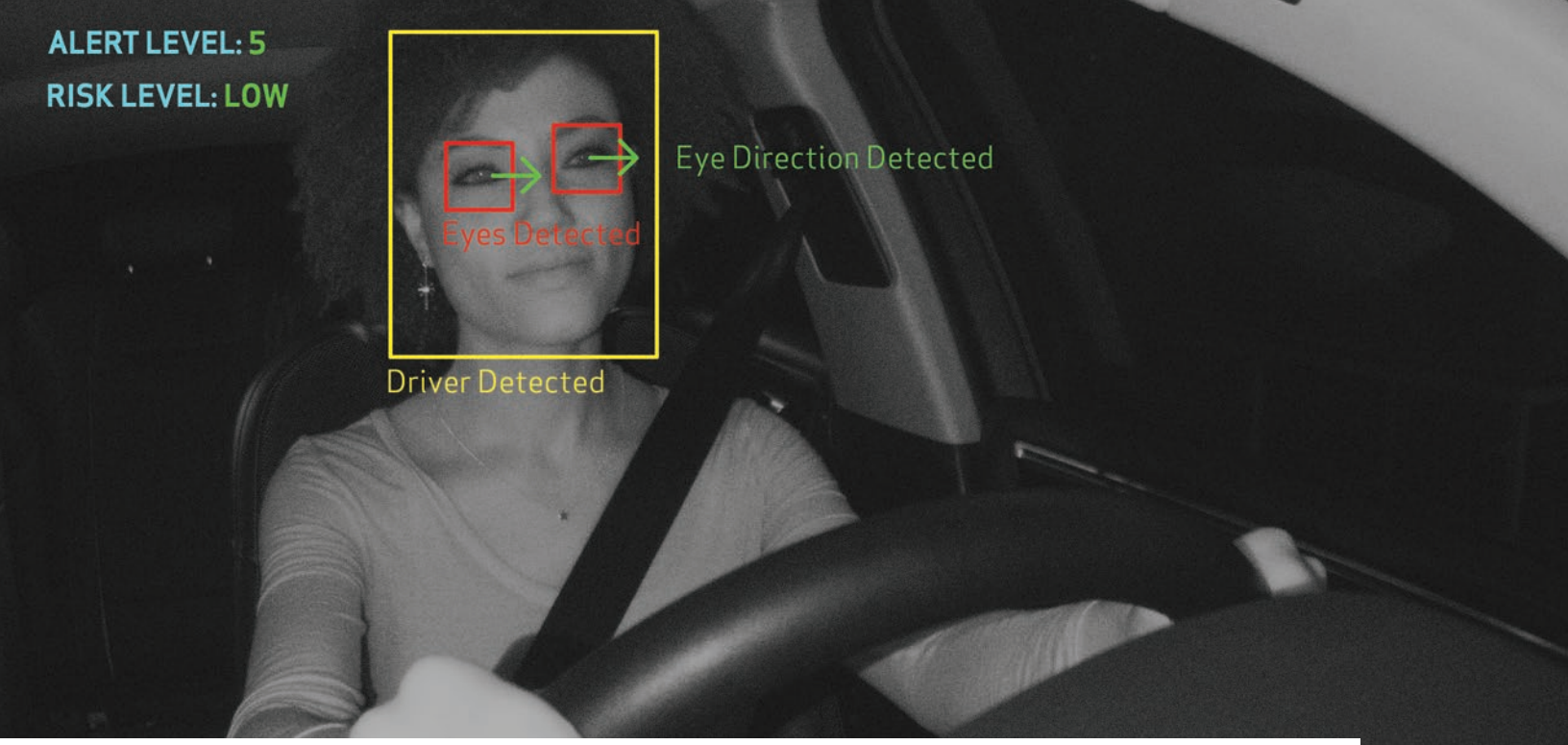


OV2311

2-megapixel product brief

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

OMNIVISION's OV2311 is the automotive industry's first 2-megapixel, 3 µm global shutter image sensor designed for driver monitoring applications. Leveraging proven OmniPixel®3-GS global shutter technology and near-infrared imaging capabilities, the OV2311 offers semi-autonomous vehicle manufacturers a high-performance, cost-effective, AEC-Q100 Grade 2 qualified imaging solution. The sensor provides advanced ASIL safety features for 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, seat position, or vehicle cockpit design. 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 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.

