

OV7695 VGA product brief



available in
a lead-free
package

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

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.

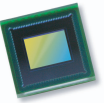
Applications

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

Product Features

- support for image sizes:
 - VGA (640x480)
 - QVGA (320x240)
 - QQVGA (160x120)
 - HF (640x20)
- 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
- on-chip phase lock loop (PLL)
- standard serial SCCB interface
- built-in 1.5V regulator for digital block
- parallel I/O tri-state configurability and programmable polarity
- capable of maintaining register values at software power down
- programmable controls for frame rate, mirror and flip, AEC/AGC, and windowing

OV7695



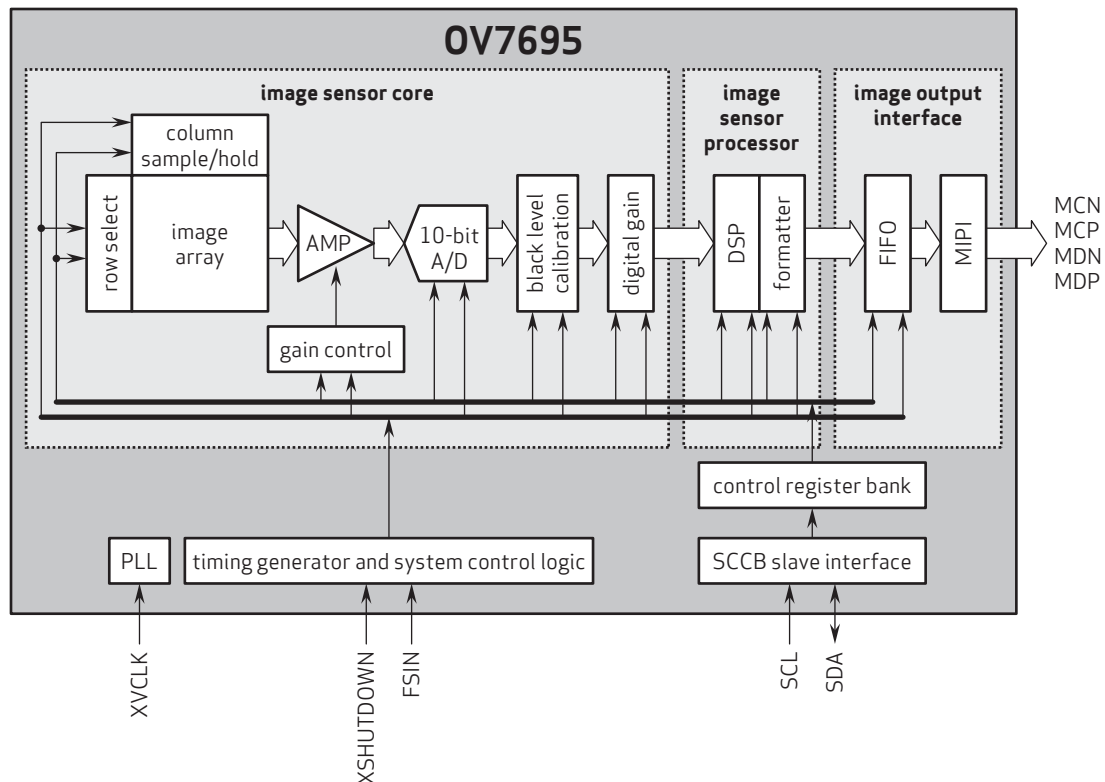
Ordering Information

- OV7695-A17A
(color, lead-free, 17-pin CSP3)

Product Specifications

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

Functional Block Diagram



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