

Ver.1.0

Diagonal 23.1 mm (Type 1.4) CMOS Image Sensor with Square Pixel for Monochrome Cameras

Description

The IMX492LLJ is a diagonal 23.1 mm (Type 1.4) CMOS image sensor with a monochrome square pixel array and approximately 47.08 M effective pixels. 12-bit digital output makes it possible to output the signals with high definition for moving pictures. It also operates with three power supply voltages: analog 2.9 V, digital 1.2 V, and 1.8 V for I/O interface and achieves low power consumption. Realizing high-sensitivity, low dark current, this sensor also has an electronic shutter function with variable storage time.

(Application: Surveillance, FA cameras, Industrial cameras)

Features

- ◆ CMOS active pixel type pixels
- ◆ Input clock frequency 6 to 27 MHz (CSI-2), 72 MHz (SLVS-EC)
- ◆ Both MIPI Specifications (CSI-2 high-speed serial interface) and SLVS-EC interface supported
- ◆ Multi-Aspect (All pixel, approx. 17:9 and 4:3)
- ◆ Readout mode
 - All-pixel mode (Type 1.4)

Aspect ratio approx. 17:9	8192 (H) × 4320 (V) (Type 4/3)
Aspect ratio 4:3	7408 (H) × 5556 (V) (Type 4/3)
- ◆ High-sensitivity, low dark current, no smear, excellent anti-blooming characteristics
- ◆ Vertical and horizontal arbitrary cropping function
- ◆ Variable-speed shutter function (minimum unit: 1 horizontal period)
- ◆ Low power consumption
- ◆ High dynamic range (HDR) function (only 4k mode, refer to Application Note)
- ◆ H driver, V driver and serial communication circuit on chip
- ◆ CDS / PGA on chip: Gain +27 dB (step pitch 0.1 dB)
- ◆ 10-bit / 12-bit A/D conversion on chip
- ◆ All-pixel simultaneous reset supported
- ◆ 248-pin high-precision ceramic package
- ◆ Recommended lens F number: 2.8 or more (Close side)
- ◆ Recommended exit pupil distance: -100 mm to $-\infty$

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Device Structure

- ◆ Image size
Diagonal 23.1 mm (Type 1.4) Multi-Aspect (Aspect ratio 4:3 and approx. 17:9)
- ◆ Total number of pixels
 - All pixel : 8432 (H) × 5680 (V) approx. 47.89 M pixels
 - Aspect ratio approx. 17:9 : 8432 (H) × 4380 (V) approx. 36.93 M pixels
 - Aspect ratio 4:3 : 7680 (H) × 5680 (V) approx. 43.62 M pixels
- ◆ Number of effective pixels
 - All pixel : 8336 (H) × 5648 (V) approx. 47.08 M pixels
 - Aspect ratio approx. 17:9 : 8336 (H) × 4348 (V) approx. 36.24 M pixels
 - Aspect ratio 4:3 : 7584 (H) × 5648 (V) approx. 42.83 M pixels
- ◆ Number of active pixels
 - All pixel : 8240 (H) × 5628 (V) approx. 46.37 M pixels diagonal 23.10 mm
 - Aspect ratio approx. 17:9 : 8240 (H) × 4336 (V) approx. 35.73 M pixels diagonal 21.56 mm
 - Aspect ratio 4:3 : 7456 (H) × 5628 (V) approx. 41.96 M pixels diagonal 21.63 mm
- ◆ Number of recommended recording pixels
 - All pixel : 8192 (H) × 5556 (V) approx. 45.51 M pixels
 - Aspect ratio approx. 17:9 : 8192 (H) × 4320 (V) approx. 35.39 M pixels
 - Aspect ratio 4:3 : 7408 (H) × 5556 (V) approx. 41.16 M pixels
- ◆ Unit cell size 2.315 μm (H) × 2.315 μm (V)
- ◆ Optical black
Horizontal (H) direction: Front 96 pixels, rear 0 pixel
Vertical (V) direction: Front 32 pixels, rear 0 pixel
- ◆ Package 248 pin LGA

Image Sensor Characteristics

(T_j = 60 °C)

Item		Value	Remarks
Sensitivity (F8)	Typ.	TBD Digit	1/30 s accumulation
Saturation signal	Min.	TBD Digit	

Basic Drive Mode

Drive mode	Recommended number of recording pixels	Maximum frame rate [frame/s]	Output interface	ADC [bit]
All pixel	8192 (H) × 5556 (V) approx. 45.51 M pixels	13.66	CSI-2	10
		24.17	SLVS-EC	10
Aspect Ratio 17:9	8192 (H) × 4320 (V) approx. 35.39 M pixels	17.67	CSI-2	10
		31.30	SLVS-EC	10
Aspect Ratio 4:3	7408 (H) × 5556 (V) approx. 41.16 M pixels	14.92	CSI-2	10
		24.17	SLVS-EC	10

