

OX02A10 1.7MP product brief



High Dynamic Range and LED Flicker Reduction for Display-Based Automotive Vision Systems

lead free

available in a lead-free package

OmniVision's OX02A10 is a high-performance image sensor that is designed for the next-generation display-based camera monitoring systems for automotive applications. Built on OmniVision's 4.2-micron OmniBSI™ split-pixel technology for exceptional high dynamic range (HDR), the OX02A10 offers best-in-class low-light performance and represents the automotive industry's leading LED flicker-reduction solution.

The OX02A10 achieves 110 dB HDR while guaranteeing LED pulse capture. This allows the automotive cameras to simultaneously capture bright and dark scenes, providing excellent performance in the most demanding lighting conditions. The OX02A10 supports 1820 x 940 resolution in a 1:2 aspect ratio at 60 frames per second (fps), making it ideally suited for wider aspect ratio e-Mirror applications.

Additionally, the sensor's on-chip combination algorithm reduces the output data rate for easier data transition and back-end processing. The OX02A10 comes in a 9.5 x 6.8 mm AEC Q-100 Grade 2 qualified automotive chip-scale package (a-CSP™).

Find out more at www.ovt.com.

OmniVision

OX02A10

Applications

- Automotive
  - 360° Surround View System
  - Rear View Camera
  - Lane Departure Warning / Lane Keep Assist
  - Blind Spot Detection
  - Night Vision
  - Pedestrian Detection
  - Traffic Sign Recognition
  - Camera Monitoring System
  - Autonomous Driving
  - e-Mirror

Product Features

- support for image size:
  - 1824 x 940
  - VGA
  - QVGA and any cropped size
- OmniHDR-S™ technology
- high sensitivity
- safety features
- low power consumption
- image sensor processor functions:
  - lens correction
  - defective pixel cancelation
  - HDR combination and tone mapping
  - automatic black level correction
- supported output formats: RAW
- horizontal and vertical sub-sampling
- serial camera control bus (SCCB) for register programming
- high speed serial data transfer with MIPI CSI-2, parallel 12-bit DVP output
- external frame synchronization capability
- embedded temperature sensor
- one time programmable (OTP) memory
- support for LED flicker reduction (LFR) function

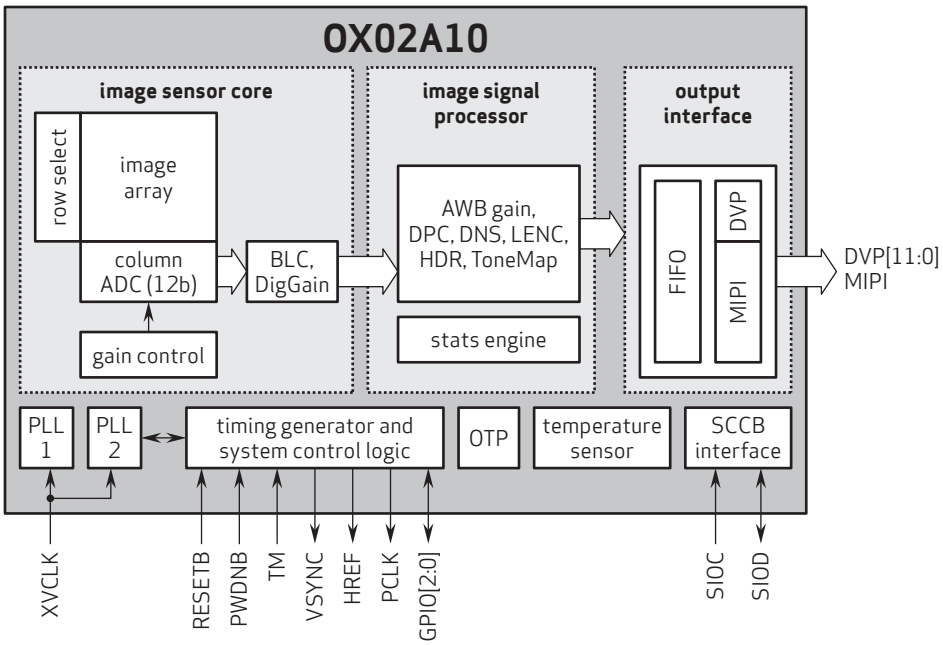
Ordering Information

- **OX02A10-E85Y-PA-Z**
  (color, lead-free) 85-pin a-CSP™ with dual coated AR glass, packed in tray with protective film
- **OX02A10-E85Y-RA-Z**
  (color, lead-free) 85-pin a-CSP™ with dual coated AR glass, packed in tape & reel with protective film

Product Specifications

- **active array size:** 1824 x 940
- **power supply:**
  - **analog:** 3.14 - 3.47V
  - **digital:** 1.425 - 1.575V
  - **DOVDD:** 1.7 - 1.9V
  - **AVDD:** 1.7 - 1.9V
- **power requirements:**
  - **active:** 450 mW
  - **standby:** 100 µW
- **temperature range:**
  - **operating:** -40°C to +105°C sensor ambient temperature and -40°C to +125°C junction temperature
- **output interfaces:** 12-bit DVP, MIPI CSI-2
- **input clock frequency:** 6 - 36 MHz
- **lens size:** 1/2.09"
- **lens chief ray angle:** 19°
- **output formats:**
  - 20-bit combined RAW
  - 12-bit compressed combined RAW
  - separated 12-bit RAW
  - 2x12 bit compressed RAW
  - 16-bit log domain combined RAW
- **scan mode:** progressive
- **shutter:** rolling shutter
- **maximum image transfer rate:** 60 fps
- **sensitivity:** 8.5 V/Lux-sec
- **max S/N ratio:** 41.7 dB
- **dynamic range:** 110 dB
- **pixel size:** 4.2 µm x 4.2 µm
- **image area:** 7711.2 µm x 3998.4 µm
- **package dimensions:** 9510 µm x 6860 µm

Functional Block Diagram



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