

Ver.1.0

Diagonal 28.3 mm (Type 1.8) CMOS Image Sensor with Square Pixel for Color Cameras

Description

The IMX571BQR-J is a diagonal 28.3 mm (Type 1.8) CMOS active pixel type image sensor with a square pixel array and 26.11 M effective pixels. This sensor incorporates maximum 36 dB PGA circuit and 16-bit A/D converter. 16-bit digital output makes it possible to readout the signals of 26.11 M effective pixels at high-speed of 6.84 frame/s in still picture mode. In addition, it realizes 12-bit digital output for high-speed 4K moving picture by window readout mode. (Applications: Surveillance cameras, FA cameras, Industrial cameras)

Features

- ◆ APS size CMOS active pixel type dots
- ◆ Input clock frequency 72 MHz
- ◆ All-pixel readout mode
 - Various readout modes (*)
- ◆ Rolling shutter function moving picture mode
- ◆ H driver, V driver and serial communication circuit on chip
- ◆ +36 dB gain in CDS/PGA on chip (when A/D 16-bit, 14-bit, 12-bit)
- ◆ Built-in 11-bit/12-bit/14-bit/16-bit A/D converter
- ◆ 8 Lane SLVS-EC output
- ◆ R, G, B primary color mosaic filter on chip
- ◆ Back-illuminated type

* Please refer to the datasheet for binning/subsampling details of readout modes.

STARVIS

* STARVIS is a registered trademark or trademark of Sony Group Corporation or its affiliates. The STARVIS is back-illuminated pixel technology used in CMOS image sensors for security camera applications. It features a sensitivity of 2000 mV or more per $1\ \mu\text{m}^2$ (color product, when imaging with a 706 cd/m² light source, F5.6 in 1 s accumulation equivalent), and realizes high picture quality in the visible-light and near infrared light regions.

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Device Structure

- ◆ CMOS image sensor
- ◆ Image size Diagonal 28.3 mm (Type 1.8)
- ◆ Total number of pixels 6280 (H) × 4264 (V) approx. 26.78 M pixels
- ◆ Number of effective pixels 6252 (H) × 4176 (V) approx. 26.11 M pixels
- ◆ Number of active pixels 6244 (H) × 4168 (V) approx. 26.02 M pixels
- ◆ Chip size 27.780 mm (H) × 22.302 mm (V)
- ◆ Unit cell size 3.76 μm (H) × 3.76 μm (V)
- ◆ Optical black Horizontal (H) direction: Front 16 pixels, Rear 0 pixel
Vertical (V) direction: Front 22 pixels, Rear 0 pixel
- ◆ Package 184 pin LGA

Image Sensor Characteristics

(Tj = 60 °C)

| Item | | Value | Remarks |
|--------------------|------|-----------|--------------------|
| Sensitivity (F5.6) | Typ. | 5630 LSB | 1/30 s integration |
| Saturation signal | Min. | 14168 LSB | Left for 0.4 s |

Basic Drive Mode

| Drive mode | Number of active pixels | Max frame rate [frame/s] | Word length [bit] |
|-----------------|--|--------------------------|-------------------|
| Readout mode 0 | 6244 (H) × 4168 (V) approx. 26.02 M pixels | 48.42 | 10 |
| Readout mode 1 | 6244 (H) × 4168 (V) approx. 26.02 M pixels | 18.82 | 12 |
| Readout mode 3 | 6244 (H) × 4168 (V) approx. 26.02 M pixels | 24.15 | 10 |
| Readout mode 5 | 3122 (H) × 2084 (V) approx. 6.51 M pixels | 37.55 | 12 |
| Readout mode 6 | 2080 (H) × 1388 (V) approx. 2.89 M pixels | 111.84 | 12 |
| Readout mode 7 | 2080 (H) × 1386 (V) approx. 2.88 M pixels | 111.99 | 12 |
| Readout mode 10 | 2080 (H) × 1388 (V) approx. 2.89 M pixels | 55.52 | 12 |
| Readout mode 11 | 2080 (H) × 1386 (V) approx. 2.88 M pixels | 55.52 | 12 |
| Readout mode 12 | 2080 (H) × 832 (V) approx. 1.73 M pixels | 245.08 | 12 |
| Readout mode 13 | 2080 (H) × 832 (V) approx. 1.73 M pixels | 245.08 | 12 |
| Readout mode 14 | 2080 (H) × 594 (V) approx. 1.24 M pixels | 339.77 | 12 |
| Readout mode 15 | 2080 (H) × 594 (V) approx. 1.24 M pixels | 339.77 | 12 |
| Readout mode 16 | 2080 (H) × 462 (V) approx. 0.96 M pixels | 432.44 | 12 |
| Readout mode 17 | 2080 (H) × 462 (V) approx. 0.96 M pixels | 432.44 | 12 |
| Readout mode 18 | 2080 (H) × 320 (V) approx. 0.67 M pixels | 611.99 | 12 |
| Readout mode 19 | 2080 (H) × 319 (V) approx. 0.66 M pixels | 611.99 | 12 |
| Readout mode 20 | 2080 (H) × 166 (V) approx. 0.35 M pixels | 1113.31 | 12 |
| Readout mode 21 | 2080 (H) × 164 (V) approx. 0.34 M pixels | 1125.28 | 12 |

