

# TSL2520

## Highly Sensitive Ambient Light Sensor

### General Description

The TSL2520 features ambient light sensing and comes in a low-profile and small footprint, L2.0mm x W1.0mm x H0.5mm optical QFN package.

The Ambient Light Sensing function provides two concurrent ambient light sensing channels, which can be arbitrarily connected to the photodiodes via a programmable multiplexer. TSL2520 incorporates a set of Infrared photodiodes and a set of Clear photodiodes. The Clear photodiode area is covered with a UV/IR blocking filter.

This architecture accurately measures ambient light and enables the calculation of irradiance of different light sources. Calculation results help to improve display appearance and picture taking.

### Key Benefits & Features

The benefits and features of TSL2520 are listed below:

**Figure 1:**  
Added Value of Using TSL2520

Benefits	Features
<ul style="list-style-type: none"> <li>Invisible ALS sensing under any glass type</li> </ul>	<ul style="list-style-type: none"> <li>Configurable, high sensitivity               <ul style="list-style-type: none"> <li>Programmable gain and integration time</li> <li>8192x dynamic range by gain adjustment only</li> <li>1mlux detectable illuminance</li> </ul> </li> <li>Tailored ALS response               <ul style="list-style-type: none"> <li>UV/IR blocking filter for Clear channel</li> </ul> </li> <li>ALS interrupt with thresholds</li> </ul>
<ul style="list-style-type: none"> <li>Unique fast ALS integration mode</li> </ul>	<ul style="list-style-type: none"> <li>Flicker-immune ALS sensing with programmable integration time</li> </ul>
<ul style="list-style-type: none"> <li>Low power consumption and minimum I<sup>2</sup>C traffic</li> </ul>	<ul style="list-style-type: none"> <li>1.8V<sub>DD</sub> operation</li> <li>Configurable sleep mode</li> <li>Interrupt-driven device</li> <li>I<sup>2</sup>C interface up to 1 Mbit/s (Fast mode)</li> </ul>
<ul style="list-style-type: none"> <li>Integrated status checking for all functions</li> </ul>	<ul style="list-style-type: none"> <li>Digital and analog saturation flags</li> </ul>

### Applications

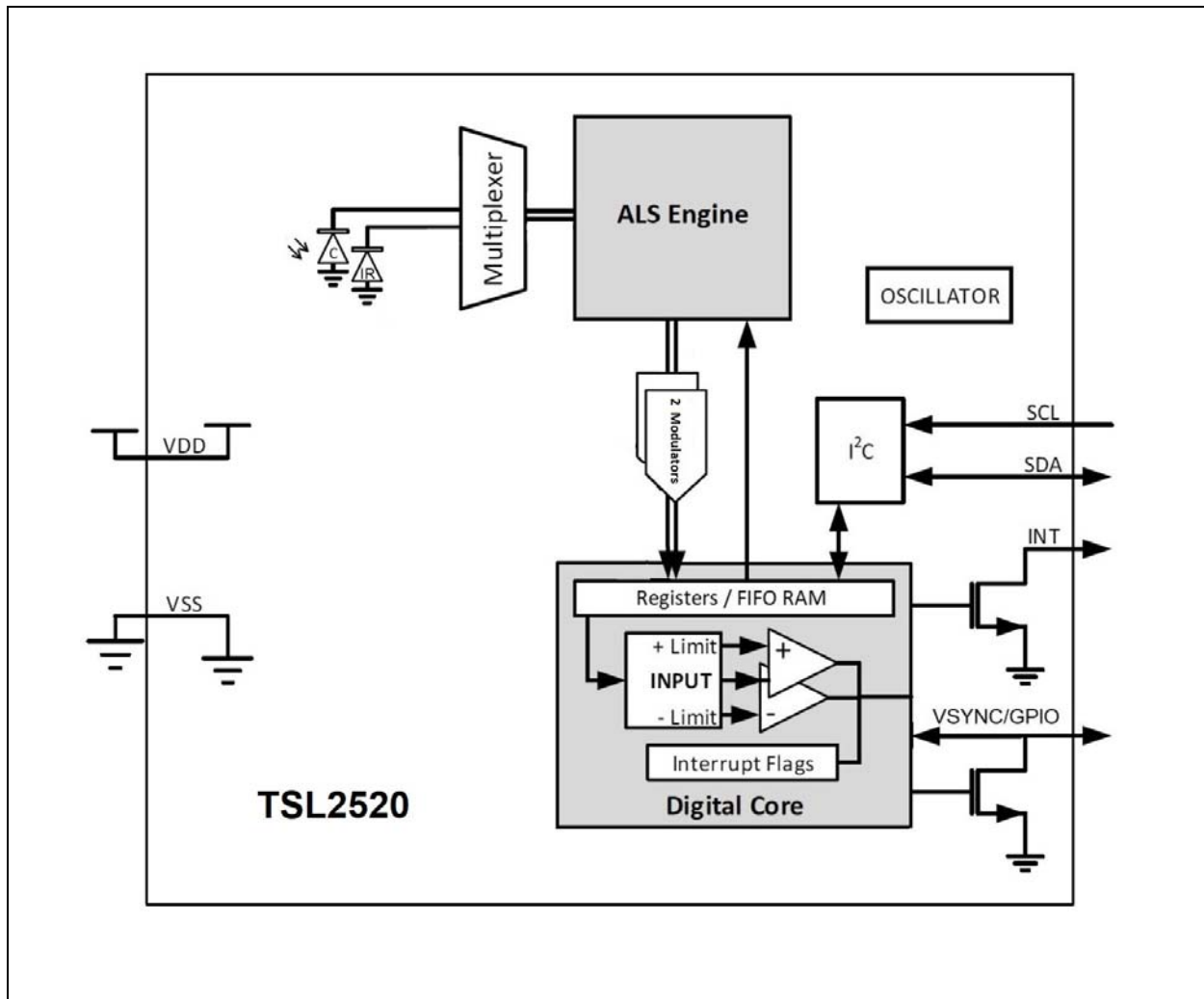
TSL2520 integrates multiple applications within one device. The applications for TSL2520 include:

