

Product Document

Color Sensors and Proximity Detection

www.ams.com/TCS3772



TCS3772 – Color Sensor and Proximity Detection Family

- RGB color light sensing with integrated IR-blocking filter
- Ideal solution for use under varying lighting conditions and through attenuating materials
- Enables accurate color temperature and ambient light sensing for display-based products
- Proximity offset register compensates for optical system crosstalk

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

General Description

The TCS3772 device family provides digital red, green blue and clear (RGBC) color light sensing, and, when coupled with an IR LED, proximity detection. The TCS3772 includes an IR-blocking filter to minimize effects of the IR spectral component in light and produce accurate color measurements. The IR-blocking filter is integrated directly on-chip and localized to the color sensing photodiodes. The high sensitivity, wide dynamic range, and IR-blocking filter make the TCS3772 an ideal solution for use under varying lighting conditions and through attenuating materials. The TCS3772 color sensing has a wide range of applications, including RGB LED backlight control, solid-state lighting, health/fitness products, industrial process controls, and medical diagnostic equipment.

Applications

- Light Color Temperature Measurement and Control
- RGB LED Backlight Control
- Ambient Light Sensing for Display Brightness Control
- Industrial Process Control
- Medical Diagnostics

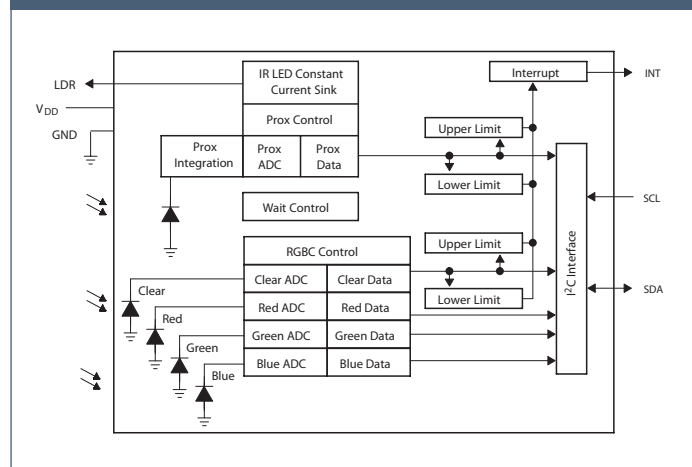
Device	Package	I ² C Interface		Ordering Number
		Address ¹	Bus Voltage	
TCS37725	FN-6	0X29	V _{DD}	TCS37725FN
TCS37727	FN-6	0X29	1.8V	TCS37727FN

¹ Alternate address option available

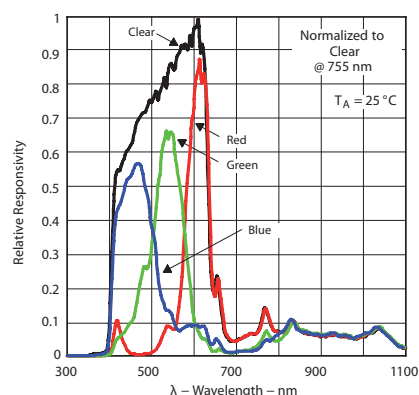
Features

- Color Light Sensing
 - 3.8M:1 dynamic range
 - very high sensitivity
 - programmable analog gain and integration time
- IR Proximity Detection
 - ambient Light Rejection
 - programmable integration time
 - current Sink Driver for External IR LED
- Power Management
 - low power 2.5 μ A sleep-state
 - 65 μ A wait-state with programmable wait timer
- I²C fast-mode compatible interface
 - 400 kbits/s data rate
 - V_{DD} or 1.8-V Bus interface
- 2 x 2.4 mm Dual Flat No-Lead (FN) Package

TCS3772 Block Diagram



Photodiode Spectral Responsivity



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