

OMNIVISION OV2312 Dual Mode Automotive Image Sensor User Guide

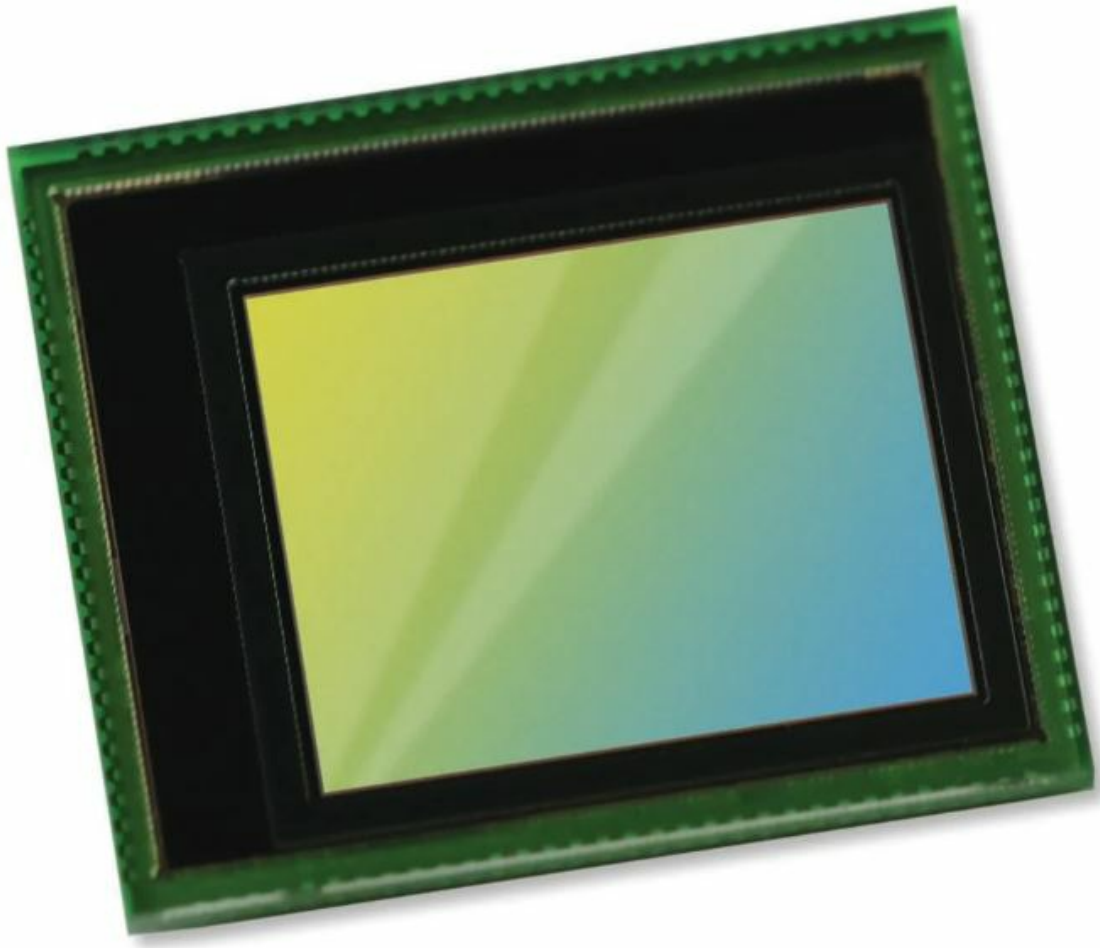
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OMNIVISION OV2312 Dual Mode Automotive Image Sensor



Product Information

The OV2312 is a 2-megapixel dual-mode automotive image sensor designed for single-camera driver state monitoring and viewing applications. This innovative sensor, developed by OMNIVISION, offers cost savings, power efficiency, and space optimization for automotive systems. The OV2312 is currently available in sample quantities and is certified with AEC-Q100 Grade 2 for automotive applications. For more detailed information about the product, please visit the official website at www.ovt.com.

