

Diagonal 31.9 mm (Type 2.0) CMOS solid-state Image Sensor with Square Pixel for Color Cameras

Description

The IMX928-AQB is a diagonal 31.9 mm (Type 2.0) CMOS active pixel type solid-state image sensor with a square pixel array and 68 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
- ◆ 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 (*) At high frame rates, control so as not to exceed $T_j = +85\text{ }^\circ\text{C}$
 - Maximum frame rate in All-pixel scan mode: *controller mode
 - 8-bit 138.9 frames/s, 10-bit 126.8 frame/s, 12-bit 90.6 frame/s
- ◆ Variable-shutter speed
- ◆ Pulse Output Function
 - The monitor output for Integration period (TOUT0) and for internal AD period (TOUT1)
- ◆ 8-bit / 10-bit / 12-bit Output
- ◆ CDS / PGC function
 - 0 dB to 24 dB: Variable analog Gain (0.3 dB step)* 12-bit
 - 24.3 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
 - 18.3 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 (2 Lane , 4 Lane , 6 Lane , 8 Lane , 4 Lane × 2 , 6 Lane × 2 , 8 Lane × 2) output
 - SLVS-EC Baud Rate: 4.752 Gbps / lane 9.504 Gbps / lane 12.474 Gbps / lane (Grade 3, 4 and 5)
- ◆ CRA characteristics: The target CRA is 6 degrees at 100% image height.
- ◆ Ceramic package with connector. The connector is floating type.
- ◆ Seal glass: both sides are processed by AR coating

Device Structure

- ◆ CMOS image sensor
- ◆ Image size Diagonal 31.9 mm (Type 2.0) Approx. 68.55 M pixels
- ◆ Total number of pixels 8280 (H) × 8376 (V) Approx. 69.35 M pixels
- ◆ Number of effective pixels 8280 (H) × 8280 (V) Approx. 68.55 M pixels
- ◆ Number of active pixels 8256 (H) × 8256 (V) Approx. 68.16 M pixels
- ◆ Number of recommended recording pixels 8248 (H) × 8248 (V) Approx. 68.02 M pixels
- ◆ Unit cell size 2.74 μm (H) × 2.74 μm (V)
- ◆ Optical black Horizontal (H) direction: Front 0 pixel, rear 0 pixel
Vertical (V) direction: Front 20 pixels, rear 0 pixel
- ◆ Package Ceramic package with connector
160 pin × 2 45 mm (H) × 52 mm (V)

Basic Drive Mode

Drive mode	Recommended number of recording pixels	Maximum frame rate [frame/s]	Output interface	Output [bit]
All-pixel (Controller mode)	8248 (H) × 8248 (V) Approx. 68.02 M pixels	138.9	SLVS-EC 8 × 2 Lane	8
		126.8		10
		90.6		12
1/2 subsampling	4124 (H) × 4124 (V) Approx. 17.00 M pixels	271.4	SLVS-EC 8 × 2 Lane	8
		248.3		10
		178.3		12

Note: All frame rates are tentative.

Pregius S

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