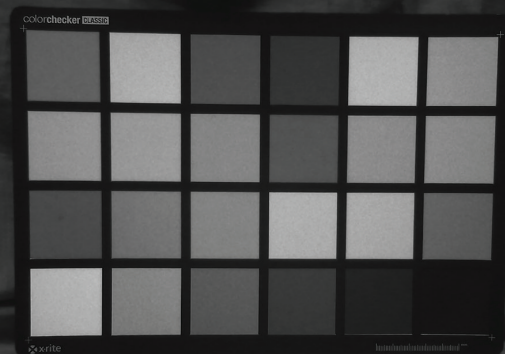


# OV4682 4MP product brief



**Day Light**



**0 Lux - IR Strobe**

## Dual-Purpose RGB IR CameraChip™ Sensor Brings High Sensitivity and High Frame Rates to Mobile and Machine Vision Applications



available in  
a lead-free  
package

OmniVision's OV4682 is a 4-megapixel RGB infrared (IR) single sensor that captures high-resolution images and video as well as IR information. Its dual RGB and IR capabilities allow it to bring a host of additional features to mobile and machine vision applications, including gesture sensing, depth analysis, iris detection and eye tracking. By combining two capabilities into a single sensor, the OV4682 reduces the total cost for the system while also reducing the space required for multiple sensors.

The sensor's 2-micron OmniBSI-2™ pixel delivers excellent signal-to-noise ratio and IR sensitivity, and offers best-in-class low-light sensitivity with a 40 percent increase in sensitivity compared to the 1.75-micron OmniBSI-2 pixel. The OV4682's unique architecture and pixel optimization bring not only the best IR performance

but also best-in-class image quality. Additionally, the sensor reduces system-level power consumption by optimizing RGB and IR timing.

The OV4682 records full-resolution 4-megapixel video in a native 16:9 format at 90 frames per second (fps), with a quarter of the pixels dedicated to capturing IR. The 1/3-inch sensor can also record 1080p high definition (HD) video at 120 fps with electronic image stabilization (EIS), or 720p HD at 180 fps.

The OV4682 features a high-speed 4-lane MIPI serial output interface to facilitate the required high data transfer rate. It fits into an 8.5 x 8.5 mm module with a z-height of less than 6 mm.

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



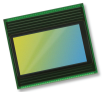
## Applications

- Cellular Phones
- Tablets
- Digital Still Cameras (DSC)
- Digital Video Camcorders (DVC)
- PC Multimedia
- Security
- Gaming
- Gesture Detection

## Product Features

- automatic black level calibration (ABLC)
- programmable controls for frame rate, mirror and flip, cropping, and windowing
- static defective pixel canceling
- supports output formats: 10-bit RAW RGB-IR (MIPI)
- supports horizontal and vertical subsampling
- supports images sizes: 4MP, 3MP, EIS1080p, 1080p, EIS720p
- fast mode switching
- support 2x2 binning, 4x4 binning, re-sampling filter
- standard serial SCCB interface
- up to 4-lane MIPI serial output interface
- embedded 4K bits one-time programmable (OTP) memory for part identification, etc.
- two on-chip phase lock loops (PLLs)
- programmable I/O drive capability
- built-in temperature sensor

# OV4682



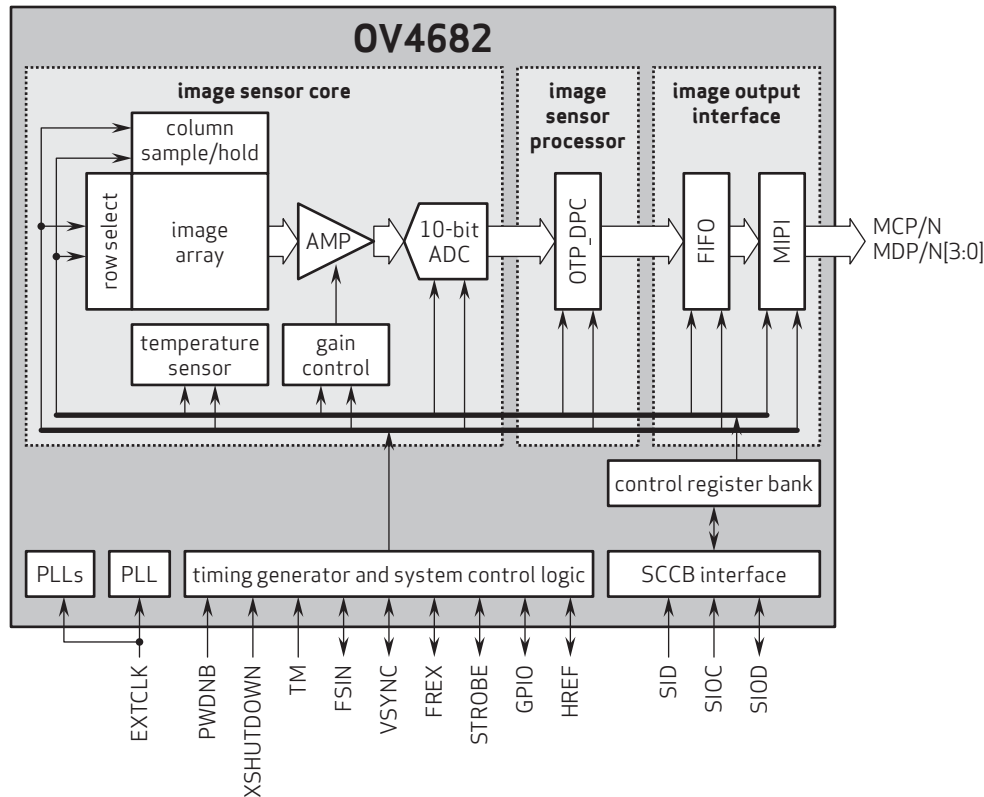
## Ordering Information

- OV04682-G04A-1D (RGB-IR, chip probing, 200  $\mu$ m backgrinding, reconstructed wafer with good die)

## Product Specifications

- active array size: 2688 x 1520
- power supply:
  - core: 1.1 - 1.3V
  - analog: 2.6 - 3.0V
  - I/O: 1.7 - 3.0V
- power requirements:
  - active: 163 mA (261 mW)
  - standby: 1 mA
  - XSHUTDOWN: <10  $\mu$ A
- temperature range:
  - operating: -30°C to +85°C junction temperature
  - stable image: 0°C to +60°C junction temperature
- output formats: 10-bit RAW RGB data
- lens size: 1/3"
- input clock frequency: 6 - 64 MHz
- lens chief ray angle: 21° non-linear
- maximum image transfer rate:
  - 2688x1520: 90 fps
  - 1920x1080: 120 fps
  - 1280x720: 180 fps
  - 672x380: 330 fps
- scan mode: progressive
- maximum exposure interval: 1548 x T<sub>ROW</sub>
- pixel size: 2  $\mu$ m x 2  $\mu$ m
- dark current: 4 mV/sec @ 60°C junction temperature
- image area: 5440  $\mu$ m x 3072  $\mu$ m
- die dimensions:
  - COB: 6600  $\mu$ m x 5800  $\mu$ m
  - RW: 6650  $\mu$ m x 5850  $\mu$ m

## Functional Block Diagram



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