

Diagonal 14.0 mm (Type 1/1.1) CMOS solid-state Image Sensor with Square Pixel for Color Cameras

Description

The IMX936-AQJ is a diagonal 14.0 mm (Type 1/1.1) CMOS active pixel type solid-state image sensor with a square pixel array and 12.41 M effective pixels. This chip features a global shutter with variable charge-integration time. This sensor operates with 3.3 V, 2.9 V, 1.1 V, and 1.8 V quadruple power supply. High sensitivity and low dark current characteristics are achieved.

(Applications: FA cameras, 3D vision cameras)

Features

- ◆ CMOS active pixel type dots
- ◆ Built-in timing adjustment circuit, H/V driver and serial communication circuit
- ◆ Global shutter function
- ◆ Input clock frequency 37.125 MHz / 74.25 MHz
- ◆ Number of recommended recording pixels: 4120 (H) × 3000 (V) Approx. 12.36 M pixels
- ◆ Readout mode
 - All-pixel scan mode
 - 1/2 subsampling mode / Color selection with subsampling mode
 - ROI mode
 - Vertical / Horizontal - Normal / Inverted readout mode
- ◆ Readout rate
 - Maximum frame rate in All-pixel scan mode: *controller mode
 - 8-bit 339.6 frames/s, 10-bit 302.3 frame/s, 12-bit 162.7 frame/s (T.B.D)
 - (*) At high frame rates, control so as not to exceed $T_j = +100\text{ }^\circ\text{C}$
- ◆ Variable-shutter speed
- ◆ Pulse Output Function
 - The monitor output for Integration period (TOUT0)
 - The monitor output for internal AD period (TOUT1)
- ◆ 8-bit / 10-bit / 12-bit A/D converter (Full range)
- ◆ CDS / PGC function
 - 0 dB to 24 dB: Variable analog Gain (0.3 dB step)* 12-bit
 - 24.1 dB to 48 dB: Fixed analog Gain: 24 dB + variable digital Gain: 0.3 dB to 24 dB (0.3 dB step)*12-bit
 - 0 dB to 18 dB: Variable analog Gain (0.3 dB step)* 8-bit / 10-bit
 - 18.1 dB to 42 dB: Fixed analog Gain: 18 dB + variable digital Gain: 0.3 dB to 24 dB (0.3 dB step)*8-bit / 10-bit
- ◆ I/O interface
 - SLVS-EC (1 Lane , 2 Lane , 4 Lane , 6 Lane , 8 Lane) output
 - SLVS-EC Baud Rate: 4.752Gbps / lane 9.504Gbps / lane 12.474Gbps / lane (Grade 3, 4 and 5)

Pregius S

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Device Structure

◆ CMOS image sensor		
◆ Image size	Diagonal 14.0 mm (Type 1/1.1)	Approx. 12.41 M pixel
◆ Total number of pixels	4128 (H) × 3072 (V)	Approx. 12.68 M pixel
◆ Number of effective pixels	4128 (H) × 3008 (V)	Approx. 12.41 M pixels
◆ Number of active pixels	4128 (H) × 3008 (V)	Approx. 12.41 M pixel
◆ Number of recommended recording pixels	4120 (H) × 3000 (V)	Approx. 12.36 M pixels
◆ Unit cell size	2.74 μm (H) × 2.74 μm (V)	
◆ Optical black	Horizontal (H) direction: Front 0 pixels, rear 0 pixel Vertical (V) direction: Front 64 pixels, rear 0 pixel	
◆ Package	318 pin LGA	24.5 mm (H) × 21.4 mm (V)

Image Sensor Characteristics

(Tj = 60 °C)

Item		Value	Remarks
Sensitivity	Typ.	TBD Digit/lx/s	
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	4120 (H) × 3000 (V) Approx. 12.36 M pixels	339.6	SLVS-EC 8 Lane	8
		302.3		10
		162.7		12

Note: All of frame rate are tentative.

