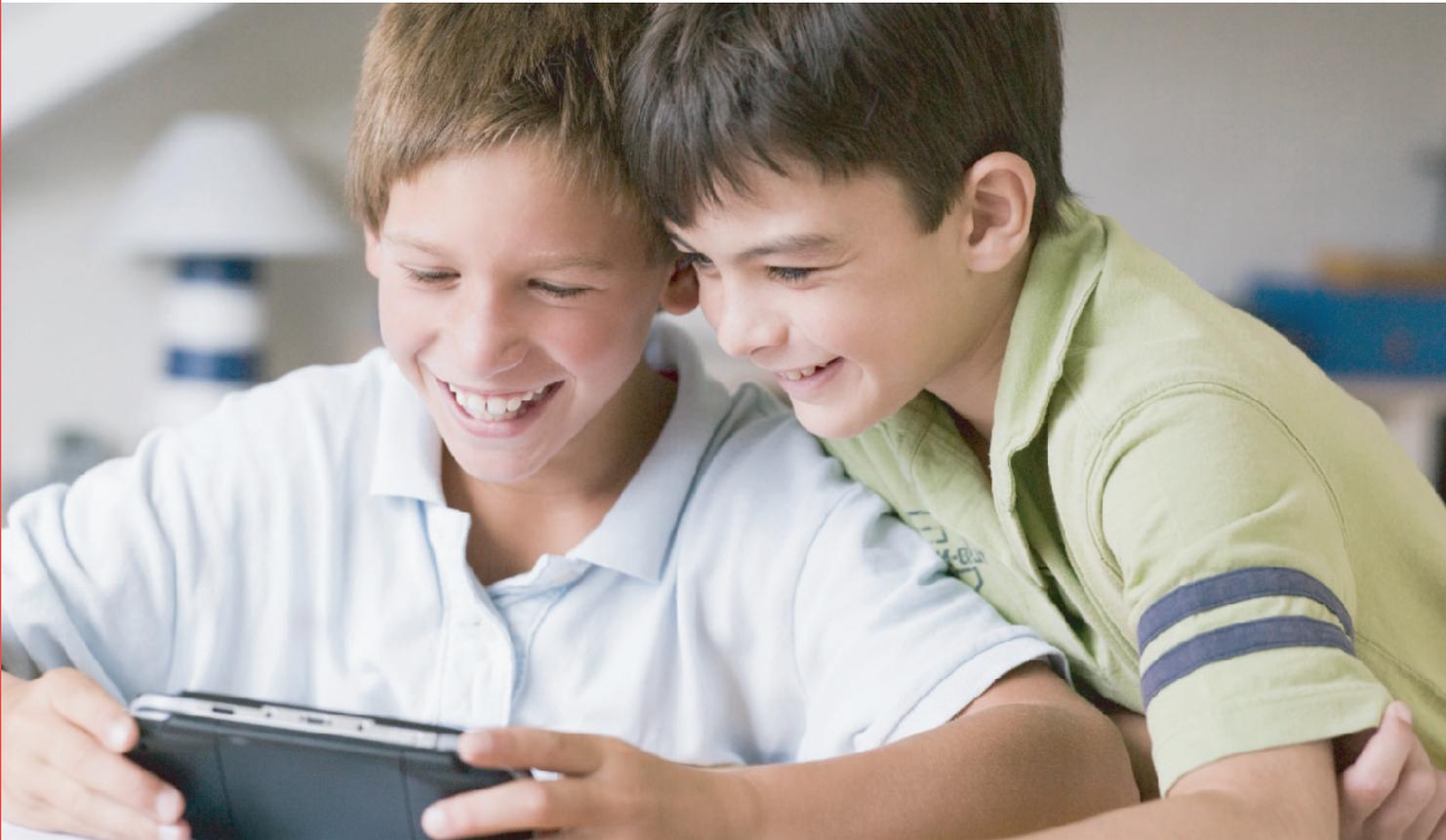


# OV9740 720p HD product brief



## SoC HD Camera for Home Entertainment and Portable Media Markets



available in a lead-free package

The OV9740 is a 1/6.9-inch system-on-a-chip (SoC) CMOS image sensor designed for highly demanding video applications in portable media players (PMPs), home entertainment devices and notebooks. It is the first 720p HD SoC image sensor that meets the premium video quality criteria for Microsoft® Office Communicator and the High Quality Video specifications for Skype™. With all image quality tuning and processing done on-chip, the OV9740 enables customers to simplify product development and accelerate time-to-market, making the SoC sensor a cost effective, one-stop-shop solution for emerging consumer applications including notebooks, netbooks, webcams, gaming consoles, portable media players, mobile phones, smart phones, TVs and set-top boxes.

The OV9740 combines OmniVision's 1.75-micron OmniBSI™ backside illumination pixel architecture and high-end image signal processor (ISP) to deliver 720p native high-definition (HD) video at 30 frames per second. The OV9740 offers best-in-class low-light sensitivity at 1300 mV/lux-sec in an

ultra-thin camera module height of less than 3.2 mm. As a native HD sensor, the OV9740 does not suffer from degradation or image artifacts due to scaling or cropping, which is typically used to achieve HD resolution from larger array sensors.

