

Silicon Labs Launches Breakthrough Heart Rate Monitoring Sensor Solution

Si1144 Optical Sensing Module with Advanced Algorithm Reduces Cost and Complexity of Wrist-Based Heart Rate Measurement

“ Additional benefits of Silicon Labs’ HRM solution include industry-leading power consumption and a very small footprint, making the Si1144 module a very good fit for power-sensitive, space-constrained wearables. ”

AUSTIN, Texas--([BUSINESS WIRE](#))--[Silicon Labs](#) (NASDAQ: SLAB) has introduced an optical heart rate sensing solution designed to reduce the cost and complexity of wrist-based heart rate monitoring (HRM) applications. The new Si1144 HRM solution includes a low-power optical sensor module paired with an energy-friendly EFM32™ Gecko microcontroller (MCU) running Silicon Labs’ advanced HRM algorithm. The small-footprint Si1144 sensor module integrates an optical sensor, green light-emitting diode (LED), LED drivers supporting up to two external LEDs, analog-to-digital converter (ADC), control logic and an I²C digital interface.

According to Silicon Labs’ market estimates, 100 million units of HRM-enabled devices will be sold per year by 2018, with the majority of those units being wrist-based wearables. Silicon Labs’ Si1144 HRM solution addresses this large and growing market across a wide range of wearables including activity-tracking fitness bands, pedometers and smart watches, in addition to providing HRM capabilities for gym fitness equipment, bathroom scales and geriatric monitoring devices.

Get all the details about Silicon Labs’ new Si1144 HRM solution including pricing and availability, development tools and data sheets at www.silabs.com/HRM.

Heart rate monitoring is one of the most sought-after biometric sensing technologies available today for people of all fitness levels, from serious athletes looking to improve athletic performance to people simply seeking a healthier, more active lifestyle. Accurate HRM enables precise calculation of expended calories, making it easier to maintain dieting regimens.

Traditionally, heart rate measurement has been limited to the use of chest straps linked to an external device, such as a specialized fitness watch or a smartphone. These HRM solutions pose unique problems: chest straps are often inconvenient and uncomfortable to wear while smartphones can be difficult to monitor when running or cycling.

Wrist-based HRM technology changes the biometric monitoring game by providing a more convenient, comfortable way to measure heart rate rivaling the accuracy of chest-strap-based designs. The measured results vary widely, and many of these HRM solutions are costly as well as power hungry, reducing battery life. Complex motion artifacts also combine to make wrist-based HRM a complicated design challenge.

“Silicon Labs’ Si1144 HRM solution addresses the challenges of wrist-based heart rate measurement by providing an accurate, easy-to-implement and cost-efficient solution priced well below competitive offerings,” said Daniel Cooley, vice president of marketing for IoT products at Silicon Labs. “Additional benefits of Silicon Labs’ HRM solution include industry-leading power consumption and a very small footprint, making the Si1144 module a very good fit for power-sensitive, space-constrained wearables.”

Si1144-AAGX HRM Module Key Features

- Accurate sensing of weak blood flow signals on the wrist with exceptional performance rivaling chest strap HRM designs
- Choice of two algorithms to support static HRM and optional dynamic (motion-compensated) HRM using data from an external accelerometer
- HRM solution pairs optical module with a [Pearl Gecko](#) MCU containing a DSP-enabled ARM Cortex-M4 core for low-power, high-performance designs or with a Cortex M3-based [Jade Gecko](#) MCU for simpler, cost-sensitive designs
- Fully integrated HRM IC with green LED lens, high-sensitivity photodiode, low-noise ADC, LED drivers, optical blocking and host communications/interrupts
- Two LED drivers to support up to two external LEDs

- Ultra-low power consumption for long battery life in wearables: < 500 nA standby current with 1.71 V to 3.6 V supply voltage
- I²C serial communications with up to 3.4 Mbps data rate
- 10-lead 4.9 x 2.85 x 1.2 mm LGA module package

Pricing and Availability

Samples and production quantities of the Si1144-AAGX HRM module are available today. The Si1144 module along with Silicon Labs' HRM algorithm is priced at \$2.82 (USD) in 10,000-unit quantities. The HRM44-GGG-PS development board, priced at \$57.60 (USD MSRP), enables developers to jumpstart evaluation and development of wrist-based HRM applications. For Jade and Pearl Gecko MCU pricing and to order MCU samples, visit www.silabs.com/EFM32. To order Si1144 module samples and starter kits, visit www.silabs.com/HRM.

Connect with Silicon Labs

Follow Silicon Labs at <http://news.silabs.com/>, at <http://blog.silabs.com/>, on Twitter at <http://twitter.com/siliconlabs> and on Facebook at <http://www.facebook.com/siliconlabs>. Explore Silicon Labs' diverse product portfolio at www.silabs.com/parametric-search.

Silicon Labs

Silicon Labs (NASDAQ: SLAB) is a leading provider of silicon, software and system solutions for the Internet of Things, Internet infrastructure, industrial automation, consumer and automotive markets. We solve the electronics industry's toughest problems, providing customers with significant advantages in performance, energy savings, connectivity and design simplicity. Backed by our world-class engineering teams with unsurpassed software and mixed-signal design expertise, Silicon Labs empowers developers with the tools and technologies they need to advance quickly and easily from initial idea to final product. www.silabs.com

Cautionary Language

This press release may contain forward-looking statements based on Silicon Labs' current expectations. These forward-looking statements involve risks and uncertainties. A number of important factors could cause actual results to differ materially from those in the forward-looking statements. For a discussion of factors that could impact Silicon Labs' financial results and cause actual results to differ materially from those in the forward-looking statements, please refer to Silicon Labs' filings with the SEC. Silicon Labs disclaims any intention or obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise.

Note to editors: Silicon Labs, Silicon Laboratories, the "S" symbol, the Silicon Laboratories logo and the Silicon Labs logo are trademarks of Silicon Laboratories Inc. All other product names noted herein may be trademarks of their respective holders.

Contact:

Silicon Labs
Dale Weisman, +1-512-532-5871
dale.weisman@silabs.com

Additional assets available online: [Documents \(4\)](#)

<https://news.silabs.com/2016-01-06-Silicon-Labs-Launches-Breakthrough-Heart-Rate-Monitoring-Sensor-Solution>