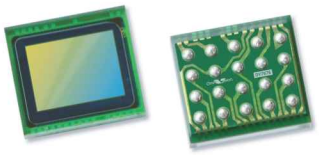
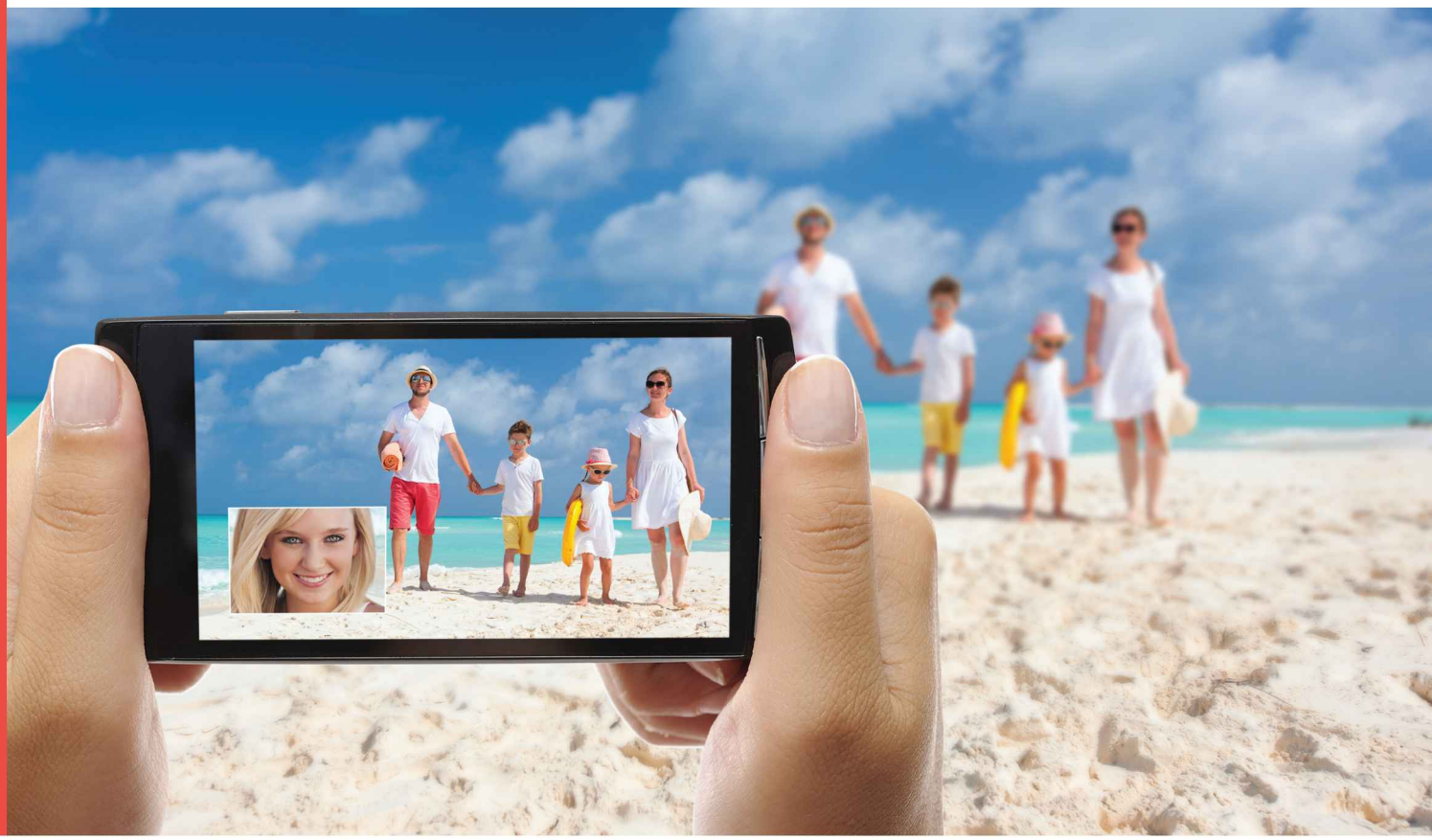


OV7676 VGA product brief



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

lead free

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.

