**IMX900-AMR**

Diagonal 5.81 mm (Type 1/3.1) CMOS Solid-state Image Sensor with Square Pixel for Monochrome Cameras

**Description**

The IMX900-AMR is a diagonal 5.81mm (Type 1/3.1) CMOS active pixel type solid-state image sensor with a square pixel array and 3.20 M effective pixels. This chip features a global shutter with variable charge-integration time. This chip operates with 2.9 V, 1.8 V, 0.8 V power supply. High sensitivity and low dark current characteristics are achieved.

(Applications: FA cameras, Code reading cameras, Embedded vision systems)

**Features**

- CMOS active pixel type dots
- Built-in timing adjustment circuit, H/V driver and serial communication circuit
- Global shutter function
- Input frequency 24 MHz (only for CSI-2) / 37.125 MHz / 74.25 MHz / 54 MHz
- Number of recommended recording pixels: 2048 (H) × 1536 (V) approx. 3.14 M pixels
- Readout mode
  - All-pixel scan mode
  - Vertical / Horizontal 1/2 Subsampling mode
  - 2 x 2 average mode
  - Vertical 1/10 Subsampling mode
  - ROI mode
  - Vertical / Horizontal - Normal / Inverted readout mode
- Readout rate
  - Maximum frame rate in All-pixel scan mode: 8-bit 125.1 frame/s, 10-bit 117.0 frame/s, 12-bit 72.0 frame/s
- Variable-shutter speed (1 H unit step)
- Pulse Output Function
  - The monitor output for Exposure period (GPO0, GPO1, GPO2)
- 8-bit / 10-bit / 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) output
  - CSI-2 (1 Lane / 2 Lane / 4 Lane) output
- CRA characteristics
  - The target CRA is 8 degree at 100% image height

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Device Structure

◆ CMOS image sensor
◆ Image size Diagonal 5.81 mm (Type 1/3.1) Approx. 3.20 M pixels
◆ Total number of pixels 2064 (H) × 1592 (V) Approx. 3.28 M pixels
◆ Number of effective pixels 2064 (H) × 1552 (V) Approx. 3.20 M pixels
◆ Number of active pixels 2064 (H) × 1552 (V) Approx. 3.20 M pixels
◆ Number of recommended recording pixels 2048 (H) × 1536 (V) Approx. 3.14 M pixels
◆ Unit cell size 2.25 µm (H) × 2.25 µm (V)
◆ Optical black Horizontal (H) direction: Front 0 pixels, rear 0 pixel
  Vertical (V) direction: Front 40 pixels, rear 0 pixel
◆ Package 114 pin LGA 12.0 mm (H) × 9.3 mm (V)

Image Sensor Characteristics

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity</td>
<td>Typ. 3298 LSB/ lx/s</td>
<td></td>
</tr>
<tr>
<td>Saturation signal</td>
<td>Min. 1022 LSB</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 mode</td>
<td>2048 (H) × 1536 (V)</td>
<td>114.0, 125.1, 93.8, 117.0, 72.0, 72.0</td>
<td>SLVS 4 ch, CSI-2 4 Lane</td>
<td>8, 10, 12</td>
</tr>
<tr>
<td>1/2 subsampling mode 2 × 2 average mode</td>
<td>1024 (H) × 768 (V)</td>
<td>348.0, 396.5, 297.6, 376.3, 249.4, 249.4</td>
<td>SLVS 4 ch, CSI-2 4 Lane</td>
<td>8, 10, 12</td>
</tr>
<tr>
<td>Vertical 1/10 subsampling mode</td>
<td>2048 (H) × 154 (V)</td>
<td>620.4, 655.7, 544.1, 631.5, 452.4, 452.4</td>
<td>SLVS 4 ch, CSI-2 4 Lane</td>
<td>8, 10, 12</td>
</tr>
</tbody>
</table>

Note: Figures are subject to change without notice.

Image Sensors for Industrial Applications: https://www.sony.net/cis-industry