



OV01A

1-megapixel product brief



New 720p Image Sensor Family Combines Compact Form Factor with High Performance for Ultra-Thin Mobile Devices

The OV01A family of image sensors is built on OMNIVISION's most advanced 1.12-micron PureCel®Plus stacked-die architecture to deliver best-in-class performance while maintaining an extremely small footprint. By enabling a camera module size of just 2.5 mm in the "y" dimension and less than 2 mm in the "z" dimension, the OV01A image sensor family is ideal for space-constrained applications such as notebooks and mobile devices with thin bezels.

To suit the performance requirements of different mobile applications, the OV01A is available in three versions: the OV01A10 Bayer color sensor, the OV01A1B monochrome infrared (IR) sensor and the OV01A1S RGB-IR sensor.

Key highlights of each sensor:

- OV01A10: Delivers excellent Bayer color imaging throughout the visible light spectrum
- OV01A1B: Optimizes near-infrared (NIR) quantum efficiency for biometric imaging
- OV01A1S: Combines RGB and IR imaging capabilities in a single sensor

The sensors can output 720p high definition (HD) video at 60 frames per second (fps), 1280 x 800 resolution video at 60 fps, or VGA video at 90 fps.

Find out more at www.ovt.com.



OV01A

Ordering Information

- **OV01A10-GA5A**
(color, chip probing, 150 μm backgrinding, reconstructed wafer)
- **OV01A1B-GA5A**
(B&W, chip probing, 150 μm backgrinding, reconstructed wafer)
- **OV01A1S-GA5A**
(RGB-Ir, chip probing, 150 μm backgrinding, reconstructed wafer)

Applications

- notebooks / PCs
- tablets, detachables, and 2-in-1s
- wearables
- smartphones and feature phones

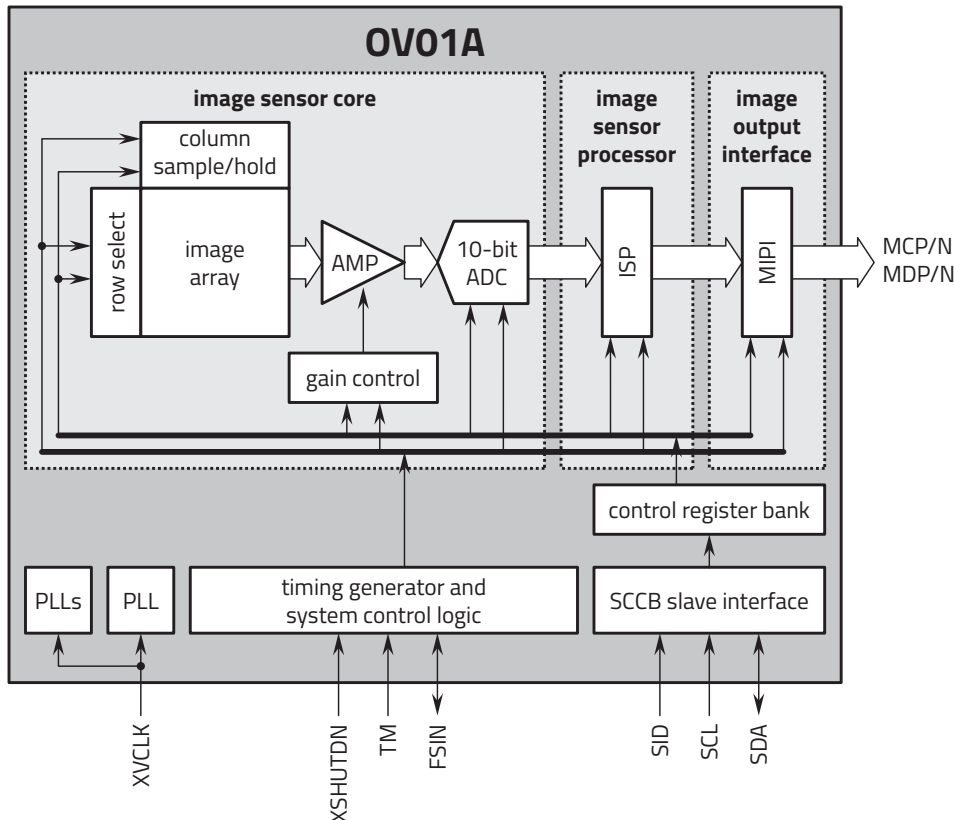
Technical Specifications

- **active array size:** 1280 x 800
- **maximum image transfer rate:**
 - 1MP (1280 x 800): 60 fps
 - VGA (640 x 480): 90 fps
 - 2x2 binning RGB (640 x 400): 90 fps
 - 2x2 binning b&w (640 x 400): 90 fps
- **power supply:**
 - analog: 2.7 ~ 3.0V (2.8V nominal)
 - core: 1.14 ~ 1.26V (1.2V nominal)
 - I/O: 1.7 ~ 1.9V (1.8V nominal)
- **power requirements:**
 - active: 82.2 mW
 - standby: 0.5 mA
 - XSHUTDOWN: 2 μA
- **output interface:**
1-lane MIPI serial output/LVDS
- **temperature range:**
 - operating: -30°C to $+85^{\circ}\text{C}$ junction temperature
 - stable: 0°C to $+60^{\circ}\text{C}$ junction temperature
- **output formats:**
 - OV01A10: 8/10-bit RGB RAW
 - OV01A1B: 8/10-bit RAW
 - OV01A1S: 8/10-bit RGB-Ir (4x4 pattern)
- **lens size:** 1/11"
- **lens chief ray angle:** 32° non-linear
- **pixel size:** 1.116 μm x 1.116 μm
- **image area:** 1446.34 μm x 910.66 μm

Product Features

- 1.116 μm x 1.116 μm pixel
- optical size of 1/11"
- 32° CRA
- 1MP at 60 fps
- programmable controls for:
 - frame rate
 - mirror and flip
 - cropping
 - windowing
- supports images sizes:
 - 1MP (1280 x 800)
 - 720p (1280 x 720)
 - VGA (640 x 480), and more
- support for output formats:
10-bit RGB RAW
- 32 bytes of embedded one-time programmable (OTP) memory for customer use
- two-wire serial bus control (SCCB)
- MIPI serial output interface (1-lane)/LVDS
- two on-chip phase lock loops (PLLs)
- 2x binning support
- image quality controls:
 - defect pixel correction
 - automatic black level calibration
- suitable for module size of 4 x 3.5 x 2 mm

Functional Block Diagram



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