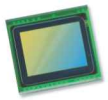
When used as a front-facing camera solution in smartphones, tablets and notebooks, the OV7676 also supports video-in-video functionality, allowing users to record and stitch together video being recorded simultaneously by the front- and rear-facing cameras.

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

Find out more at www.ovt.com.

OmniVision

OV7676



Applications

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

Product Features

- support for image sizes: VGA (640x480), QVGA (320x240) and CIF (352x288)
- support for output formats: RAW RGB and YUV output with DVP and SPI port
- on-chip phase lock loop (PLL)
- built-in 1.8V 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

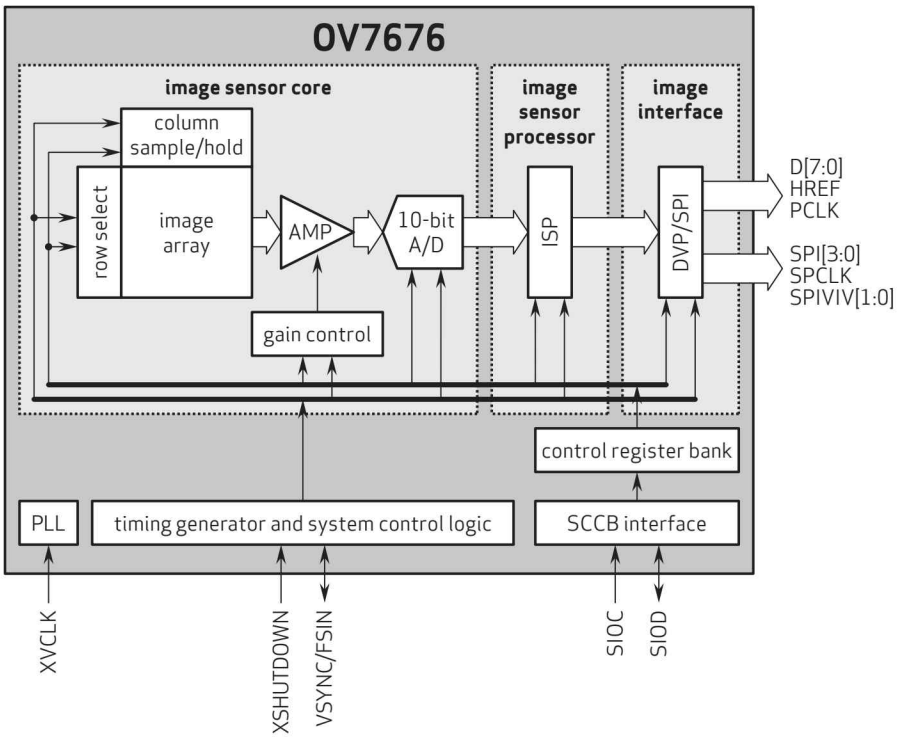
Ordering Information

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

Product Specifications

- **active array size:** 640 x 480
- **power supply:**
  - **analog:** 2.8V ±5%
  - **core:** 1.8VDC ±5% (internal regulator)
  - **I/O:** 2.8V, 1.8V
- **power requirements:**
  - I_{DD-A}: 15 mA
  - I_{DD-IO}: 17 mA
  - **XSHUTDOWN:** <15 µA
- **temperature range:**
  - **operating:** -30°C to +70°C junction temperature
  - **stable image:** 0°C to +50°C junction temperature
- **output formats:** YUV422, RAW RGB
- **lens size:** 1/7.5"
- **lens chief ray angle:** 26.6°
- **input clock frequency:** 6 - 27 MHz
- **scan mode:** progressive
- **maximum image transfer rate:**
  - **VGA:** 30 fps
  - **QVGA:** 60 fps
  - **CIF:** 30 fps
- **sensitivity:** 1900 mV/lux-sec
- **shutter:** rolling shutter
- **max S/N ratio:** 38 dB
- **dynamic range:** 70.4 dB @ 8x gain
- **maximum exposure interval:** 506 x t_{ROW}
- **pixel size:** 3 µm x 3 µm
- **dark current:** 6 mV/sec @ 60°C junction temperature
- **image area:** 1962 µm x 1482 µm
- **package dimensions:**
  - **CSP5:** 2734 µm x 2474 µm

Functional Block Diagram



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