OX03A10 2.46MP product brief

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

lead free

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.

OmniVision.

Applications

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

OX03A10

Ordering Information

- **OX03A10-E80Y-1B-Z**
  (color, lead-free, 80-pin a-CSP™, packed in tray without protective film)

- **OX03A10-E80Y-OB-Z**
  (color, lead-free, 80-pin a-CSP™, packed in tape & reel with protective film)

- **OX03A10-E80Y-LB-Z**
  (color, lead-free, 80-pin a-CSP™, packed in tray with protective film)

- **OX03A10-B83Y-1B-Z**
  (color, lead-free, 83-pin a-BGA™, packed in tray without protective film)

- **OX03A10-B83Y-OB-Z**
  (color, lead-free, 83-pin a-BGA™, packed in tape & reel with protective film)

- **OX03A10-B83Y-LB-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

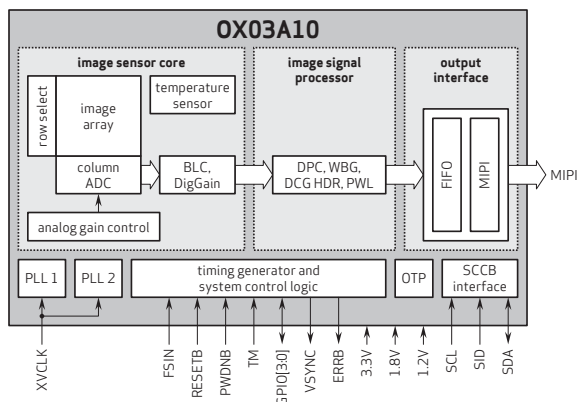- embedded temperature sensor

- one time programmable (OTP) memory

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
  @ 1280p50/1080p60: 370 mW
  (typical use-case)

- **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

- **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

- **shutter:** rolling shutter

- **maximum image transfer rate:**
  - **1080p:** 60 fps
  - **1280p:** 50 fps

- **sensitivity:** 35000 e-/Lux.s (green
  pixel response at 530 nm illumination)

- **max S/N ratio:** 45.4 dB

- **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 dimensions:**
  - **a-CSP™:** 8034 µm x 7210 µm
  - **a-BGA™:** 10 mm x 9 mm

Functional Block Diagram

Version 1.0, December, 2017