

OX01A10 1.3MP product brief



High Dynamic Range Image Sensor with LED Flicker Reduction for Automotive Vision Systems



available in
a lead-free
package

OmniVision's OX01A10 is a high-performance image sensor 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 OX01A10 offers best-in-class low-light performance and the industry's leading LED flicker-reduction solution.

The OX01A10 achieves 110 dB high dynamic range 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 OX01A10 supports 1280 x 1080 resolution in a 1:1.2 aspect ratio at 60 frames per second (fps), making it ideally suited for 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 OX01A10 comes in a 7.4 x 7.2 mm AEC-Q100 Grade 2 qualified automotive chip-scale package (a-CSP™).

Find out more at www.ovt.com.



Applications

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

Product Features

- AEC-Q100 grade 2 qualified
- supported output formats:
 - RAW
- support for image size:
 - 1280 x 1080
 - VGA
 - QVGA and any cropped size
- horizontal and vertical sub-sampling
- OmniHDR[®]-S technology
- serial camera control bus (SCCB) for register programming
- high sensitivity
- high speed serial data transfer with MIPI CSI-2, parallel 12-bit DVP output
- safety features
- external frame synchronization capability
- low power consumption
- support for LED flicker reduction (LFR) function
- image sensor processor functions:
 - automatic exposure/gain control
 - lens correction
 - defective pixel cancelation
 - HDR combination and tone mapping
 - automatic black level correction

OX01A10



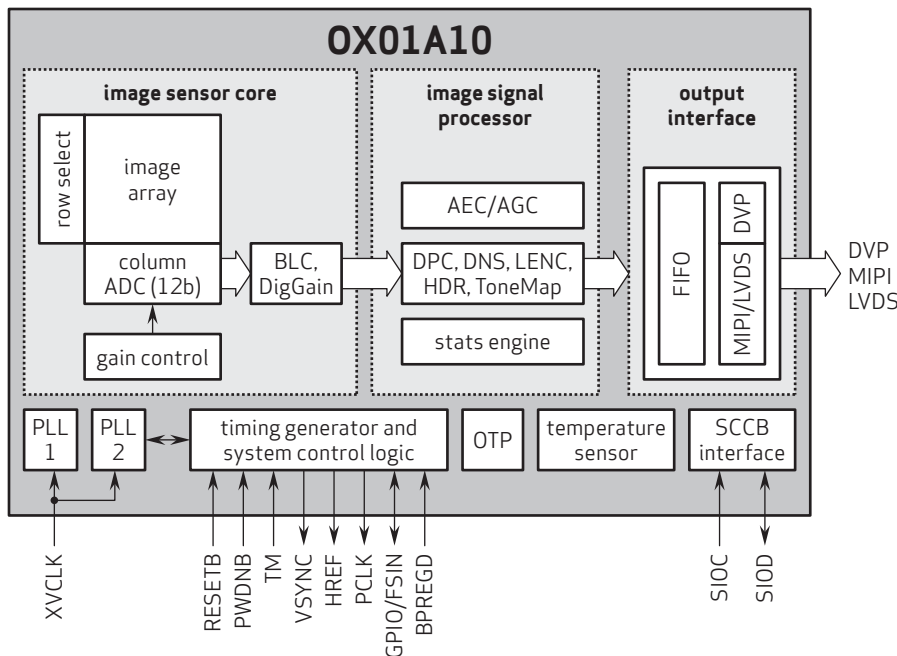
Ordering Information

- OX01A10-E79Y-PD** (color, lead-free) 78-pin a-CSP™ with dual coated AR glass, packed in tray with protective film
- OX01A10-E79Y-RD** (color, lead-free) 78-pin a-CSP™ with dual coated AR glass, packed in tray & reel with protective film

Product Specifications

- active array size:** 1280 x 1080
- 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
- power supply:**
 - analog: 3.14 - 3.47V
 - digital: 1.425 - 1.65V
 - DOVDD: 1.7 - 1.9V
 - AVDD: 1.7 - 1.9V
- power requirements:**
 - active: 360 mW
 - standby: 100 μW
- temperature range:**
 - operating: -40°C to +105°C sensor ambient temperature and -40°C to +125°C junction temperature
- scan mode:** progressive
- output interfaces:** 12-bit DVP, MIPI/LVDS CSI-2
- shutter:** rolling shutter
- input clock frequency:** 6 - 27 MHz
- maximum image transfer rate:** 60 fps full resolution
- lens size:** 1/2.56"
- sensitivity:** 8.4 V/Lux-sec
- max S/N ratio:** 41.5 dB
- lens chief ray angle:** 9°
- dynamic range:** 110 dB
- pixel size:** 4.2 μm x 4.2 μm
- image area:** 5410 μm x 4570 μm
- package dimensions:**
 - a-CSP™: 7430 μm x 7190 μm

Functional Block Diagram



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