

# OV9750 720p HD product brief



## High Performance 1/3-Inch Image Sensor Brings 720p HD Video to Mainstream Surveillance Camera Applications



available in a lead-free package

OmniVision's new OV9750 is a high performance 1/3-inch 720p high definition (HD) sensor designed specifically for mainstream consumer and commercial security systems. The sensor utilizes OmniVision's latest OmniPixel3-HS™ with dual conversion gain frontside illumination technology to capture high definition (HD) video used for popular analog 960H CCTVs, as well as HD analog and 720 HD network cameras. The OV9750 also has high near-infrared (NIR) sensitivity for day and night camera applications.

Built on 3.75-micron OmniPixel3-HS™ with dual conversion gain pixel architecture, the OV9750 achieves excellent image performance, enabling clear image and

video recording in both high- and low-light environments. The OV9750 is capable of operating in SXGA (1280x960) resolution at 60 frames per second (fps) with 10-bit output, or at 45 fps with 12-bit output.

Additionally, the sensor fits into a 6.3 x 5.2 mm package and supports ultra-low power mode (ULPM), which reduces resolution and frame rates to conserve additional power for very low-power camera design.

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



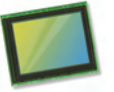
## Applications

- Security and Surveillance Cameras
- PC Multimedia
- Wearables
- 960H for Analog CCTV Applications

## Product Features

- 3.75  $\mu\text{m}$  x 3.75  $\mu\text{m}$  pixel
- 1280 x 960 at 60 fps @ 10-bit, 45 fps @ 12-bit
- programmable controls for:
  - frame rate
  - mirror and flip
  - cropping
  - windowing
- supports images sizes:
  - SXGA (1280x960)
  - 720p (1280x720)
  - VGA (640x480), and more
- 58 bytes of embedded one-time programmable (OTP) memory for customer use
- ultra low power mode (ULPM)
- support for output formats:
  - 10/12-bit RGB RAW
- two-wire serial bus control (SCCB)
- MIPI/LVDS serial output interface (1- or 2-lane)/DVP interface
- 2x binning support
- image quality control:
  - defect pixel correction
  - automatic black level calibration

# OV9750



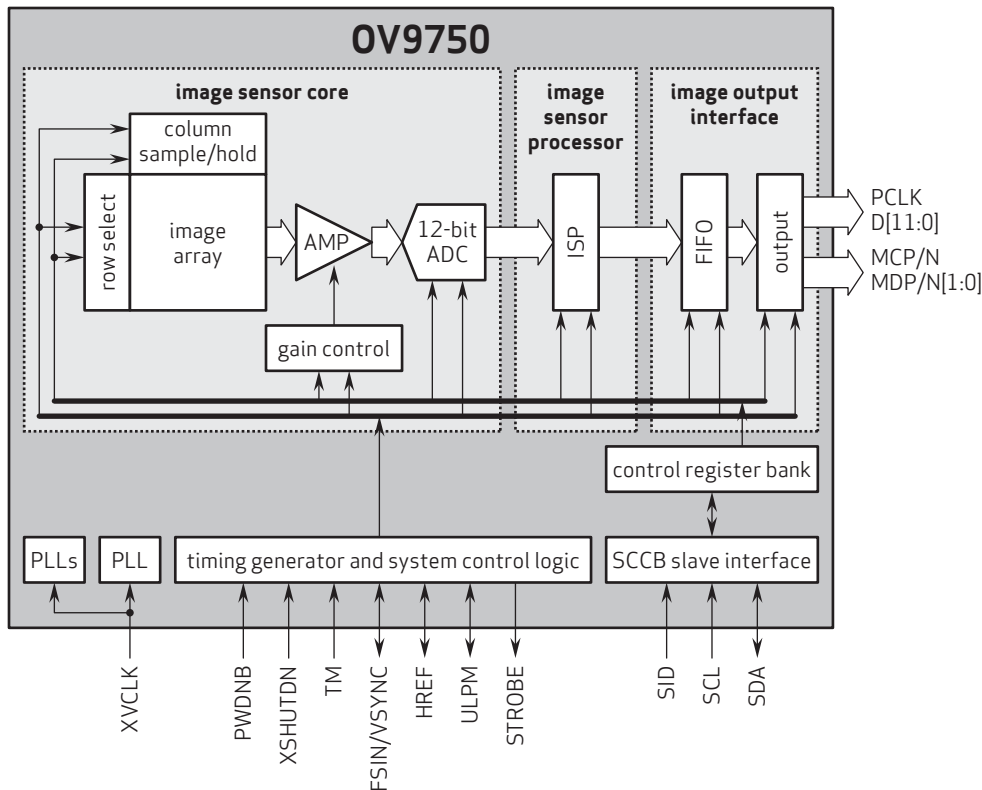
## Ordering Information

- OV09750-H55A (color, lead-free, 55-pin CSP)

## Product Specifications

- active array size: 1280 x 960
- lens size: 1/3"
- power supply:
  - core: 1.7 to 1.9V (1.8V nominal)
  - analog: 3.15 to 3.45V (3.3V nominal)
  - I/O: 1.7 to 1.9V (1.8V nominal)
- power requirements:
  - active: 166 mW
  - standby: 51  $\mu\text{W}$
  - XSHUTDOWN: 13  $\mu\text{W}$
- temperature range:
  - operating: -30°C to +85°C junction temperature
  - stable image: 0°C to +60°C junction temperature
- output interface: 2-lane MIPI/LVDS serial output/DVP parallel output
- output formats: 10/12-bit RGB RAW
- input clock frequency: 6 - 74.5 MHz
- lens chief ray angle: 9° linear
- maximum image transfer rate:
  - SXGA (1280x960): 60 fps
  - 720p (1280x720): 60 fps
  - VGA (640x480): 120 fps
- sensitivity: 39.6 Ke-/Lux-sec
- max S/N ratio: 43.1 dB
- dynamic range: 73.4 dB @ 8x gain
- pixel size: 3.75  $\mu\text{m}$  x 3.75  $\mu\text{m}$
- image area: 4860  $\mu\text{m}$  x 3660  $\mu\text{m}$
- die dimensions: 6254  $\mu\text{m}$  x 5194  $\mu\text{m}$

## Functional Block Diagram



4275 Burton Drive  
Santa Clara, CA 95054  
USA

Tel: + 1 408 567 3000  
Fax: + 1 408 567 3001  
www.ovt.com

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