

[Product Information]

IMX183CLK

Ver.1.0

Diagonal 15.86 mm (Type 1) CMOS Image Sensor with Square Pixel for Monochrome Cameras

Description

The IMX183CLK is a diagonal 15.86 mm (Type 1) CMOS image sensor with a monochrome square pixel array and approximately 20.48 M effective pixels. 12-bit digital output makes it possible to output the signals of approximately 20.48 M effective pixels with high definition for shooting still picture. In addition, this sensor enables output effective approximately 9.03 M effective pixels (aspect ratio approx.17:9) signal performed horizontal and vertical cropping at 59.94 frame/s in 10-bit digital output format for high-definition moving picture. Furthermore, it realizes 12-bit digital output for shooting high-speed and high-definition moving pictures by horizontal and vertical addition and subsampling. Realizing high-sensitivity, low dark current, this sensor also has an electronic shutter function with variable storage time.

In addition, this product is designed for use in consumer use digital still camera and consumer use camcorder. 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 and consumer use camcorder.

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

- ◆ Input clock frequency 72 MHz
- ◆ All-pixel scan mode
 - Various readout modes (*)
- ◆ High-sensitivity, low dark current, no smear, excellent anti-blooming characteristics
- ◆ Variable-speed shutter function (minimum unit: 1 horizontal sync signal period (1XHS))
- ◆ Low power consumption
- ◆ H driver, V driver and serial communication circuit on chip
- ◆ CDS/PGA on chip. Gain +27 dB (step pitch 0.1 dB)
- ◆ 9-bit/10-bit/12-bit A/D conversion on chip
- ◆ All-pixel simultaneous reset supported (use with mechanical shutter)
- ◆ 118-pin high-precision ceramic package

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

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

- ◆ CMOS image sensor
- ◆ Image size Diagonal 15.86 mm (Type 1)
- ◆ Total number of pixels 5640 (H) × 3710 (V) approx. 20.92 M pixels
- ◆ Number of effective pixels
 - Type1 approx. 20.48 M pixels use 5544 (H) × 3694 (V) approx. 20.48 M pixels
 - Type 1/1.4 approx. 9.03 M pixels use 4152 (H) × 2174 (V) approx. 9.03 M pixels
- ◆ Number of active pixels
 - Type1 approx. 20.48 M pixels use 5496 (H) × 3672 (V) approx. 20.18 M pixels diagonal 15.86 mm
 - Type 1/1.4 approx. 9.03 M pixels use 4128 (H) × 2168 (V) approx. 8.95 M pixels diagonal 11.19 mm
- ◆ Number of recommended recording pixels
 - Type1 approx. 20.48 M pixels use 5472 (H) × 3648 (V) approx. 19.96 M pixels aspect ratio 3:2
 - Type 1/1.4 approx. 9.03 M pixels use 4096 (H) × 2160 (V) approx. 8.85 M pixels aspect ratio approx. 17:9
- ◆ Chip size 16.05 mm (H) × 12.61 mm (V)
- ◆ Unit cell size 2.40 μm (H) × 2.40 μm (V)
- ◆ Optical black
 - Horizontal (H) direction : Front 48 pixels, rear 0 pixel
 - Vertical (V) direction : Front 16 pixels, rear 0 pixel
- ◆ Package 118 pin LGA

Image Sensor Characteristics

(Tj = 60 °C)

| Item | | Value | Remarks |
|-------------------|------|------------|--------------------|
| Sensitivity (F8) | Typ. | 1576 digit | 1/30 s integration |
| Saturation signal | Min. | 3824 digit | |

