IMX482LQJ

Diagonal 12.86 mm (Type 1/1.2) CMOS Solid-state Image Sensor with Square Pixel for Color Cameras

Description

The IMX482LQJ is a diagonal 12.8 mm (Type 1/1.2) CMOS active pixel type solid-state image sensor with a square pixel array and 2.10 M effective pixels. This chip operates with analog 2.9 V, digital 1.2 V, and interface 1.8 V triple power supply, and has low power consumption. High sensitivity, low dark current and no smear. This chip features an electronic shutter with variable charge-integration time. (Applications: Surveillance cameras, FA cameras, Industrial cameras)

Features

◆ CMOS active pixel type dots
◆ Built-in timing adjustment circuit, H/V driver and serial communication circuit
◆ Input frequency: 6 to 27 MHz / 37.125 MHz / 74.25 MHz
◆ Number of recommended recording pixels: 1920 (H) × 1080 (V) approx. 2.07 M pixels
◆ Readout mode
  2 × 2 Adjacent Pixel Binning
  Window cropping mode with 2 × 2 Adjacent Pixel Binning
  Horizontal / Vertical direction - Normal / Inverted readout mode
◆ Readout rate
  Maximum frame rate in
  2 × 2 Adjacent Pixel Binning : 10 bit: 90 frame/s
◆ High dynamic range (HDR) function
  Multiple exposure HDR
  Digital overlap HDR
◆ Synchronizing sensors function
◆ Variable-speed shutter function (resolution 2H units)
◆ 10-bit A/D converter
◆ CDS / PGA function
  0 dB to 72 dB (step pitch 0.3 dB)
◆ Supports I/O
  CSI-2 serial data output (2 Lane / 4 Lane / 8 Lane / 4 Lane × 2 ch) RAW12 output
◆ Recommended exit pupil distance: −30 mm to −∞

* STARVIS is a trademark of Sony Corporation. The STARVIS is back-illuminated pixel technology used in CMOS image sensors for surveillance camera applications. It features a sensitivity of 2000 mV or more per 1 μm² (color product, when imaging with a 706 cd/m² light source, F5.6 in 1 s accumulation equivalent), and realizes high picture quality in the visible-light and near infrared light regions.

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Device Structure

◆ CMOS image sensor (Quad Bayer structure)

Quad Bayer structure is constructed of 4 same color pixels into which 1 pixel of bayer pixel array is divided as following figure.

When normal operation, 4 same color pixels are added and made 1 pixel, and output as bayer pixel array. In addition, a group of divided 4 same color pixels is defined as 1 pixel unit in this product specification.

◆ Image size
  Diagonal 12.86 mm (Type 1/1.2) approx. 2.10 M pixels
◆ Total number of pixels
  1932 (H) × 1100 (V) approx. 2.12 M pixels
◆ Number of effective pixels
  1932 (H) × 1090 (V) approx. 2.10 M pixels
◆ Number of active pixels
  1932 (H) × 1088 (V) approx. 2.10 M pixels
◆ Number of recommended recording pixels
  1920 (H) × 1080 (V) approx. 2.07 M pixels
◆ Unit cell size
  5.8 µm (H) × 5.8 µm (V)
◆ Optical black
  Horizontal (H) direction: Front 0 pixel, rear 0 pixel
  Vertical (V) direction: Front 10 pixels, rear 0 pixel
◆ Dummy
  Horizontal (H) direction: Front 0 pixel, rear 0 pixel
  Vertical (V) direction: Front 0 pixel, rear 0 pixel
◆ Package
  122 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)</td>
<td>Typ. 9733 Digit</td>
<td>1/30 s accumulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12 bit converted value</td>
</tr>
<tr>
<td>Saturation signal</td>
<td>Min. 3895 Digit</td>
<td>12 bit converted value</td>
</tr>
</tbody>
</table>

(Tj = 60 °C)

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>2 × 2 Adjacent Pixel Binning</td>
<td>1920 (H) × 1080 (V) approx. 2.07 M pixels</td>
<td>90</td>
<td>CSI-2</td>
<td>10</td>
</tr>
</tbody>
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