Product Usage Instructions

Ordering Information

To order the OV2312 image sensor, please contact the authorized distributor or retailer. The ordering information such as part numbers, package options, and pricing can be obtained from the product datasheet or by contacting the manufacturer directly.

Applications

The OV2312 image sensor is specifically designed for automotive applications. It is suitable for use in single-camera driver state monitoring and viewing systems. The sensor's high resolution and dual-mode capabilities make it ideal for capturing detailed images and videos in various driving conditions.

Introduction

OMNIVISION's New Dual-Mode Automotive Image Sensor for Single-Camera Driver State Monitoring and Viewing Applications Can Save Cost, Power and Space

OMNIVISION's OV2312 image sensor is the automotive industry's first and smallest-in-its-class 2MP, RGB-IR global shutter image sensor. Built on our OmniPixel®3-GS pixel technology, the OV2312 offers advanced ASIL functional safety, industry-leading near-infrared light performance and low power consumption; and facilitate lowest total system cost. The OV2312 provides a dual-mode sensor that fuses human and machine vision capabilities, allowing designers to address both trends with a single camera (e.g., driver state monitoring (DSM) and video conferencing). It delivers motion-artifact-free images at high resolutions of 1600 x 1300 at 60 fps and 1280 x 720 at 90 fps.

Additionally, because this is the smallest 2MP GS sensor in its class-offered in a 7.2 x 6.1 mm automotive chip-scale package-cameras can be designed more discretely. For operation without visible light, the OV2312 features the 3.0 µm OmniPixel®3-GS architecture, which provides an industry-leading near-infrared quantum efficiency of 14% at the 940 nm wavelength, along with excellent modulation transfer function (MTF). Not only does this sensor capture images with the high quality required for driver eye and gaze tracking when running in single mode at 60 fps, it also reduces system power consumption and cost by requiring fewer IR LEDs and by its capability to synchronize with the pulses of the IR light source. The sensor itself only consumes an industry-leading 190 mW in typical conditions.

This greatly reduces the heat generated, which is important to guarantee optimal sensor performance for interior cameras that operate continuously in confined spaces. Additionally, its array size of 1600 x 1300 pixels enables reliable monitoring regardless of driver height, seat position or vehicle cockpit design.

- OV2312 samples are available now, and it is AEC-Q100 Grade 2 certified for automotive applications.
- Find out more at: www.ovt.com.

