

# OX03A10 2.46MP product brief



## Industry-Leading Low-Light Performance and High Dynamic Range for a Wide Range of Automotive Applications



available in  
a lead-free  
package

OmniVision's OX03A10 is a high-performance, low-power 3.2 micron OmniBSI™-2 image sensor designed for a wide range of advanced automotive imaging applications, including 360-degree surround view, rear view, blind-spot detection, e-mirror, and lane departure warning.

The 2.46 megapixel sensor uses OmniVision's proprietary Deep Well™ pixel technology to deliver industry-leading low-light sensitivity, and enables up to 90 dB of high dynamic range (HDR) from a single exposure without any decrease in signal-to-noise ratio and without motion artifacts. The OX03A10 also features dual-exposure HDR mode that can extend the sensor's dynamic range to more than 120 dB.

The OX03A10 can output multiple resolution formats, including 1920 x 1280 resolution video at 50 frames per second (fps) and 1920 x 1080 resolution video at 60 fps.

The sensor comes in an AEC-Q100 Grade 2-qualified 8.0 x 7.2 mm chip-scale package or 10.0 x 9.0 mm ball grid array package and has been developed according to ISO 26262 ASIL B requirements.

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



## Applications

- Automotive
  - 360° Surround View System
  - Rear View Camera
  - Lane Departure Warning/ Lane Keep Assist
- Camera Monitoring System/e-mirror
- Autonomous Driving

## Product Specifications

- active array size:** 1920 x 1280
- power supply:**
  - analog: 3.3V
  - digital: 1.2V
  - I/O pads: 1.8V
- power requirements:**
  - active: streaming @ 1280p50: 370 mW (with FuSa/ASIL off)
- temperature range:**
  - operating: -40°C to +105°C sensor ambient temperature and -40°C to +125°C junction temperature
- output interfaces:** up to 4-lane MIPI CSI-2
- input clock frequency:** 6 - 36 MHz
- lens size:** 1/2.44"
- lens chief ray angle:** 19.7°
- SCCB speed:** up to 1 MHz
- scan mode:** progressive
- shutter:** rolling shutter
- max S/N ratio:** 45.4 dB
- output formats:** single exposure HDR - 16-bit combined RAW, 12-bit (PWL) compressed combined RAW; dual exposure HDR - 16-bit combined RAW + 12-bit VS RAW, 12-bit (PWL) compressed combined RAW + 12-bit VS RAW
- maximum image transfer rate:**
  - 1280p: 50 fps
  - 1080p: 60 fps
  - 1280p (with FuSa/ASIL on): 40 fps
  - 1080p (with FuSa/ASIL on): 45 fps
- sensitivity:** 35,000 e-/Lux-sec (green pixel response at 530 nm illumination)
- dynamic range:**
  - 90 dB single exposure HDR
  - >120 dB dual exposure staggered HDR
- pixel size:** 3.2 μm x 3.2 μm
- image area:** 6195.2 μm x 4147.2 μm
- package cover glass type:** double sided anti-reflective (AR/AR) coating (without IRFC)
- package dimensions:**
  - a-CSP™: 8034 μm x 7210 μm
  - a-BGA™: 10 mm x 9 mm

# OX03A10



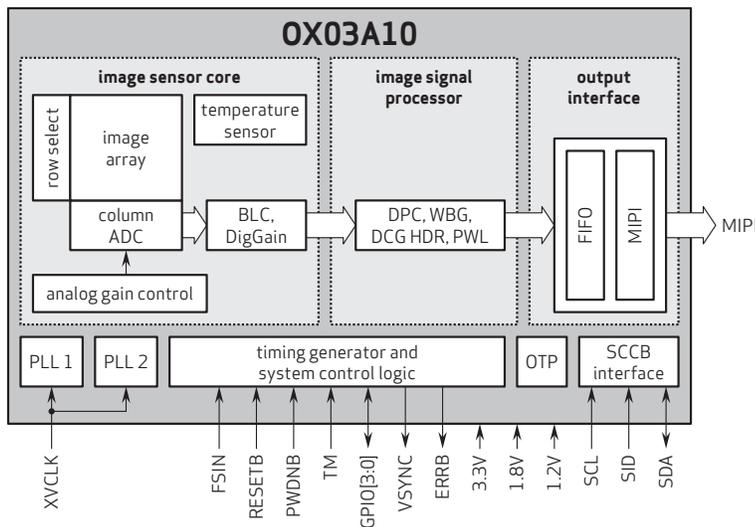
## Ordering Information

- OX03A10-E80Y-1E-Z** (color, lead-free)  
80-pin a-CSP™ packed in tray without protective film
- OX03A10-E80Y-0E-Z** (color, lead-free)  
80-pin a-CSP™ packed in tape & reel wth protective film (TL)
- OX03A10-E80Y-LE-Z** (color, lead-free)  
80-pin a-CSP™ packed in tray with protective film (TL)
- OX03A10-E80Y-SE-Z** (color, lead-free)  
80-pin a-CSP™ packed in tape & reel wth protective film (BL)
- OX03A10-E80Y-QE-Z** (color, lead-free)  
80-pin a-CSP™ packed in tray with protective film (BL)
- OX03A10-B83Y-1E-Z** (color, lead-free)  
83-pin a-BGA™ packed in tray without protective film
- OX03A10-B83Y-0E-Z** (color, lead-free)  
83-pin a-BGA™ packed in tape & reel with protective film
- OX03A10-B83Y-LE-Z** (color, lead-free)  
83-pin a-BGA™ packed in tray with protective film

## Product Features

- support for image size:
  - 1920 x 1280
  - 1920 x 1080
  - VGA
  - QVGA, and any cropped size
- high dynamic range
- high sensitivity
- image sensor processor functions:
  - defective pixel cancelation
  - HDR combination
  - automatic black level correction
  - PWL compression, etc.
- pixel data: 12b RAW RGB
- SCCB for register programming
- dedicated safety features for supporting minimum ASILB applications
- programmable GPIOs
- high speed serial data transfer with MIPI CSI-2
- external frame synchronization capability
- embedded temperature sensor
- one time programmable (OTP) memory

## Functional Block Diagram



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