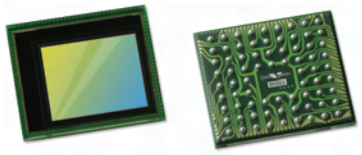
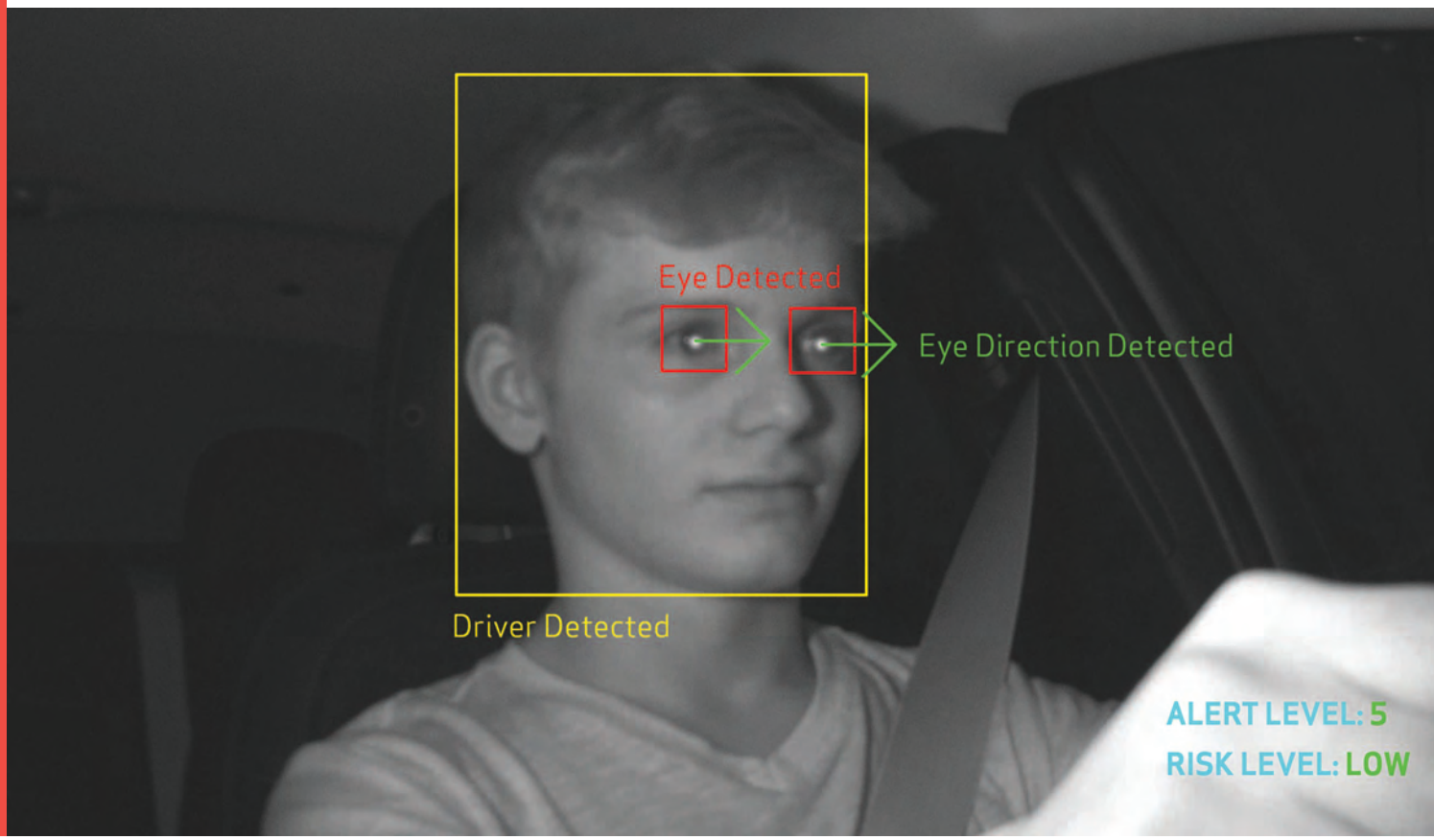


OV2311 2-megapixel product brief



lead free

available in a lead-free package

Compact, Cost-Effective 2-Megapixel Global Shutter Sensor for Driver Monitoring Systems

OmniVision's OV2311 is the automotive industry's first 2-megapixel, 3-micron global shutter image sensor designed for mainstream driver monitoring applications. Leveraging proven OmniPixel3-GS™ global shutter technology and near-infrared imaging capabilities, the OV2311 offers semi-autonomous vehicle manufacturers a high-performance, cost-effective, ISO 26262-ready imaging solution for vision-based driver monitoring systems.

The sensor captures high-quality video up to 60 frames per second (fps) in a 1600 x 1300 resolution format, which is designed to fit the driver's head box to ensure reliable monitoring regardless of driver height or seat position. Due to the sensor's high resolution, the OV2311 offers exceptionally accurate gaze- and eye-tracking capabilities. The OV2311 achieves high near-infrared quantum efficiency to minimize active illumination power and reduce the system power requirements.

The OV2311 comes in an ultra-compact 7.2 x 6.2 mm automotive chip-scale package (a-CSP™), which allows it to be discreetly designed into the cockpit of the vehicle. The sensor supports a 4-lane MIPI and 12-bit double-data-rate digital video port (DVP) interface.

