

# OV6946 400x400 product brief



## Cost-Effective, Ultra-Compact Camera Solution for Medical and Industrial Endoscopes



available in  
a lead-free  
package

OmniVision's OV6946 is an ultra-compact CameraChip™ sensor that brings high quality images and video with excellent color fidelity to endoscopes. The 1/18-inch sensor's 0.9 x 0.9 mm compact package, low power consumption, coupled with wide field-of-view with short focus distance make it an ideal camera solution for medical and industrial applications.

Utilizing an advanced 1.75-micron OmniBSI+™ pixel, the OV6946 captures high quality 400 x 400 resolution

images and video at 30 frames per second (fps). The OV6946 enables minimally invasive endoscope module designs with a width of 1.65 mm and height of 5 mm.

The OV6946 CameraChip sensor's reduced pinout and basic image signal processing functionality offer easy integration, enabling faster time-to-market.

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



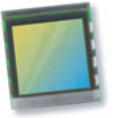
## Applications

- Medical Endoscopes
- Industrial Videoscopes
- Security and Surveillance
- Toys and Games
- Wearable Devices

## Product Features

- optical size of 1/18"
- analog output
- automatic/manual control of exposure and gain
- on-chip PLL
- low power consumption
- single 3.3V power supply
- serial peripheral interface (SPI)
- OmniBSI™ pixel structure using 0.11 μm process

# OV6946



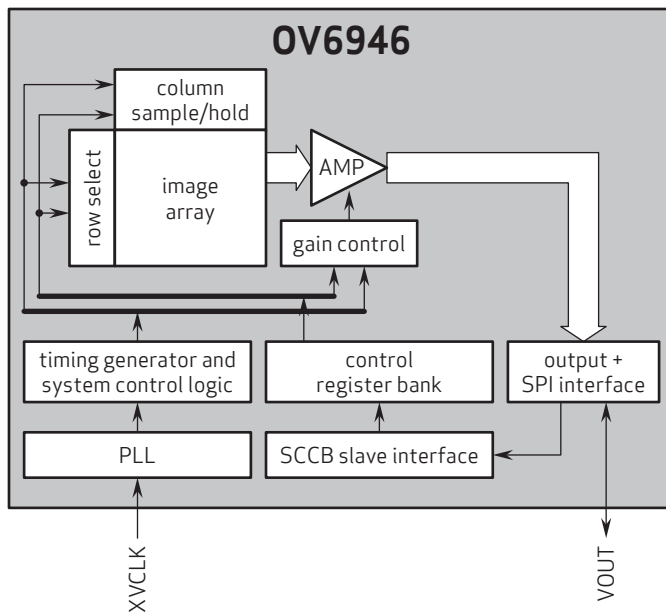
## Ordering Information

- OV06946-A04A  
(color, lead-free, 4-pin CSP3)

## Product Specifications

- active array size: 400 x 400
- power supply:
  - analog: 3.3V ± 5%
- power requirements:
  - 25 mW (with IO consumption)
- temperature range:
  - operating: -20°C to +70°C junction temperature
  - stable image: 0°C to +50°C junction temperature
- output formats: analog signal output
- lens size: 1/18"
- lens chief ray angle: 25°
- frame rate:
  - half VGA (400x400): 30 fps
- maximum exposure: 876 x T<sub>LINE</sub>
- minimum exposure time: 72.15 μs
- scan mode: progressive
- max S/N ratio: 34.4 dB
- dynamic range: 65.8 dB @ 4x gain
- sensitivity: 1000 mV/lux-sec
- color mosaic: RGB Bayer pattern
- pixel size: 1.75 μm x 1.75 μm
- dark current: 42 e<sup>-</sup>/sec @ 60°C junction temperature
- image area: 714 μm x 707 μm
- package dimensions: 950 μm x 940 μm

## Functional Block Diagram



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