- Indoor/outdoor brightness information
- Brightness management for displays
- Camera image correction assistance

### Block Diagram

The functional blocks of this device are shown below:

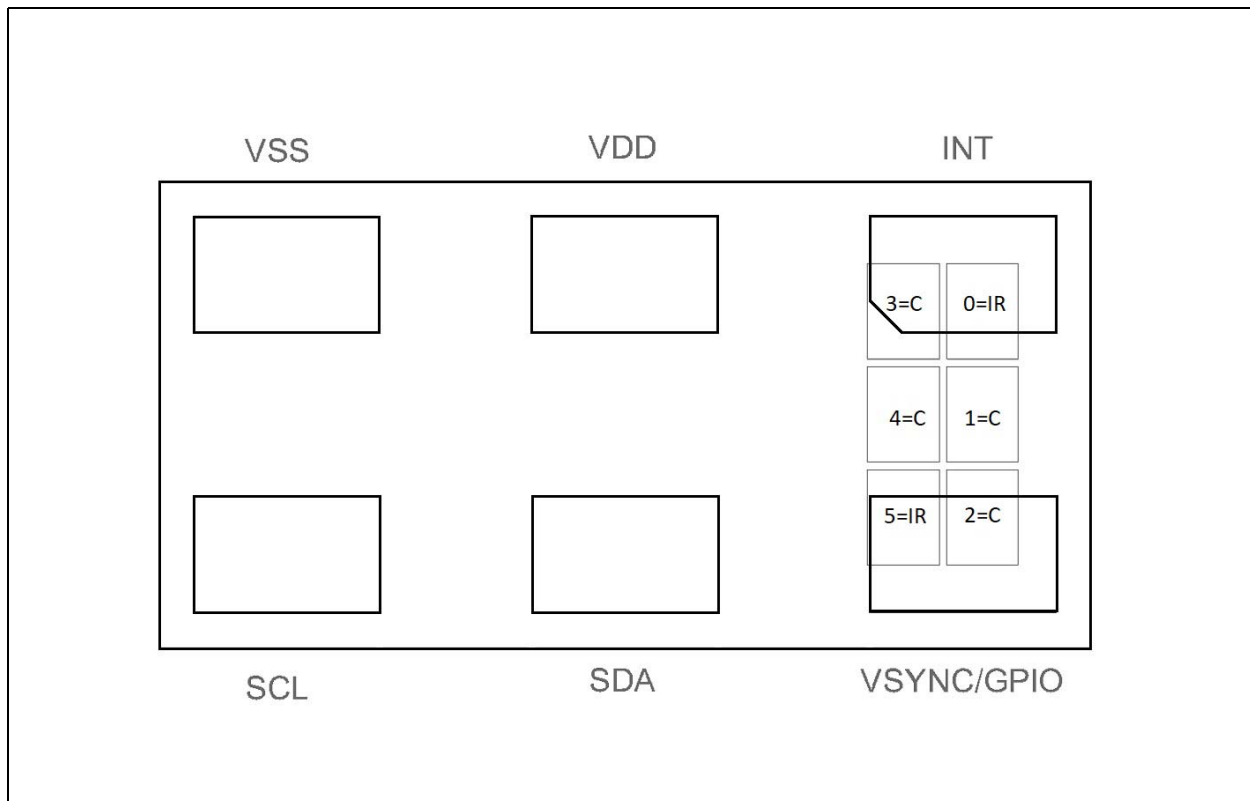
Figure 2:  
Functional Blocks of TSL2520



## Pin Assignments

Device pinout is described below.

**Figure 3:**  
Pin Diagram of TSL2520 (top view)



**Figure 4:**  
Pin Description of TSL2520

Pin Number	Pin Name	Description
1	INT	Interrupt. Open-drain output.
2	VDD	Supply voltage (1.8V)
3	VSS	Ground. All voltages are referenced to VSS.
4	SCL	I <sup>2</sup> C serial clock terminal
5	SDA	I <sup>2</sup> C serial data I/O terminal
6	VSYNC/GPIO	Synchronization input OR General Purpose open-drain Input/Output

## Ordering & Contact Information

Figure 5:  
Ordering Information

Ordering Code	Address	Interface	Delivery Form	Delivery Quantity
TSL25203	0x39	1.8V I <sup>2</sup> C	Tape & Reel	10000 pcs/reel

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