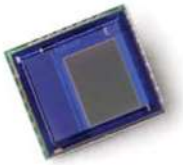


OV7670 VGA product brief

lead free

available in a lead-free package

1/6 inch VGA CameraChip for ultra-thin camera modules

With a footprint of only 1/6 square inch, the OV7670 is one of the smallest VGA sensors in mass production today. Based on a 3.6 µm pixel architecture, the OV7670 enables ultra thin camera modules of just 6 x 6 x 4.1 mm. This is a critical characteristic for slim camera phones and notebook applications since the camera modules can to be no thicker than the LCD housing.

Also important in enabling such thin modules is that the OV7670 allows module designs to move to a 2-plastic lens design. Additionally, the OV7670's unique non-linear micro lens shift technology allows for a reduction in the distance between sensor and lens, shrinking the module even further without loss of image quality or camera performance.

The OV7670 employs OmniVision's proprietary OmniPixel® architecture, which significantly increases signal-to-noise ratio and delivers exceptional low-light performance. Operating at a low voltage, the OV7670 image sensor provides the full functionality of a single chip VGA camera and image processor in a small footprint package, This includes full-frame, sub-sampled or windowed 8-bit images in a wide range of formats controlled through a serial camera control bus (SCCB) interface.

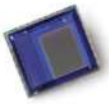
The OV7670 can operate at 30 frames per second (fps) in VGA with full user control over image quality, formatting and output data transfer. As part of OmniVision's next generation of image sensors, the OV7670 delivers low-noise, low-cost, low-power consumption, high integration, wide dynamic range and excellent low-light performance.

OmniVision

applications

- cellular and camera phones
- toys
- PC multimedia
- digital still cameras

OV7670



ordering information

- **OV07670-VL2A** (color, CSP2-24)
- **OV07171-VL2A** (b&w, CSP2-24)

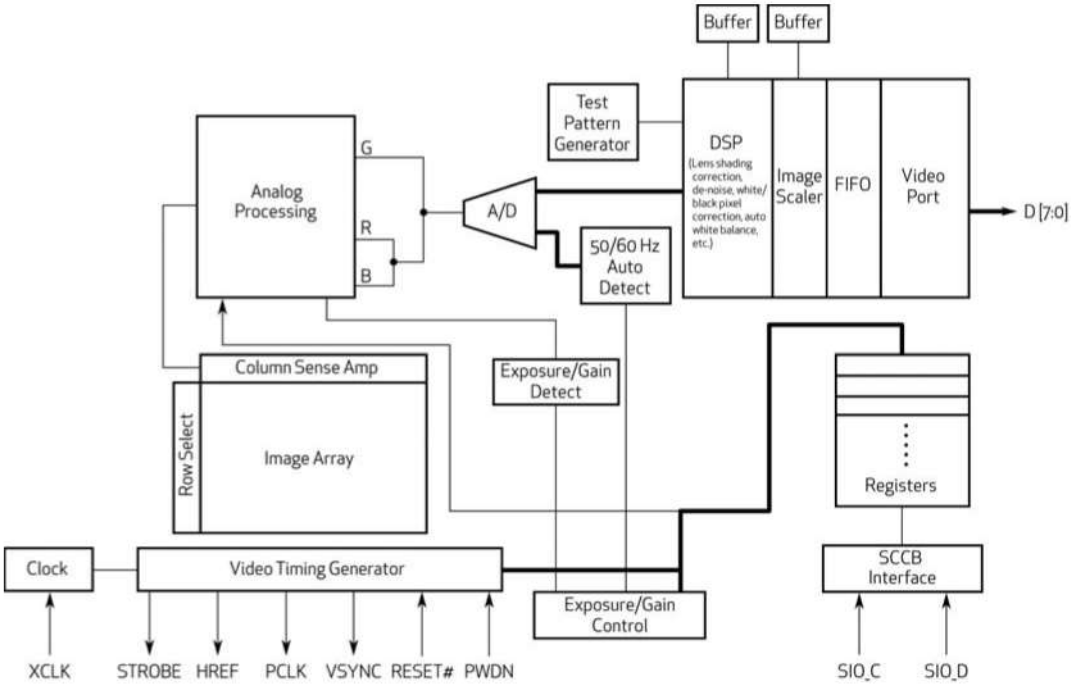
product features

- high sensitivity for low-light operation
- low operating voltage for embedded portable apps
- VarioPixel® method for sub-sampling
- automatic image control functions including: AEC, AGC, AWB, ABF, and ABLC
- image quality controls including color saturation, hue, gamma, sharpness (edge enhancement), and anti-blooming
- ISP includes noise reduction and defect correction
- supports LED and flash strobe mode
- supports scaling
- lens shading correction
- flicker (50/60 Hz) auto detection
- edge enhancement level auto adjust
- de-noise level auto adjust

product specifications

- **active array size:** 640 x 480 (VGA)
- **power supply**
  digital core: 1.8VDC ±10%
  analog: 2.45V to 3.0V
  I/O: 1.7V to 3.0V
- **power requirements**
  active: 60 mW typical (15fps VGA YUV format)
  standby: < 20 µA
- **lens size:** 1/6"
- **chief ray angle:** 25°
- **maximum image transfer rate:** 30 fps for VGA
- **S/N ratio:** 46 dB
- **pixel size:** 3.6 µm x 3.6 µm
- **package dimensions:** 3785 µm x 4235 µm

block diagram



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