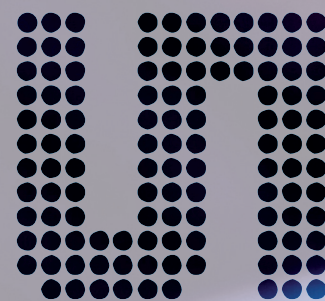


# Product Document



# Ambient Light Sensors and Proximity Detection

[www.ams.com/TSL2772](http://www.ams.com/TSL2772)



## **TSL2772 – Ambient Light Sensor and Proximity Detection Family**

- Saves energy in display management applications
- Very high sensitivity behind spectrally distorting materials
- Proximity offset register compensates for optical system crosstalk
- Capable of operating in 60k lux bright light

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

## General Description

The TSL2772 family of devices provides both ambient light sensing (ALS) and, when coupled with an external IR LED, proximity detection. The patented dual-diode technology that enables accurate ALS and approximates human eye response to light intensity under a variety of lighting conditions. The TSL2772 ALS includes a reduced-gain mode that extends the operating range to 60k lux in sunlight. The device package incorporates a UV-rejection filter for improved ALS accuracy. The proximity detection has a wide dynamic range of operation allowing <46 cm short detection, such as in a mobile phone, or longer

distance applications such as notebook user presence detection. The proximity detection has programmable gain and integration time and includes a proximity offset register that allows compensation for optical system crosstalk between the IR LED and the sensor. To prevent false proximity data measurement readings, a proximity saturation indicator bit signals that the internal analog circuitry has reached saturation. The internal state machine allows the device to enter a low-power mode between ALS and proximity detection measurements to minimize average power consumption for the device.

## Applications

- Display backlight control
- Mobile Phone Touchscreen Control
- Medical Diagnostics
- Printer paper alignment and detection
- Industrial Process Control

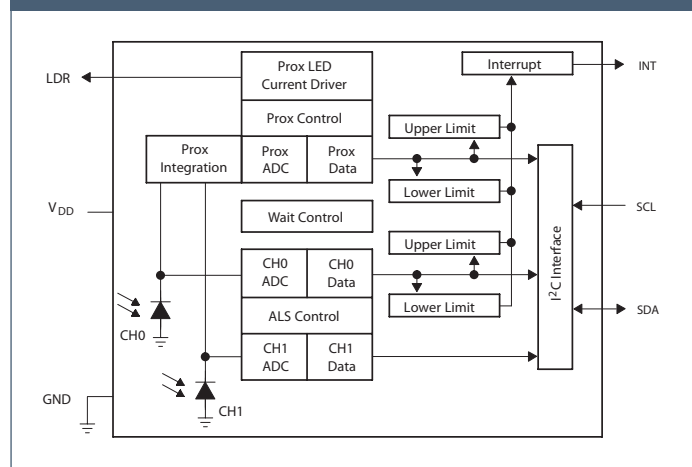
## Features

- Ambient Light Sensing (ALS)
  - 8M:1 dynamic range
  - operation to 60k lux in sunlight
  - approximates human eye response
  - very high sensitivity
  - programmable analog gain and integration time
- Proximity Detection
  - programmable analog gain, integration time, offset
  - saturation indicator
  - current sink driver for external IR LED
- Programmable interrupt with persistence filter
- Power Management
  - low power 2.2  $\mu$ A sleep-state
  - 90  $\mu$ A wait-state with programmable wait time
- I<sup>2</sup>C fast-mode compatible interface
  - 400 kbits/s data rate
  - V<sub>DD</sub> or 1.8-V Bus interface
- Small 2 x 2 mm Dual Flat No-Lead (FN) Package

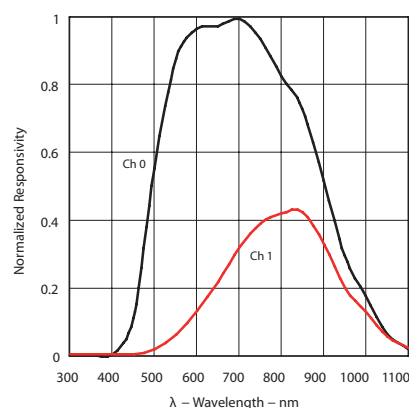
| Device   | Package | I <sup>2</sup> C Interface |                 | Ordering Number |
|----------|---------|----------------------------|-----------------|-----------------|
|          |         | Address <sup>1</sup>       | Bus Voltage     |                 |
| TSL27721 | FN-6    | 0X39                       | V <sub>DD</sub> | TSL27721FN      |
| TSL27723 | FN-6    | 0X39                       | 1.8V            | TSL27723FN      |

<sup>1</sup> Alternate address option available

## Functional Block Diagram



## Spectral Responsivity



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