Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

ANALOG DEVICES

Integrated Optical Module with Ambient Light Rejection and Three LEDs

Data Sheet

ADPD175GGI

FEATURES

2.8 mm × 6.5 mm module with integrated optical components
 2 green LEDs located on either side of the photodiode,
 1 infrared LED, and 1 photodiode
True 3-channel 370 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
Custom optical package designed to operate under a glass
 window
Optimized signal-to-noise ratio (SNR) for signal limited cases

APPLICATIONS

Optical heart rate monitoring (HRM)
Reflective SpO$_2$ measurement

GENERAL DESCRIPTION

The ADPD175GGI is a complete photometric system designed to measure optical signals from ambient light and from synchronous reflected LED pulses. Synchronous measurement offers best-in-class rejection of ambient light interference, both dc and ac. The module integrates a highly efficient photometric front end, three LEDs, and a photodiode (PD). All these items are housed in a custom package that prevents light from moving directly from the LED to the photodiode without first entering the subject.

The front end of the application specific integrated circuit (ASIC) consists of a control block, a 14-bit analog-to-digital converter (ADC) with a 20-bit burst accumulator, and three flexible, independently configurable LED drivers. The control circuitry includes flexible LED signaling and synchronous detection. The analog front end (AFE) features best-in-class rejection of signal offset and corruption due to modulated interference commonly caused by ambient light. The data output and functional configuration occur over a 1.8 V I²C interface.

FUNCTIONAL BLOCK DIAGRAM
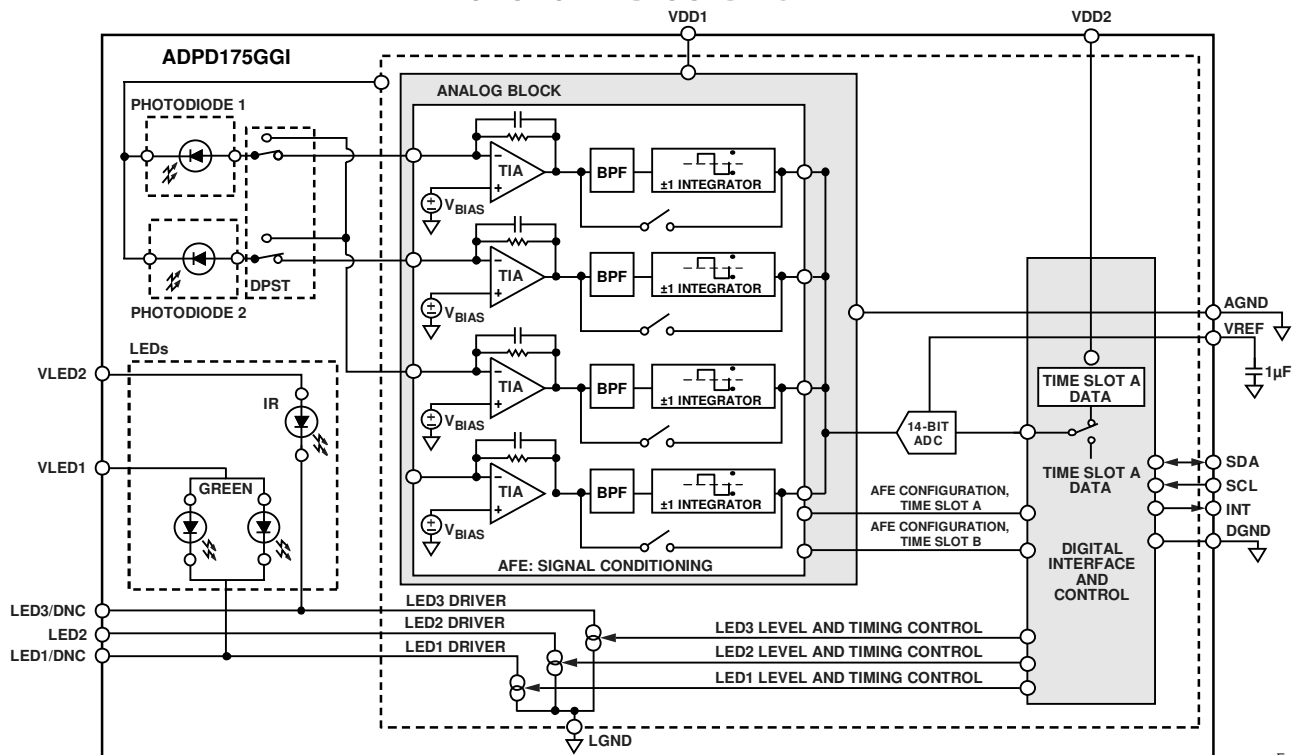
NOTES
1. DNC = DO NOT CONNECT. DO NOT CONNECT TO THIS PIN WHEN USING INTERNAL LEDs.

Figure 1.

For more information about the ADPD175GGI, contact Analog Devices, Inc., at optical_sensors@analog.com.

ADPD175GGI* PRODUCT PAGE QUICK LINKS

Last Content Update: 04/21/2017

COMPARABLE PARTS 🗖

View a parametric search of comparable parts.

DOCUMENTATION 🗖

Data Sheet

- ADP175GGI: Integrated Optical Module with Ambient Light Rejection and Three LEDs Data Sheet

DESIGN RESOURCES 🗖

- ADPD175GGI Material Declaration
- PCN-PDN Information
- Quality And Reliability
- Symbols and Footprints

DISCUSSIONS 🗖

View all ADPD175GGI EngineerZone Discussions.

SAMPLE AND BUY 🗖

Visit the product page to see pricing options.

TECHNICAL SUPPORT 🗖

Submit a technical question or find your regional support number.

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NOTES

I^{2}C refers to a communications protocol originally developed by Philips Semiconductors (now NXP Semiconductors).

**ANALOG
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