OV13855 13MP product brief



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

lead free

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.

OmniVision

OV13855

Applications

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

Product Features

- 1.12 µm x 1.12 µm 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

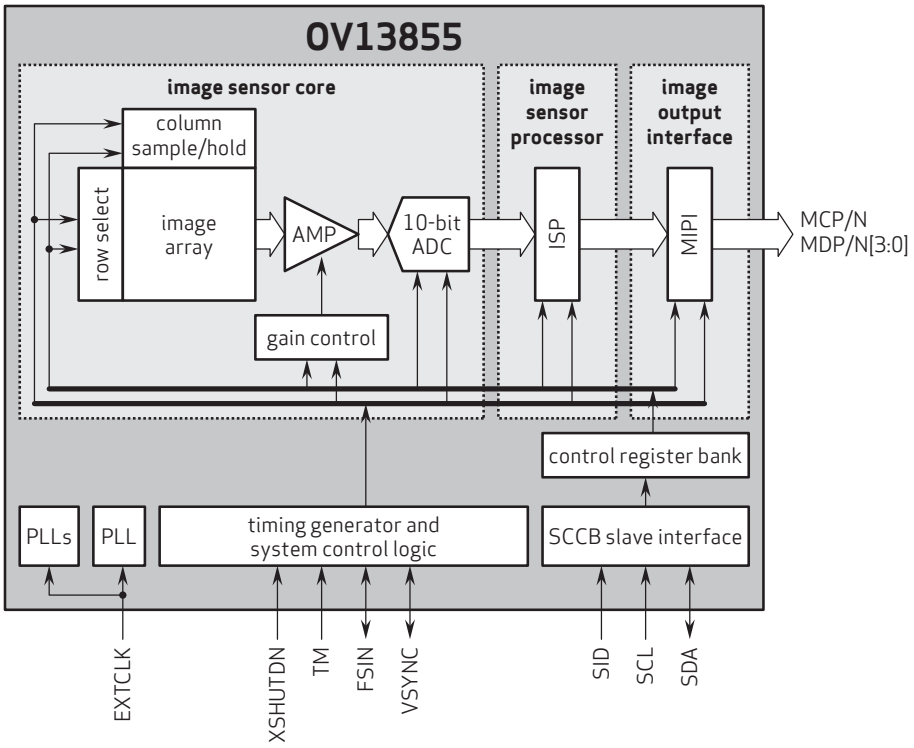
Ordering Information

- **OV13855-GA5A-2A**
  (color, chip probing, 150 µm backgrinding, reconstructed wafer)

Product Specifications

- **active array size:** 4256 x 3168
- **power supply:**
  - **analog:** 2.7 - 3.0V (2.8V nominal)
  - **core:** 1.14 - 1.26V (1.2V nominal)
  - **I/O:** 1.7 - 1.9V (1.8V nominal)
- **power requirements:**
  - **active:** 233 mW (based on ISP ON)
  - **standby:** 1 mW
  - **XSHUTDOWN:** <10 µA
- **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 - 64 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⁻/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 µm x 1.12 µm
- **image area:** 4749.70 µm x 3535.49 µm
- **die dimensions:**
  - **COB:** 5868 µm x 4950 µm
  - **RW:** 5918 µm x 5000 µm

Functional Block Diagram



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