Diagonal 17.6 mm (Type 1.1) CMOS solid-state Image Sensor with Square Pixel for Monochrome Cameras

Description

The IMX432LLJ is a diagonal 17.6 mm (Type 1.1) CMOS active pixel type solid-state image sensor with a square pixel array and 1.78 M effective pixels. This chip features a global shutter with variable charge-integration time. This chip operates with analog 3.3 V, digital 1.2 V, and interface 1.8 V triple power supply, and has low power consumption. High sensitivity, low dark current and low PLS characteristics are achieved.
(Applications: FA cameras, ITS cameras)

Features

◆ CMOS active pixel type dots
◆ Built-in timing adjustment circuit; H/V driver and serial communication circuit
◆ Global shutter function
◆ Input frequency
  37.125 MHz / 74.25 MHz / 54 MHz
◆ Number of recommended recording pixels: 1604 (H) × 1100 (V) approx. 1.76 M pixels
  Readout mode
  All-pixel scan mode
  ROI mode
  Vertical / Horizontal - Normal / Inverted readout mode
◆ Readout rate
  Maximum frame rate in
  All-pixel scan mode: 12 bit: 98.6 frame/s
◆ 12-bit A/D converter
◆ CDS / PGA function
  0 dB to 24 dB: Analog Gain (0.1 dB step)
  24.1 dB to 48 dB: Analog Gain: 24 dB + Digital Gain: 0.1 dB to 24 dB (0.1 dB step)
◆ I/O interface
  SLVS (2 ch / 4 ch switching) output (594 / 297 Mbps per ch)
  SLVS - EC (1 Lane) output (2.376 / 1.188 Gbps)
◆ Recommended lens F number: 2.8 or more (Close side)
◆ Recommended exit pupil distance: –100 mm to –∞

* Pregius is a trademark of Sony Corporation. The Pregius is global shutter pixel technology for active pixel-type CMOS image sensors that use Sony’s low-noise CCD structure, and realizes high picture quality.

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Device Structure

◆ CMOS image sensor
◆ Image size    Diagonal 17.6 mm (Type 1.1)  Approx. 1.78 M pixels  All-pixel
◆ Total number of pixels 1608 (H) × 1136 (V)  Approx. 1.83 M pixels
◆ Number of effective pixels 1608 (H) × 1104 (V)  Approx. 1.78 M pixels
◆ Number of active pixels 1608 (H) × 1104 (V)  Approx. 1.78 M pixels
◆ Number of recommended recording pixels 1604 (H) × 1100 (V)  Approx. 1.76 M pixels  All-pixel
◆ Unit cell size 9.0 µm (H) × 9.0 µm (V)
◆ Optical black Horizontal (H) direction: Front 0 pixel, rear 0 pixel
          Vertical (V) direction: Front 32 pixels, rear 0 pixel
◆ Package 226 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) Typ.</td>
<td>4050 mV</td>
<td>1/30 s accumulation</td>
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<tr>
<td>Saturation signal Min.</td>
<td>1001 mV</td>
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</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>1604 (H) × 1100 (V)</td>
<td>98.6</td>
<td>SLVS 4 ch</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>approx. 1.76 M pixels</td>
<td>75.6</td>
<td>SLVS – EC 1 Lane</td>
<td></td>
</tr>
</tbody>
</table>
IMX432LQJ
Diagonal 17.6 mm (Type 1.1) CMOS solid-state Image Sensor with Square Pixel for Color Cameras

Description

The IMX432LQJ is a diagonal 17.6 mm (Type 1.1) CMOS active pixel type solid-state image sensor with a square pixel array and 1.78 M effective pixels. This chip features a global shutter with variable charge-integration time. This chip operates with analog 3.3 V, digital 1.2 V, and interface 1.8 V triple power supply, and has low power consumption. High sensitivity, low dark current and low PLS characteristics are achieved. (Applications: FA cameras, ITS cameras)

Features

◆ CMOS active pixel type dots
◆ Built-in timing adjustment circuit, H/V driver and serial communication circuit
◆ Global shutter function
◆ Input frequency
  37.125 MHz / 74.25 MHz / 54 MHz
◆ Number of recommended recording pixels: 1604 (H) × 1100 (V) approx. 1.76 M pixels
  Readout mode
  All-pixel scan mode
  ROI mode
  Vertical / Horizontal - Normal / Inverted readout mode
◆ Readout rate
  Maximum frame rate in
  All-pixel scan mode: 12 bit: 98.6 frame/s
◆ 12-bit A/D converter
◆ CDS / PGA function
  0 dB to 24 dB: Analog Gain (0.1 dB step)
  24.1 dB to 48 dB: Analog Gain: 24 dB + Digital Gain: 0.1 dB to 24 dB (0.1 dB step)
◆ I/O interface
  SLVS (2 ch / 4 ch switching) output (594 / 297 Mbps per ch)
  SLVS - EC (1 Lane) output (2.376 / 1.188 Gbps)
◆ Recommended lens F number: 2.8 or more (Close side)
◆ Recommended exit pupil distance: −100 mm to −∞

Pregius

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Device Structure

◆ CMOS image sensor
◆ Image size  Diagonal 17.6 mm (Type 1.1)  Approx. 1.78 M pixels  All-pixel
◆ Total number of pixels  1608 (H) × 1136 (V)  Approx. 1.83 M pixels
◆ Number of effective pixels  1608 (H) × 1104 (V)  Approx. 1.78 M pixels
◆ Number of active pixels  1608 (H) × 1104 (V)  Approx. 1.78 M pixels
◆ Number of recommended recording pixels  1604 (H) × 1100 (V)  Approx. 1.76 M pixels  All-pixel
◆ Unit cell size  9.0 µm (H) × 9.0 µm (V)
◆ Optical black  Horizontal (H) direction: Front 0 pixel, rear 0 pixel  
                Vertical (V) direction: Front 32 pixels, rear 0 pixel
◆ Package  226 pin LGA

Image Sensor Characteristics

(Tj = 60 °C)

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<tr>
<td>Sensitivity (F5.6)</td>
<td>Typ. 4910 mV</td>
<td>1/30 s accumulation</td>
</tr>
<tr>
<td>Saturation signal</td>
<td>Min. 1001 mV</td>
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