

# Si1182 Data Short

## Biometric Sensor

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

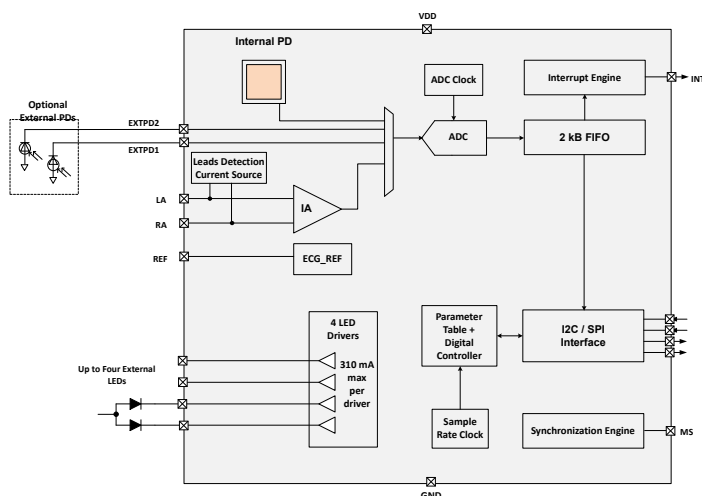
This optical heart rate sensor includes I2C and SPI digital interfaces, a programmable-event interrupt output, an analog-to-digital converter, host communications processor, four integrated LED drivers, and inputs for two external photodiodes

A large internal photodiode 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.

The Si1182 offers excellent performance under a wide dynamic range. The Si1182 is provided in a 24-pin optical QFN module and is capable of operation from 1.71 to 3.63 V over the  $-40$  to  $+85^{\circ}\text{C}$  temperature range.

### Sample Applications

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

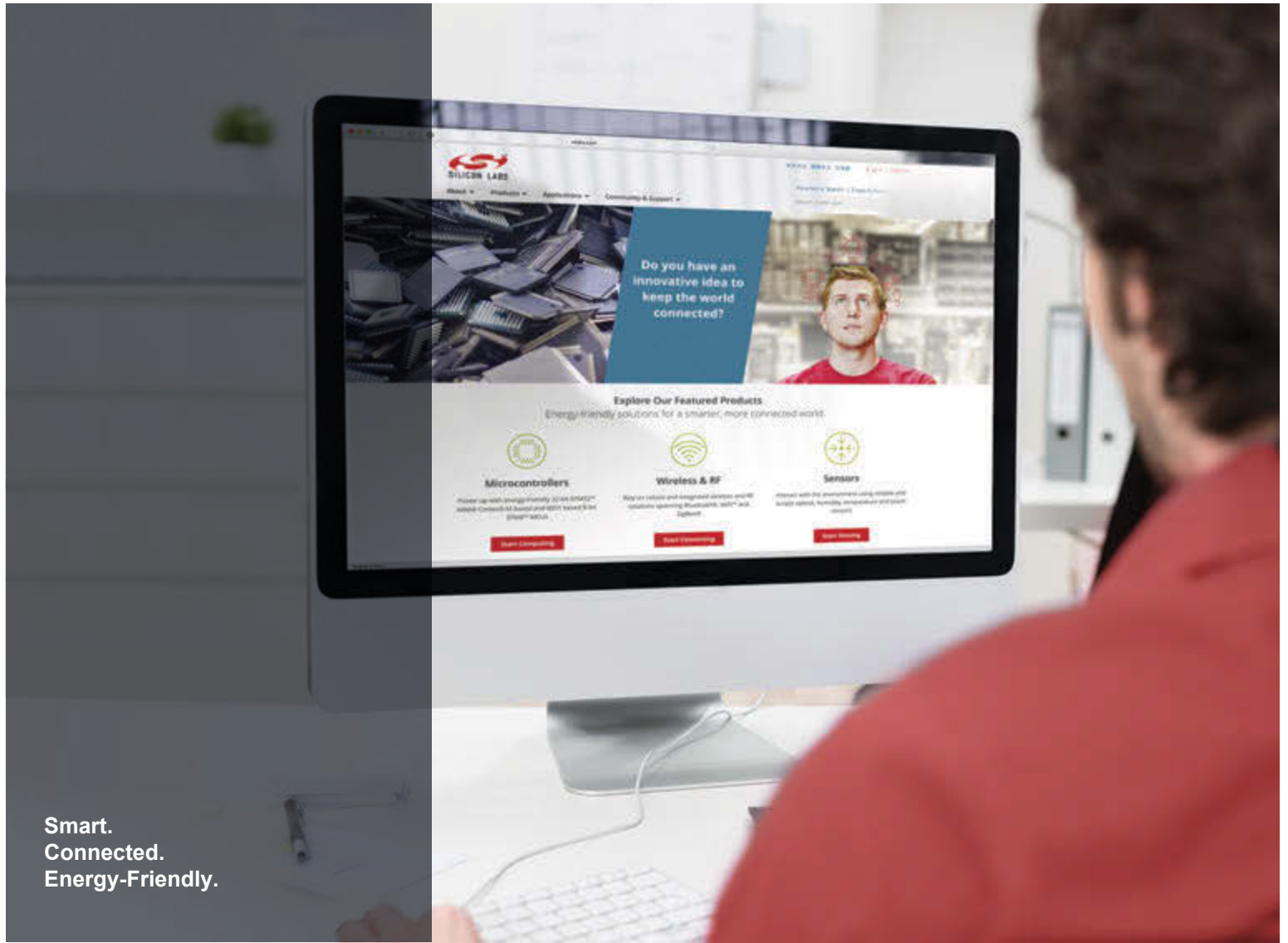


### KEY FEATURES

- Low power, high dynamic range sensor optimized for wrist-based PPG and ECG sensing
- 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  $9\ \mu\text{s}$  to multiple seconds
- Average PPG sensor current  $<50\ \mu\text{A}$
- 24 bit ADC with over 100 dB dynamic range and built in averaging
- 2kB FIFO interface
- Internal photodiode
- Support for external photodiodes
- Low sleep current:  $500\ \text{nA}$
- 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
- $3.7 \times 7.0 \times 1.1\ \text{mm}^2$  LGA module
- Rated for operation from  $-40$  to  $85^{\circ}\text{C}$

## 1. Ordering Guide

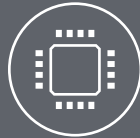
Part Number	Package	Details
Si1182-B3-GMR	3x3 mm Optical QFN	4 integrated LED drivers. Single Lead ECG support.



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