Applications

- in-cabin monitoring
- driver monitoring systems (DMS)
- video conferencing

Technical Specifications

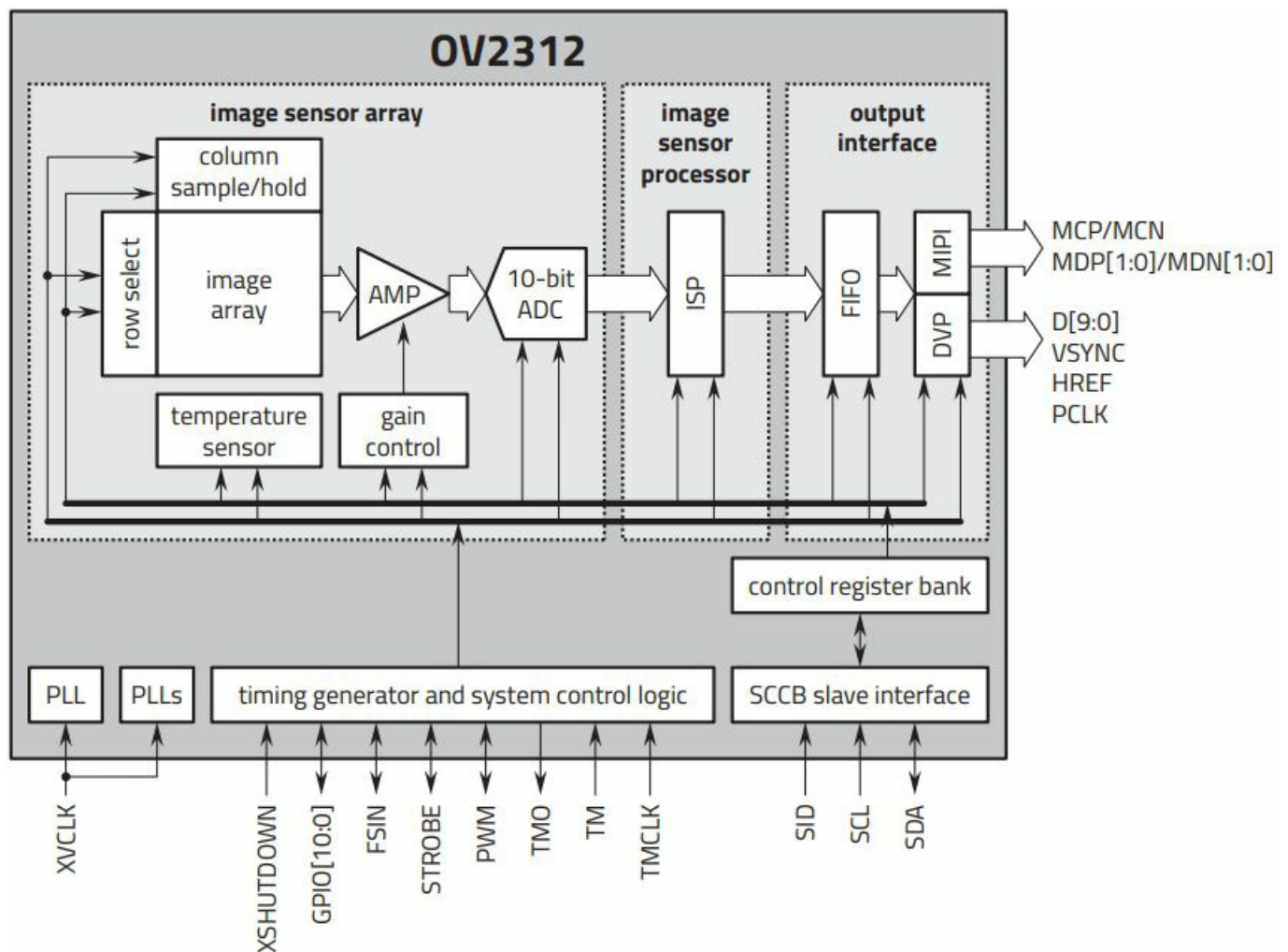
- active array size: 1600 x 1300
- maximum image transfer rate:
 - 1600 x 1300: 60 fps
- power supply:
 - **analog:** 2.8V (nominal)
 - **core:** 1.2V (nominal)
 - **I/O:** 1.8V (nominal)
- power requirements:
 - **active:** 190 mW
 - **XSHUTDOWN:** <25 µA
- **output formats:** 10-bit RGB-Ir RAW
- temperature 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
- **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:** RGB-Ir RAW 4x4 pattern
- fast mode switching
- two-lane MIPI serial output interface
- DVP parallel output interface
- support for image sizes:
 - 1600 x 1300
 - 1280 x 720
- built-in strobe control
- 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
- advanced ASIL safety features

Functional Block Diagram



Contact


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Scan



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Documents / Resources



OV2312
2-megapixel product brief

OMNIVISION's New Dual-Mode Automotive Image Sensor for Single Camera/ Dual-Camera Monitoring and Imaging Applications Car Seat Belt, Power and Telematics

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OV2312 Dual Mode Automotive Image Sensor, OV2312, Dual Mode Automotive Image Sensor, Automotive Image Sensor, Image Sensor, Sensor