Basic Drive Mode

Type 1 Approx. 20.48 M Pixels (3:2)

| Drive mode | Number of recording pixels | Max frame rate [frame/s] | Output data bit length [bit] |
|-----------------|--|--------------------------|------------------------------|
| Readout mode 0 | 5472 (H) × 3648 (V) approx. 19.96 M pixels | 21.98 | 12 |
| Readout mode 1 | 5472 (H) × 3648 (V) approx. 19.96 M pixels | 24.98 | 10 |
| Readout mode 2 | 2736 (H) × 1538 (V) approx. 4.21 M pixels | 59.94 | 12 |
| Readout mode 2A | 2736 (H) × 1824 (V) approx. 4.99 M pixels | 49.95 | 12 |
| Readout mode 3 | 1824 (H) × 1216 (V) approx. 2.22 M pixels | 59.94 | 12 |
| Readout mode 4 | 1824 (H) × 370 (V) approx. 0.67 M pixels | 239.76 | 12 |
| Readout mode 5 | 1824 (H) × 404 (V) approx. 0.74 M pixels | 29.97 | 12 |
| Readout mode 6 | 1824 (H) × 190 (V) approx. 0.35 M pixels | 449.55 | 12 |
| Readout mode 7 | 2736 (H) × 1538 (V) approx. 4.21 M pixels | 59.94 | 10 |

Type 1/1.4 Approx. 9.03 M Pixels (Approx. 17:9)

| Drive mode | Number of recording pixels | Max frame rate [frame/s] | Output data bit length [bit] |
|----------------|---|--------------------------|------------------------------|
| Readout mode 1 | 4096 (H) × 2160 (V) approx. 8.85 M pixels | 59.94 | 10 |

[Product Information]

Ver.1.0

IMX183CQJ

Diagonal 15.86 mm (Type 1) CMOS Image Sensor with Square Pixel for Color Cameras

Description

The IMX183CQJ is a diagonal 15.86 mm (Type 1) CMOS image sensor with a color square pixel array and approximately 20.48 M effective pixels. 12-bit digital output makes it possible to output the signals of approximately 20.48 M effective pixels with high definition for shooting still picture. In addition, this sensor enables output effective approximately 9.03 M effective pixels (aspect ratio approx.17:9) signal performed horizontal and vertical cropping at 59.94 frame/s in 10-bit digital output format for high-definition moving picture. Furthermore, it realizes 12-bit digital output for shooting high-speed and high-definition moving pictures by horizontal and vertical addition and subsampling. Realizing high-sensitivity, low dark current, this sensor also has an electronic shutter function with variable storage time.

In addition, this product is designed for use in consumer use digital still camera and consumer use camcorder. 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 and consumer use camcorder.

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

- ◆ Input clock frequency 72 MHz
- ◆ All-pixel scan mode
 - Various readout modes (*)
- ◆ High-sensitivity, low dark current, no smear, excellent anti-blooming characteristics
- ◆ Variable-speed shutter function (minimum unit: 1 horizontal sync signal period (1XHS))
- ◆ Low power consumption
- ◆ H driver, V driver and serial communication circuit on chip
- ◆ CDS/PGA on chip. Gain +27 dB (step pitch 0.1 dB)
- ◆ 9-bit/10-bit/12-bit A/D conversion on chip
- ◆ R, G, B primary color mosaic filters on chip
- ◆ All-pixel simultaneous reset supported (use with mechanical shutter)
- ◆ 118-pin high-precision ceramic package

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

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Device Structure

- ◆ CMOS image sensor
- ◆ Image size Diagonal 15.86 mm (Type 1)
- ◆ Total number of pixels 5640 (H) × 3710 (V) approx. 20.92 M pixels
- ◆ Number of effective pixels
 - Type1 approx. 20.48 M pixels use 5544 (H) × 3694 (V) approx. 20.48 M pixels
 - Type 1/1.4 approx. 9.03 M pixels use 4152 (H) × 2174 (V) approx. 9.03 M pixels
- ◆ Number of active pixels
 - Type1 approx. 20.48 M pixels use 5496 (H) × 3672 (V) approx. 20.18 M pixels diagonal 15.86 mm
 - Type 1/1.4 approx. 9.03 M pixels use 4128 (H) × 2168 (V) approx. 8.95 M pixels diagonal 11.19 mm
- ◆ Number of recommended recording pixels
 - Type1 approx. 20.48 M pixels use 5472 (H) × 3648 (V) approx. 19.96 M pixels aspect ratio 3:2
 - Type 1/1.4 approx. 9.03 M pixels use 4096 (H) × 2160 (V) approx. 8.85 M pixels aspect ratio approx. 17:9
- ◆ Chip size 16.05 mm (H) × 12.61 mm (V)
- ◆ Unit cell size 2.40 μm (H) × 2.40 μm (V)
- ◆ Optical black
 - Horizontal (H) direction : Front 48 pixels, rear 0 pixel
 - Vertical (V) direction : Front 16 pixels, rear 0 pixel
- ◆ Package 118 pin LGA

