

Diagonal 4.0 mm (Type 1/4.5) 640 × 480 CMOS Image Sensor with Square Pixel for ToF Cameras

Description

The IMX570PLR is a diagonal 4.0 mm (Type 1/4.5) 640 × 480 fully integrated ToF (Time-of-Flight) camera sensor which allows to address 3D applications such as gesture recognition, active controls, real world acquisition. It is specifically designed for FA / Security. When used in combination with a pulsed IR light source, this sensor can return correlation data, from which depth and confidence images at 640 × 480 resolution can be derived. It contains an integrated illumination controller and can be configured and controlled through an SPI Interface. It operates with analog 2.7 V, digital 1.2 V, and interface 1.8 V triple power supply, and has low power consumption.

In addition, this product is designed for use in FA / Security camera. When using this for another application, Sony Semiconductor Solutions Corporation does not guarantee the quality and reliability of product. Therefore, don't use this for applications other than FA / Security camera.

Consult your Sony Semiconductor Solutions Corporation sales representative if you have any questions.

Features

- ◆ Back-illuminated Time-of-Flight image sensor
- ◆ High signal to noise ratio (SNR)
- ◆ 1/4.5-type optical Time-of-Flight sensor (optical area 3.2 × 2.4 mm²)
- ◆ 5 × 5 μm² pixels
- ◆ 640 × 480 Time-of-Flight pixels
- ◆ Full resolution @max56 frame/s (4phase/frame)
- ◆ Pixel binning readout function
- ◆ Independent flipping and mirroring
- ◆ CSI-2 serial data output (MIPI 2lane, 1440 Mbps/lane, D-PHY spec. ver. 1.2 compliant)
- ◆ I2C serial communication (Supports I2C "Fast-mode" / "Fast-mode Plus")
- ◆ SPI Master for peripheral configuration
- ◆ Demodulation frequency up to 120 MHz
- ◆ Shutter feature embedded
- ◆ 192 bits of OTP for users
- ◆ Built-in temperature sensor

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Device Structure

- ◆ Time-of-Flight Image Sensor
- ◆ Image size Diagonal 4.0 mm (Type 1/4.5)
- ◆ Total number of pixels 648 (H) × 516 (V) approx. 0.334 M pixels
- ◆ Number of effective pixels 648 (H) × 488 (V) approx. 0.316 M pixels
- ◆ Number of active pixels 640 (H) × 480 (V) approx. 0.307 M pixels
- ◆ Unit cell size 5.0 μm (H) × 5.0 μm (V)
- ◆ Substrate material Silicon
- ◆ Package 76 pin LGA 9.50 mm (H) × 8.70 mm (V)

Sensor Characteristics

(Tj = 60 °C)

Item		Value	Remarks
Dark signal	Max.	15 LSB	
DC contrast	Min.	72.5 %	
Saturation signal	Min.	1012 LSB	

Readout Mode

Mode	Binning	MIPI Lane
A-B	1×1 2×2 4×4	2 Lanes
A+B		
A		
B		
A&B		

The image of each readout mode shows below. There is Tap A/B in one pixel. The number of horizontal output data for A&B mode is double of other modes.

