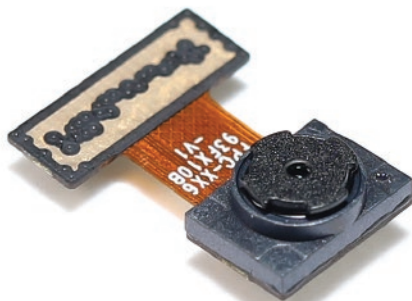# OV08X

9.2 megapixel product brief

OV08X Brings High Dynamic Range
4K Video Conferencing to Laptop PCs

The OV08X is a 9.2-megapixel (MP) CMOS image sensor with pixel size of 0.7-micron, enabling 4K resolution in a 1/5.7-inch optical format. The OV08X can be used in the most stringent 4 mm y-dimension module laptops with 16:10 (1920 x 1200) aspect ratio monitors. It is the first image sensor for the laptop market to integrate a four-cell color filter array and on-chip hardware remosaic, providing high-quality, 9.2MP Bayer output in real time. OV08X enables new autoframing and human presence detection features.

The OV08X is built on OMNIVISION's PureCel®Plus-S stacked-die technology for a small module footprint. It outputs 4K video at 30 frames per second and utilizes four-cell pixel binning with two-exposure staggered HDR timing to minimize motion artifacts and capture crisp, clear video in difficult lighting conditions. The sensor is built with a low-power image signal processor to provide leading-edge light sensing mode and ultra-low power to maximize battery life.

Find out more at www.ovt.com.

Ordering Information

- **OV08X40-GA5A-001A-Z** (RGGB, chip probing, 150 μm backgrinding, reconstructed wafer with good die)

Applications

- notebooks and PCs
- tablets, detachables, and 2-in-1s
- video conferencing
- smartphones and feature phones

Technical Specifications

- **active array size:** 3840 x 2400

- **maximum image transfer rate:**
  - 4K (3840x2400): 30 fps

- **power supply:**
  - core: 1.1V
  - analog: 2.8V (2.7~3.0V)
  - I/O: 1.2V (1.1~1.3V) or 1.8V (1.7~1.9V)

- **power requirements:**
  - active: 250 mW (4K @ 30 fps)
  - XSHUTDOWN: <10 μA

- **output formats:**
  10-bit RGB RAW

- **temperature range:**
  - operating: -30°C to +85°C junction temperature
  - stable: 0°C to +60°C junction temperature

- **lens size:** 1/5.66"

- **lens chief ray angle:** 35.14° non-linear

- **scan mode:** progressive

- **pixel size:** 0.702 μm x 0.702 μm

- **image area:**
  2718.144 μm x 1707.264 μm

Product Features

- automatic black level calibration (ABLC)

- programmable controls for:
  - frame rate
  - mirror and flip
  - binning
  - cropping
  - windowing

- supports output formats:
  - 10-bit 4C RGB RAW
  - 10-bit Bayer RAW

- supports ambient light sensor (ALS) mode: 8-bit B&W RAW

- supports ultra-low power (ULP) mode:
  - 8-bit RGB
  - B&W RAW

- supports typical images sizes:
  - 3840 x 2160
  - 2592 x 1944
  - 2560 x 1440
  - 1920 x 1080
  - 1280 x 720
  - 960 x 540

- 4-lane MIPI D-PHY TX interface with speed up to 1.0 Gbps/lane for long MIPI cable

- 2-lane MIPI D-PHY TX interface with speed up to 2.0 Gbps/lane

- MIPI serial output interface / 2-wire serial output selectable in ULP mode

- support for dynamic defect pixel cancellation (DPC)

- standard serial SCCB interface

- 4-cell support:
  - 4-cell binning
  - 4-cell full

- HDR support: stagger HDR 2 exposure timing

- on-chip 4-cell to Bayer converter and on-chip FHD to 4K upscale

- two on-chip phase lock loops (plls) with SSC support and 1 on-sensor clock oscillator (OSC)

- programmable I/O drive capability

Functional Block Diagram

OMNIVISION™