

## [Product Information]

Ver.1.0

# IMX317CQC

Diagonal 7.20 mm (Type 1/2.5) CMOS Image Sensor with Square Pixel for Color Cameras

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### Description

The IMX317CQC is a diagonal 7.20 mm (Type 1/2.5) CMOS image sensor with a color square pixel array and approximately 8.51 M effective pixels. 12-bit digital output makes it possible to output the signals of approximately 8.51 M effective pixels with high definition for shooting still pictures. It also operates with three power supply voltages: analog 2.8 V, digital 1.2 V, and 1.8 V for I/O interface 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 (CSI-2), 12/24/36/72 MHz (Sub-LVDS)
- ◆ Both MIPI Specifications (CSI-2 high-speed serial interface) and Sub-LVDS supported
- ◆ 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
- ◆ Digital Overlap High Dynamic Range (DOL-HDR) function
- ◆ H driver, V driver and serial communication circuit on chip
- ◆ CDS/PGA on chip: Gain +27 dB (step pitch 0.1 dB)
- ◆ 10-bit/12-bit A/D conversion on chip
- ◆ R, G, B primary color mosaic filters on chip
- ◆ All-pixel simultaneous reset supported
- ◆ 92-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 7.20 mm (Type 1/2.5)
◆ Total number of pixels	3864 (H) × 2218 (V) approx. 8.57 M pixels
◆ Number of effective pixels	3864 (H) × 2202 (V) approx. 8.51 M pixels
◆ Number of active pixels	3864 (H) × 2196 (V) approx. 8.49 M pixels diagonal 7.20 mm
◆ Number of recommended recording pixels	3840 (H) × 2160 (V) 8.29 M pixels aspect ratio 16:9
◆ Chip size	8.365 mm (H) × 6.615 mm (V) (include scribe area)
◆ Unit cell size	1.62 μm (H) × 1.62 μm (V)
◆ Optical black	Horizontal (H) direction: Front 0 pixel, Rear 0 pixel Vertical (V) direction: Front 16 pixels, Rear 0 pixel
◆ Package	92 pin LGA

## Image Sensor Characteristics

(T<sub>j</sub> = 60 °C)

Item		Value	Remarks
Sensitivity (F5.6)	Typ.	1145 digit	1/30 s integration
Saturation signal	Min.	3050 digit	

## Basic Drive Mode

Drive mode	Number of recording pixels	Max frame rate [frame/s]		Output data bit length [bit]
		CSI-2	Sub-LVDS	
Readout mode 0	3840 (H) × 2160 (V) approx. 8.29 M pixels	32.81	32.73	12
Readout mode 1	3840 (H) × 2160 (V) approx. 8.29 M pixels	62.52	62.06	10
Readout mode 2	1920 (H) × 1080 (V) approx. 2.07 M pixels	65.82	65.61	12
Readout mode 3	1920 (H) × 1080 (V) approx. 2.07 M pixels	124.80	124.40	10
Readout mode 4	1920 (H) × 1080 (V) approx. 2.07 M pixels	124.80	124.40	10
Readout mode 5	1280 (H) × 720 (V) approx. 0.92 M pixels	185.73	184.86	10
Readout mode 6	1280 (H) × 540 (V) approx. 0.69 M pixels	249.26	247.70	10