

# OV7676 VGA product brief



## Cost-Effective VGA Sensor Delivers Best-In-Class Pixel Performance to Wide Range of Consumer Applications



available in  
a lead-free  
package

OmniVision's high performance OV7676 is a cost-effective 1/7.5-inch system-on-a-chip (SOC) VGA sensor that brings best-in-class pixel performance to a wide range of applications, including mobile phones, tablets, wearables, notebooks, and IP network cameras.

Utilizing OmniVision's 3-micron OmniPixel3-HS™ technology, the OV7676 achieves best-in-class low-light sensitivity, signal-to-noise ratio, full-well capacity (FWC), quantum efficiency and low-power consumption. The OV7676 supports serial peripheral interface (SPI) and digital video port (DVP) interface customization for both smartphone and feature phone platforms.

When used as a front-facing camera solution in smartphones, tablets and notebooks, the OV7676 also supports video-in-video functionality, allowing users to record and stitch together video being recorded simultaneously by the front- and rear-facing cameras.

The OV7676 fits into a 2.73 x 2.47 mm chip-scale package (CSP).

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



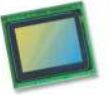
## Applications

- Mobile Phones
- PC Multimedia
- Toys
- Digital Still Cameras

## Product Features

- support for image sizes: VGA (640x480), QVGA (320x240) and CIF (352x288)
- support for horizontal and vertical sub-sampling
- support for output formats: RAW RGB and YUV output with DVP and SPI port
- automatic image control functions:
  - automatic exposure control (AEC)
  - automatic white balance (AWB)
  - automatic black level calibration (ABLC)
- on-chip phase lock loop (PLL)
- image quality controls: defect pixel correction and lens shading correction
- built-in 1.8V regulator for digital block
- support for black sun cancellation
- capable of maintaining register values at software power down
- standard serial SCCB interface
- programmable controls for frame rate, mirror and flip, AEC/AGC, and windowing
- parallel I/O tri-state configurability and programmable polarity

# OV7676



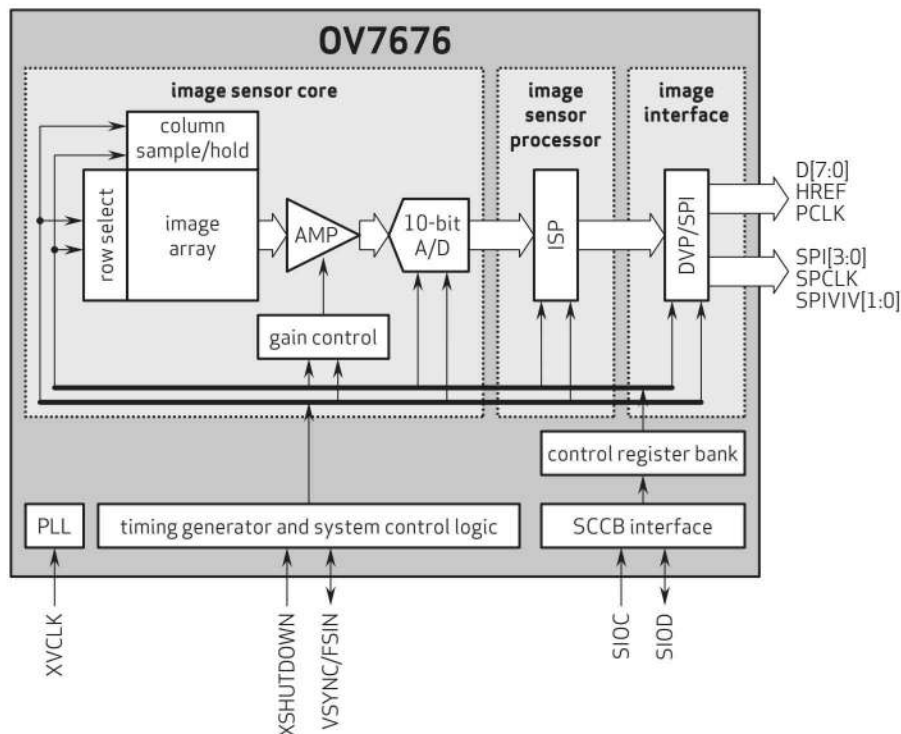
## Ordering Information

- OV07676-H20A (color, lead-free, 20-pin CSP5)

## Product Specifications

- active array size: 640 x 480
- maximum image transfer rate:
  - VGA: 30 fps
  - QVGA: 60 fps
  - CIF: 30 fps
- power supply:
  - analog: 2.8V ±5%
  - core: 1.8VDC ±5% (internal regulator)
  - I/O: 2.8V, 1.8V
- sensitivity: 1900 mV/lux-sec
- power requirements:
  - I<sub>DD-A</sub>: 15 mA
  - I<sub>DD-IO</sub>: 1.7 mA
  - XSHUTDOWN: <15 μA
- shutter: rolling shutter
- temperature range:
  - operating: -30°C to +70°C junction temperature
  - stable image: 0°C to +50°C junction temperature
- max S/N ratio: 38 dB
- output formats: YUV422, RAW RGB
- dynamic range: 70.4 dB @ 8x gain
- lens size: 1/7.5"
- maximum exposure interval: 506 x τ<sub>ROW</sub>
- lens chief ray angle: 26.6°
- pixel size: 3 μm x 3 μm
- input clock frequency: 6 - 27 MHz
- dark current: 6 mV/sec @ 60°C junction temperature
- scan mode: progressive
- image area: 1962 μm x 1482 μm
- package dimensions:
  - CSP5: 2734 μm x 2474 μm

## Functional Block Diagram



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