OX08D10

8-megapixel product brief

Automotive Image Sensor with TheiaCel™ Technology Eliminates LED Flicker in Exterior Cameras

The OX08D10 is an 8-megapixel (MP) automotive image sensor that combines all of the most important features, including low-light performance, LED flicker mitigation (LFM), high dynamic range (HDR), small size and low power, eliminating the need for automotive OEMs to make performance / design compromises to address LED flicker. It is the first image sensor to features OMNIVISION's new 2.1-micron (µm) TheiaCel™ technology, which harnesses the capabilities of next-generation lateral overflow integration capacitors (LOFIC) and OMNIVISION's DCG™ high dynamic range (HDR) technology to eliminate LED flicker regardless of lighting conditions.

The new OX08D10 achieves overall superior performance in key areas compared to its non-LOFIC-based predecessor – in particular, its LFM dynamic range is 3.3x higher and total dynamic range nearly 3x higher. It features upgraded cybersecurity to comply with the newest MIPI CSE version 2.0 standards.

Find out more at www.ovt.com.

OMNIVISION®

OX08D10

Ordering Information

- **OX08D10-E92U-001A-Z (RGGB, lead-free)**
  92-pin a-CSP™, packed in tray without protective film
- **OX08D10-E92Y-001A-Z (RGGB, lead-free)**
  92-pin a-CSP™, packed in tray without protective film

Applications

- automotive
  - high resolution front viewing
  - machine vision
  - autonomous driving
  - digital video recording

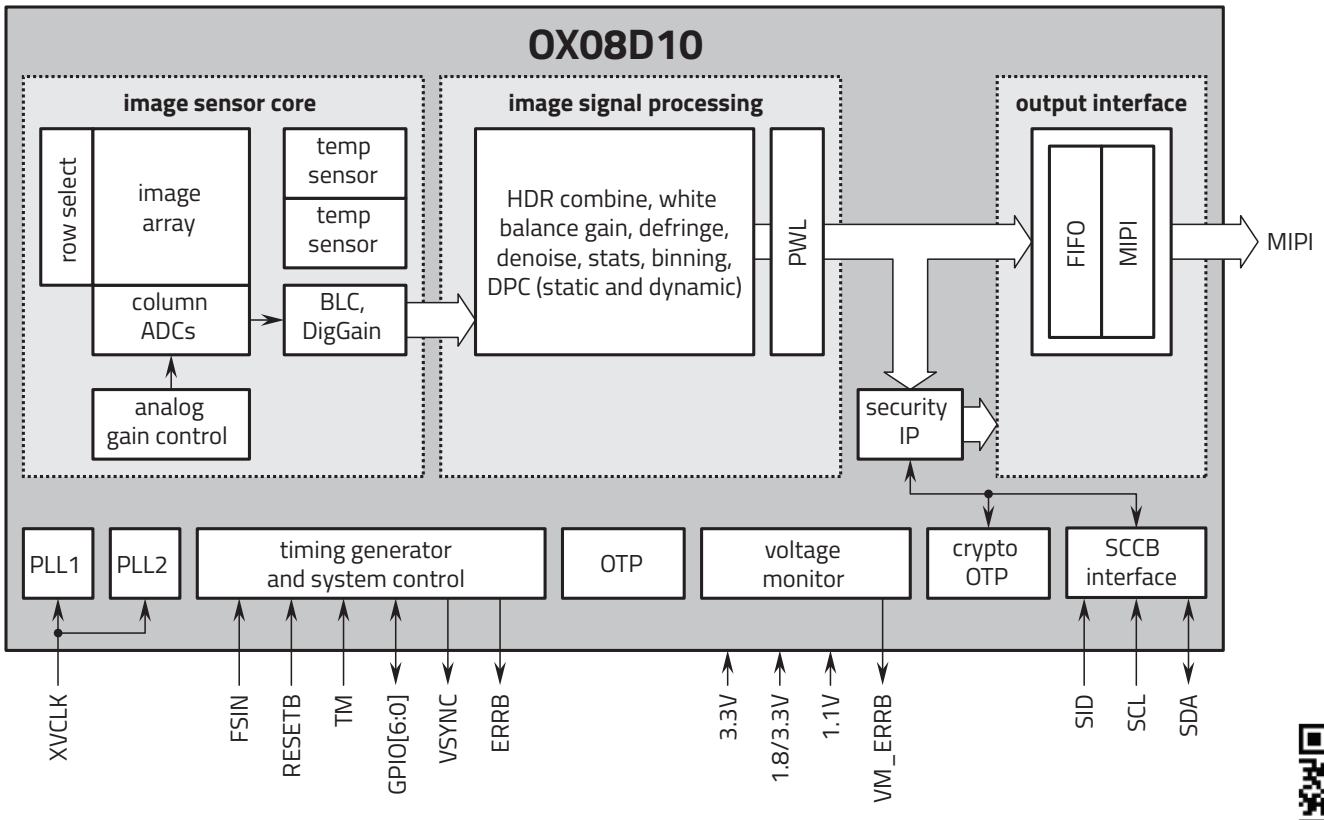
Technical Specifications

- **active array size:** 3840 x 2160
- **maximum image transfer rate:**
  45 fps @ 3840 x 2160
- **power supply:**
  - analog: 3.3V
  - digital: 1.1V
  - I/O pads: 1.8/3.3V
- **power requirements:**
  - 880 mW (@ 45 fps)
  - 742 mW (@ 36 fps)
- **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:** 1/1.73"
- **lens chief ray angle:** 18° linear
- **output formats:** uncompressed 24-bit (HDR4)/20-bit (HDR3), and 20/16/14/12-bit (PWL) combined HDR (4 captures)
- **pixel size:** 2.1 µm x 2.1 µm
- **image array area:**
  8080.8 µm x 4552.8 µm

Product Features

- support for image size:
  - 3840 x 2160, and any cropped size
- up to 4 captures and on-chip combination HDR output:
  - HDR4: DCG + LOFIC + VS
  - HDR3: LCG + LOFIC + VS
  - HDR3: DCG + LOFIC
  - PWL mapping 24-bit to 20-, 16-, 14-, or 12-bit
- support for LED flicker mitigation (LFM) using LOFIC
- SCCB for register programming
- high speed serial data transfer with MIPI CSI-2
- ASIL C HW metrics
- image signal processor functions:
  - white balance gain
  - defective pixel correction
  - defringe
  - denoise
  - HDR combination
  - PWL compression, etc.
- cybersecurity for camera/host interface hacking prevention
- external frame synchronization capability
- embedded temperature sensor
- embedded supply voltage monitor
- one-time programmable (OTP) memory

Functional Block Diagram



Version 1.0, September 2023

4275 Burton Drive
Santa Clara, CA 95054
USA

Tel: + 1 408 567 3000
Fax: + 1 408 567 3001
www.ovt.com

OMNIVISION®