si80xx family's industry-leading isolation channel count also helps simplify timing and isolation challenges in systems with wide digital buses by enabling developers to minimize the number of separate isolators, thereby reducing bill of materials (BOM) cost and board space.

Compared to competing digital isolator products, the Si80xx isolators provide significant electromagnetic emissions and immunity performance advantages, which simplify system design, reduce cost and ease electromagnetic compatibility (EMC) compliance challenges. The Si80xx isolators have up to 20 dB lower electromagnetic emissions than competing solutions, eliminating the need for costly shielding.

The Si80xx digital isolator architecture incorporates a transmitter and a receiver separated by a CMOS-based isolation barrier. The Si80xx isolators use a high-frequency internal oscillator on the transmitter to modulate digital input signals across the capacitive isolation barrier. On the receiver side, these signals are demodulated back to the corresponding digital output signals, which are electrically isolated from the input. This simple, elegant architecture provides a robust data path requiring no special considerations or initialization at start-up. The transmitter consists of an input stage that latches in data from up to six asynchronous channels, followed by a serializer stage where the data is compressed into serial data packets coupled across the capacitive isolation barrier. The receiver consists of a demodulator block that converts the modulated signal back into serial data packets that are deserialized and latched to the output.

The Si80xx isolators deliver 10 Mbps data rates across a wide temperature range (-40 to 125 °C), as well as low power operation of approximately 2 mA per channel (5x lower than optocoupler alternatives) for energy-efficient system design. The Si80xx family's robust digital isolation architecture ensures that signal integrity is maintained even while operating at high data rates and at high temperatures in harsh environments.

“Silicon Labs' new Si80xx digital isolators are a perfect fit for high-volume, cost- and power-sensitive consumer electronics products that require a combination of 1 kV functional isolation and higher channel count,” said Ross Sabolcik, vice president and general manager of Analog, Power and Sensor products at Silicon Labs. “The Si80xx family enables developers to upgrade their optocoupler-based applications with a more reliable, power-efficient and higher-performance digital isolation solution designed to reduce system cost and complexity.”

## Pricing and Availability

Samples and production quantities of the Si80xx digital isolators are available now in compact 16-pin QSOP packages rated at 1 kV. Pricing for the Si80xx devices in 10,000-unit quantities begins at \$1.04 (USD). Silicon Labs' Si80xxISO-KIT evaluation kit is available for \$29 (USD MSRP), providing an economical platform to evaluate the performance of Si80xx isolators. For additional information about Silicon Labs' Si80xx digital isolators and to purchase samples and development tools, please visit [www.silabs.com/isolation](http://www.silabs.com/isolation).

## Silicon Labs

Silicon Labs 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 patented semiconductor solutions offers customers significant advantages in performance, size and power consumption. For more information about Silicon Labs, please visit [www.silabs.com](http://www.silabs.com).

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