[Product Information]

Ver.1.1

IMX305LQR

Diagonal 16.1 mm (Type 1) CMOS solid-state Image Sensor with Square Pixel for Color Cameras

Description

The IMX305LQR is a diagonal 16.1 mm (Type 1) CMOS active pixel type solid-state image sensor with a square pixel array and 8.95 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: global shutter video, 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: 4096 (H) × 2160 (V) approx. 8.85 M pixels
  
  Readout mode
  - All-pixel scan mode
  - Vertical / Horizontal 1 / 2 Subsampling mode
  - ROI mode
  - Vertical / Horizontal - Normal / Inverted readout mode

◆ Readout rate
  
  Maximum frame rate in
  - All-pixel scan mode: 12 bit 63.7 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
  
  Low voltage LVDS (150 mVp-p) serial (4 ch / 8 ch / 16 ch switching) DDR output (594 / 297 Mbps per ch)

◆ Recommended lens F number: 2.8 or more (Close side)

◆ Recommended exit pupil distance: −100 mm to −∞

Pregius

* 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 16.1 mm (Type 1) Approx. 8.95 M pixels All-pixel
◆ Total number of pixels: 4112 (H) × 2186 (V) Approx. 8.99 M pixels
◆ Number of effective pixels: 4112 (H) × 2176 (V) Approx. 8.95 M pixels
◆ Number of active pixels: 4112 (H) × 2176 (V) Approx. 8.95 M pixels
◆ Number of recommended recording pixels: 4096 (H) × 2160 (V) Approx. 8.85 M pixels All-pixel
◆ Unit cell size: 3.45 µm (H) × 3.45 µm (V)
◆ Optical black: Horizontal (H) direction: Front 0 pixel, rear 0 pixel
Vertical (V) direction: Front 10 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 (F5.6)</td>
<td>Typ.</td>
<td>1146 mV</td>
</tr>
<tr>
<td>Saturation signal</td>
<td>Min.</td>
<td>1001 mV</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>4096 (H) × 2160 (V) approx. 8.85 M pixels</td>
<td>63.7</td>
<td>Serial LVDS 16 ch</td>
<td>12</td>
</tr>
<tr>
<td>All pixel</td>
<td>2048 (H) × 1080 (V) approx. 2.21 M pixels</td>
<td>124.5</td>
<td>Serial LVDS 16 ch</td>
<td>12</td>
</tr>
<tr>
<td>All pixel (Vertical / Horizontal 1/2 subsampling)</td>
<td>4096 (H) × 2160 (V) approx. 8.85 M pixels</td>
<td>60</td>
<td>Serial LVDS 16 ch</td>
<td>12</td>
</tr>
<tr>
<td>4K2K Movie mode</td>
<td>4096 (H) × 2160 (V) approx. 8.85 M pixels</td>
<td>60</td>
<td>Serial LVDS 16 ch</td>
<td>12</td>
</tr>
</tbody>
</table>