[Product Information]

Ver.1.0

IMX335LLN

Diagonal 6.52 mm (Type 1 / 2.8) CMOS Solid-state Image Sensor with Square Pixel for Monochrome Cameras

Description

The IMX335LLN is a diagonal 6.52 mm (Type 1 / 2.8) CMOS active pixel type solid-state image sensor with a square pixel array and 5.14 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 are achieved. 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: 2592 (H) × 1944 (V) approx. 5.04 M pixels
◆ Readout mode
  All-pixel scan mode
  Window cropping mode
  Vertical / Horizontal direction-normal / inverted readout mode
◆ Readout rate
  Maximum frame rate in All-pixel scan mode  2592(H) × 1944(V)  A/D 10-bit : 60 frame/s
◆ High dynamic range (HDR) function
  Multiple exposure HDR
  Digital overlap HDR
◆ Variable-speed shutter function (resolution 1H units)
◆ 10-bit / 12-bit A/D converter
◆ CDS / PGA function
  0 dB to 30 dB : Analog Gain 30 dB (step pitch 0.3 dB)
  30.3 dB to 72 dB : Analog Gain 30 dB + Digital Gain 0.3 to 42 dB (step pitch 0.3 dB)
◆ Supports I/O
  CSI-2 serial data output ( 2 Lane / 4 Lane, RAW10 / RAW12 output)
◆ Recommended exit pupil distance: -100 mm to --∞

STARVIS

* 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
- Image size Type 1/2.8
- Total number of pixels 2704 (H) × 2104 (V) approx. 5.69 M pixels
- Number of effective pixels 2616 (H) × 1964 (V) approx. 5.14 M pixels
- Number of active pixels 2616 (H) × 1960 (V) approx. 5.13 M pixels
- Number of recommended recording pixels 2592 (H) × 1944 (V) approx. 5.04 M pixels
- Unit cell size 2.0 µm (H) × 2.0 µm (V)
- Optical black Horizontal (H) direction: Front 0 pixel, rear 0 pixel
  Vertical (V) direction: Front 13 pixels, rear 0 pixel
- Dummy Horizontal (H) direction: Front 0 pixel, rear 0 pixel
  Vertical (V) direction: Front 0 pixel, rear 0 pixel
- Package 88 pin BGA

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>1961 Digit</td>
</tr>
<tr>
<td></td>
<td></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.</td>
<td>3895 Digit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12 bit converted value</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>2592 (H) × 1944 (V) approx. 5.04 M pixels</td>
<td>60</td>
<td>CSI-2</td>
<td>10</td>
</tr>
</tbody>
</table>
[Product Information] IMX335LQN

Ver.1.1
Diagonal 6.52 mm (Type 1/2.8) CMOS Solid-state Image Sensor with Square Pixel for Color Cameras

Description

The IMX335LQN is a diagonal 6.52 mm (Type 1/2.8) CMOS active pixel type solid-state image sensor with a square pixel array and 5.14 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 are achieved through the adoption of R, G and B primary color mosaic filters. 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: 2592 (H) × 1944 (V) approx. 5.04 M pixels
◆ Readout mode
  All-pixel scan mode
  Horizontal/Vertical 2/2-line binning mode
  Window cropping mode
  Vertical / Horizontal direction-normal / inverted readout mode
◆ Readout rate
  Maximum frame rate in All-pixel scan mode  2592 (H) × 1944 (V)  A/D 10-bit : 60 frame/s
◆ High dynamic range (HDR) function
  Multiple exposure HDR
  Digital overlap HDR
◆ Variable-speed shutter function (resolution 1H units)
◆ 10-bit / 12-bit A/D converter
◆ CDS / PGA function
  0 dB to 30 dB : Analog Gain 30 dB (step pitch 0.3 dB)
  30.3 dB to 72 dB : Analog Gain 30 dB + Digital Gain 0.3 to 42 dB (step pitch 0.3 dB)
◆ Supports I/O
  CSI-2 serial data output ( 2 Lane / 4 Lane, RAW10 / RAW12 output)
◆ Recommended exit pupil distance: −30 mm to −∞

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Device Structure

- CMOS image sensor
- Image size: Type 1/2.8
- Total number of pixels: 2704 (H) × 2104 (V) approx. 5.69 M pixels
- Number of effective pixels: 2616 (H) × 1964 (V) approx. 5.14 M pixels
- Number of active pixels: 2616 (H) × 1960 (V) approx. 5.11 M pixels
- Number of recommended recording pixels: 2592 (H) × 1944 (V) approx. 5.04 M pixels
- Unit cell size: 2.0 µm (H) × 2.0 µm (V)
- Optical black: Horizontal (H) direction: Front 0 pixel, rear 0 pixel, Vertical (V) direction: Front 13 pixels, rear 0 pixel
- Dummy: Horizontal (H) direction: Front 0 pixel, rear 0 pixel, Vertical (V) direction: Front 0 pixel, rear 0 pixel
- Package: 88 pin CSP BGA

Image Sensor Characteristics

(Tj = 60 °C)

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<tr>
<th>Item</th>
<th>Value</th>
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</thead>
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<tr>
<td>Sensitivity (F5.6)</td>
<td>Typ. 2200 Digit</td>
<td>1/30 s accumulation 12 bit converted value</td>
</tr>
<tr>
<td>Saturation signal</td>
<td>Min. 3895 Digit</td>
<td>12 bit converted value</td>
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<tr>
<td>All pixel</td>
<td>2592 (H) × 1944 (V) approx. 5.04 M pixels</td>
<td>60</td>
<td>CSI-2</td>
<td>10</td>
</tr>
<tr>
<td>Horizontal/Vertical 2/2-line binning</td>
<td>1296 (H) × 972 (V) approx. 1.26 M pixels</td>
<td>60</td>
<td>CSI-2</td>
<td>10</td>
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</tbody>
</table>