OV02E

2-megapixel product brief

1080p Full HD Image Sensor with Staggered HDR for High-performance Video in Thin Bezel Notebooks and Tablets

The OV02E is a 1080p full high-definition (HD) image sensor with staggered high dynamic range (HDR) for devices with thin bezel designs, including mainstream and premium notebooks, tablets and IoT devices. The feature-packed 1/7.3-inch-format sensor works with artificial intelligence (AI) chips to sense human presence in always-on ultra-low power mode, extending battery life for portable devices.

The OV02E has a small die size for cameras with the most compact footprint, ideal for devices with a screen-to-body ratio of less than 3 mm Y size, such as tablets and wearable devices. OMNIVISION's OV02E sensor has a 1.12-micron (µm) backside-illuminated (BSI) pixel based on the company's proven and proprietary PureCel®Plus architecture for advanced pixel sensitivity and quantum efficiency. The sensor features 2-megapixel (MP) full HD 1080p video at 60 frames per second (fps). It supports multiple camera synchronization for machine vision and IoT applications where depth detection is needed.

The OV02E sensor's always-on capability features an ultra-low power state that works with mobile MIPI and SPI.

Find out more at www.ovt.com.

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OV02E

Ordering Information

- **OV02E10-A20A-001A-Z** (color, lead-free) 20-pin CSP
- **OV02E10-GA5A-001A-Z** (color, engineering sample, 150 µm backgrinding, reconstructed wafer with good die)

Applications

- notebooks / PC
- tablets, detachables, and 2-in-1s
- wearables

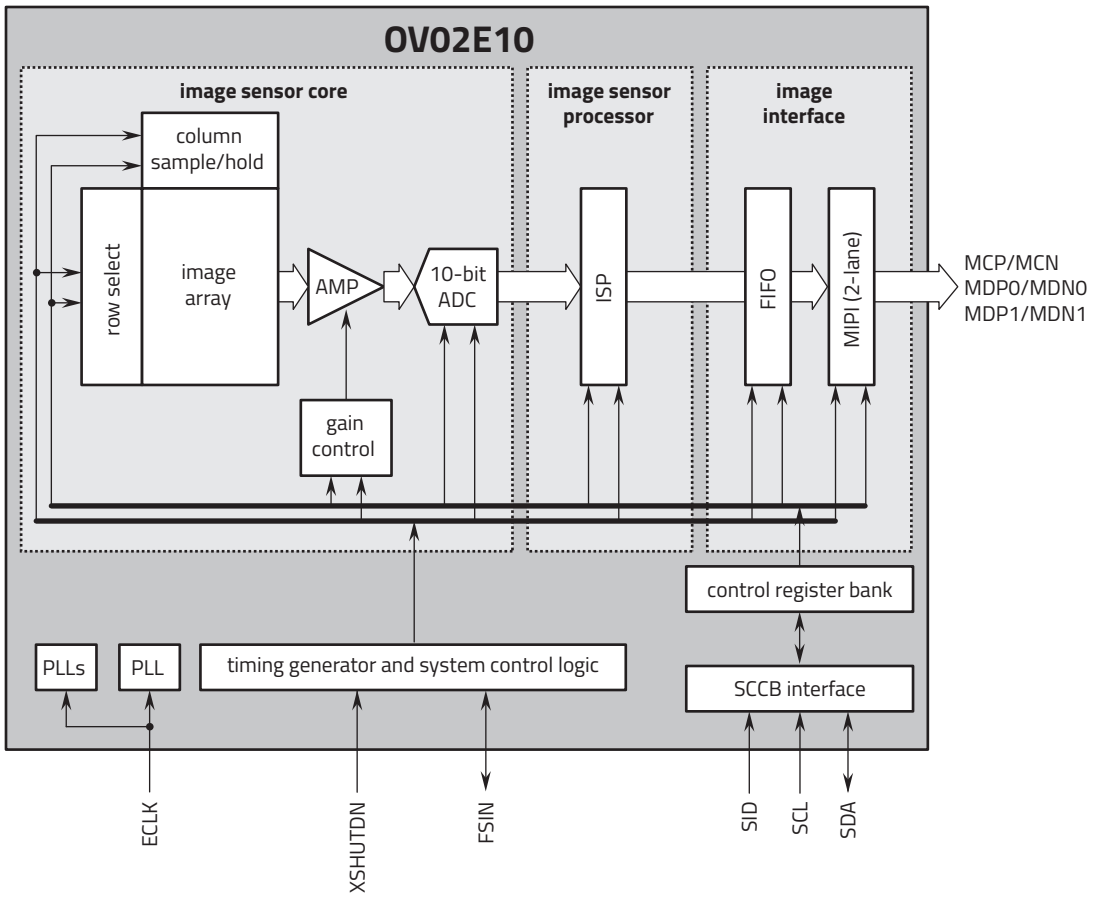
Technical Specifications

- **active array size:** 1928 x 1088
- **maximum image transfer rate:**
  - full size normal (1928 x 1088): 60 fps
  - full size HDR (1928 x 1088): 30 fps
- **power supply:**
  - analog: 2.8V (2.7V ~ 3.0V)
  - I/O: 1.7V ~ 1.9V
  - core: 1.2V (1.14V ~ 1.26V)
- **temperature range:**
  - operating: -30°C to +85°C junction temperature
  - stable: 0°C to +60°C junction temperature
- **output interfaces:** 10-bit 2-lane MIPI
- **output formats:**
  - 10-bit RGB RAW
  - 8-bit RGB RAW for ULP
  - 8-bit EMZA SPI
- **lens size:** 1/7.3"
- **lens chief ray angle:** 33.98° non-linear
- **shutter:** rolling shutter
- **pixel size:** 1.12 µm x 1.12 µm
- **image area:** 2159.36 µm x 1218.56 µm

Product Features

- supports image sizes:
  - 1080p (1920 x 1080)
  - 720p (1280 x 720)
  - 540p (960 x 540)
  - 270p (480 x 270)
- supports mirror and flip, cropping, and windowing
- supports output formats: 10-bit RGB RAW
- two on-chip phase lock loops (PLLs)
- 2K bits of embedded one-time programmable (OTP) memory
- static DPC function based on OTP
- supports static defect pixel correction and automatic black level calibration
- two-wire serial bus control (SCCB)
- supports multi-camera synchronization function
- slave SCCB interface for sensor setting, with max 400 kHz (supports 1 MHz with ECLK 12 MHz) speed

Functional Block Diagram



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4275 Burton Drive
Santa Clara, CA 95054
USA

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

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