

## [Product Information]

Ver.1.0

# IMX283CQJ

Diagonal 15.86 mm (Type 1) CMOS Image Sensor with Square Pixel for Color Cameras

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### Description

The IMX283CQJ is a diagonal 15.86 mm (Type 1) CMOS image sensor with a color square pixel array and approximately 20.30 M effective pixels. 12-bit digital output makes it possible to output the signals of approximately 20.30 M effective pixels with high definition for shooting still pictures. It also operates with three power supply voltages: analog 2.9 V, digital 1.2 V and 1.8 V, and achieves low power consumption. Furthermore, it realizes 12-bit digital output for shooting high-speed and high-definition moving pictures by horizontal and vertical addition and subsampling. Realizing high-sensitivity, low dark current, this sensor also has an electronic shutter function with variable storage time.

In addition, this product is designed for use in consumer use digital still camera and consumer use camcorder. When using this for another application, Sony Semiconductor Solutions Corporation does not guarantee the quality and reliability of the product. Therefore, don't use this for applications other than consumer use digital still camera and consumer use camcorder.

In addition, individual specification change cannot be supported because this is a standard product.

Consult your Sony Semiconductor Solutions Corporation sales representative if you have any questions.

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### Features

- ◆ CMOS active pixel type pixels
- ◆ Input clock frequency 6 to 27 MHz
- ◆ MIPI Specifications (CSI-2 high-speed serial interface)
- ◆ All-pixel scan mode
  - Various readout modes (\*)
- ◆ High-sensitivity, low dark current, no smear, excellent anti-blooming characteristics
- ◆ Vertical and horizontal arbitrary cropping function
- ◆ Variable-speed shutter function (minimum unit: 1 horizontal period)
- ◆ Low power consumption
- ◆ H driver, V driver and I<sup>2</sup>C communication circuit on chip
- ◆ CDS/PGA on chip: Gain +27 dB (step pitch 0.1 dB)
- ◆ 9-bit/10-bit/12-bit A/D conversion on chip
- ◆ R, G, B primary color mosaic filters on chip
- ◆ 118-pin high-precision ceramic package

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

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## Device Structure

◆ CMOS image sensor	
◆ Image size	Diagonal 15.86 mm (Type 1)
◆ Total number of pixels	5592 (H) × 3710 (V) approx. 20.75 M pixels
◆ Number of effective pixels	
- Type 1 approx. 20.30 M pixels use	5496 (H) × 3694 (V) approx. 20.30 M pixels
- Type 1/1.4 approx. 8.42 M pixels use	3872 (H) × 2174 (V) approx. 8.42 M pixels
◆ Number of active pixels	
- Type 1 approx. 20.30 M pixels use	5496 (H) × 3672 (V) approx. 20.18 M pixels diagonal 15.86 mm
- Type 1/1.4 approx. 8.42 M pixels use	3872 (H) × 2168 (V) approx. 8.39 M pixels diagonal 10.65 mm
◆ Number of recommended recording pixels	
- Type 1 approx. 20.30 M pixels use	5472 (H) × 3648 (V) approx. 19.96 M pixels aspect ratio 3:2
- Type 1/1.4 approx. 8.42 M pixels use	3840 (H) × 2160 (V) approx. 8.29 M pixels aspect ratio 16:9
◆ Chip size	16.226 mm (H) × 12.654 mm (V) (include scribe area)
◆ Unit cell size	2.40 μm (H) × 2.40 μm (V)
◆ Optical black	Horizontal (H) direction : Front 48 pixels, rear 0 pixel Vertical (V) direction : Front 16 pixels, rear 0 pixel
◆ Package	118 pin LGA

## Image Sensor Characteristics

(T<sub>j</sub> = 60 °C)

Item		Value	Remarks
Sensitivity (F5.6)	Typ.	1874 digit	1/30 s integration
Saturation signal	Min.	3824 digit	

## Basic Drive Mode

### Type 1 Approx. 20.30 M Pixels (3:2)

Drive mode	Number of recording pixels	Max frame rate [frame/s]	Output data bit length [bit]
Readout mode 0	5472 (H) × 3648 (V) approx. 19.96 M pixels	21.40	12
Readout mode 1	5472 (H) × 3648 (V) approx. 19.96 M pixels	25.48	10
Readout mode 1A	5472 (H) × 3078 (V) approx. 16.84 M pixels	30.17	10
Readout mode 1S	3000 (H) × 3000 (V) approx. 9.00 M pixels	42.96	10
Readout mode 2	2736 (H) × 1824 (V) approx. 4.99 M pixels	51.80	12
Readout mode 2A	2736 (H) × 1538 (V) approx. 4.21 M pixels	60.27	12
Readout mode 3	1824 (H) × 1216 (V) approx. 2.22 M pixels	60.36	12
Readout mode 4	1824 (H) × 370 (V) approx. 0.67 M pixels	240.21	12
Readout mode 5	1824 (H) × 190 (V) approx. 0.35 M pixels	452.03	12
Readout mode 6	2736 (H) × 1538 (V) approx. 4.21 M pixels	60.01	10

### Type 1/1.4 Approx. 8.42 M Pixels (16:9)

Drive mode	Number of recording pixels	Max frame rate [frame/s]	Output data bit length [bit]
Readout mode 1	3840 (H) × 2160 (V) approx. 8.29 M pixels	60.16	10