

### FEATURES

- 2.8 mm × 5 mm module with integrated optical components
- Red and infrared (IR) LEDs (ADPD142RI)
- Red and green LEDs (ADPD142RG)
- Photodiode
- True dual channel 250 mA LED driver
- Separate LED and AFE settings for each channel
- Dual data registers for each LED return signal
- 14-bit ADC
- 20-bit burst accumulator enabling 20 bits per sample period
- On-board sample to sample accumulator enabling up to 27 bits per data read

### APPLICATIONS

- Optical heart rate monitoring (HRM)
- Reflective SpO<sub>2</sub> measurement

### GENERAL DESCRIPTION

The ADPD142RG/ADPD142RI are complete photometric systems designed to stimulate LEDs and measure the corresponding optical return signals. These systems feature best-in-class rejection of ambient light interference, both dc and ac. Each module contains a highly efficient photometric front end, two LEDs, and a photodiode. The front end consists of a control block, a 14-bit analog-to-digital converter (ADC) with 20-bit burst accumulator and two flexible, independently configurable LED drivers. The analog front end (AFE) handles return data from each LED on separate data paths, and with the option of separate AFE settings. The data output and functional configuration occur over a 1.8 V I<sup>2</sup>C interface. The control circuitry includes flexible LED signaling and synchronous detection.

### FUNCTIONAL BLOCK DIAGRAM

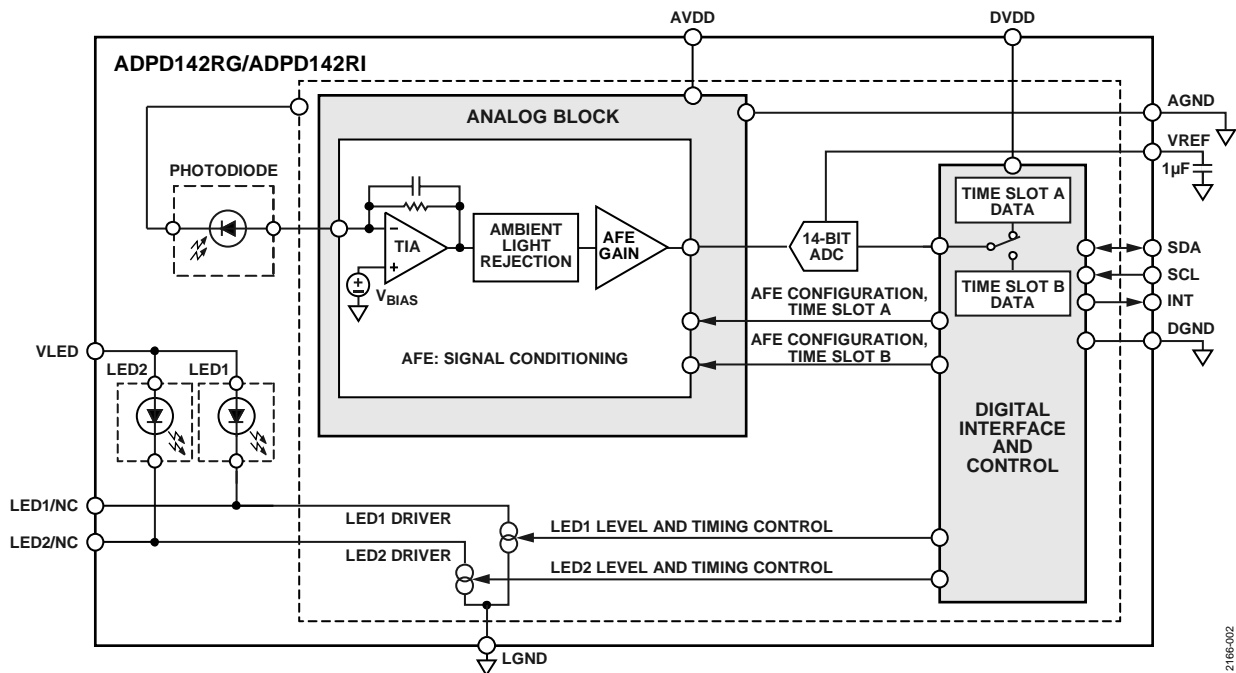


Figure 1.

For more information about the ADPD142RG/ADPD142RI, contact Analog Devices, Inc., at [optical\\_sensors@analog.com](mailto:optical_sensors@analog.com).

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