

# OVM6946 400 x 400 product brief



## Compact, Cost-Effective Wafer-Level Camera Module for Single-Use Endoscopes



available in  
a lead-free  
package

OmniVision's OVM6946 is a compact camera module for medical applications such as minimally-invasive endoscopes. The 1/18-inch OVM6946 utilizes OmniVision's market-proven CameraCubeChip™ wafer-level module technology to streamline manufacturing processes and shorten time-to-market, and is the industry's most cost-effective single-chip imaging solution for single-use endoscopes.

Built on OmniVision's OmniBSI™+ pixel architecture, the OVM6946 captures high quality 400 x 400 resolution video at 30 frames per second (fps). The OVM6946 comes in compact 1.10 mm x 1.10 mm packages with z-heights of 2.37 or 2.27 mm, enabling a 90° or 120° diagonal field of view. The OVM6946 is well-suited to a wide range of endoscope applications, including medical, veterinarian, and industrial.

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



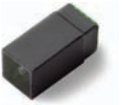
## Applications

- Medical, Dental, Veterinarian, Industrial Endoscopes

## Product Features

- optical size of 1/18"
- non-autoclavable
- 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
- extra black coating versions available

# OVM6946



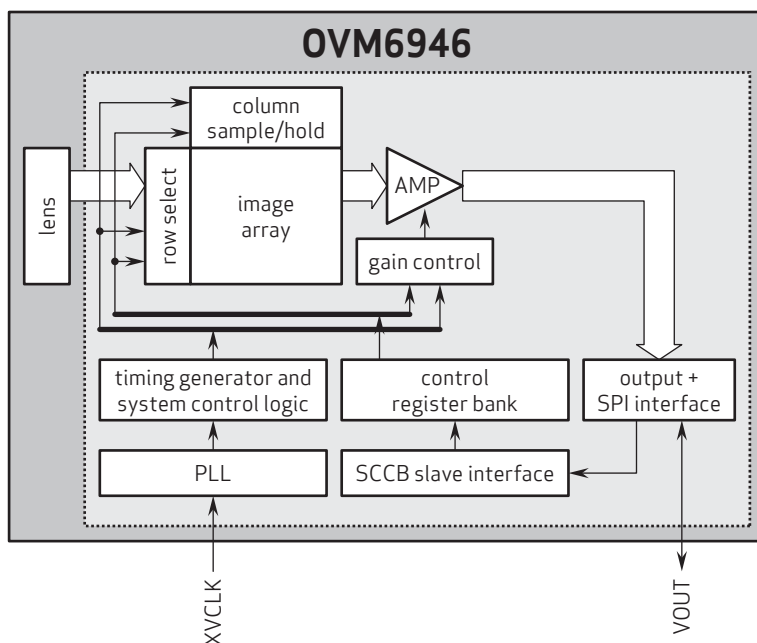
## Ordering Information

- OVM6946-RAJA (color, lead-free) CameraCubeChip™ with black coating
- OVM6946-RANA (color, lead-free) CameraCubeChip™ with black coating

## 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"
- diagonal field of view (FOV):
  - RAJA: 120°
  - RANA: 90°
- f no.:
  - RAJA: 5.0
  - RANA: 4.0
- focal length:
  - RAJA: 0.418 mm
  - RANA: 0.505 mm
- maximum exposure: 876 x T<sub>LINE</sub>
- minimum exposure time: 2.16 ms
- scan mode: progressive
- 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
- image area: 714 μm x 707 μm
- net weight: 4.62 mg
- package dimensions (including ball height):
  - RAJA: 1100 x 1100 x 2266 μm
  - RANA: 1100 x 1100 x 2362 μm

## Functional Block Diagram



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