



OX03J10

3 megapixel product brief



140 dB HDR with LED Flicker Mitigation Together in One SoC for Automotive Cameras

The OX03J10 is a 3MP high-sensitivity CMOS SoC for human vision and machine vision automotive applications, including 360° surround view display systems, rear view cameras and camera monitoring systems (CMS). It uniquely offers simultaneous 140 dB HDR and industry-leading LED flicker mitigation along with the best low light performance available.

The OX03J10 features 1920 x 1536 resolution in 1/2.4-inch optical format. The OX03J10 comes in the industry smallest a-CSP™ package. Size and cost are reduced due to the integration of the image signal processor with the sensor together in one SoC.

The OX03J10 features OMNIVISION's PureCel®Plus technology and uses a 3 μm Deep Well™ split pixel. It outputs YUV and RAW simultaneously. It is ASIL-C compliant.

Find out more at www.ovt.com.



- OX03J10-E76Y-001A-Z (RGGB, lead-free)
- 76-pin a-CSP™, rev 1A, packed in tray without protective film

Applications

- automotive
 - 360° surround view system
 - rear view camera
 - camera monitoring system (CMS)

Technical Specifications

- active array size:** 1920 x 1536
- maximum image transfer rate:** 30 fps @ 1920 x 1536 (combined HDR in YUV422/RGB888 + 16/14/12-bit (PWL) raw combined HDR)
- power supply:**
 - analog: 3.3V
 - digital: 1.1V
 - I/O pins: 1.8V or 3.3V
- power requirements:**
 - active: 560 mW (streaming 1920 x 1536 @ 30 fps typical)
- output interfaces:** up to 4-lane MIPI CSI-2
- temperature range:** operating: -40°C to +105°C sensor ambient temperature and -40°C to +125°C junction temperature
- lens size:** 1/2.44" for 1920 x 1536 image size
- lens chief ray angle:** 21.79°
- output formats:** combined HDR in YUV422/RGB888 + 16/14/12-bit (PWL) raw combined HDR, uncompanded 24-bit or 20/16/14/12-bit (PWL) raw combined HDR
- pixel size:** 3.0 μm x 3.0 μm
- image area:** 5808 μm x 4656 μm

Product Features

- resolution: 1920 x 1536 and cropped sizes
- high dynamic range
- high sensitivity
- dual conversion gain
- ASIL-B safety compliant
- image signal processing functions:
 - AEC/AGC/AWB
 - lens correction
 - defective pixel correction
 - HDR combination
 - tone mapping
 - automatic black level correction
- supported output formats:
 - YUV
 - RGB888
 - RAW
- supports LED flickering mitigation (LFM) function
- supports aiming function
- SPI master for overlay and loading settings
- distortion correction
- 50/60 Hz flicker cancellation
- SCCB for register access
- 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

