

Ver.1.0

Diagonal 6.3 mm (Type 1 / 2.9) CMOS solid-state Image Sensor with Square Pixel for Monochrome Cameras

Description

The IMX296LLR is a diagonal 6.3 mm (Type 1 / 2.9) CMOS active pixel type solid-state image sensor with a square pixel array and 1.58 M effective pixels. This chip features a global shutter with variable charge-integration time. This chip operates with analog 3.3 V, digital 1.2 V, and interface 1.8 V triple power supply, and has low power consumption. High sensitivity, low dark current and low PLS characteristics are achieved.
(Applications: Sensing, Embedded Vision)

Features

- ◆ CMOS active pixel type dots
- ◆ Built-in timing adjustment circuit, H/V driver and serial communication circuit
- ◆ Global shutter function
- ◆ Input frequency
37.125 MHz / 74.25 MHz / 54 MHz
- ◆ Number of recommended recording pixels: 1440 (H) × 1080 (V) approx. 1.55 M pixels
 - Readout mode
 - All-pixel scan mode
 - 2 × 2 Vertical FD binning mode
 - ROI mode
 - Vertical / Horizontal - Normal / Inverted readout mode
- ◆ Readout rate
 - Maximum frame rate in
 - All-pixel scan mode: 10 bit: 60.3 frame/s
- ◆ 10-bit A/D converter
- ◆ CDS / PGA function
 - 0 dB to 24 dB: Analog Gain (0.1 dB step)
 - 24.1 dB to 48 dB: Analog Gain: 24 dB + Digital Gain: 0.1 dB to 24 dB (0.1 dB step)
- ◆ I/O interface
 - CSI-2 serial data output (1 Lane) RAW10 output
- ◆ Recommended lens F number: 2.8 or more (Close side)
- ◆ Recommended exit pupil distance: -100 mm to $-\infty$

Pregius

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Device Structure

◆ CMOS image sensor				
◆ Image size	Diagonal 6.3 mm (Type 1 / 2.9)	Approx. 1.58 M pixels	All-pixel	
◆ Total number of pixels	1456 (H) × 1098 (V)	Approx. 1.60 M pixels		
◆ Number of effective pixels	1456 (H) × 1088 (V)	Approx. 1.58 M pixels		
◆ Number of active pixels	1456 (H) × 1088 (V)	Approx. 1.58 M pixels		
◆ Number of recommended recording pixels	1440 (H) × 1080 (V)	Approx. 1.56 M pixels	All-pixel	
◆ Unit cell size	3.45 μm (H) × 3.45 μm (V)			
◆ Optical black	Horizontal (H) direction: Front 0 pixel, rear 0 pixel Vertical (V) direction: Front 10 pixels, rear 0 pixel			
◆ Package	138 pin LGA			

Image Sensor Characteristics

(T_j = 60 °C)

Item		Value	Remarks
Sensitivity (F8)	Typ.	915 mV	1/30 s accumulation
Saturation signal	Min.	1001 mV	

Basic Drive Mode

Drive mode	Recommended number of recording pixels	Maximum frame rate [frame/s]	Output interface	ADC [bit]
All pixel	1440 (H) × 1080 (V) approx. 1.56 M pixels	60.3	CSI-2	10
2 × 2 Vertical FD binning mode	720 (H) × 540 (V) approx. 0.39 M pixels	120.8	CSI-2	10

