

Si1181 Data Short

Optical Heart Rate Sensor Module

The sensor includes an IC with integrated photodetector, current-to-digital converter, and LED drivers. 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.

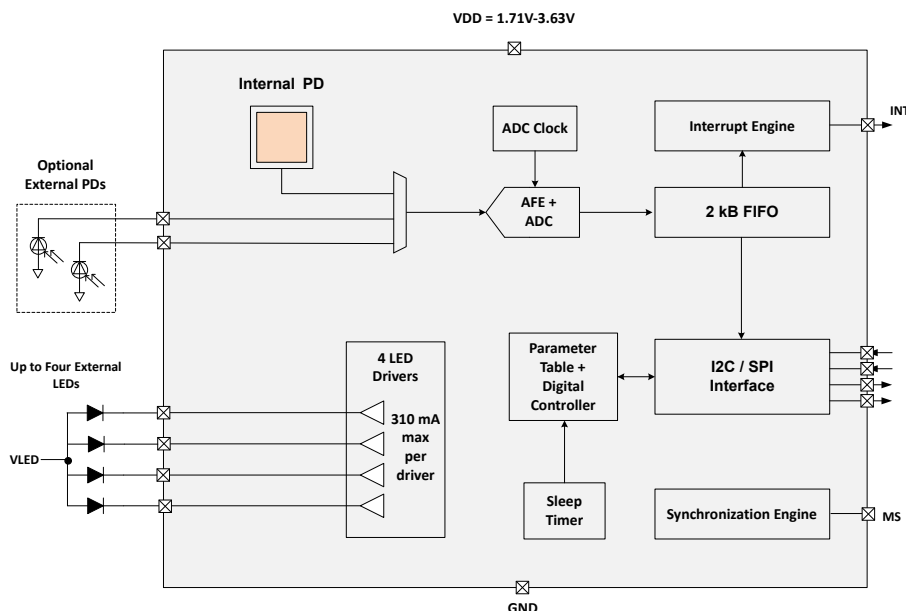
The Si1181 offers excellent performance under a wide dynamic range. The Si1181 is provided in a 24 pin Optical QFN and is capable of operation from 1.71 to 3.63 V over the -40 to +85°C temperature range.

Sample Applications

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

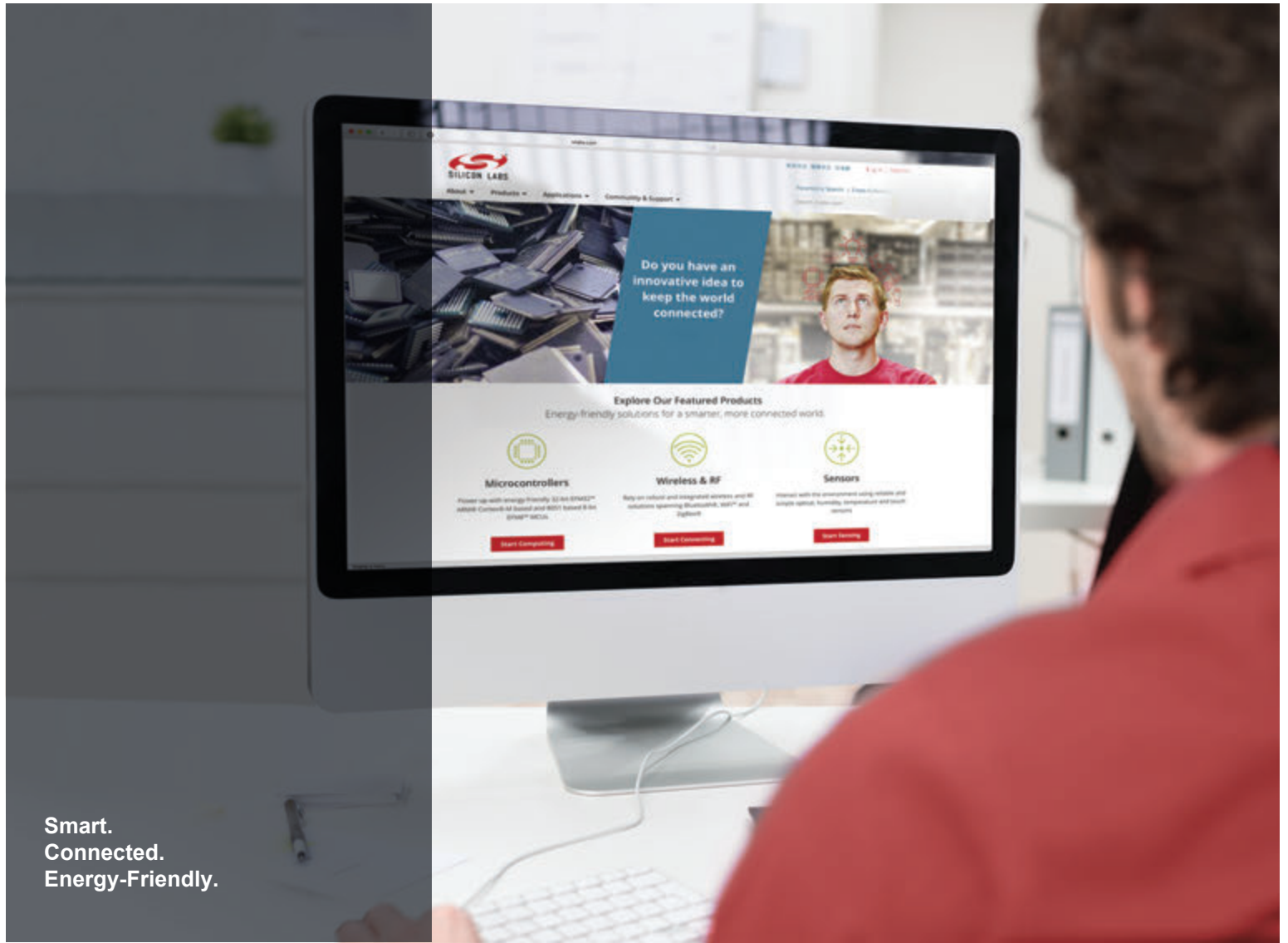
KEY FEATURES

- Low power, high dynamic range sensor optimized for wrist-based PPG sensing
- Supports integration times from 9 μ s to multiple seconds
- Average sensor current <50 μ A
- 24 bit ADC with over 100 dB dynamic range and built in averaging
- 2kB FIFO interface
- 1.0 mm² Internal PD
- Support for external photodiodes
- 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
- 3x3 mm² 24-pin Optical QFN package
- Rated for operation from -40 to 85 °C



1. Ordering Guide

Part Number	Package	Details
Si1181-B1-GMR	3 mm × 3 mm Optical QFN	4 integrated LED drivers



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