

## [Product Information]

Ver.1.0

# IMX437LQJ

Diagonal 11.0 mm (Type 2 / 3) CMOS solid-state Image Sensor with Square Pixel for Color Cameras

### Description

The IMX437LQJ is a diagonal 11.0 mm (Type 2 / 3) CMOS active pixel type solid-state image sensor with a square pixel array and 2.86 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: 1936 (H) × 1464 (V) approx. 2.83 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: 231.2 frame/s
- ◆ Variable-speed shutter function (resolution 1 H units)
- ◆ 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 (4 ch / 8 ch switching) output (594 / 297 Mbps per 1 ch)
  - SLVS - EC (1 Lane / 2 Lane / 4 Lane / 8 Lane switching) output (2.376 / 1.188 Gbps per 1 Lane)
- ◆ Recommended lens F number: 2.8 or more (Close side)
- ◆ Recommended exit pupil distance: -100 mm to  $-\infty$

### 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 11.0 mm (Type 2 / 3)  | Approx. 2.86 M pixels | All-pixel |
| ◆ Total number of pixels                 | 1944 (H) × 1496 (V)  | Approx. 2.90 M pixels |           |
| ◆ Number of effective pixels             | 1944 (H) × 1472 (V)  | Approx. 2.86 M pixels |           |
| ◆ Number of active pixels                | 1944 (H) × 1472 (V)  | Approx. 2.86 M pixels |           |
| ◆ Number of recommended recording pixels | 1936 (H) × 1464 (V)  | Approx. 2.83 M pixels | All-pixel |
| ◆ Unit cell size                         | 4.5 μm (H) × 4.5 μm (V)  |                       |           |
| ◆ Optical black                          | Horizontal (H) direction: Front 0 pixel, rear 0 pixel<br>Vertical (V) direction: Front 24 pixels, rear 0 pixel |                       |           |
| ◆ Package                                | 226 pin LGA  |                       |           |

**Image Sensor Characteristics (Preliminary)**

(Tj = 60 °C)

| Item               |      | Value   | Remarks             |
|--------------------|------|---------|---------------------|
| Sensitivity (F5.6) | Typ. | 1971 mV | 1/30 s accumulation |
| Saturation signal  | Min. | 1001 mV |                     |

**Basic Drive Mode**

| Drive mode                               | Recommended number of recording pixels       | Maximum frame rate [frame/s] | Output interface | ADC [bit] |
|--|--|------------------------------|------------------|-----------|
| All pixel                                | 1936 (H) × 1464 (V)<br>approx. 2.83 M pixels | 121.1                        | SLVS 8 ch        | 12        |
|  |  | 231.2                        | SLVS – EC 8 Lane |           |
| Vertical / Horizontal<br>1/2 subsampling | 968 (H) × 732 (V)<br>approx. 0.71 M pixels   | 421.5                        | SLVS 8 ch        | 12        |
|  |  | 446.2                        | SLVS – EC 8 Lane |           |