



# OV0A

## 200 megapixel product brief



### World's Smallest 200MP Image Sensor with 0.56-micron Pixel for Superior Low-light Performance in High End Smartphones

The OV0A is one of the world's smallest 200MP image sensors designed for rear facing (wide angle) main cameras in high-end smartphones. It leverages OMNIVISION's PureCel®Plus-S stacked die technology to maintain extremely high resolution in the smaller 0.56  $\mu\text{m}$  pixel size with a 1/1.4" optical form factor. With its unique 16-cell binning capability, the OV0A image sensor delivers the best low-light performance in its class. It also features 100% quad phase detection (QPD) technology for superior autofocus.

The OV0A sensor features selective conversion gain for the optimum balance between low-light image quality and high dynamic range (HDR). This enables smartphone OEMs to

optimize HDR performance for the contrasting light and dark areas in any scene. It also has 16-cell binning to achieve premium video capture of 12.5MP/4K at 120 frames per second (fps) or 12.5MP/4K at 60 fps with 2-exposure staggered HDR timing. 8K video and 2x crop zoom (with HDR) at 12.5MP is enabled using an on-chip remosaic function.

The OV0A supports CPHY, DPHY and dual DOVDD (1.8V and 1.2V).

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



- OVBOAHO-GA5A-004A-Z (color, chip probing, 150µm backgrinding, reconstructed wafer with good die)

## Applications

- mobile wide camera
- mobile ultrawide camera
- video conferencing

## Technical Specifications

- active array size:** 16384 x 12288
- maximum image transfer rate:**
  - 200MP (16384x12288): 8 fps
  - 50MP (8192x6144): 30 fps
  - 12.5MP (4096x3072): 120 fps
- power supply:**
  - core: 1.1V
  - analog: 2.8V
  - I/O: 1.8V/1.2V
- power requirements:**
  - active: 1350 mW (50 MP @ 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
  - temperature sensor: ±5°C between 0°C to +80°C
- lens size:** 1/1.395"
- lens chief ray angle:** 35.5° non-linear
- scan mode:** progressive
- pixel size:** 0.56 µm x 0.56 µm
- image area:** 9210.88 µm x 6917.12 µm

## Product Features

- automatic black level calibration (ABLC)
- programmable controls for:
  - frame rate
  - mirror and flip
  - binning
  - cropping
  - windowing
- support for dynamic DPC
- supports output formats:
  - 10-bit RGB 16C RAW
  - 10-bit RGB Bayer
  - 10-bit RGB Bayer HDR
- supports typical images sizes:
  - 16384 x 12288
  - 8192 x 6144
  - 7680 x 4320
  - 4096 x 3072
  - 3840 x 2160
  - 2048 x 1536
  - 1920 x 1080
  - 1280 x 720
- standard serial SCCB interface
- 4-lane D-PHY MIPI TX interface, up to 3.0 Gbps per lane
- 2/3 trio C-PHY interface, up to 3.5 Gbps/trio
- supports:
  - 4-cell binning
  - 4-cell full
  - 16-cell binning
  - 16-cell full
- HDR support:
  - stagger HDR 2/3 exposure timing
  - multi frame HDR 2/3 exposure timing
- on-chip 4-cell to Bayer converter
- three on-chip phase lock loops (PLLs)
- programmable I/O drive capability
- dual I/O power supply (1.2V/1.8V)
- built-in temperature sensor
- 0.56 µm pixel

## Functional Block Diagram

