

OV5690 5-megapixel product brief



High-Performance 5-megapixel Image Sensor for Slimmer Mobile Devices



available in
a lead-free
package

The OV5690 is OmniVision's most advanced 1/4-inch, 5-megapixel image sensor to date, combining DSC-quality imaging with full 1080p high-definition (HD) video recording. Using OmniVision's proprietary 1.4-micron OmniBSI-2™ pixel architecture, the OV5690 offers best-in-class low-light performance and image quality while also enabling 20 percent thinner camera modules compared to other 1/3.2-inch sensors. This makes the OV5690 an effective solution for ultra-slim camera designs for next-generation mobile handsets, smart phones and tablets.

Utilizing OmniVision's extremely efficient second-generation backside illumination technology, the OV5690 offers advanced features including 30 frames

per second full resolution frame rate, an integrated scaler, and 2 x 2 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 2 x 2 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 standard 2-lane (1 Gbps/lane) MIPI interface and fits into the industry standard 8.5 x 8.5 mm module size with a z-height as low as 4.5 mm.

Find out more at www.ovt.com.

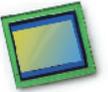
Applications

- Cellular and Mobile Phones
- Digital Video Camcorders (DVC)
- Digital Still Cameras (DSC)
- PC Multimedia

Product Features

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

OV5690



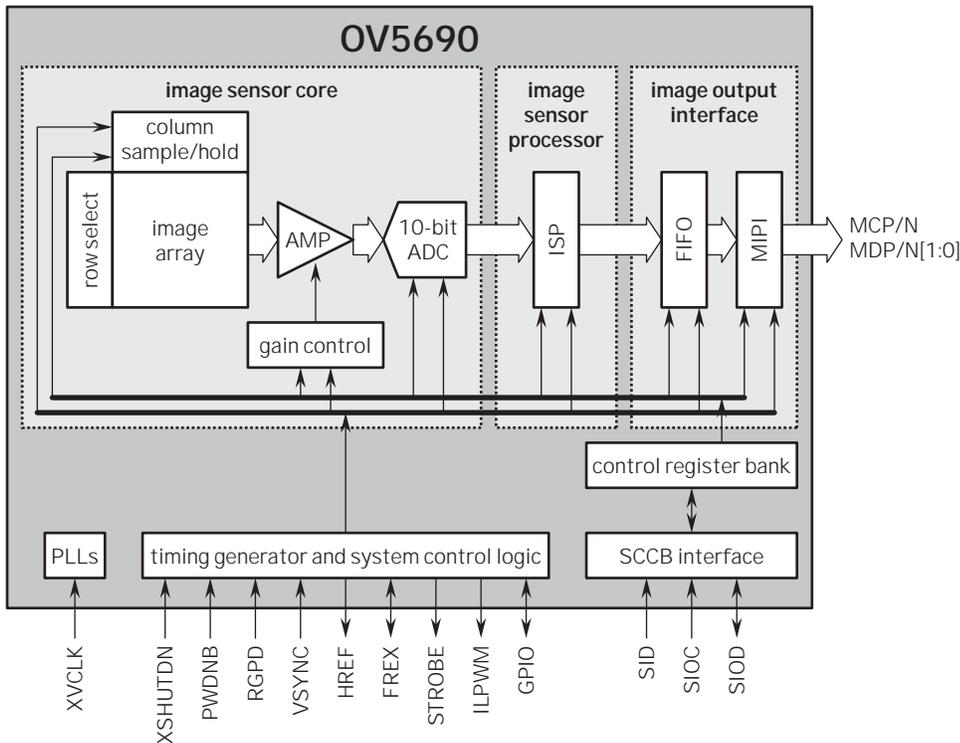
Ordering Information

- OV05690-G04A (color, chip probing, 200 μm backgrinding, reconstructed wafer with good die)

Product Specifications

- active array size: 2592 x 1944
- input clock frequency: 6 - 27 MHz
- power supply:
 - core: 1.2V \pm 5%
 - analog: 2.6 - 3.0V
 - I/O: 1.7 - 3.0V
- max S/N ratio: 36 dB
- dynamic range: 71.6 dB @ 8x gain
- maximum image transfer rate:
 - 5 Mpixel: 30 fps
 - EIS1080p: 30 fps
 - 1080p: 30 fps
- power requirements:
 - active: 155 mA
 - standby: 10 μA
- temperature range:
 - operating: -30°C to 70°C junction temperature
 - stable image: 0°C to 50°C junction temperature
- sensitivity: 780 mV/lux-sec
- scan mode: progressive
- maximum exposure interval: 2480 x t_{ROW}
- output formats: 10-bit RGB RAW
- pixel size: 1.4 μm x 1.4 μm
- lens size: 1/4"
- dark current: 0.26 mV/s @ 50°C junction temperature
- lens chief ray angle: 24.1° non-linear
- image area: 3673.6 μm x 2738.4 μm

Functional Block Diagram



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