
Description

The IMX530-AAQJ 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 chip operates with analog 3.3 V, 2.9 V, digital 1.1 V, and interface 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 37.125 MHz / 74.25 MHz / 54 MHz
- ◆ Number of recommended recording pixels: 5320 (H) × 4600 (V) approx. 24.47 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: 8 bit 106 frame/s, 10 bit 102 frame/s, 12 bit 74 frame/s
- ◆ Pulse Output Function
 - The monitor output for Exposure period
 - Programmable pulse output
- ◆ 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
 - SLVS (4 ch / 8 ch switching) output (594 / 297 / 891 / 445.5 Mbps per ch)
 - SLVS - EC (1 Lane / 2 Lane / 4 Lane / 8 Lane) output (4.752 / 2.376 / 1.188 Gbps per Lane)
- ◆ Recommended lens F number: 2.8 or more (Close side)

Pregius S

* Pregius S is a registered trademark or trademark of Sony Group Corporation or its affiliates. Pregius S is a global shutter sensor technology for active pixel-type CMOS image sensors. By stacking the signal processing on the back illuminated type CMOS Image Sensor it realizes small chip size and high sensitivity, whilst using the high picture quality global shutter pixel technology of Pregius.

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Device Structure

| | | | |
|--|--|---------------------------|-----------|
| ◆ CMOS image sensor | | | |
| ◆ Image size | Diagonal 19.3 mm (Type 1.2) | Approx. 24.55 M pixels | All-pixel |
| ◆ 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 | All-pixel |
| ◆ 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 | 230 pin LGA | 21.0 mm (H) × 20.0 mm (V) | |

Image Sensor Characteristics

(Tj = 60 °C)

| Item | | Value | Remarks |
|-------------------|------|-----------------|---------|
| Sensitivity | Typ. | 8620 Digit/lx/s | |
| Saturation signal | Min. | 4094 Digit | |

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 | 30 | SLVS 8 ch | 8 |
| | | 106 | SLVS – EC 8 Lane | |
| | | 24 | SLVS 8 ch | 10 |
| | | 102 | SLVS – EC 8 Lane | |
| | | 21 | SLVS 8 ch | 12 |
| | | 74 | SLVS – EC 8 Lane | |
| Vertical / Horizontal 1/2 subsampling | 2660 (H) × 2300 (V) approx. 6.11 M pixels | 100 | SLVS 8 ch | 8 |
| | | 209 | SLVS – EC 8 Lane | |
| | | 81 | SLVS 8 ch | 10 |
| | | 200 | SLVS – EC 8 Lane | |
| | | 80 | SLVS 8 ch | 12 |
| | | 146 | SLVS – EC 8 Lane | |

