

# IMX462LQR/LQR1

Ver.1.0

Diagonal 6.46 mm (Type 1/2.8) CMOS Solid-state Image Sensor with Square Pixel for Color Cameras

## Description

The IMX462LQR/LQR1 is a diagonal 6.46 mm (Type 1/2.8) CMOS active pixel type solid-state image sensor with a square pixel array and 2.13 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: 74.25 MHz / 37.125 MHz
- ◆ Number of recommended recording pixels: 1920 (H) × 1080 (V) approx. 2.07 M pixels
- ◆ Readout mode
  - All-pixel scan mode
  - 720p-HD readout mode
  - Window cropping mode
  - Vertical / Horizontal direction-normal / inverted readout mode
- ◆ Readout rate
  - Maximum frame rate in Full HD 1080p mode: 120 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 29.4 dB: Analog Gain 29.4 dB (step pitch 0.3 dB)
  - 29.7 dB to 71.4 dB: Analog Gain 29.4 dB + Digital Gain 0.3 to 42 dB (step pitch 0.3 dB)
- ◆ Supports I/O switching
  - CMOS logic parallel SDR output
  - Low voltage LVDS (150 m Vp-p) serial ( 2 ch / 4 ch / 8 ch switching) DDR output
  - CSI-2 serial data output ( 2 Lane / 4 Lane, RAW10 / RAW12 output)
- ◆ Recommended exit pupil distance: -30 mm to  $-\infty$
- ◆ Anti-reflective coating glass on both sides (IMX462LQR1), Non anti-reflective coating glass (IMX462LQR)

## STARVIS

\* STARVIS and **STARVIS** are registered trademarks or trademarks of Sony Group Corporation or its affiliates. The STARVIS is back-illuminated pixel technology used in CMOS image sensors for security camera applications. It features a sensitivity of 2000 mV or more per 1  $\mu\text{m}^2$  (color product, when imaging with a 706 cd/m<sup>2</sup> light source, F5.6 in 1 s accumulation equivalent), and realizes high picture quality in the visible-light and near infrared light regions.

Sony reserves the right to change products and specifications without prior notice.

"Sony", "SONY" logo are registered trademarks or trademarks of Sony Group Corporation or its affiliates.

**Device Structure**

- ◆ CMOS image sensor
- ◆ Image size Type 1/2.8
- ◆ Total number of pixels 1945 (H) × 1109 (V) approx. 2.16 M pixels
- ◆ Number of effective pixels 1945 (H) × 1097 (V) approx. 2.13 M pixels
- ◆ Number of active pixels 1937 (H) × 1097 (V) approx. 2.12 M pixels
- ◆ Number of recommended recording pixels 1920 (H) × 1080 (V) approx. 2.07 M pixels
- ◆ Unit cell size 2.9 μm (H) × 2.9 μm (V)
- ◆ Optical black Horizontal (H) direction: Front 0 pixel, rear 0 pixel  
Vertical (V) direction: Front 10 pixels, rear 0 pixel
- ◆ Dummy Horizontal (H) direction: Front 0 pixel, rear 3 pixels  
Vertical (V) direction: Front 0 pixel, rear 0 pixel
- ◆ Package 110 pin LGA

**Image Sensor Characteristics**

(T<sub>j</sub> = 60 °C)

Item		Value	Remarks
Sensitivity (F5.6)	Typ.	10741 Digit (IMX462LQR) 11388 Digit (IMX462LQR1)	1/30s accumulation 12 bit converted value
Saturation signal	Min.	3855 Digit	12 bit converted value

**Basic Drive Mode**

Drive mode	Recommended number of recording pixels	Maximum frame rate [frame/s]	Output interface	ADC [bit]
Full HD 1080p	1920 (H) × 1080 (V) approx. 2.07 M pixels	120	LVDS CSI-2	10/12
HD 720p	1280 (H) × 720 (V) approx. 0.92 M pixels	120	LVDS CSI-2	10/12

