



## IMX183CLK-J/CQJ-J

Diagonal 15.86 mm (Type 1) Approx. 20.48M-Effective Pixel  
Monochrome/Color CMOS Image Sensor

### High-Speed and High-Picture-Quality Rolling Shutter-Type Back-Illuminated CMOS Image Sensors with Multi Pixel

In the industrial application field, needs are increasing for faster products with higher pixel counts and for rolling shutter functions. To meet these needs, Sony Semiconductor Solutions Corporation has developed both color (IMX183CQJ-J) and monochrome (IMX183CLK-J) products uses

a high sensitivity back-illuminated structure 2.4  $\mu\text{m}$  square unit pixel. The optical size is Type 1 to enable use of a C-mount lens. In addition, these products are equipped with a variety of functions such as 4K video mode, a global reset function and a vertical arbitrary cropping function.

- Supports 20.48M-pixel readout at 21.98 frame/s in 12-bit mode
- Supports a global reset function
- Supports 4K video mode (4096H  $\times$  2160V, 10-bit mode, 59.94 frame/s)
- Supports a variety of readout modes such as 10-bit high-speed all-pixel readout, 12-bit high-resolution readout, and vertical arbitrary cropping
- High-sensitivity back-illuminated structure 2.4  $\mu\text{m}$  square unit pixel with a proven record in products for security camera and industrial applications

#### Supports 20.48M-pixel readout at 21.98 frame/s in 12-bit mode

High-resolution 12-bit digital output of the signals for 20.48M pixels (aspect ratio 3:2) realizes high-speed readout at 21.98 frame/s. This image sensor enables even higher resolution

imaging of finer objects at high frame rates in excess of 20 frame/s, while still maintaining high picture quality.

#### Supports 4K video mode (4096H $\times$ 2160V, 10-bit mode, 59.94 frame/s)

10-bit digital output of the signals for approx. 9.03M-effective pixels (aspect ratio approx. 17:9) realizes high-speed output

at 59.94 frame/s and also enables video imaging.

#### Supports various readout modes

The IMX183CQJ-J/CLK-J series supports various readout modes including the above-noted high-resolution 12-bit all-pixel output, 10-bit all-pixel output that enables even faster readout, and high-speed 4K video output, as well as

vertical arbitrary cropping output mode (cropping size restrictions apply) and a high-speed readout mode that uses the binning function (Table 3).

#### High-sensitivity back-illuminated structure 2.4 $\mu\text{m}$ square unit pixel with a proven record in products for security camera and industrial applications

The IMX183CQJ-J/CLK-J series uses a high-sensitivity back-illuminated structure 2.4  $\mu\text{m}$  square unit pixel with a

proven record in the IMX178LLJ/LQJ\*1 (for security camera and industrial applications).

\*1: For details on the IMX178LQJ series, see the New Product information released in September 2013.

## <Photograph 1> Sample Images

Condition: 2000 lx F4.0 (ADC 12-bit mode , internal gain 0 dB)



IMX183CLK-J 18ms accumulation



IMX183CQJ-J 33ms accumulation

## <Table 1> Device Structure

Item		IMX183CLK-J/CQJ-J
Output image size		Diagonal 15.86 mm (Type 1) aspect ratio 3:2
Number of effective pixels		5544 (H) × 3694 (V) approx. 20.48M pixels
Unit cell size		2.4 μm (H) × 2.4 μm (V)
Optical blacks	Horizontal	Front: 48 pixels, rear: 0 pixels
	Vertical	Front: 16 pixels, rear: 0 pixels
Input drive frequency		72 MHz
Output Interface		Sub-LVDS (576 Mbps / ch, Max.10 ch) *1
Package		118-pin LGA
Supply voltage V <sub>DD</sub> (Typ.)		2.9 V / 1.8 V / 1.2 V

\*1 Sensor slave mode only.

## <Table 2> Image Sensor Characteristics

Item		Value	Remarks
Sensitivity (monochrome)	Typ. [F8]	388 mV	1/30s accumulation
G Sensitivity (color)	Typ. [F5.6]	461 mV	1/30s accumulation
Saturation signal	Min.	942 mV	T <sub>j</sub> = 60 °C

## <Table 3> Basic Drive Mode

Drive mode	Recommended number of recording pixels	Frame rate [frame/s]	ADC [bit]
All-pixel scan (12 bit) *1	5472 (H) × 3648 (V)	21.98	12
All-pixel scan (10 bit) *1	5472 (H) × 3648 (V)	24.98	10
Type 1/1.4 approx.9.03M-Pixel (approx. 17:9) (10 bit)	4096 (H) × 2160 (V)	59.94	10
Vertical Arbitrary Cropping (10 bit) *2	5472 (H) × 1802 (V) to 5472 (H) × 3648 (V)	24.98 over	10

\*1 These modes can be used together with the global reset function.

\*2 In vertical arbitrary cropping area from type 1 approx. 20.48M pixels (3:2) all-pixel scan area is readout with 10-bit output.

\*Sony Semiconductor Solutions Corporation reserves the right to change products and specifications without prior notice.

This product is designed for consumer use applications, so the quality and reliability of the product are also the consumer use application range. This quality and reliability range should be kept in mind when using this product for other than consumer use applications.

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