OX02C1S

2.5-megapixel product brief

OX02C1S Global Shutter Sensor for Automotive In-Cabin Driver and Occupant Monitoring Systems

The OX02C1S is a 2.5-megapixel (MP) RGB-IR BSI global shutter (GS) sensor for in-cabin driver and occupant monitoring systems (DMS and OMS). With a pixel size of just 2.2 microns (μm), it features Nyxel® near-infrared (NIR) technology with industry-leading NIR quantum efficiency (QE) at 36%. It also has a significant increase in modulation transfer function (MTF) over the previous 3.0 μm FSI GS pixel design. It offers extremely low power consumption for the highest-performance capabilities.

The OX02C1S GS sensor utilizes OmniPixel®4-GS technology for simultaneous image detection in all pixels to accurately reproduce rapid motion without any deformation. It features integrated ASIL-B and cybersecurity that meet the latest industry standards. It is available in an OMNIVISION stacked a-CSP™ package or a reconstructed wafer option. The OX02C1S sensor comes in a 1/3.52-inch optical format.

Samples of the OX02C1S GS sensor are available now and will be in mass production in 2024.

Find out more at www.ovt.com.

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OX02C1S

Applications

- automotive
  - autonomous driving
  - driver monitor system
  - occupant monitor system
  - in-cabin monitor system
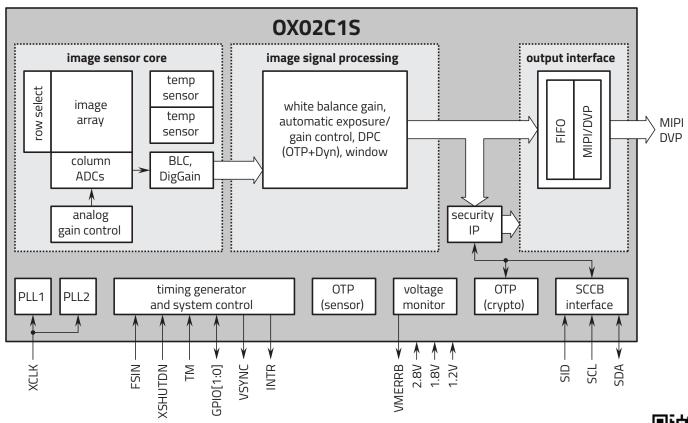
Technical Specifications

- **active array size:** 1920 x 1280

- **maximum image transfer rate:**
  - 1920 x 1280: 90 fps

- **power supply:**
  - analog: 2.8V
  - digital: 1.2V
  - I/O pads: 1.8V

- **output formats:** linear output

- **temperature range:**
  - operating: -40°C to +105°C sensor ambient temperature and -40°C to +125°C junction temperature

- **lens size:** 1/3.52"

- **lens chief ray angle:** 19.52°

- **scan mode:** progressive

- **pixel size:** 2.2 μm x 2.2 μm

- **image area:** 4259.2 μm x 2851.2 μm

Product Features

- support for image size:
  1920 x 1280 and any cropped size

- data format: RAW RGB-Ir

- 2.2 μm x 2.2 μm pixel with PureCel®Plus-S, Global Shutter, and Nyxel® technologies

- image sensor processor functions:
  - defective pixel cancellation
  - automatic black level correction, etc.

- dedicated safety features for supporting ASIL-B applications

- high speed serial data transfer with MIPI CSI-2 (4/2-lane D-PHY)

- parallel 10-bit DVP output

- SCCB for register programming

- external frame synchronization capability

- embedded temperature sensor

- embedded supply voltage monitor

- one time programmable (OTP) memory

Functional Block Diagram

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