IMX271AQR
Diagonal 28.4 mm (Type 1.8) CMOS Image Sensor with Square Pixel for Color Cameras

Description
The IMX271AQR is a diagonal 28.4 mm (Type 1.8) CMOS active pixel type image sensor with a square pixel array and 24.32 M effective pixels. This sensor incorporates maximum 30 dB PGA circuit and 14-bit A/D converter. 14-bit digital output makes it possible to readout the signals of 24.32 M effective pixels at high-speed of 19.31 frame/s (SLVS) / 19.76 frame/s (SLVS-EC) in still picture mode.
In addition, this product is designed for use in consumer use digital still camera. When using this for another application, Sony Semiconductor Solutions Corporation does not guarantee the quality and reliability of product. Therefore, don’t use this for applications other than consumer use digital still camera.
In addition, individual specification change cannot be supported because this is a standard product. Consult your Sony Semiconductor Solutions Corporation sales representative if you have any questions.

Features
◆ APS size CMOS active pixel type pixels
◆ Input clock frequency 72 MHz
◆ All-pixel readout mode
  Various readout modes (*)
◆ Rolling shutter function
◆ H driver, V driver and serial communication circuit on chip
◆ +30 dB gain in CDS/PGA on chip
◆ Built-in 12-bit/14-bit A/D converter
◆ R, G, B primary color mosaic filter on chip

* Please refer to the datasheet for binning/subsampling details of readout modes.

Sony reserves the right to change products and specifications without prior notice.
Sony logo is a registered trademark of Sony Corporation.
Device Structure

- CMOS image sensor
- Image size
  - Diagonal 28.4 mm (Type 1.8)
- Total number of pixels
  - 6088 (H) × 4100 (V)  approx. 24.96 M pixels
- Number of effective pixels
  - 6032 (H) × 4032 (V)  approx. 24.32 M pixels
- Number of active pixels
  - 6024 (H) × 4024 (V)  approx. 24.24 M pixels
- Chip size
  - 27.30 mm (H) × 21.80 mm (V)
- Unit cell size
  - 3.91 μm (H) × 3.91 μm (V)
- Optical black
  - Horizontal (H) direction:  Front 48 pixels, Rear 0 pixel
  - Vertical (V) direction:  Front 22 pixels, Rear 0 pixel
- Package
  - 184 pin LGA

Image Sensor Characteristics

(\(T_j = 60 \, ^\circ\mathrm{C}\))

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity (F5.6)</td>
<td>Typ. 6762 LSB</td>
<td>1/30 s integration</td>
</tr>
<tr>
<td>Saturation signal</td>
<td>Min. 16382 LSB</td>
<td>left for 1 s</td>
</tr>
</tbody>
</table>

Basic Drive Mode

<table>
<thead>
<tr>
<th>Drive mode</th>
<th>Number of active pixels</th>
<th>Max frame rate [frame/s]</th>
<th>Word length [bit]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>SLVS</td>
<td>SLVS-EC</td>
</tr>
<tr>
<td>Readout mode 0</td>
<td>6024 (H) × 4024 (V) approx. 24.24 M pixels</td>
<td>19.31</td>
<td>19.76</td>
</tr>
<tr>
<td>Readout mode 1</td>
<td>6024 (H) × 4024 (V) approx. 24.24 M pixels</td>
<td>22.55</td>
<td>33.07</td>
</tr>
<tr>
<td>Readout mode 2</td>
<td>6024 (H) × 2012 (V) approx. 12.12 M pixels</td>
<td>44.51</td>
<td>65.31</td>
</tr>
<tr>
<td>Readout mode 3</td>
<td>2006 (H) × 1340 (V) approx. 2.69 M pixels</td>
<td>109.11</td>
<td>109.27</td>
</tr>
<tr>
<td>Readout mode 4</td>
<td>2006 (H) × 798 (V) approx. 1.60 M pixels</td>
<td>178.54</td>
<td>178.96</td>
</tr>
<tr>
<td>Readout mode 5</td>
<td>2006 (H) × 804 (V) approx. 1.61 M pixels</td>
<td>177.30</td>
<td>177.72</td>
</tr>
<tr>
<td>Readout mode 6</td>
<td>2006 (H) × 160 (V) approx. 0.32 M pixels</td>
<td>715.85</td>
<td>722.60</td>
</tr>
<tr>
<td>Readout mode 7</td>
<td>3012 (H) × 2012 (V) approx. 6.06 M pixels</td>
<td>36.86</td>
<td>36.86</td>
</tr>
<tr>
<td>Readout mode 8</td>
<td>2006 (H) × 1336 (V) approx. 2.68 M pixels</td>
<td>109.58</td>
<td>109.74</td>
</tr>
<tr>
<td>Readout mode 9</td>
<td>2006 (H) × 574 (V) approx. 1.15 M pixels</td>
<td>241.63</td>
<td>242.39</td>
</tr>
</tbody>
</table>