OV2311

Ordering Information

- **OV02311-E75Y-1C** (b&w, lead-free) 75-pin a-CSP™, with DAR coating for NIR, packed in tray without protective film
- **OV02311-E75Y-QC** (b&w, lead-free) 75-pin a-CSP™, with DAR coating for NIR, packed in tray with protective film (tab at bottom left)
- **OV02311-E75Y-SC** (b&w, lead-free) 75-pin a-CSP™, with DAR coating for NIR, packed in tape & reel with protective film (tab at bottom left)

Applications

- driver monitoring systems

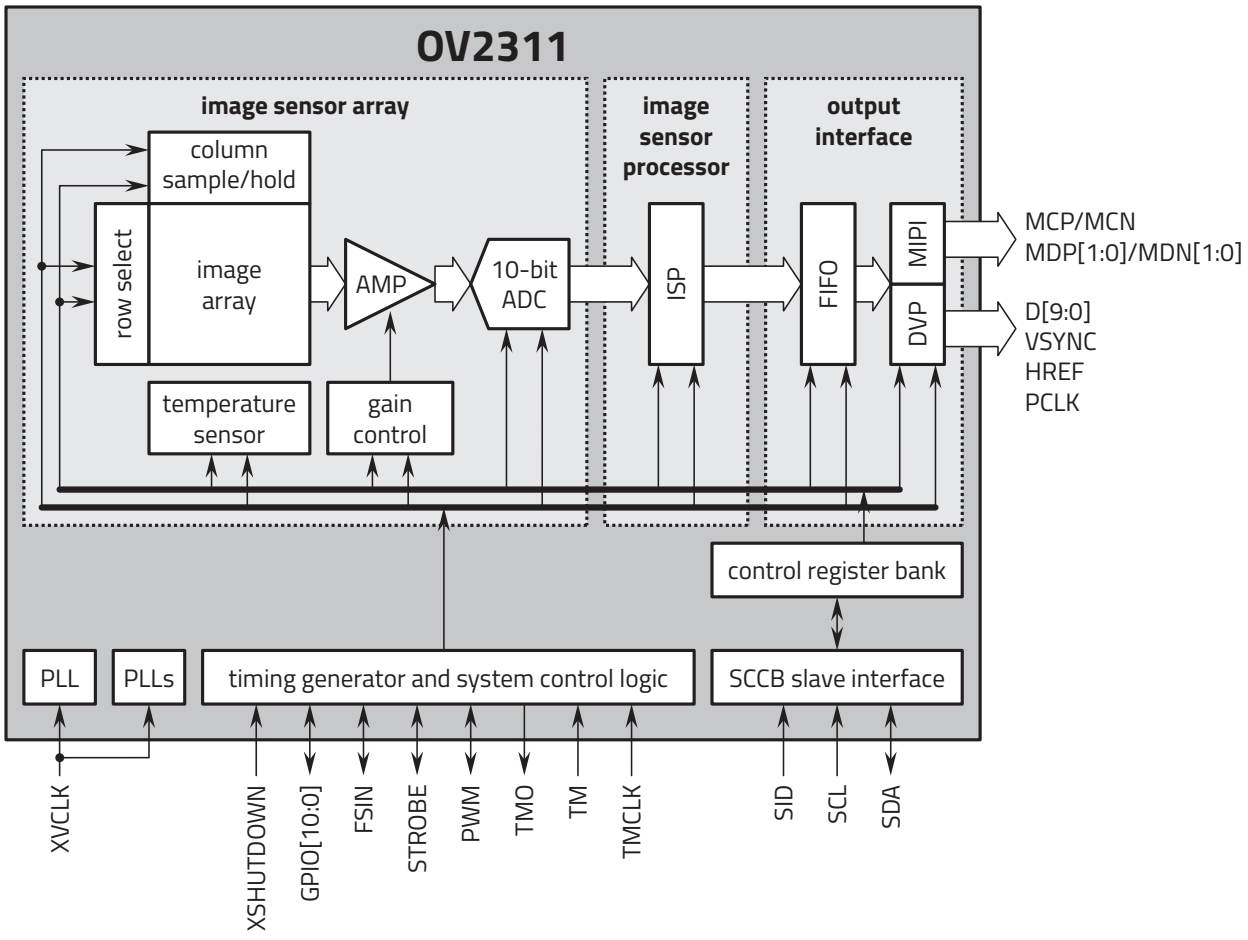
Technical Specifications

- active array size: 1600 x 1300
- maximum image transfer rate:
  - 1600 x 1300: 60 fps
- power supply:
  - analog: 2.8V (nominal)
  - core: 1.2V (nominal)
  - I/O: 1.8V (nominal)
- power requirements:
  - active: 190 mW
  - XSHUTDOWN: <25 µA
- output interface: 2-lane MIPI serial output and DVP parallel output
- temperature range:
  - operating: -40°C to +105°C sensor ambient temperature and -40°C to +125°C junction temperature
- output formats: 10-bit RAW
- lens size: 1/2.9"
- lens chief ray angle: 15° linear
- pixel size: 3 µm x 3 µm
- image area: 4857.7 µm x 3955.9 µm

Product Features

- 3 µm x 3 µm pixel with OmniPixel®3-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
- built-in strobe control
- 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)
- temperature sensor
- LED PWM
- low power modes
- frame sync mode
- dedicated safety features for supporting minimum ASIL B applications

Functional Block Diagram



Version 1.9, July 2023

4275 Burton Drive
Santa Clara, CA 95054
USA

Tel: + 1 408 567 3000
Fax: + 1 408 567 3001
www.ovt.com

OMNIVISION®