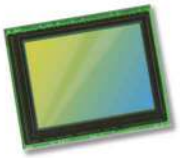


OV7850 WVGA product brief

Day (Non-HDR)

Day (HDR)

Night (Non-HDR)

Night (HDR)

Complete, High-Performance Camera-On-Chip Solution for Advanced Consumer Video Applications

lead free

available in a lead-free package

OmniVision's OV7850 is a single-chip color CMOS camera solution designed for high performance video applications, such as dashboard and DIY rearview cameras. Featuring a 1/3.2-inch optical format, the low-power OV7850 captures full resolution high definition (HD) images and video at 60 frames per second (fps). The sensor also supports advanced features such as high dynamic range (HDR) while maintaining excellent low-light sensitivity, providing the ideal camera solution for low light and high contrast viewing.

Built on OmniVision's OmniPixel3-HS™ technology, the OV7850 supports advanced image sensor processor functions such as automatic white balance control, lens shading correction, defect pixel correction, and de-noise and sharpening. The OV7850 enables WVGA, VGA, and NTSC output formats, delivering fully processed video outputs. These output formats support high dynamic range (HDR) rendering for human vision applications in a single chip application.

The OV7850 operates at commercial temperature grade from -30°C to +85°C, and comes in a 7.31 mm x 7.81 mm chip scale package (CSP) package.

Find out more at www.ovt.com.

OmniVision

OV7850

Applications

- Security and Surveillance Cameras
- 360° View Applications
- Rear View Cameras
- Night View Cameras

Product Features

- support for image size: WVGA, VGA, QVGA and any cropped size
- high dynamic range
- high sensitivity
- safety features
- low power consumption
- image sensor processor functions:
  - automatic exposure/gain control
  - automatic white balance control
  - lens correction
  - defective pixel cancelation
  - HDR combination and tone mapping
  - automatic black level correction
- supported output formats: YUV, RAW, CCIR656
- horizontal and vertical sub-sampling
- serial camera control bus (SCCB) for register programming
- SPI master for overlay and loading settings
- external frame synchronization capability
- 50/60 Hz flicker cancellation
- parallel 16-bit DVP output
- NTSC with overlay and analog output

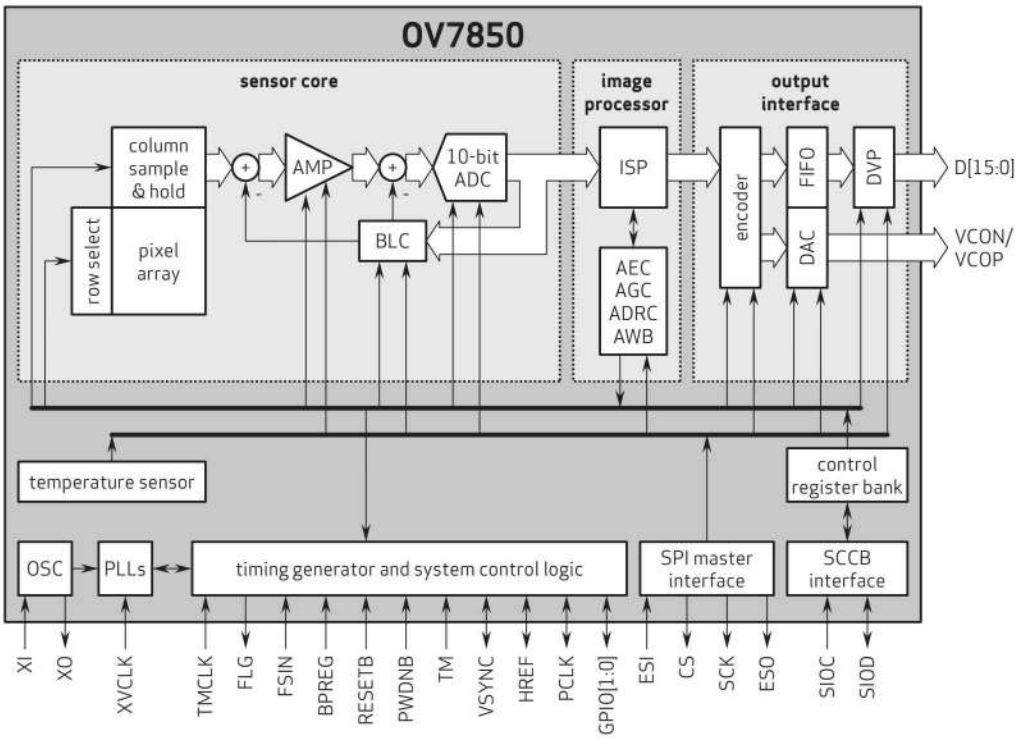
Ordering Information

- **OV07850-N02A**
  (color, lead-free, 102-pin CSP, packed in tray)

Product Specifications

- **active array size:** 752 x 548
- **power supply:**
  - **analog:** 3.14 - 3.47V
  - **core:** 1.425 - 1.575V
  - **I/O:** 1.7 - 3.47V
- **power requirements:**
  - **active:** 410 mW typical @ 3.3V AVDD, 1.5V DVDD, and 1.8V DOVDD
  - **standby:** 260 µW typical @ 3.3V AVDD, 1.5V DVDD, and 1.8V DOVDD
- **temperature range:**
  - **operating:** -30°C to +85°C junction temperature
  - **stable image:** 0°C to +50°C junction temperature
- **output interfaces:** 16-bit parallel DVP, analog NTSC (single end and differential)
- **output formats:**
  - up to 20-bit combined RAW
  - separated 8/10-bit RAW
  - 8-/10-bit YUV422
- **lens size:** 1/3.7" for VGA and NTSC 1/3.2" for WVGA
- **lens chief ray angle:** 9°
- **input clock frequency:** 6 - 27 MHz
- **scan mode:** progressive
- **shutter:** rolling shutter
- **maximum image transfer rate:** 60 fps full resolution
- **sensitivity:** 16 V/lux-sec
- **max S/N ratio:** 41 dB
- **dynamic range:** 120 dB
- **pixel size:** 6 µm x 6 µm
- **image area:** 4608 µm x 3384 µm
- **package dimensions:** 7310 µm x 7810 µm

Functional Block Diagram



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