OX03H10

3-megapixel product brief

OX03H10 Image Sensor with TheiaCel™ Technology Brings Unparalleled Clarity to Automotive Viewing Cameras

The 3-megapixel (MP)-resolution OX03H10 CMOS image sensor has excellent low-light performance and unrivalled LED flicker mitigation (LFM) by utilizing a single exposure to generate the entire 140 dB dynamic range. This is achieved using TheiaCel™ technology, which harnesses the capabilities of lateral overflow integration capacitor (LOFIC) technology, together with OMNIVISION's proprietary single-exposure DCG™ and split pixel high dynamic range (HDR) technology, to enable superior image quality regardless of lighting conditions.

At 1920 x 1536 resolution, the OX03H10 features 60 frames per second (fps) and has low power consumption. The 3.0 µm pixel is based on PureCel®Plus-S stacking technology for the smallest pixel and highest resolution in a 1/2.44-inch optical format. It comes in a small a-CSP™ package size and is pin-to-pin compatible with OMNIVISION's OX03F10 automotive image sensor for seamless upgrades. The OX03H10 meets ASIL C functional safety regulations, features cybersecurity and has a MIPI output interface.

The OX03H10 is available for sampling now and will be in mass production in the first half of 2025.

Find out more at www.ovt.com.

OX03H10

Ordering Information

- **OX03H10-E74Y-001A-Z** (color, lead-free)
  74-pin a-CSP™, packed in tray without protective film

Applications

- automotive
  - SVS
  - rear view cameras
  - autonomous driving
  - e-mirrors

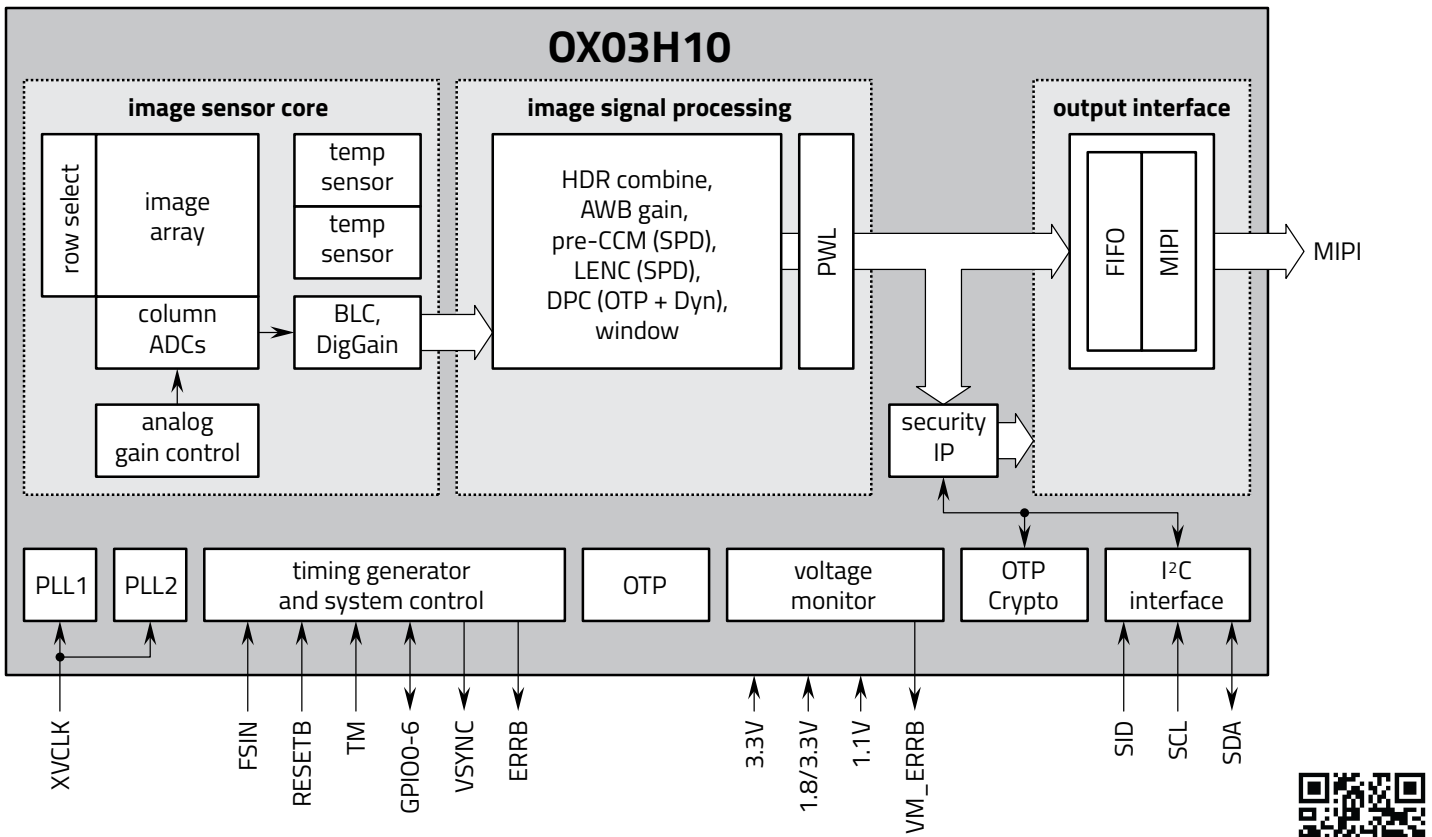
Technical Specifications

- **active array size:** 1920 x 1536
- **maximum image transfer rate:**
  - 60 fps @ 1920 x 1536
- **power supply:**
  - analog: 3.3V
  - digital: 1.1V
  - I/O pads: 1.8/3.3V
- **power requirements:**
  - 581 mW (1920 x 1536 @ 60 fps)
  - 445 mW (1920 x 1080 @ 60 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
- **output formats:** uncompressed 24-bit, 20/16/14/12-bit (PWL) combined HDR (4 captures)
- **lens size:** 1/2.44"
- **lens chief ray angle:** 21.8°
- **pixel size:** 3 µm x 3 µm
- **image area:** 5808 µm x 4656 µm

Product Features

- support for image size: 1920 x 1536 and any cropped size
- up to 4 captures and on-chip combination HDR output
  - HDR4: DCG™ (LPD) + SPD + LOFIC
  - HDR3: DCG™ (LPD) + SPD
  - PWL mapping from 24-bit to 20, 16, 14, and 12-bit
- support for LED flicker mitigation (LFM)
- 4-capture HDR scheme optimized for LFM and motion artifact reduction
- SCCB for register programming
- high speed serial data transfer with MIPI CSI-2
- safety features for supporting ASIL C applications
- image signal processor functions:
  - lens shading correction
  - defective pixel cancellation
  - 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



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