

[Product Brief]

Ver.1.0

IMX318

Diagonal 6.858 mm (Type 1/2.6) 22.5Mega-Pixel CMOS Image Sensor with Square Pixel

Description

IMX318 is a diagonal 6.858 mm (Type 1/2.6) 22.5 Mega-pixel CMOS active pixel type stacked image sensor with a square pixel array. It adopts Exmor RS™ technology to achieve high speed image capturing by column parallel A/D converter circuits and high sensitivity and low noise image (comparing with conventional CMOS image sensor) through the backside illuminated imaging pixel structure. R, G, and B pigment primary color mosaic filter is employed. By introducing spatially multiplexed exposure technology, high dynamic range still pictures and movies are achievable. It equips an electronic shutter with variable integration time. It operates with three power supply voltages: analog 2.8 V, digital 1.05 V and 1.8 V for input/output interface and achieves low power consumption. In addition, this product is designed for use in cellular phone and tablet pc. 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 cellular phone and tablet pc. Consult your Sony Semiconductor Solutions Corporation sales representative if you have any questions.

Functions and Features

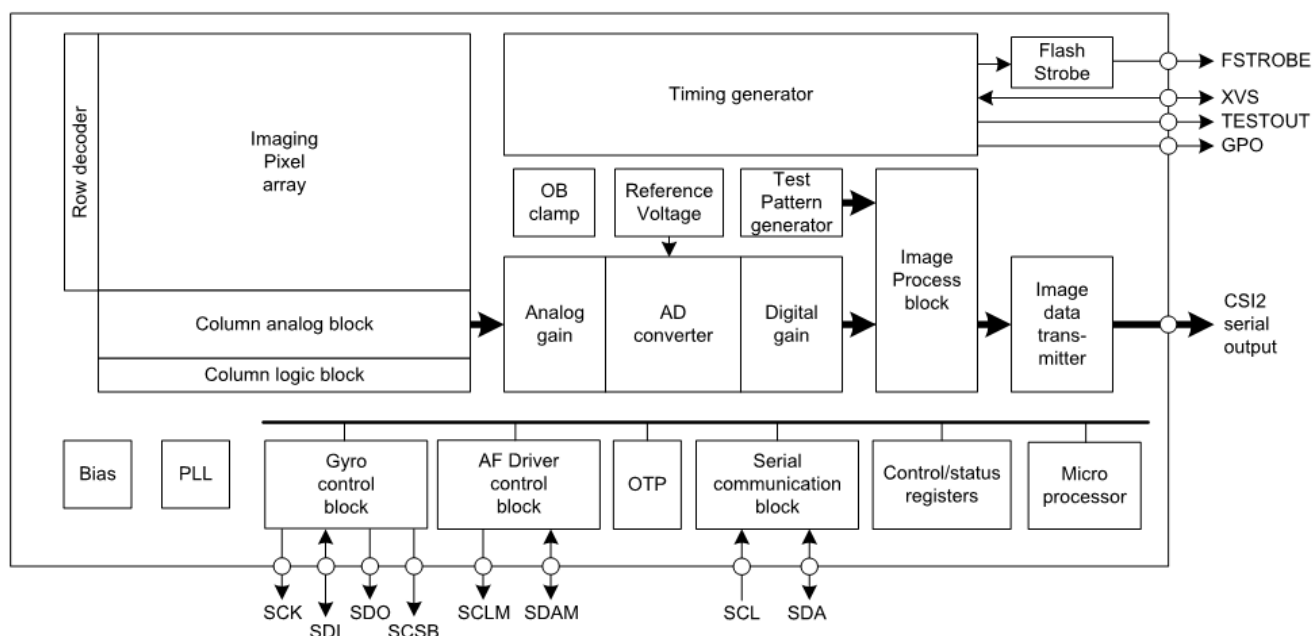
- ◆ Back-illuminated and stacked CMOS image sensor Exmor RS
- ◆ Full resolution @30 frame/s (Normal / HDR in Enhanced Speed Capture Mode),
- ◆ 4K2K @60 frame/s (Normal / HDR in Enhanced Speed Capture Mode),
- ◆ 1080p @120 frame/s (Normal in High Frame Rate Mode), 1080p @60 frame/s (Normal / HDR),
- ◆ 720p @240 frame/s (Normal in High Frame Rate Mode), 720p @60 frame/s (Normal / HDR)
- ◆ Spatially Multiplexed Exposure High Dynamic Range (SME-HDR) with equivalent full pixels
- ◆ Phase Detection Auto Focus (PDAF)
- ◆ Hybrid Auto Focus (Hybrid AF)
- ◆ Electronic Image Stabilization (EIS)
- ◆ Diffraction Limit Compensation (DLC)
- ◆ High signal to noise ratio (SNR)
- ◆ Low Noise Capture Mode
- ◆ CSI-2 serial data output
- ◆ MIPI D-PHY: 2lane/4lane, Max. 2.2 Gbps/lane, D-PHY spec. ver. 1.2 compliant
- ◆ MIPI C-PHY: 1/2/3Trio, Max.1.9Gsp/s/Trio, C-PHY spec. ver. 1.0 compliant
- ◆ Output video format of RAW14/12/10/8, COMP8
- ◆ 2-wire serial communication (Supports I2C "Fast-mode" and "Fast-mode Plus")
- ◆ Advanced Noise Reduction (Chroma noise reduction and RAW noise reduction)
- ◆ Pixel binning readout function
- ◆ Independent flipping and mirroring
- ◆ Dynamic Defect Pixel Correction (DPC)
- ◆ Dual sensor synchronization operation
- ◆ Built-in temperature sensor
- ◆ 15.5 K bit of OTP ROM for users

Device Structure

- ◆ CMOS image sensor
- ◆ Image size : Diagonal 6.858 mm (Type 1/2.6)
- ◆ Total number of pixels : 5512 (H) × 4256 (V) approx. 23.45 M pixels
- ◆ Number of effective pixels : 5512 (H) × 4144 (V) approx. 22.84 M pixels
- ◆ Number of active pixels : 5488 (H) × 4112 (V) approx. 22.56 M pixels
- ◆ Chip size : 6.811 mm (H) × 5.254 mm (V)
- ◆ Unit cell size : 1.0 μm (H) × 1.0 μm (V)
- ◆ Substrate material : Silicon

Functional Description

Block diagram



* Exmor RS is a trademark of Sony Corporation. The Exmor RS is a Sony's CMOS image sensor with high-resolution, high-performance and compact size by replacing a supporting substrate in Exmor R™ which changed fundamental structure of Exmor™ pixel adopted column parallel A/D converter to back-illuminated type, with layered chips formed signal processing circuits.