intersil™

Ultra-Low Lux, Low Power, Integrated Digital Ambient Light Sensor with Interrupt Function

ISL29033

The ISL29033 is an integrated ambient and infrared light to digital converter with I^2C (SMBus Compatible) interface. Its advanced, self-calibrated photodiode array emulates human eye response with excellent IR rejection. The on-chip 16-bit ADC is capable of rejecting 50Hz and 60Hz flicker caused by artificial light sources. The lux range select feature allows users to program the lux range for optimized counts/lux. Power consumption can be reduced to less than 0.3µA when powered down.

The ISL29033 supports a software and hardware interrupt that remains asserted until the host clears it through the I^2C interface. The function of ADC conversion continues without stopping after interrupt is asserted.

Designed to operate on supplies from 2.25V to 3.63V with an I^2C supply from 1.7V to 3.63V, the ISL29033 is specified for operation over the -40°C to +85°C ambient temperature range.

Related Literature

- See AN1422 "Light Sensor Applications"

Features

- Ambient light sensing
- Simple output code directly proportional to Lux
- Variable conversion resolution up to 16 bits
- Adjustable sensitivity up to 520 counts per Lux
- Measurement range: 0.0019 to 8,000lux with four selectable ranges
- Program interrupt feature
- Light sensor close to human eye response
  - Excellent light sensor IR and UV rejection
- 75µA max operating current
  - 0.3µA max shutdown current
- 6 Ld 2.0mmx2.1mmx0.7mm ODFN package

Applications

- Display and keypad dimming adjustment for:
  - Mobile devices: smart phone, PDA, GPS
  - Computing devices: notebook PC, webpad
  - Consumer devices: LCD-TV, digital picture frame, digital camera
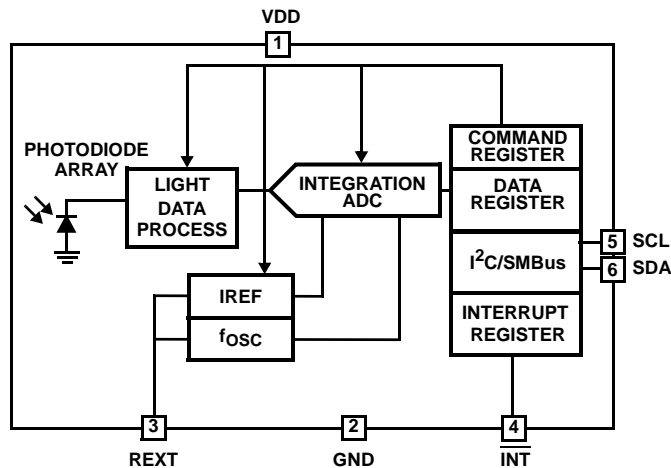- Industrial and medical light sensing

FIGURE 1. BLOCK DIAGRAM

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