



# OV13A10

## 13 megapixel product brief



### High-Performance 13-Megapixel PureCel®Plus-S Image Sensor Optimized for Dual-Camera Smartphone Applications

OMNIVISION's OV13A10 is an ultra-compact 13-megapixel image sensor built on OMNIVISION's second-generation, 1.0-micron PureCel®Plus-S stacked die pixel technology. Designed specifically for dual-camera applications, the OV13A10 achieves a z-height of less than 6 mm, meeting the compact space requirements of next-generation smartphones.

A customized chief ray angle (CRA) enables the OV13A10 to be used as a tele-sensor in a 2x optical zoom configuration, which offers DSLR-like image quality and user experience. The OV13A10 is also optimized for dual-camera zoom solutions, with features such as context switching and frame synchronizing to simplify camera system architecture.

The OV13A10 brings a host of advanced imaging capabilities to smartphones, including zigzag high dynamic range (zHDR) and phase-detection autofocus (PDAF), which extends the sensor's dynamic range capabilities and enables snap-quick autofocus, respectively. The sensor supports multiple resolution and frame-rate configurations, including full-resolution 13-megapixel images and video at 30 frames per second (fps) with zHDR, 4K2K video at 30 fps, and 1080p video at 60 fps.

Find out more at [www.ovt.com](http://www.ovt.com).



- OV13A10-GA5A (color, chip probing, 150  $\mu\text{m}$  backgrinding, reconstructed wafer with good die)

## Applications

- smartphones
- video conferencing
- PC multimedia

## Technical Specifications

- active array size:** 4224 x 3136
- maximum image transfer rate:**
  - 4224 x 3136: 30 fps
  - 4224 x 2376: 30 fps
  - 2112 x 1568: 60 fps
  - 2112 x 1188: 60 fps
  - 1408 x 792: 60 fps
- power supply:**
  - core: 1.2V
  - analog: 2.8V
  - I/O: 1.8V
- power requirements:**
  - active: 228 mW
  - standby: 1.2 mW
  - XSHUTDOWN: <20  $\mu\text{A}$
- temperature range:**
  - operating: -30°C to +85°C junction temperature
  - stable: 0°C to +60°C junction temperature
- lens size:** 1/3.4"
- lens chief ray angle:** 29.48° non-linear
- scan mode:** progressive
- pixel size:** 1.008  $\mu\text{m}$  x 1.008  $\mu\text{m}$
- image area:** 4290.05  $\mu\text{m}$  x 3193.34  $\mu\text{m}$
- 13MP @ 30 fps, 4K2K @ 30 fps**
- supports phase detection auto focus (PDAF) pixels with bypass PD pixels**
- supports dynamic defect pixel correction (DPC)**
- automatic black level calibration (ABLC)**
- total embedded one-time programmable (OTP) memory:** 1536 bytes
- supports typical images sizes:**
  - 4224 x 3136
  - 4224 x 2376
  - 2112 x 1568
  - 2112 x 1188
  - 1408 x 792
- supports horizontal and vertical subsampling**
- programmable I/O drive capability**
- supports ZigZag HDR timing**
- programmable controls for:**
  - frame rate
  - mirror and flip
  - cropping
  - windowing
- up to 4-lane MIPI TX interface with speed up to 1.2 Gbps/lane**
- standard serial SCCB interface with speed up to 1 MHz (when clock input is >10 MHz)**
- supports output formats:**
  - 10-bit RAW RGB
  - DPCM 10-8 compression
- long exposure time of up to 30 seconds**
- two on-chip phase lock loops (PLLs)**
- built-in temperature sensor**
- typical module size:** 8.5 x 8.5 x <6 mm

## Functional Block Diagram

