OV7676

VGA product brief

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

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 OmniPixel®3-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 mm x 2.47 mm chip-scale package (CSP).

Find out more at www.ovt.com.

OV7676

Applications

- mobile phones
- toys
- PC mulitmedia
- digital still cameras

Technical 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%
  - I/O: 1.7V ~ 2.95V

- **power requirements:**
  - I_{DD-A}: 15 mA
  - I_{DD-IO}: 17 mA
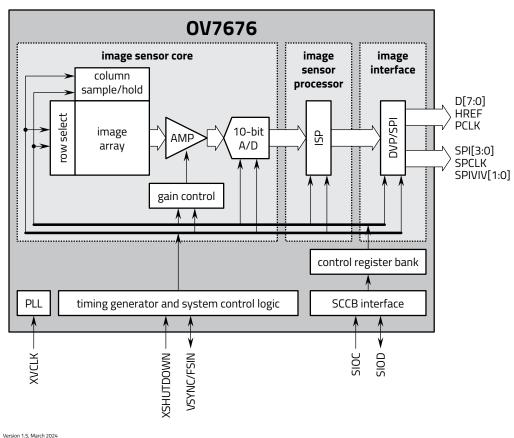 - XSHUTDOWN: <15 µA

- **temperature range:**
  - operating: -30°C to +70°C
    junction temperature
  - stable: 0°C to +50°C
    junction temperature

- **output formats:**
  - YUV422
  - RAW RGB

- **lens size:** 1/7.5"

- **lens chief ray angle:** 26.6°

- **scan mode:** progressive

- **pixel size:** 3.0 µm x 3.0 µm

- **image area:** 1962 µm x 1482 µm

Product Features

- support for image sizes:
  - VGA (640 x 480)
  - QVGA (320 x 240)
  - 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
  - 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
  - lens shading correction

- support for black sun cancellation

- standard serial SCCB interface

- parallel I/O tri-state configurability
  and programmable polarity

Functional Block Diagram

OMNIVISION®