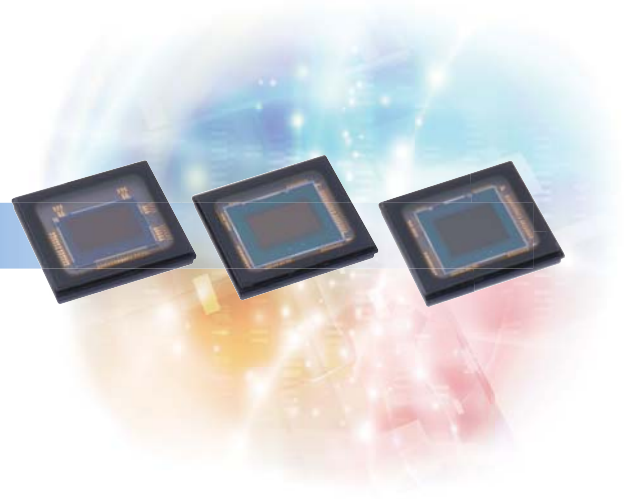
SONY

IMX222LQJ, IMX236LQJ, IMX238LQJ



CMOS Image Sensors for Industrial Applications Improves Near Infrared Sensitivity

HD/Full HD CMOS High Sensitivity Image Sensors for Industrial Applications

To improve sensitivity in the near infrared light region for industrial applications, Sony developed CMOS image sensors "IMX222LQJ", "IMX236LQJ", and "IMX238LQJ" for high picture quality at the low illumination, greatly exceeding the existing products. Newly developed process and pixel technologies pushed up the sensitivity in the near infrared light region, up to 2 times compared with the existing products "IMX122LQJ"*1, "IMX136LQJ"*2, and "IMX138LQJ".
For Day/Night cameras, which are also strongly demanded in recent years, better visibility improves surveillance performance, and fewer number of LED parts reduce the power consumption and cost.

*1: See the New Products section in CX-NEWS, Volume 65.
*2: See the New Products section in CX-NEWS, Volume 68.

IMX222LQJ

- Diagonal (Type 1/2.8) Approx. 2.43M effective pixels
- Frame rate: 40 frame/s
- Pixel size: 2.8 μm unit pixel

IMX236LQJ

- Diagonal (Type 1/2.8) Approx. 2.38M effective pixels
- Frame rate: 120 frame/s
- Pixel size: 2.8 μm unit pixel

IMX238LQJ

- Diagonal (Type 1/3) Approx. 1.37M effective pixels
- Frame rate: 60 frame/s
- Pixel size: 3.75 μm unit pixel

Exmor

* Exmor is a trademark of Sony Corporation. The Exmor is a version of Sony's high performance CMOS image sensor with high-speed processing, low noise and low power dissipation by using column-parallel A/D conversion.

Higher Sensitivity in the Near Infrared Light Region

High picture quality at the low illumination is strongly requested for industrial application cameras. Responding to this demand, Sony developed CMOS image sensors and improved sensitivity in the near infrared light region, not only in the visible light range. The CMOS image sensors used the technology from the EXview HAD CCD™, and the sensitivity in the near infrared light region improved up to 2 times compared to the current products. This enables to identify objects clearly enough even in the night-time shooting. (Photograph 1)

*: EXview HAD CCD is a trademark of Sony Corporation.

Achieves Both High Sensitivity and High Resolution

Utilizing the Sony's original technology, the IMX222LQJ, IMX236LQJ, and IMX238LQJ were developed and achieved significant improvements in the sensitivity characteristics in the near infrared light region, as well as the high resolution and low crosstalk of the existing products.

Compatibility with Existing Sony Products

The IMX222LQJ, IMX236LQJ, and IMX238LQJ have the same image size, number of pixels, package, and pin configuration of the current Sony products: the IMX122LQJ, IMX136LQJ, and IMX138LQJ. Customers using the current products are easily able to replace with the new products. Please do not miss the chance to try the performance of the IMX222LQJ, IMX236LQJ, and IMX238LQJ.

＜Photograph 1＞ Sample Images (No IRCF with Wavelength 850 nm LED Illumination)

IMX138LQJ (Existing Sony product)

IMX238LQJ

IMX122LQJ (Existing Sony product)

IMX222LQJ

＜Table 1＞ **Device Structure**

Item	IMX222LQJ	IMX236LQJ	IMX238LQJ
Image size	Diagonal 6.4 mm (Type 1/2.8)	Diagonal 6.4 mm (Type 1/2.8)	Diagonal 6.28 mm (Type 1/3)
Number of effective pixels	1984(H) × 1225(V) Approx. 2.43M pixels	1944(H) × 1224(V) Approx. 2.38M pixels	1305(H) × 1049(V) Approx. 1.37M pixels
Unit cell size	2.8 µm (H) × 2.8 µm (V)	2.8 µm (H) × 2.8 µm (V)	3.75 µm (H) × 3.75 µm (V)
Input drive frequency	54 MHz / 37.125 MHz	54 MHz/27 MHz/ 37.125 MHz/74.25 MHz	54 MHz/27 MHz/ 37.125 MHz/74.25 MHz
Package	94-pin LGA	94-pin LGA	94-pin LGA
Supply voltage V_{DD} (Typ.)	2.7 V / 1.8 V / 1.2 V	2.7 V / 1.8 V / 1.2 V	3.3 V / 1.8 V / 1.2 V
Sensitivity (F5.6) (Typ.)	510 mV	510 mV	1300 mV
Saturation signal (Min.)	812 mV	812 mV	1440 mV
Output method	CMOS parallel, low voltage LVDS serial	CMOS parallel, low voltage LVDS parallel/serial	CMOS parallel, low voltage LVDS parallel/serial
Communication Interface	I^2C, 4-wire serial	I^2C, 4-wire serial	I^2C, 4-wire serial
Drive mode (All-pixel scan)	1984(H) × 1225(V) Approx. 2.43M pixels 10 bit 40 frame/s, 12 bit 20 frame/s	1944(H) × 1224(V) Approx. 2.38M pixels 10 bit 108 frame/s, 12 bit 54 frame/s	1305(H) × 1049(V) Approx. 1.37M pixels 12 bit 60 frame/s
Drive mode (HD)	1984(H) × 1105(V) Approx. 2.19M pixels 10 bit/12 bit 30 frame/s	1944(H) × 1104(V) Approx. 2.14M pixels 10 bit 120 frame/s, 12 bit 60 frame/s	1305(H) × 733(V) Approx. 0.96M pixels 12 bit 60 frame/s