SONY

Tentative Ver.0.1 IMX902-AQR

Diagonal 17.50 mm (Type 1.1) CMOS solid-state Image Sensor with Square Pixel for Color Camera

Description

The IMX902-AQR is a diagonal 17.50 mm (Type 1.1) CMOS active pixel type solid-state image sensor with a square pixel array and 12.38 M effective pixels. This chip features a global shutter with variable charge-integration time. This chip 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, 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 6 to 27 MHz (only for CSI-2) / 37.125 MHz / 74.25 MHz
- ◆Number of recommended recording pixels: 6040 (H) × 2040 (V) approx. 12.32 M pixels
- ◆Readout mode
  - All-pixel scan 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: 10-bit 134.7 frame/s, 12-bit 91.5 frame/s (Tentative)
  - (*) At high frame rates, control so as not to exceed Tj = +100 °C
- ◆Variable-speed shutter function (resolution 1 H units)
- ◆Pulse Output Function
  - The monitor output for Exposure period (TOUT0)
- ◆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 (2 ch / 4 ch / 8 ch) output
  - SLVS-EC (1 Lane / 2 Lane / 4 Lane) output
  - CSI-2 (1 Lane / 2 Lane / 4 Lane) output
- ◆CRA characteristics
  - The target CRA is 7.6 degree at 100% image heigh

Pregius S

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Device Structure

◆CMOS image sensor		
◆Image size	Diagonal 17.50 mm (Type 1.1)	Approx. 12.38 M pixels
◆Total number of pixels	6048 (H) × 2112 (V)	Approx. 12.77 M pixel
◆Number of effective pixels	6048 (H) × 2048 (V)	Approx. 12.38 M pixel
◆Number of active pixels	6048 (H) × 2048 (V)	Approx. 12.38 M pixel
◆Number of recommended recording pixels	6040 (H) × 2040 (V)	Approx. 12.32 M pixel
◆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	260 pin LGA	38.0 mm (H) × 22.0 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	6040 (H) × 2040 (V) Approx. 12.32 M pixel	69.0	SLVS 8 ch	10
		134.7	SLVS-EC 4 Lane	
		67.7	CSI-2 4 Lane	
		58.0	SLVS 8 ch	12
		91.5	SLVS-EC 4 Lane	
		57.1	CSI-2 4 Lane	
Vertical / Horizontal 1/2 subsampling	3020 (H) × 1020 (V) approx. 3.08 M pixels	253.3	SLVS 8 ch	10
		263.3	SLVS-EC 4 Lane	
		244.1	CSI-2 4 Lane	
		179.8	SLVS 8 ch	12
		179.8	SLVS-EC 4 Lane	
		179.8	CSI-2 4 Lane	

Note: All of frame rate are tentative.

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