

OV6946 400 x 400 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.



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



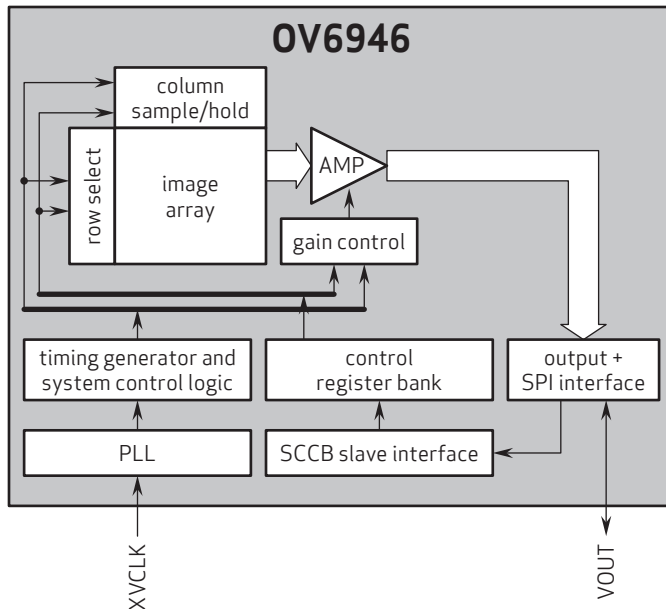
Ordering Information

- **OV06946-A04A**
(color, lead-free, 4-pin CSP)

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
- **optical size:** 1/18"
- **maximum exposure:** 876 x T_{line}
- **minimum exposure time:** 72.15 μs
- **scan mode:** progressive
- **lens chief ray angle:** supports lenses up to 25° CRA
- **frame rate:**
- 160 Kpixel (400x400): 30 fps
- **max S/N ratio:** 36.8 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⁻/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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