

# OV7695 VGA product brief



## Ultra-Compact, Cost-Effective Secondary Camera Solution for Smartphones and Tablets



available in  
a lead-free  
package

The OV7695 is a high-performance CameraChip™ sensor that utilizes OmniVision's new OmniBSI+™ pixel architecture to deliver high quality VGA video at 30 frames per second. At just 2.4 x 2.3 mm, the cost-competitive OV7695 is a highly attractive solution for front-facing cameras in smartphones and tablets.

The 1/13-inch VGA sensor is built on a 1.75-micron OmniBSI+ pixel, which has a significantly lower level of noise when compared with traditional FSI pixel architectures. The result is a dramatic improvement in dynamic range, which translates into higher quality color video. Using proprietary technology to improve image quality, the OV7695 reduces or eliminates common

sources of image contamination such as fixed pattern noise and smearing to produce a clean, stable color image.

The sensor provides full-framed, sub-sampled and cropped images in YUV422 format via a one-lane MIPI interface. All required image processing functions, including exposure control, gamma, white balance, color saturation, defective pixel canceling, and noise canceling are programmable through the serial camera control bus (SCCB) interface.

Find out more at [www.ovt.com](http://www.ovt.com).

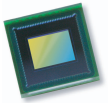
## Applications

- Cellular and Picture Phones
- PC Multimedia
- Tablets
- Toys
- Digital Video Cameras

## Product Features

- support for image sizes:
  - VGA (640x480)
  - QVGA (320x240)
  - QQVGA (160x120)
  - HF (640x20)
- support for output formats: YUV4:2:2 through MIPI
- on-chip phase lock loop (PLL)
- built-in 1.5V regulator for digital block
- capable of maintaining register values at software power down
- programmable controls for frame rate, mirror and flip, AEC/AGC, and windowing
- support for horizontal and vertical sub-sampling
- automatic image control functions:
  - automatic exposure control (AEC)
  - automatic white balance (AWB)
  - automatic black level calibration (ABLC)
- image quality controls: defect pixel correction and lens shading correction
- support for black sun cancellation
- standard serial SCCB interface
- parallel I/O tri-state configurability and programmable polarity

# OV7695



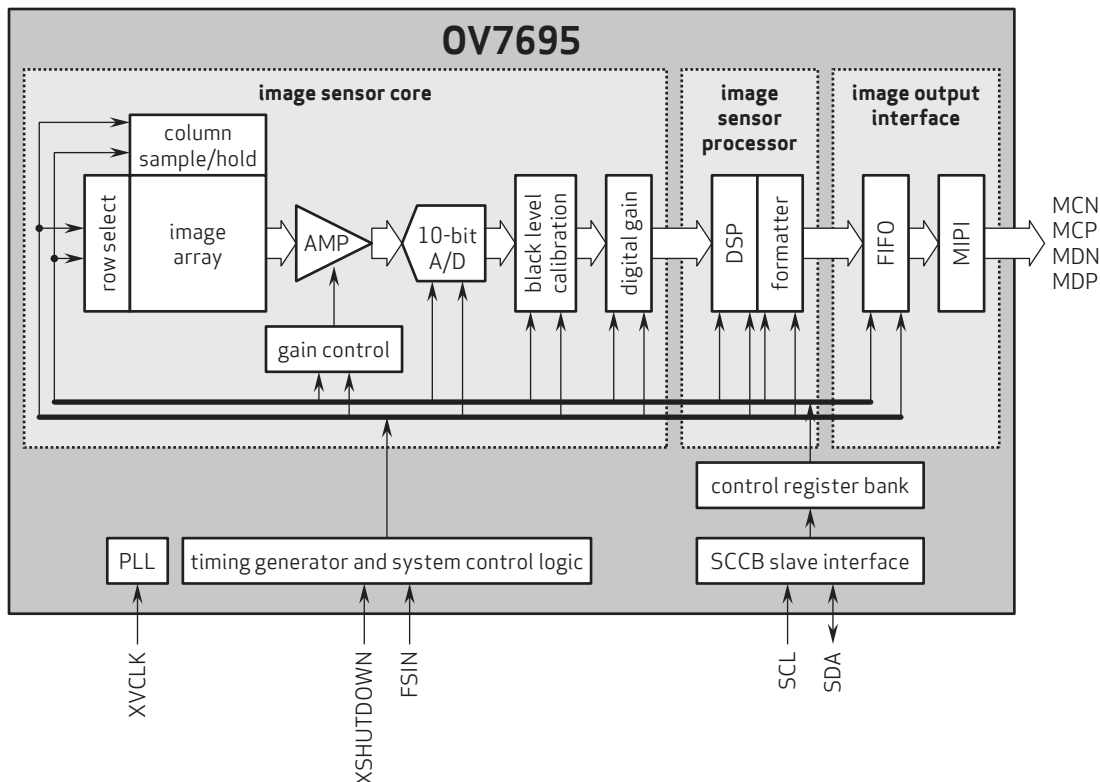
## Ordering Information

- OV07695-A17A**  
(color, lead-free, 17-pin CSP3)

## Product Specifications

- active array size:** 656 x 496
- power supply:**
  - core: 1.5V DC  $\pm 5\%$  (internal regulator)
  - analog: 2.8V  $\pm 5\%$
  - I/O: 2.8V, 1.8V
- temperature range:**
  - operating:  $-30^{\circ}\text{C}$  to  $70^{\circ}\text{C}$  junction temperature
  - stable image:  $0^{\circ}\text{C}$  to  $50^{\circ}\text{C}$  junction temperature
- output formats:** YUV422
- lens size:** 1/13"
- lens chief ray angle:**  $26^{\circ}$
- input clock frequency:** 6 - 27 MHz
- max S/N ratio:** 35.9 dB
- dynamic range:** 69.2 dB @ 16x gain
- maximum image transfer rate:**
  - VGA (640x480): 30 fps
  - QVGA (320x240): 60 fps
  - QQVGA (160x120): 120 fps
  - HF (640x20): 120 fps
- sensitivity:** 1000 mV/lux-sec
- scan mode:** progressive
- maximum exposure interval:**  $536 \times t_{\text{row}}$
- pixel size:**  $1.75 \mu\text{m} \times 1.75 \mu\text{m}$
- image area:**  $1148 \mu\text{m} \times 868 \mu\text{m}$
- package dimensions:**
  - CSP3:  $2370 \mu\text{m} \times 2300 \mu\text{m}$

## Functional Block Diagram



4275 Burton Drive  
Santa Clara, CA 95054  
USA

Tel: + 1 408 567 3000  
Fax: + 1 408 567 3001  
www.ovt.com

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