Image Sensor Characteristics

(Tj = 60 °C)

| Item | Value | Remarks |
|--------------------|-----------------|--------------------|
| Sensitivity (F5.6) | Typ. 1874 digit | 1/30 s integration |
| Saturation signal | Min. 3824 digit | |

Basic Drive Mode

Type 1 Approx. 20.48 M Pixels (3:2)

| Drive mode | Number of recording pixels | Max frame rate [frame/s] | Output data bit length [bit] |
|-----------------|--|--------------------------|------------------------------|
| Readout mode 0 | 5472 (H) × 3648 (V) approx. 19.96 M pixels | 21.98 | 12 |
| Readout mode 1 | 5472 (H) × 3648 (V) approx. 19.96 M pixels | 24.98 | 10 |
| Readout mode 2 | 2736 (H) × 1538 (V) approx. 4.21 M pixels | 59.94 | 12 |
| Readout mode 2A | 2736 (H) × 1824 (V) approx. 4.99 M pixels | 49.95 | 12 |
| Readout mode 3 | 1824 (H) × 1216 (V) approx. 2.22 M pixels | 59.94 | 12 |
| Readout mode 4 | 1824 (H) × 370 (V) approx. 0.67 M pixels | 239.76 | 12 |
| Readout mode 5 | 1824 (H) × 404 (V) approx. 0.74 M pixels | 29.97 | 12 |
| Readout mode 6 | 1824 (H) × 190 (V) approx. 0.35 M pixels | 449.55 | 12 |
| Readout mode 7 | 2736 (H) × 1538 (V) approx. 4.21 M pixels | 59.94 | 10 |

Type 1/1.4 Approx. 9.03 M Pixels (Approx. 17:9)

| Drive mode | Number of recording pixels | Max frame rate [frame/s] | Output data bit length [bit] |
|----------------|---|--------------------------|------------------------------|
| Readout mode 1 | 4096 (H) × 2160 (V) approx. 8.85 M pixels | 59.94 | 10 |

[Product Information]

Ver.1.0

IMX183CQK

Diagonal 15.86 mm (Type 1) CMOS Image Sensor with Square Pixel for Color Cameras

Description

The IMX183CQK is a diagonal 15.86 mm (Type 1) CMOS image sensor with a color square pixel array and approximately 20.48 M effective pixels. 12-bit digital output makes it possible to output the signals of approximately 20.48 M effective pixels with high definition for shooting still picture. In addition, this sensor enables output effective approximately 9.03 M effective pixels (aspect ratio approx.17:9) signal performed horizontal and vertical cropping at 59.94 frame/s in 10-bit digital output format for high-definition moving picture. Furthermore, it realizes 12-bit digital output for shooting high-speed and high-definition moving pictures by horizontal and vertical addition and subsampling. Realizing high-sensitivity, low dark current, this sensor also has an electronic shutter function with variable storage time.

In addition, this product is designed for use in consumer use digital still camera and consumer use camcorder. 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 and consumer use camcorder.

