

# OV13855 13MP product brief



## 13-Megapixel PureCel®Plus Sensor Brings High-End Imaging Capabilities to Mainstream Smartphones



available in  
a lead-free  
package

OmniVision's high performance OV13855 is a 13-megapixel PureCel®Plus image sensor designed to bring high-quality imaging to rear-facing camera applications in mainstream smartphones. It is also well-suited for front-facing and dual camera applications in high-end mobile devices. In addition to best-in-class pixel performance, this third generation 13-megapixel sensor also offers advanced features, such as phase detection autofocus (PDAF).

Built on OmniVision's PureCel®Plus pixel technology, the OV13855 delivers significant improvements in low-light performance, color crosstalk reduction, and angular response when compared with previous-generation 13-megapixel sensors. The OV13855 captures full-

resolution 13-megapixel still images at 30 frames per second (fps) and records ultra-high resolution 4K2K video at 30 fps or 1080p full high definition (HD) at 60 fps.

The OV13855 fits in 8.5 x 8.5 mm autofocus modules with z-heights of less than 5 mm for rear cameras, and 7.5 x 7.5 mm fixed focus modules with z-heights of less than 4.5 mm for high-end front-facing cameras. The sensor is available in non-PDAF (OV13858) and monochrome (OV13355) versions for front-facing and dual camera applications.

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



## Applications

- Smartphones and Feature Phones
- Tablets
- PC Multimedia
- Wearables

## Product Features

- 1.12  $\mu\text{m}$  x 1.12  $\mu\text{m}$  pixel
- optical size of 1/3.06"
- 33.15° CRA
- support for PDAF
- 13MP at 30 fps
- programmable controls for:
  - frame rate
  - mirror and flip
  - cropping
  - windowing
- supports images sizes:
  - 13MP (4224x3136)
  - 10MP (4224x2376)
  - 3MP (2112x1568), and more
- total embedded one-time programmable (OTP) memory: 1024 bytes, 416 bytes for customer use, remaining bytes for internal use
- support for output formats: 10-bit RGB RAW
- interlaced row HDR output
- two-wire serial bus control (SCCB)
- MIPI serial output interface (1-, 2-lane, or 4-lane)
- two on-chip phase lock loops (PLLs)
- 2x binning support
- image quality controls:
  - defect pixel correction
  - automatic black level calibration
  - lens shading correction
- built-in temperature sensor
- suitable for module size of 8.5 x 8.5 x <5 mm

# OV13855



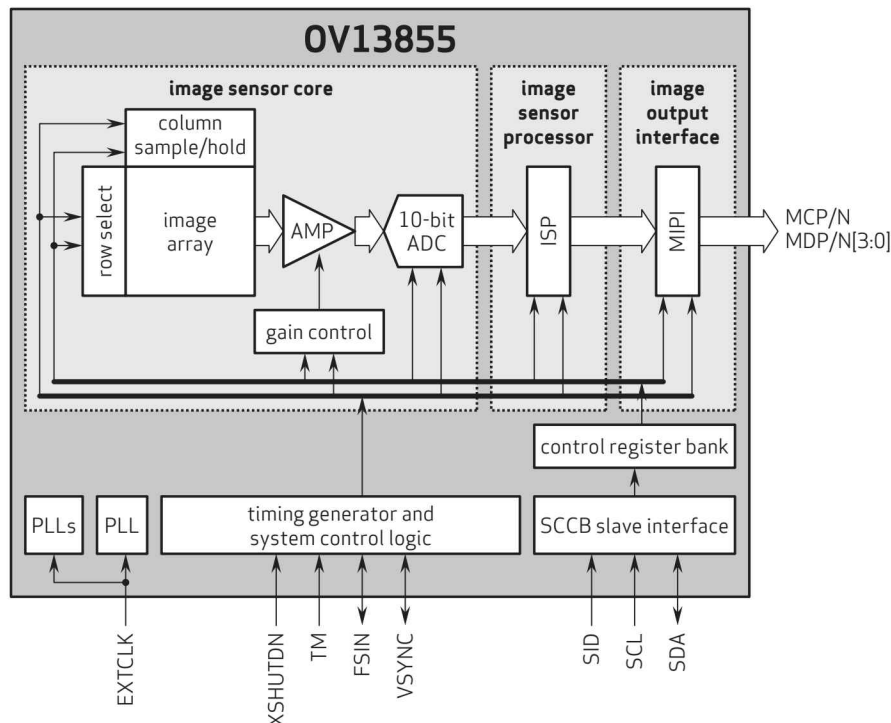
## Ordering Information

- OV13855-GA5A**  
(color, chip probing, 150  $\mu\text{m}$  backgrinding, reconstructed wafer)

## Product Specifications

- active array size:** 4256 x 3168
- power supply:**
  - core: 1.14 - 1.26V (1.2V nominal)
  - analog: 2.7 - 3.0V (2.8V nominal)
  - I/O: 1.7 - 1.9V (1.8V nominal)
- power requirements:**
  - active: 233 mW (based on ISP ON)
  - standby: 1 mW
  - XSHUTDOWN: <10  $\mu\text{A}$
- temperature range:**
  - operating: -30°C to +85°C junction temperature
  - stable image: 0°C to +60°C junction temperature
- output interfaces:** 4-lane MIPI serial output
- output formats:** 10-bit RGB RAW
- lens size:** 1/3.06"
- input clock frequency:** 6 - 27 MHz
- lens chief ray angle:** 33.15° non-linear
- maximum image transfer rate:**
  - 13MP (4224x3136): 30 fps
  - 10MP (4224x2376): 30 fps
  - 3MP (2112x1568): 60 fps
- sensitivity:** 3900 e<sup>-</sup>/Lux-sec
- max S/N ratio:** 36.5 dB
- dynamic range:** 65 dB @ 1x gain
- minimum exposure:** 4-row
- maximum exposure:** VTS-8
- pixel size:** 1.12  $\mu\text{m}$  x 1.12  $\mu\text{m}$
- dark current:** 6 e<sup>-</sup>/sec @ 60°C junction temperature
- image area:** 4749.70  $\mu\text{m}$  x 3535.49  $\mu\text{m}$
- die dimensions:**
  - COB: 5868  $\mu\text{m}$  x 4950  $\mu\text{m}$
  - RW: 5918  $\mu\text{m}$  x 5000  $\mu\text{m}$

## Functional Block Diagram



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