

Ver.1.0

Diagonal 19.3 mm (Type 1.2) CMOS solid-state Image Sensor with Square Pixel for Monochrome Cameras

## Description

The IMX925-AMJ is a diagonal 19.3 mm (Type 1.2) CMOS active pixel type solid-state image sensor with a square pixel array and 24.55 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: 5320 (H) × 4600 (V) approx. 24.47 M pixels
- ◆ Readout mode
  - All-pixel scan mode
  - 1/2 subsampling mode
  - H2V2 FD binning mode / H1V2 FD binning mode / H2V1 FD binning mode
  - ROI mode
  - Vertical / Horizontal - Normal / Inverted readout mode
- ◆ Readout rate
  - Maximum frame rate in All-pixel scan mode: \*controller mode
  - 8-bit 442.7 frames/s, 10-bit 394.1 frame/s, 12-bit 212.5 frame/s
  - (\*) 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) and 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
  - 24.3 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 (1 Lane , 2 Lane , 4 Lane , 6 Lane , 8 Lane , 4 Lane × 2 , 6 Lane × 2 , 8 Lane × 2 ) output
  - SLVS-EC Baud Rate: 4.752Gbps / lane 9.504Gbps / lane 12.474Gbps / lane (Grade 3, 4 and 5)
- ◆ This sensor does not perform pupil correction

**Pregius S**

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**Device Structure**

◆ CMOS image sensor		
◆ Image size	Diagonal 19.3 mm (Type 1.2)	Approx. 24.55 M pixels
◆ Total number of pixels	5328 (H) × 4672 (V)	Approx. 24.89 M pixels
◆ Number of effective pixels	5328 (H) × 4608 (V)	Approx. 24.55 M pixels
◆ Number of active pixels	5328 (H) × 4608 (V)	Approx. 24.55 M pixels
◆ Number of recommended recording pixels	5320 (H) × 4600 (V)	Approx. 24.47 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 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.	15389 LSB/lx/s	12 bit converted value
Saturation signal	Min.	4094 LSB	-

**Basic Drive Mode**

Drive mode	Recommended number of recording pixels	Maximum frame rate [frame/s]	Output interface	ADC [bit]
All-pixel	5320 (H) × 4600 (V) Approx. 24.47 M pixels	442.7	SLVS-EC 8 × 2 Lane	8
		394.1		10
		212.5		12
H2V2 FD binning 1/2 subsampling	2660 (H) × 2300 (V) Approx. 6.11 M pixels	1505.5	SLVS-EC 8 × 2 Lane	8
		1440.0		10
		808.5		12

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