

## [Product Information]

# IMX410CQK

Ver.1.0

Diagonal 43.3 mm (Type 2.7) CMOS Image Sensor with Square Pixel for Color Cameras

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### Description

The IMX410CQK is a diagonal 43.3 mm (Type 2.7) CMOS active pixel type image sensor with a square pixel array and 24.63 M effective pixels. This sensor incorporates maximum 30 dB PGA circuit and 14-bit A/D converter. 14-bit digital output makes it possible to readout the signals of 24.63 M effective pixels at high-speed of 19.2 frame/s in still picture mode. In addition, it realizes 12-bit digital output for high-speed 4K moving picture.

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

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

- ◆ 35 mm full size CMOS active pixel type dots
- ◆ Input clock frequency 72 MHz
- ◆ All-pixel readout mode
  - All-pixel readout mode 4K cropping
  - Various readout modes (\*)
- ◆ Rolling shutter function moving picture mode
- ◆ H driver, V driver and serial communication circuit on chip
- ◆ +30 dB gain in CDS/PGA on chip
- ◆ Built-in 11-bit/12-bit/14-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.

Sony reserves the right to change products and specifications without prior notice.

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## Device Structure

◆ Back-Illuminated CMOS image sensor	
◆ Image size	Diagonal 43.3 mm (Type 2.7)
◆ Total number of pixels	6104 (H) × 4142 (V) approx. 25.28 M pixels
◆ Number of effective pixels	6072 (H) × 4056 (V) approx. 24.63 M pixels
◆ Number of active pixels	6064 (H) × 4040 (V) approx. 24.50 M pixels
◆ Chip size	41.071 mm (H) × 30.815 mm (V)
◆ Unit cell size	5.94 μm (H) × 5.94 μm (V)
◆ Optical black	Horizontal (H) direction: Front 0 pixel, Rear 20 pixels Vertical (V) direction: Front 32 pixels, Rear 0 pixel
◆ Package	294 pin LGA

## Image Sensor Characteristics

(T<sub>j</sub> = 60 °C)

Item		Value	Remarks
Sensitivity (F5.6)	Typ.	6660 LSB	1/30 s integration
Saturation signal	Min.	15105 LSB	Left for 1 s

## Basic Drive Mode

Drive mode	Number of active pixels	Max frame rate [frame/s]	Word length [bit]
Readout mode 0	6064 (H) × 4040 (V) approx. 24.50 M pixels	19.20	14
Readout mode 1	6064 (H) × 4040 (V) approx. 24.50 M pixels	39.30	12
Readout mode 2	6064 (H) × 4040 (V) approx. 24.50 M pixels	40.58	12
Readout mode 3	4160 (H) × 2160 (V) approx. 8.99 M pixels	35.34	14
Readout mode 4	4160 (H) × 2160 (V) approx. 8.99 M pixels	72.36	12
Readout mode 5	4160 (H) × 2160 (V) approx. 8.99 M pixels	97.57	12
Readout mode 6	2020 (H) × 1342 (V) approx. 2.71 M pixels	116.23	12
Readout mode 7	2020 (H) × 1342 (V) approx. 2.71 M pixels	156.73	12
Readout mode 8	6064 (H) × 672 (V) approx. 4.08 M pixels	226.60	12
Readout mode 9	6064 (H) × 672 (V) approx. 4.08 M pixels	233.96	12
Readout mode 10	2020 (H) × 672 (V) approx. 1.36 M pixels	226.60	12
Readout mode 11	2020 (H) × 672 (V) approx. 1.36 M pixels	305.57	12
Readout mode 12	2020 (H) × 336 (V) approx. 0.68 M pixels	432.61	12
Readout mode 13	2020 (H) × 336 (V) approx. 0.68 M pixels	583.37	12
Readout mode 14	2020 (H) × 136 (V) approx. 0.27 M pixels	1253.91	12
Readout mode 15	2020 (H) × 112 (V) approx. 0.23 M pixels	1454.54	12
Readout mode 16	2020 (H) × 96 (V) approx. 0.19 M pixels	1628.22	12
Readout mode 17	3032 (H) × 2012 (V) approx. 6.10 M pixels	78.23	12
Readout mode 18	3032 (H) × 2012 (V) approx. 6.10 M pixels	105.50	12
Readout mode 19	3032 (H) × 4040 (V) approx. 12.25 M pixels	39.30	12
Readout mode 20	3032 (H) × 4040 (V) approx. 12.25 M pixels	53.00	12
Readout mode 21	6064 (H) × 2012 (V) approx. 12.20 M pixels	78.23	12
Readout mode 22	6064 (H) × 2012 (V) approx. 12.20 M pixels	80.78	12