Product
Document

ams OSRAM

ALS/Color and Proximity Sensor for Behind OLED Applications

www.ams.com/TCS3720

- Industry leading Behind OLED screen solution for ambient light sensing (ALS), correlated color temperature (CCT) and proximity

- Proximity VCSEL drivers feature self-maximizing dynamic range, ambient light subtraction and advanced crosstalk cancellation

- The proximity engine recognizes detect/release events and produces a configurable interrupt

Sensing is life

am **OSRAM**

TCS3720
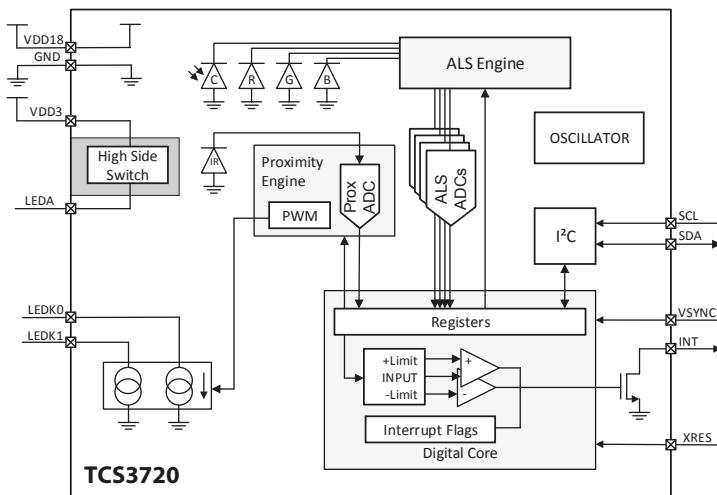# ALS/Color and Proximity Sensor for Behind OLED Applications

General Description

The TCS3720 features ambient light, color (RGB) sensing and proximity detection. The device integrates two advanced emitter drivers within a compact 3.34mm x 1.36mm x 0.6mm OLGA package.

The ambient light and color sensing function provides four concurrent ambient light sensing channels: Red, Green, Blue, and Clear. The RGB and Clear channels are covered with an UV/IR blocking filter. This architecture accurately measures ambient light and enables the calculation of illuminance and color temperature to manage display appearance.

The proximity function synchronizes IR emission and detection to sense nearby objects. The architecture of the engine features self-maximizing dynamic range, ambient light subtraction, advanced crosstalk cancellation, and interrupt-driven I²C communication. Sensitivity, power consumption, and noise can be optimized with adjustable IR VCSEL timing and power. The proximity engine recognizes detect/release events and produces a configurable interrupt whenever the proximity result crosses upper or lower threshold settings.

Block Diagram

Features

- Red, green, blue and clear ALS channels with improved sensitivity
- Highly programmable gain and integration time
- Display synchronization with highly programmable ALS Start Delay (ASD)
- 737kHz ALS clock rate
- 1KB FIFO
- Integrated factory calibrated emitter drivers
- Display synchronization with highly programmable Proximity Start Delay (PSD)
- Crosstalk and ambient light cancellation
- Optimized sensitivity and noise level
- Wide configuration range
- 1.8V power supply with 1.8V I2C bus
- Configurable sleep mode
- Interrupt driven device
- Proximity saturation flag
- Digital and analog ALS saturation flags
- VSYNC status check

Benefits

- Ambient light sensing behind OLED displays
- Proximity detection behind OLED displays
- Low power consumption
- Integrated status checking for all functions

Applications

- Brightness management for displays
- Color management for displays
- Proximity detection for mobile phones

Ordering Information

Ordering Code	Package	Delivery Form	Delivery Qty. [pcs/reel]
TCS37203	0x39	Tape & Reel (13")	10 000
TCS37203M	0x39	Tape & Reel (7")	2500
TCS372039	0x49	Tape & Reel (13")	10 000

ams.com/TCS3720

ams OSRAM