Find out more at www.ovt.com.

OmniVision

OV2311

Applications

- Driver Monitoring Systems
- Industrial Bar Code Scanning

Product Features

- 3 µm x 3 µm pixel with OmniPixel3-GS™ technology
- automatic black level calibration (ABLC)
- programmable controls for:
  - frame rate
  - mirror and flip
  - cropping
  - windowing
- support output formats: 8/10-bit RAW
- fast mode switching
- supports 2x2 monochrome binning
- two-lane MIPI serial output interface
- DVP parallel output interface
- supports horizontal and vertical 2:1 monochrome subsampling
- support for image sizes:
  - 1600 x 1300
  - 1280 x 720
  - 640 x 480
- embedded 128 bytes of one-time programmable (OTP) memory
- two on-chip phase lock loops (PLLs)
- LED PWM
- temperature sensor
- built-in strobe control

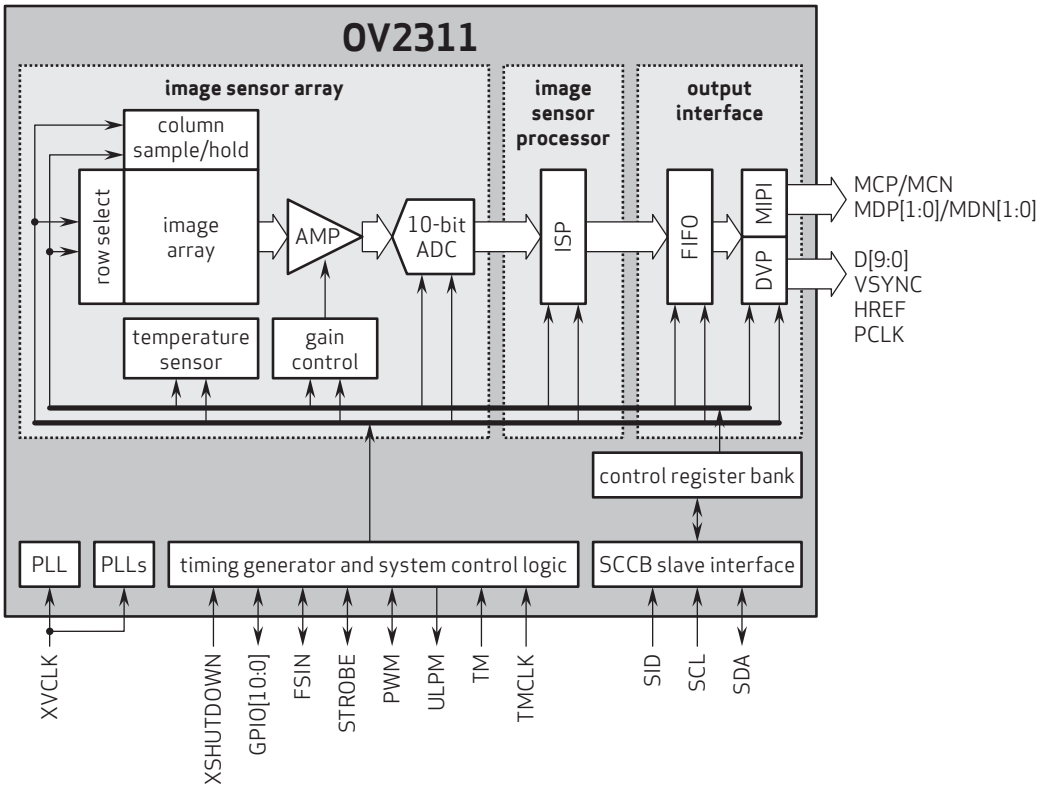
Ordering Information

- **OV02311-E74Y-1B-Z**
  (b&w, lead-free, 75-pin a-CSP™ with dual coated AR glass, packed in tray without protective film)
- **OV02311-E74Y-PB-Z**
  (b&w, lead-free, 75-pin a-CSP™ with dual coated AR glass, packed in tray with protective film)

Product Specifications

- **active array size:** 1600 x 1300
- **power supply:**
  - **core:** 1.2V (nominal)
  - **analog:** 2.8V (nominal)
  - **I/O:** 1.8V (nominal)
- **power requirements:**
  - **active:** 190 mW
  - **standby:** 130 µW
  - **XSHUTDOWN:** <10 µW
- **temperature range:**
  - **operating:** -40°C to +105°C sensor ambient temperature and -40°C to +125°C junction temperature
- **output interface:** 2-lane MIPI serial output and DVP parallel output
- **output formats:** 10-bit RAW
- **lens size:** 1/2.9"
- **input clock frequency:** 6 - 27 MHz
- **lens chief ray angle:** 15° linear
- **maximum image transfer rate:**
  - **1600 x 1300:** 60 fps
- **maximum exposure interval:** 1 row period
- **maximum exposure time:** frame length - 12 row periods, where frame length is set by registers {0x380E, 0x380F}
- **pixel size:** 3 µm x 3 µm
- **image area:** 4857.7 µm x 3955.9 µm
- **package dimensions:**
  - **a-CSP™:** 7219 µm x 6157 µm

Functional Block Diagram



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