IMX492LLJ

Diagonal 23.1 mm (Type 1.4) CMOS Image Sensor with Square Pixel for Monochrome Cameras

Description

The IMX492LLJ is a diagonal 23.1 mm (Type 1.4) CMOS image sensor with a monochrome square pixel array and approximately 47.08 M effective pixels. 12-bit digital output makes it possible to output the signals with high definition for moving pictures. It also operates with three power supply voltages: analog 2.9 V, digital 1.2 V, and 1.8 V for I/O interface and achieves low power consumption. Realizing high-sensitivity, low dark current, this sensor also has an electronic shutter function with variable storage time.

(Application: Surveillance, FA cameras, Industrial cameras)

Features

- CMOS active pixel type pixels
- Input clock frequency 6 to 27 MHz (CSI-2), 72 MHz (SLVS-EC)
- Both MIPI Specifications (CSI-2 high-speed serial interface) and SLVS-EC interface supported
- Multi-Aspect (All pixel, approx. 17:9 and 4:3)
- Readout mode
  - All-pixel mode (Type 1.4)
  - Aspect ratio approx. 17:9 8192 (H) × 4320 (V) (Type 4/3)
  - Aspect ratio 4:3 7408 (H) × 5556 (V) (Type 4/3)
- 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
- High dynamic range (HDR) function (only 4k mode, refer to Application Note)
- 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
- All-pixel simultaneous reset supported
- 248-pin high-precision ceramic package
- Recommended lens F number: 2.8 or more (Close side)
- Recommended exit pupil distance: -100 mm to -∞

Sony reserves the right to change products and specifications without prior notice.
Sony logo is a registered trademark of Sony Corporation.
Device Structure

◆ Image size
Diagonal 23.1 mm (Type 1.4) Multi-Aspect (Aspect ratio 4:3 and approx. 17:9)

◆ Total number of pixels
- All pixel : 8432 (H) × 5680 (V) approx. 47.89 M pixels
- Aspect ratio approx. 17:9 : 8432 (H) × 4380 (V) approx. 36.93 M pixels
- Aspect ratio 4:3 : 7680 (H) × 5680 (V) approx. 43.62 M pixels

◆ Number of effective pixels
- All pixel : 8336 (H) × 5648 (V) approx. 47.08 M pixels
- Aspect ratio approx. 17:9 : 8336 (H) × 4348 (V) approx. 36.24 M pixels
- Aspect ratio 4:3 : 7584 (H) × 5648 (V) approx. 42.83 M pixels

◆ Number of active pixels
- All pixel : 8240 (H) × 5628 (V) approx. 46.37 M pixels diagonal 23.10 mm
- Aspect ratio approx. 17:9 : 8240 (H) × 4336 (V) approx. 35.73 M pixels diagonal 21.56 mm
- Aspect ratio 4:3 : 7456 (H) × 5628 (V) approx. 41.96 M pixels diagonal 21.63 mm

◆ Number of recommended recording pixels
- All pixel : 8192 (H) × 5556 (V) approx. 45.51 M pixels
- Aspect ratio approx. 17:9 : 8192 (H) × 4320 (V) approx. 35.39 M pixels
- Aspect ratio 4:3 : 7408 (H) × 5556 (V) approx. 41.16 M pixels

◆ Unit cell size 2.315 µm (H) × 2.315 µm (V)

◆ Optical black
Horizontal (H) direction: Front 96 pixels, rear 0 pixel
Vertical (V) direction: Front 32 pixels, rear 0 pixel

◆ Package 248 pin LGA

Image Sensor Characteristics

(Tj = 60 °C)

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity (F8)</td>
<td>Typ.</td>
<td>TBD Digit</td>
</tr>
<tr>
<td>Saturation signal</td>
<td>Min.</td>
<td>TBD Digit</td>
</tr>
</tbody>
</table>

Basic Drive Mode

<table>
<thead>
<tr>
<th>Drive mode</th>
<th>Recommended number of recording pixels</th>
<th>Maximum frame rate [frame/s]</th>
<th>Output interface</th>
<th>ADC [bit]</th>
</tr>
</thead>
<tbody>
<tr>
<td>All pixel</td>
<td>8192 (H) × 5556 (V) approx. 45.51 M pixels</td>
<td>13.66</td>
<td>CSI-2</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>24.17</td>
<td>SLVS-EC</td>
<td>10</td>
</tr>
<tr>
<td>Aspect Ratio 17:9</td>
<td>8192 (H) × 4320 (V) approx. 35.39 M pixels</td>
<td>17.67</td>
<td>CSI-2</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>31.30</td>
<td>SLVS-EC</td>
<td>10</td>
</tr>
<tr>
<td>Aspect Ratio 4:3</td>
<td>7408 (H) × 5556 (V) approx. 41.16 M pixels</td>
<td>14.92</td>
<td>CSI-2</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>24.17</td>
<td>SLVS-EC</td>
<td>10</td>
</tr>
</tbody>
</table>
[Product Information]