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

- ◆ Input clock frequency 72 MHz
- ◆ All-pixel scan mode
 - Various readout modes (*)
- ◆ High-sensitivity, low dark current, no smear, excellent anti-blooming characteristics
- ◆ Vertical and horizontal arbitrary cropping function
- ◆ Variable-speed shutter function (minimum unit: 1 horizontal sync signal period (1XHS))
- ◆ Low power consumption
- ◆ H driver, V driver and serial communication circuit on chip
- ◆ CDS/PGA on chip. Gain +27 dB (step pitch 0.1 dB)
- ◆ 9-bit/10-bit/12-bit A/D conversion on chip
- ◆ R, G, B primary color mosaic filters on chip
- ◆ All-pixel simultaneous reset supported (use with mechanical shutter)
- ◆ 118-pin high-precision ceramic package

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

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Device Structure

- ◆ CMOS image sensor
- ◆ Image size Diagonal 15.86 mm (Type 1)
- ◆ Total number of pixels 5640 (H) × 3710 (V) approx. 20.92 M pixels
- ◆ Number of effective pixels
 - Type1 approx. 20.48 M pixels use 5544 (H) × 3694 (V) approx. 20.48 M pixels
 - Type 1/1.4 approx. 9.03 M pixels use 4152 (H) × 2174 (V) approx. 9.03 M pixels
- ◆ Number of active pixels
 - Type1 approx. 20.48 M pixels use 5496 (H) × 3672 (V) approx. 20.18 M pixels diagonal 15.86 mm
 - Type 1/1.4 approx. 9.03 M pixels use 4128 (H) × 2168 (V) approx. 8.95 M pixels diagonal 11.19 mm
- ◆ Number of recommended recording pixels
 - Type1 approx. 20.48 M pixels use 5472 (H) × 3648 (V) approx. 19.96 M pixels aspect ratio 3:2
 - Type 1/1.4 approx. 9.03 M pixels use 4096 (H) × 2160 (V) approx. 8.85 M pixels aspect ratio approx. 17:9
- ◆ Chip size 16.05 mm (H) × 12.61 mm (V)
- ◆ Unit cell size 2.40 μm (H) × 2.40 μm (V)
- ◆ Optical black
 - Horizontal (H) direction : Front 48 pixels, rear 0 pixel
 - Vertical (V) direction : Front 16 pixels, rear 0 pixel
- ◆ Package 118 pin LGA

Image Sensor Characteristics

(Tj = 60 °C)

| Item | | Value | Remarks |
|--------------------|------|------------|--------------------|
| Sensitivity (F5.6) | Typ. | 1874 digit | 1/30 s integration |
| Saturation signal | Min. | 3824 digit | |

Basic Drive Mode

Type 1 Approx. 20.48 M Pixels (3:2)

| Drive mode | Number of recording pixels | Max frame rate [frame/s] | Output data bit length [bit] |
|-----------------|--|--------------------------|------------------------------|
| Readout mode 0 | 5472 (H) × 3648 (V) approx. 19.96 M pixels | 21.98 | 12 |
| Readout mode 1 | 5472 (H) × 3648 (V) approx. 19.96 M pixels | 24.98 | 10 |
| Readout mode 2 | 2736 (H) × 1538 (V) approx. 4.21 M pixels | 59.94 | 12 |
| Readout mode 2A | 2736 (H) × 1824 (V) approx. 4.99 M pixels | 49.95 | 12 |
| Readout mode 3 | 1824 (H) × 1216 (V) approx. 2.22 M pixels | 59.94 | 12 |
| Readout mode 4 | 1824 (H) × 370 (V) approx. 0.67 M pixels | 239.76 | 12 |
| Readout mode 5 | 1824 (H) × 404 (V) approx. 0.74 M pixels | 29.97 | 12 |
| Readout mode 6 | 1824 (H) × 190 (V) approx. 0.35 M pixels | 449.55 | 12 |
| Readout mode 7 | 2736 (H) × 1538 (V) approx. 4.21 M pixels | 59.94 | 10 |

Type 1/1.4 Approx. 9.03 M Pixels (Approx. 17:9)

| Drive mode | Number of recording pixels | Max frame rate [frame/s] | Output data bit length [bit] |
|----------------|---|--------------------------|------------------------------|
| Readout mode 1 | 4096 (H) × 2160 (V) approx. 8.85 M pixels | 59.94 | 10 |