SONY

[Product Information]

Ver.1.0

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

* 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
	Diagonal 7.7 mm (Type 1/2.35) Approx. 2.11 M pixels 1080p-Full HD
◆Total number of pixels	1936 (H) × 1226 (V) Approx. 2.37 M pixels
◆Number of effective pixels	1936 (H) × 1216 (V) Approx. 2.35 M pixels
◆Number of active pixels	1936 (H) × 1216 (V) Approx. 2.35 M pixels
◆Number of recommended recording pixels	1920 (H) × 1200 (V) Approx. 2.30 M pixels All-pixel
	1920 (H) × 1080 (V) Approx. 2.07 M pixels 1080p-Full HD
◆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	226 pin LGA

Image Sensor Characteristics

(Tj = 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