SONY

Ver.1.3

IMX421LLJ

Diagonal 11.0 mm (Type 2 / 3) CMOS solid-state Image Sensor with Square Pixel for Monochrome Cameras

Description

The IMX421LLJ is a diagonal 11.0 mm (Type 2 / 3) CMOS active pixel type solid-state image sensor with a square pixel array and 2.86 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: FA cameras, ITS cameras)

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: 1936 (H) × 1464 (V) approx. 2.83 M pixels

  Readout mode
  All-pixel scan mode
  Vertical / Horizontal 1 / 2 Subsampling 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: 8 bit: 409.2 frame/s, 10 bit: 371.8 frame/s, 12 bit: 231.2 frame/s
- ◆ 8-bit / 10-bit / 12-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
  SLVS (4 ch / 8 ch switching) output (594 / 297 Mbps per ch)

  SLVS - EC (1 Lane / 2 Lane / 4 Lane / 8 Lane switching) output (2.376 / 1.188 Gbps per Lane)
- ◆ Recommended lens F number: 2.8 or more (Close side)
- ◆ Recommended exit pupil distance: –100 mm to –∞

Pregius

* Pregius is a registered trademark or trademark of Sony Group Corporation or its affiliates. The Pregius is global shutter pixel technology for active pixel-type CMOS image sensors that use Sony's low-noise CCD structure, and realizes high picture quality.

Device Structure

◆CMOS image sensor			
◆Image size	Diagonal 11.0 mm (Type 2 / 3)	Approx. 2.86 M pixels	All-pixel
◆Total number of pixels	1944 (H) × 1496 (V)	Approx. 2.90 M pixels	
◆Number of effective pixels	1944 (H) × 1472 (V)	Approx. 2.86 M pixels	
◆Number of active pixels	1944 (H) × 1472 (V)	Approx. 2.86 M pixels	
◆Number of recommended recording pixels	1936 (H) × 1464 (V)	Approx. 2.83 M pixels	All-pixel
◆Unit cell size	4.5 µm (H) × 4.5 µm (V)		
◆Optical black	Horizontal (H) direction: Front 0 pixel, rear 0 pixel		
	Vertical (V) direction: Front 24 pixels, rear 0 pixel		
◆Package	226 pin LGA		

Image Sensor Characteristics

(Tj = 60 °C)

Item		Value	Remarks
Sensitivity (F8)	Typ.	1677 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	1936 (H) × 1464 (V) approx. 2.83 M pixels	174.6	SLVS 8 ch	8
		409.2	SLVS – EC 8 Lane	
		143.0	SLVS 8 ch	10
		371.8	SLVS – EC 8 Lane	
		121.1	SLVS 8 ch	12
		231.2	SLVS – EC 8 Lane	
Vertical / Horizontal 1/2 subsampling	968 (H) × 732 (V) approx. 0.71 M pixels	596.7	SLVS 8 ch	8
		780.5	SLVS – EC 8 Lane	
		498.9	SLVS 8 ch	10
		710.8	SLVS – EC 8 Lane	
		425.7	SLVS 8 ch	12
		446.2	SLVS – EC 8 Lane	
2 × 2 Vertical FD binning	968 (H) × 732 (V) approx. 0.71 M pixels	599.6	SLVS 8 ch	8
		784.4	SLVS – EC 8 Lane	
		501.5	SLVS 8 ch	10
		714.3	SLVS – EC 8 Lane	
		427.8	SLVS 8 ch	12
		448.4	SLVS – EC 8 Lane	

Image Sensors for Industrial Applications:
https://www.sony.net/cis-industry