OmniVision's ISP features high-end image processing functions such as advanced automatic white balance and color noise reduction in the YUV domain while maintaining high frequency details delivering clear, sharp still image and video capture. Additional advanced image processing functions include automatic exposure control, automatic gain control, auto black level calibration, gamma correction, defect pixel correction, edge enhancement, and lens correction, which are all programmable through a standard serial camera control bus (SCCB) interface. A dual-lane, high speed MIPI interface supports RAW RGB and YUV422 output formats.

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

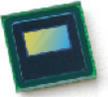
## Applications

- Portable Media Players
- Notebooks and Webcams
- Home Entertainment Devices
- Mobile Phones

## Product Features

- MIPI interface (contains one clock lane and two data lane with a maximum of 680 Mbps data transfer rate)
- image quality controls: color saturation, gamma, sharpness (edge enhancement), lens correction
- high sensitivity and low dark current for low-light conditions
- defect correction and noise cancelling capability
- low operating voltage and low power consumption for embedded portable applications
- image scaling capability from 720p resolution
- supports down sample mode and VarioPixel\*
- supports RAW RGB and YUV422 output format
- advanced interpretation algorithm
- standard serial SCCB interface
- auto black level calibration, automatic exposure and gain control (AEC/AGC), advanced automatic white balance (AWB)

# OV9740



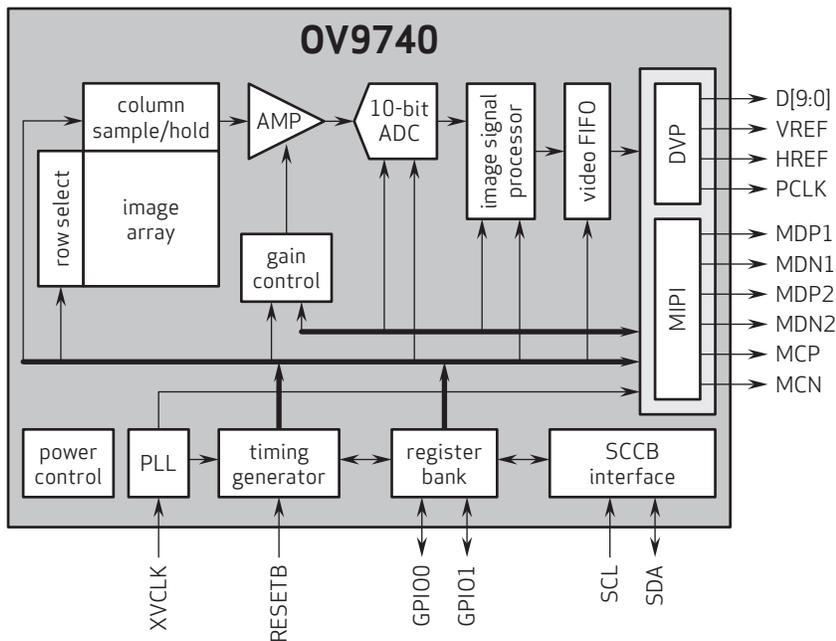
## Ordering Information

- **OV09740-A46A**  
(color, lead-free, 46-pin CSP3)
- **OV09740-G04A**  
(color, chip probing, 200  $\mu\text{m}$  backgrinding, reconstructed wafer)

## Product Specifications

- **active array size:** 1312 x 732
- **input clock frequency:** 6 - 27 MHz
- **power supply:**
  - core: 1.5 V
  - analog: 2.8 V (typical)
  - I/O: 1.8 V (typical)
- **max S/N ratio:** 36 dB
- **power requirements:**
  - active: 180 mW
  - PWDN mode (PWDN pull up to DOVDD): 55  $\mu\text{W}$
  - hardware standby mode (RESETB pull down to ground): 24  $\mu\text{W}$
- **dynamic range:** 70 dB @ 8x gain
- **maximum image transfer rate:** 30 fps
- **temperature range:**
  - operating: -30°C to 70°C junction temperature
  - stable image: 0°C to 50°C junction temperature
- **sensitivity:** 1300 mV/lux-sec
- **scan mode:** progressive
- **output formats:** RAW RGB, YUV
- **maximum exposure interval:** 744 x  $t_{\text{ROW}}$
- **pixel size:** 1.75  $\mu\text{m}$  x 1.75  $\mu\text{m}$
- **dark current:** 8 mV/sec @ 60°C junction temperature
- **lens size:** 1/6.9"
- **image area:** 2296  $\mu\text{m}$  x 1281  $\mu\text{m}$
- **lens chief ray angle:** 25.7° non-linear
- **package/die dimensions:**
  - CSP3: 4485  $\mu\text{m}$  x 4485  $\mu\text{m}$
  - COB: 4500  $\mu\text{m}$  x 4500  $\mu\text{m}$

## Functional Block Diagram



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