[Product Information]

Ver.1.0

IMX283CQJ

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

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.

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 I²C 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.

Sony reserves the right to change products and specifications without prior notice.
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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) diagonal 15.86 mm
  - Type 1/1.4 approx. 8.42 M pixels use 3872 (H) × 2168 (V) 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 diagonal 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

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity (F5.6) Typ.</td>
<td>1874 digit</td>
<td>1/30 s integration</td>
</tr>
<tr>
<td>Saturation signal Min.</td>
<td>3824 digit</td>
<td></td>
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</tbody>
</table>

Basic Drive Mode

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

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

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

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