

SONY

[Product Information]

Ver.1.2

IMX392LLR

Diagonal 7.9 mm (Type 1 / 2.3) CMOS solid-state Image Sensor with Square Pixel for Monochrome Cameras

Description

The IMX392LLR is a diagonal 7.9 mm (Type 1 / 2.3) CMOS active pixel type solid-state image sensor with a square pixel array and 2.35 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: 1920 (H) × 1200 (V) approx. 2.30 M pixels
 - Readout mode
 - All-pixel scan mode
 - 1080p-Full HD readout 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: 201.4 frame/s, 10 bit: 167.0 frame/s, 12 bit: 134.6 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
 - Low voltage LVDS (150 mVp-p) serial (2 ch / 4 ch / 8 ch switching) DDR output
 - (594 / 297 Mbps per ch)
 - (445.5 / 222.75 Mbps per ch in 1080p-Full HD)
- ◆ Recommended lens F number: 2.8 or more (Close side)
- ◆ Recommended exit pupil distance: −100 mm to −∞

Pregius

* Pregius is a trademark of Sony Corporation. 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.

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Device Structure

◆ CMOS image sensor			
◆ Image size	Diagonal 7.9 mm (Type 1 / 2.3)	Approx. 2.35 M pixels	All-pixel
◆ Total number of pixels	Diagonal 7.7 mm (Type 1/2.35)	Approx. 2.11 M pixels	1080p-Full HD
◆ Number of effective pixels	1936 (H) × 1226 (V)	Approx. 2.37 M pixels	
◆ Number of active pixels	1936 (H) × 1216 (V)	Approx. 2.35 M pixels	
◆ Number of recommended recording pixels	1936 (H) × 1216 (V)	Approx. 2.35 M pixels	
◆ Unit cell size	1920 (H) × 1200 (V)	Approx. 2.30 M pixels	All-pixel
◆ Optical black	1920 (H) × 1080 (V)	Approx. 2.07 M pixels	1080p-Full HD
◆ Package	3.45 µm (H) × 3.45 µm (V)		
	Horizontal (H) direction: Front 0 pixel, rear 0 pixel		
	Vertical (V) direction: Front 10 pixels, rear 0 pixel		
	226 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	1920 (H) × 1200 (V) approx. 2.30 M pixels	201.4	Serial LVDS 8 ch	8
		167.0	Serial LVDS 8 ch	10
		134.6	Serial LVDS 8 ch	12
All pixel (Vertical / Horizontal 1/2 subsampling)	960 (H) × 600 (V) approx. 0.58 M pixels	415.1	Serial LVDS 8 ch	8
		396.3	Serial LVDS 8 ch	10
		262.2	Serial LVDS 8 ch	12
Vertical FD Binning	960 (H) × 600 (V) approx. 0.58 M pixels	415.1	Serial LVDS 8 ch	8
		396.3	Serial LVDS 8 ch	10
		262.2	Serial LVDS 8 ch	12
HD1080p	1920 (H) × 1080 (V) approx. 2.07 M pixels	120	Serial LVDS 8 ch	10
		120	Serial LVDS 8 ch	12

[Product Information]

Ver.1.1

IMX392LQR

Diagonal 7.9 mm (Type 1 / 2.3) CMOS solid-state Image Sensor with Square Pixel for Color Cameras

Description

The IMX392LQR is a diagonal 7.9 mm (Type 1 / 2.3) CMOS active pixel type solid-state image sensor with a square pixel array and 2.35 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: 1920 (H) × 1200 (V) approx. 2.30 M pixels
 - Readout mode
 - All-pixel scan mode
 - 1080p-Full HD readout mode
 - Vertical / Horizontal 1 / 2 Subsampling mode
 - ROI mode
 - Vertical / Horizontal - Normal / Inverted readout mode
- ◆ Readout rate
 - Maximum frame rate in
 - All-pixel scan mode: 8 bit: 201.4 frame/s, 10 bit: 167.0 frame/s, 12 bit: 134.6 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
 - Low voltage LVDS (150 mVp-p) serial (2 ch / 4 ch / 8 ch switching) DDR output
 - (594 / 297 Mbps per ch)
 - (445.5 / 222.75 Mbps per ch in 1080p-Full HD)
 - ◆ Recommended lens F number: 2.8 or more (Close side)
 - ◆ Recommended exit pupil distance: -100 mm to -∞

Pregius

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Device Structure

◆ CMOS image sensor			
◆ Image size	Diagonal 7.9 mm (Type 1 / 2.3)	Approx. 2.35 M pixels	All-pixel
◆ Total number of pixels	Diagonal 7.7 mm (Type 1/2.35)	Approx. 2.11 M pixels	1080p-Full HD
◆ Number of effective pixels	1936 (H) × 1226 (V)	Approx. 2.37 M pixels	
◆ Number of active pixels	1936 (H) × 1216 (V)	Approx. 2.35 M pixels	
◆ Number of recommended recording pixels	1936 (H) × 1216 (V)	Approx. 2.35 M pixels	
◆ Unit cell size	1920 (H) × 1200 (V)	Approx. 2.30 M pixels	All-pixel
◆ Optical black	1920 (H) × 1080 (V)	Approx. 2.07 M pixels	1080p-Full HD
◆ Package	3.45 µm (H) × 3.45 µm (V)		
	Horizontal (H) direction: Front 0 pixel, rear 0 pixel		
	Vertical (V) direction: Front 10 pixels, rear 0 pixel		
	226 pin LGA		

Image Sensor Characteristics

(T_j = 60 °C)

Item	Value	Remarks
Sensitivity (F5.6)	Typ. 1146 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	1920 (H) × 1200 (V) approx. 2.30 M pixels	201.4	Serial LVDS 8 ch	8
		167.0	Serial LVDS 8 ch	10
		134.6	Serial LVDS 8 ch	12
All pixel (Vertical / Horizontal 1/2 subsampling)	960 (H) × 600 (V) approx. 0.58 M pixels	415.1	Serial LVDS 8 ch	8
		396.3	Serial LVDS 8 ch	10
		262.2	Serial LVDS 8 ch	12
HD1080p	1920 (H) × 1080 (V) approx. 2.07 M pixels	120	Serial LVDS 8 ch	10
		120	Serial LVDS 8 ch	12