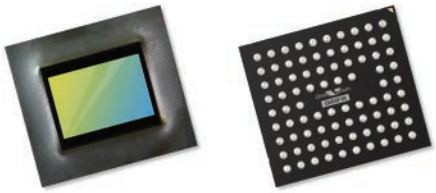


OX03F10 3MP product brief

Image Sensor Expands Family for Automotive Viewing Cameras with Higher 3MP Resolution and Added Cybersecurity

lead free

available in a lead-free package

OmniVision's OX03F10 image sensor expands our next-generation ASIL-C viewing camera family with higher 3MP resolution and cybersecurity features that are required as vehicle designers make the transition from Level 2 and 3 advanced driver assistance systems (ADAS) to higher levels of autonomy. The OX03F10 also maintains the family's unique combination of a large 3.0 micron pixel size with a high dynamic range (HDR) of 140 dB and the best LED flicker mitigation (LFM) performance for minimized motion artifacts. Additionally, the sensor is offered in a 1/2.44" optical format and features a 4-lane MIPI CSI-2 interface.

The OX03F10 is integrated with our HALE (HDR and LFM engine) combination algorithm, which remains the only imaging technology that can simultaneously provide top HDR and LFM performance. Additionally, it can deliver the wide vertical array resolution of 1920 x 1536p at the highest rate of 60 frames per second (fps). This provides the high image quality needed when feeding surround view system (SVS) captures into autonomous, machine vision systems. The OX03F10's wider vertical array is also important in e-mirror applications, for wider coverage and blind-spot elimination.

The sensor maintains the industry's smallest package size, along with low power consumption, enabling the placement of cameras that continuously run at 60 fps in even the tightest spaces for stringent styling requirements. It also retains the family's basic image processing capabilities, including defect pixel correction and lens correction. In combination with HALE, these features provide the greatest image quality for automotive viewing applications, across all lighting conditions and in the presence of flickering LEDs from headlights, road signs and traffic signals.

OmniVision's Deep Well™, dual conversion gain technology enables the OX03F10 to capture significantly lower motion artifacts than the few competing sensors that offer 140 dB HDR. Additionally, the company's split-pixel LFM technology with four captures offers the best performance over the entire automotive temperature range.

This next-generation family of viewing camera image sensors also features OmniVision's PureCel®Plus-S stacked architecture, which provides pixel performance advantages over nonstacked technology. For example, 3D stacking allowed OmniVision to boost pixel and dark current performance, resulting in a significant performance improvement over the prior generation of its viewing camera sensors.

Find out more at www.ovt.com.

OmniVision

OX03F10

Applications

- Automotive
  - Surround View System
  - Rear View Camera
  - Autonomous Driving
  - E-Mirror

Product Features

- support for image size:
  - 1920 x 1536, and any cropped size
- up to 4 captures and on-chip combination HDR output
- support for LED flicker mitigation (LFM)
- motion free HDR (3 capture)
- 4 capture HDR optimized to reduce motion artifacts
- SCCB for register programming
- high speed serial data transfer with MIPI CSI-2
- safety features for supporting ASIL C applications
- image sensor processor functions:
  - lens shading correction
  - defective pixel cancellation
  - HDR combination
  - automatic black level correction
  - PWL compression, etc.
- cybersecurity for camera/host interface hacking preventing
- external frame synchronization capability
- embedded temperature sensor
- embedded supply voltage monitor
- one-time programmable (OTP) memory

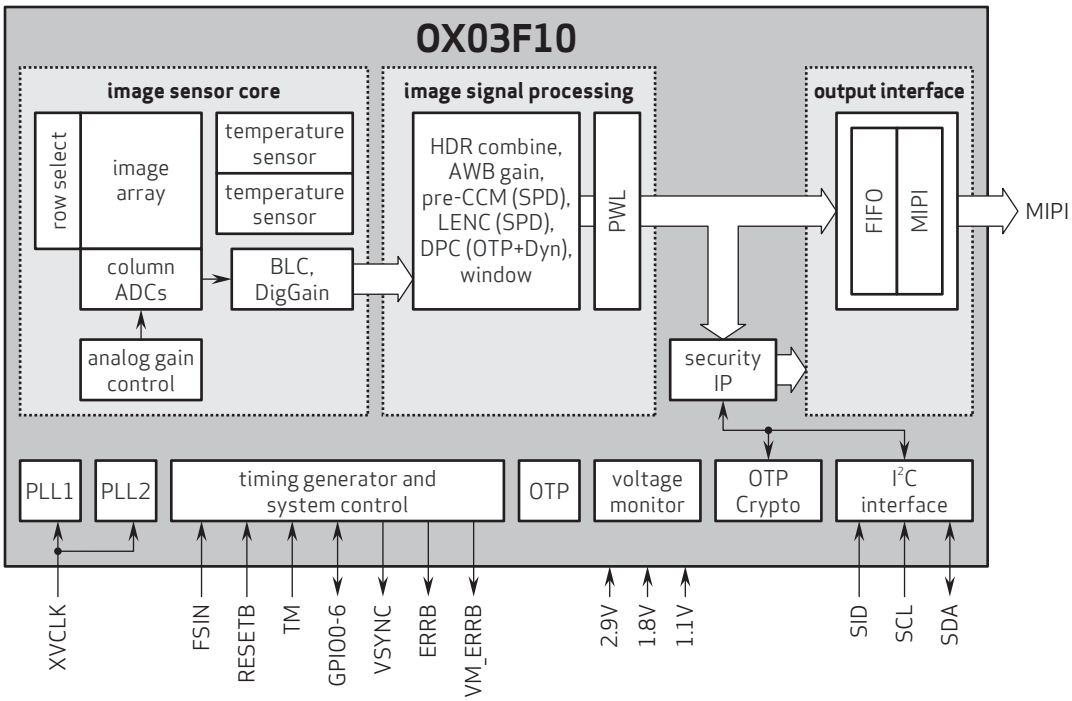
Ordering Information

- **OX03F10-B84Y-001A-Z**
  (color, lead-free) 84-pin a-BGA™ packed in tray without protective film

Technical Specifications

- **active array size:** 1920 x 1536
- **maximum image transfer rate:**
  - **1920 x 1536:** 60 fps
- **power supply:**
  - **analog:** 2.9V
  - **digital:** 1.1V
  - **I/O pads:** 1.8V
- **power requirements:**
  - 430 mW (1920 x 1536 60 fps)
  - 390 mW (1920 x 1080 60 fps)
- **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
- **lens size:** 1/2.44"
- **lens chief ray angle:** 21.8°
- **output formats:** uncompressed 24-bit, 20/16/14/12-bit (PWL) combined HDR (4 captures)
- **pixel size:** 3 µm x 3 µm
- **image area:** 5808 µm x 4656 µm

Functional Block Diagram



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Version 1.0, January 2021