

Si1173 Data Short

Biometric Sensor Module

The module includes an IC with integrated photodetector, current-to-digital converter, and LED drivers, along with multiple LEDs and support for ECG measurements. It also supports external LEDs and photodiodes, and includes support for a motion compensated HR algorithm.

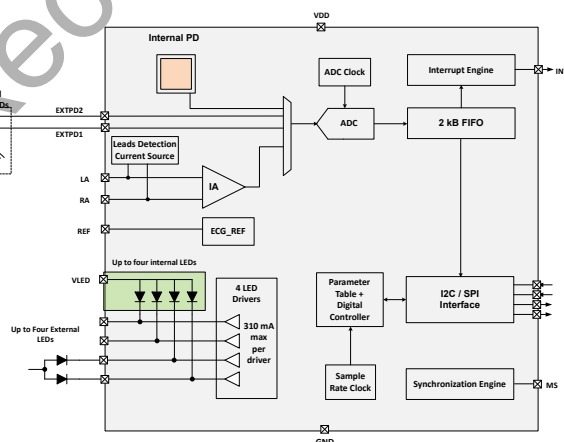
This optical heart rate sensor includes I2C and SPI digital interfaces, a programmable-event interrupt output, an analog-to-digital converter, host communications processor, four integrated LED drivers, and inputs for two external photodiodes

A large internal photodiode and high-efficiency LEDs, combined with the two optical ports at different distances from the sensor, creates a high-quality signal with different skin types. A low noise ECG interface (with support for leads on/off detection) allows you to take ECG measurements independent of, or interleaved with, PPG measurements. A proprietary, motion compensated HR algorithm allows you to extract HR info under motion (when combined with an accelerometer).

The Si1173 offers excellent performance under a wide dynamic range. The Si1173 is provided in a 28 pin LGA module and is capable of operation from 1.71 to 3.63 V over the -40 to +85°C temperature range.

Sample Applications

- Fitness wearables
- Smart watches
- Other wearable devices that require low power heart rate monitoring and ECG measurements



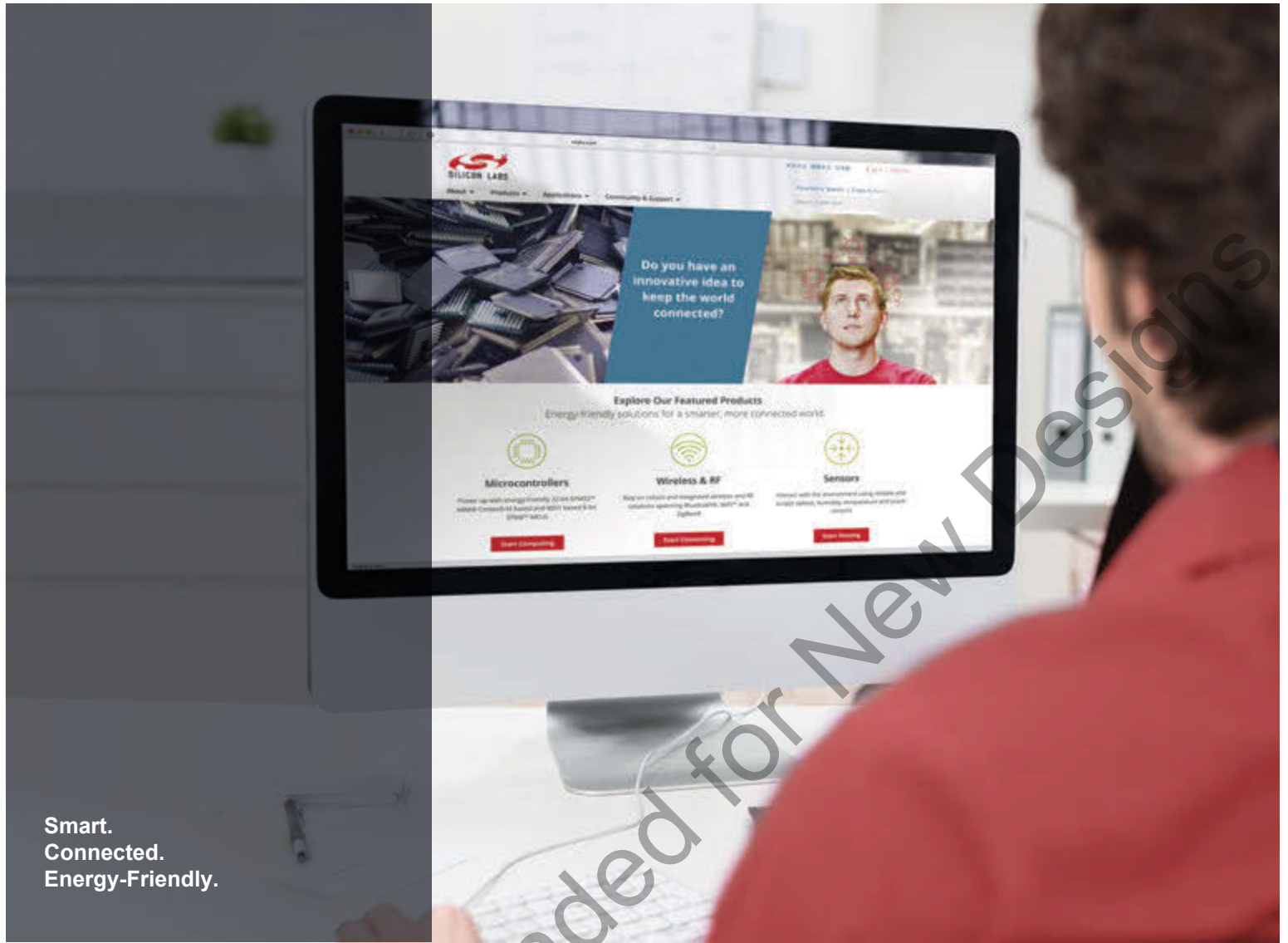
KEY FEATURES

- Low power, high dynamic range sensor optimized for wrist-based PPG and ECG sensing
- Motion Compensated HR algorithm available (runs on external MCU)
- Make time synchronized PPG and ECG measurements without host intervention
- Built-in single ECG channel and leads on/off detection optimized for high impedance dry electrode applications
- Supports integration times from 9 μ s to multiple seconds
- Average PPG sensor current <50 μ A
- 24 bit ADC with over 100 dB dynamic range and built in averaging
- 2kB FIFO interface
- Internal photodiode
- Support for external photodiodes
- Support for up to 4 LEDs in the module
- Low sleep current: 500 nA
- Low power consumption: Flexible duty cycle optimizes power consumption
- Short delay between samples improves ambient light rejection
- Four LED drivers, independently programmable from 1.7 to 310 mA
- I2C host communications with interrupts
- SPI host communications with interrupts
- Supports synchronization with an accelerometer
- 3.7 \times 7.0 \times 1.1 mm² LGA module
- Rated for operation from -40 to 85 $^{\circ}$ C

1. Ordering Guide

Part Number	Package	Details
Si1173I3-B3-GMR	3.7x7.0x1.1mm LGA Module	4 integrated LED drivers, 2 integrated green LED (supporting up to 310mA), and 1 integrated IR LED. 1 LED driver (upto 310 mA) available for external LED. Single Lead ECG support. Supports Silicon Labs HR algorithm.

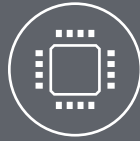
Not Recommended for New Designs



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Connected.
Energy-Friendly.



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