

[Product Brief]

Ver.1.0

IMX351

Diagonal 5.822 mm (Type 1/3.09) 16Mega-Pixel CMOS Image Sensor with Square Pixel for Color Cameras

General description and application

IMX351 is a diagonal 5.822 mm (Type 1/3.09) 16 Mega-pixel CMOS active pixel type stacked image sensor with a square pixel array. It adopts Exmor RSM 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 four power supply: analog 2.8 V, 1.8V, digital 1.05 V and 1.8 V for input/output interface and achieves low power consumption. It is optionally operational with conventional three power supplies by using an analog power supply voltage of 2.8V. 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

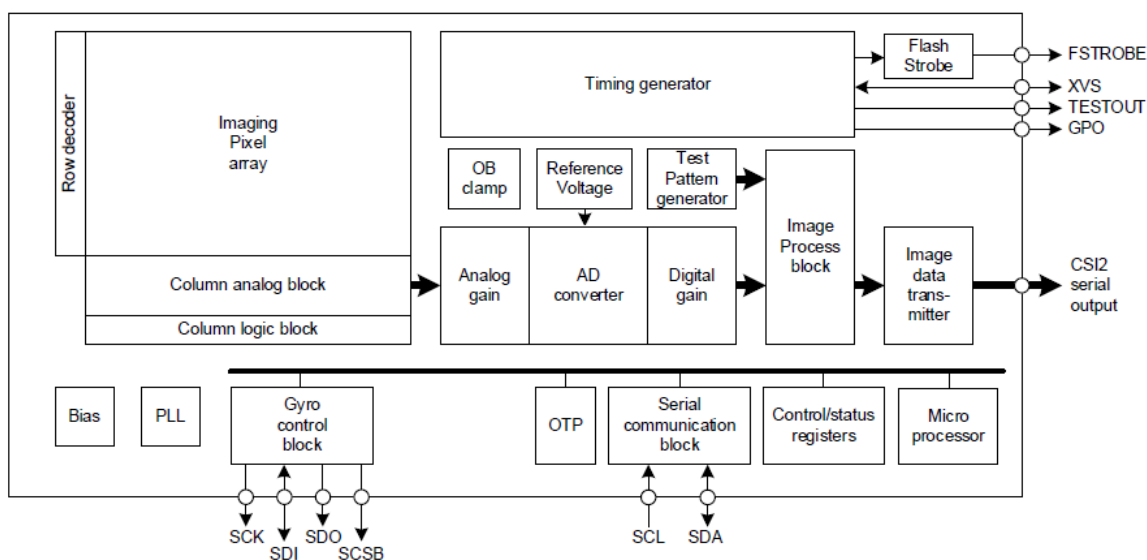
- ◆ Back-illuminated and stacked CMOS image sensor Exmor RS
- ◆ High Frame Rate 30fps@Full resolution / 60fps@4K2K / 240fps@1080p / 240fps@720p
- ◆ Spatially Multiplexed Exposure High Dynamic Range (SME-HDR) with equivalent full pixels (Raw data output)
- ◆ Phase Detection Auto Focus (PDAF)
- ◆ Electronic Image Stabilization (EIS)
- ◆ High signal to noise ratio(SNR)
- ◆ Dual sensor synchronization operation
- ◆ Built-in 2D Dynamic Defect Pixel Correction
- ◆ Lens Shading Correction (LSC)
- ◆ Built-in temperature sensor
- ◆ Output video format of RAW10/8, COMP8
- ◆ Pixel binning readout function
- ◆ Two PLLs for independent clock generation for pixel control and data output interface
- ◆ CSI-2 serial data output (MIPI 2lane/4lane, Max. 2.3Gbps/lane, D-PHY spec. ver. 1.2 compliant)
- ◆ 2-wire serial communication
- ◆ Advanced Noise Reduction (RAW noise reduction)
- ◆ 10K bit of OTP ROM for users

Device Structure

- ◆ CMOS image sensor
- ◆ Image size : Diagonal 5.822 mm (Type 1/3.09)
- ◆ Total number of pixels : 4688 (H) × 3648 (V) approx. 17.10 M pixels
- ◆ Number of effective pixels : 4688 (H) × 3512 (V) approx. 16.46 M pixels
- ◆ Number of active pixels : 4656 (H) × 3496 (V) approx. 16.28 M pixels
- ◆ Chip size : 5.893 mm (H) × 4.381 mm (V)
- ◆ Unit cell size : 1.00 μm (H) × 1.00 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.