

Light-to-Digital Device Family

www.ams.com/TSL2584TSV



TSL2584TSV - Ambient Light Sensor

- Very high sensitivity behind spectrally distorting materials
- Provides near photopic responsiveness while allowing lux calculation regardless of glass type
- Through-Silicon-Via (TSV) package technology extremely low 310µm height enables operations in low profile applications

We provide innovative analog solutions to the most challenging applications in sensor and sensor interfaces, power management, and wireless.

General Description

The TSL2584TSV is a very-high sensitivity light-to-digital converter that transforms light intensity into a digital signal output capable of direct I²C interface. The device combines one broadband photodiode (visible plus infrared), one infrared-responding photodiode, and a photopic infrared-blocking filter on a single CMOS integrated circuit. Two integrating ADCs convert the photodiode currents into a digital output that represents the

irradiance measured on each channel. This digital output can be input to a microprocessor where illuminance (ambient light level) in lux is derived using an empirical formula to approximate the human eye response. The TSL2584TSV supports a traditional level style interrupt that remains asserted until the firmware clears it.

Applications

- Smartwatch wearables
- Display backlight control
- Tablets
- Smartphones

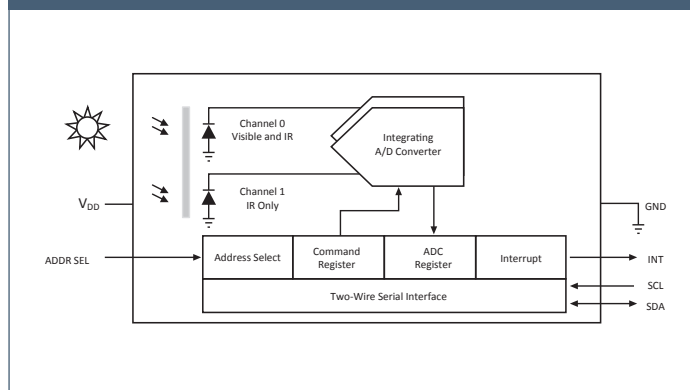
Features

- Dual Photo-Diodes with Photopic Filter
- Programmable Analog Gain and Integration Time
- 1M:1 Dynamic Range
- Programmable Upper and Lower Thresholds
- Programmable Persistence Filter
- 3.0 μ A Sleep State
- I²C fast-mode compatible interface
 - Data Rates up to 400 kbit/s
 - Input Voltage Levels Compatible with 1.8–V Bus
- 1.145 mm x 1.660 mm TSV (Through Silicon Via)
- 0.218 mm height without solder balls

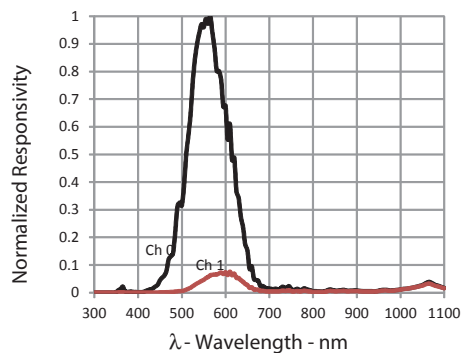
Device	Package	I ² C Interface		Ordering Number
		Address	Bus Voltage	
TSL2584 TSV	TSV	(1)	V _{DD}	TSL2584TSV

(1) Selectable Address: 0X29, 0X39, 0X49

TSL2584 Block Diagram



TSL2584 Spectral Responsivity



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