IMX492LQJ

Diagonal 23.1 mm (Type 1.4) CMOS Image Sensor with Square Pixel for Color Cameras

Description

The IMX492LQJ is a diagonal 23.1 mm (Type 1.4) CMOS image sensor with a color square pixel array and approximately 47.08 M effective pixels. 12-bit digital output makes it possible to output the signals with high definition for moving pictures. It also operates with three power supply voltages: analog 2.9 V, digital 1.2 V, and 1.8 V for I/O interface and achieves low power consumption. Realizing high-sensitivity, low dark current, this sensor also has an electronic shutter function with variable storage time. (Application: Surveillance, FA cameras, Industrial cameras)

Features

- CMOS active pixel type pixels
- Input clock frequency 6 to 27 MHz (CSI-2), 72 MHz (SLVS-EC)
- Both MIPI Specifications (CSI-2 high-speed serial interface) and SLVS-EC interface supported
- Multi-Aspect (All pixel, approx. 17:9 and 4:3)
- Readout mode
  - All-pixel mode (Type 1.4)
    - Aspect ratio approx. 17:9 8192 (H) × 4320 (V) (Type 4/3)
    - Aspect ratio 4:3 7408 (H) × 5556 (V) (Type 4/3)
- 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 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
- 248-pin high-precision ceramic package
- Recommended lens F number: 2.8 or more (Close side)
- Recommended exit pupil distance: -100 mm to -∞

Sony reserves the right to change products and specifications without prior notice. Sony logo is a registered trademark of Sony Corporation.
Device Structure

◆ Image size
Diagonal 23.1 mm (Type 1.4) Multi-Aspect (Aspect ratio 4:3 and approx. 17.9)

◆ Total number of pixels
- All pixel : 8432 (H) × 5680 (V) approx. 47.89 M pixels
- Aspect ratio approx. 17:9 : 8432 (H) × 4380 (V) approx. 36.93 M pixels
- Aspect ratio 4:3 : 7680 (H) × 5680 (V) approx. 43.62 M pixels

◆ Number of effective pixels
- All pixel : 8336 (H) × 5648 (V) approx. 47.08 M pixels
- Aspect ratio approx. 17:9 : 8336 (H) × 4348 (V) approx. 36.24 M pixels
- Aspect ratio 4:3 : 7584 (H) × 5648 (V) approx. 42.83 M pixels

◆ Number of active pixels
- All pixel : 8240 (H) × 5628 (V) approx. 46.37 M pixels diagonal 23.10 mm
- Aspect ratio approx. 17:9 : 8240 (H) × 4336 (V) approx. 35.73 M pixels diagonal 21.56 mm
- Aspect ratio 4:3 : 7456 (H) × 5628 (V) approx. 41.96 M pixels diagonal 21.63 mm

◆ Number of recommended recording pixels
- All pixel : 8192 (H) × 5556 (V) approx. 45.51 M pixels
- Aspect ratio approx. 17:9 : 8192 (H) × 4320 (V) approx. 35.39 M pixels
- Aspect ratio 4:3 : 7408 (H) × 5556 (V) approx. 41.16 M pixels

◆ Unit cell size 2.315 µm (H) × 2.315 µm (V)

◆ Optical black Horizontal (H) direction: Front 96 pixels, rear 0 pixel
   Vertical (V) direction: Front 32 pixels, rear 0 pixel

◆ Package 248 pin LGA

Image Sensor Characteristics

(Tj = 60 °C)

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity (F5.6) Typ.</td>
<td>TBD Digit</td>
<td>1/30 s accumulation</td>
</tr>
<tr>
<td>Saturation signal Min.</td>
<td>TBD Digit</td>
<td></td>
</tr>
</tbody>
</table>

Basic Drive Mode

<table>
<thead>
<tr>
<th>Drive mode</th>
<th>Recommended number of recording pixels</th>
<th>Maximum frame rate [frame/s]</th>
<th>Output interface</th>
<th>ADC [bit]</th>
</tr>
</thead>
<tbody>
<tr>
<td>All pixel</td>
<td>8192 (H) × 5556 (V) approx. 45.51 M pixels</td>
<td>13.66</td>
<td>CSI-2</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>24.17</td>
<td>SLVS-EC</td>
<td>10</td>
</tr>
<tr>
<td>Aspect Ratio 17:9</td>
<td>8192 (H) × 4320 (V) approx. 35.39 M pixels</td>
<td>17.67</td>
<td>CSI-2</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>31.30</td>
<td>SLVS-EC</td>
<td>10</td>
</tr>
<tr>
<td>Aspect Ratio 4:3</td>
<td>7408 (H) × 5556 (V) approx. 41.16 M pixels</td>
<td>14.92</td>
<td>CSI-2</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>24.17</td>
<td>SLVS-EC</td>
<td>10</td>
</tr>
</tbody>
</table>