



OV5693



5-megapixel product brief

High-Performance 5-Megapixel Image Sensor for Front-Facing Cameras in Flagship Smartphones and Tablets

The OV5693 is OMNIVISION's highest performance 1/4-inch, 5-megapixel image sensor, delivering DSC-quality imaging and low-light performance as well as full 1080p high-definition video recording at 30 frames per second (fps). Using OMNIVISION's proprietary 1.4-micron OmniBSI™-2 pixel architecture, the OV5693 provides best-in-class low-light performance and image quality in a slim camera module. This makes the OV5693 an ideal camera solution for slim flagship smartphones and tablets, providing exceptional 5-megapixel "selfie" images and high-quality 1080p video.

Leveraging OMNIVISION's second-generation industry-leading backside illumination pixel technology, the OV5693 offers full resolution 5-megapixel images at 30 fps, an integrated scaler, and 2x2 binning functionality with

re-sampling filter. The scaler enables electronic image stabilization, while maintaining full field-of-view in both 720p and 1080p HD video modes. The 2x2 binning functionality, which features a post-binning re-sampling filter, further increases the sensor's sensitivity, while minimizing spatial artifacts and removing image artifacts around edges to produce crisp, clean color images.

The sensor features a high-speed 2-lane MIPI interface running up to 900 Mbps per lane and fits into an industry standard module size of 8.5 x 8.5 mm with a z-height of 4.2 mm for an autofocus module.

Find out more at www.ovt.com.



- **OV05693-G06H-3A** (color, chip probing, 180 μm backgrinding, reconstructed 8" wafer with good die)
- **OV05693-G36H-3A** (color, chip probing, 180 μm backgrinding, reconstructed 12" wafer with good die)

Applications

- cellular and mobile phones
- digital still cameras (DSC)
- digital video camcorders (DVC)
- PC multimedia
- 3D cameras

Technical Specifications

- **active array size:** 2592 x 1944
- **maximum image transfer rate:**
 - 5MP: 30 fps
 - EIS1080p: 30 fps
 - 1080p: 30 fps
- **power supply:**
 - core: 1.16 ~ 1.3V (1.2V typical)
 - analog: 2.6 ~ 3.0V
 - I/O: 1.7 ~ 3.0V
- **power requirements:**
 - active: 239 mW
 - XSHUTDN: 1 μW
- **output formats:** 10-bit RGB RAW
- **temperature range:**
 - operating: -30°C to +85°C junction temperature
 - stable image: 0°C to +60°C junction temperature
- **lens size:** 1/4"
- **lens chief ray angle:** 29.7° non-linear
- **scan mode:** progressive
- **pixel size:** 1.4 μm x 1.4 μm
- **image area:** 3673.6 μm x 2738.4 μm

Product Features

- automatic black level calibration (ABLC)
- programmable controls for:
 - frame rate
 - mirror and flip
 - cropping
 - windowing
 - scaling
- image quality controls:
 - lens correction
 - defective pixel canceling
- supports output formats: 10-bit RAW RGB (MIPI)
- supports horizontal and vertical subsampling
- supports images sizes:
 - 5MP
 - EIS1080p
 - 1080p
 - 720p
 - VGA
 - QVGA
- fast mode switching
- supports 3D applications
- support 2x2 binning, full scalar
- standard serial SCCB interface
- up to 2-lane MIPI serial output interface
- embedded 512 bytes one-time programmable (OTP) memory for part identification, etc.
- two on-chip phase lock loop (PLL)
- programmable I/O drive capability
- built-in 1.2V regulator for core
- built-in temperature sensor
- supports alternate row HDR timing

Functional Block Diagram

