OV13B10 13MP product brief

1/3-inch 13MP Image Sensor for Mainstream and Entry-Level Smartphone Cameras

lead free

available in a lead-free package

The OmniVision OV13B image sensor is the latest addition of our widely deployed 13MP family, featuring a 1/3-inch optical format and ultra-low power consumption. Built with our PureCel®Plus pixel technology, the OV13B provides mainstream and entry-level smartphone designers with the industry's best 1.12 micron pixel performance for rear- or front-facing cameras. This sensor will not only fulfill the tremendous demand in the mainstream market, but can also boost the performance of entry-level smartphones. Additionally, it is a perfect fit for both wide-angle and telephoto cameras in multi-camera configurations.

In comparison with its predecessors, the OV13B has significantly lower power consumption for extended battery life. It also has a smaller chip size, enabling an

8.5 mm x 8.5 mm autofocus module for main cameras, or a 6.4 mm x 7.2 mm fixed focus module for front-facing cameras with a Z height below 4 mm.

The OV13B image sensor supports phase detection autofocus (PDAF), while providing multiple resolution options to meet the needs of end users, including full-resolution 13MP image output at 30 frames per second (fps), 4K2K video at 30 fps, 1080p full high definition (HD) at 60 fps, or 720p HD at 120 fps.

Find out more at www.ovt.com.

OmniVision

OV13B10

Applications

- Smart Phones and Feature Phones
- PC multimedia
- Tablets
- Wearables

Ordering Information

- OV13B10-GA5A-Z
  (color, chip probing, 150 µm backgrinding, reconstructed wafer with good die)

Product Features

- 1.12 µm x 1.12 µm pixel
- optical size of 1/3.06"
- 33.25° CRA
- support for phase detection auto focus (PDAF)
- 13MP at 30 fps
- programmable controls for:
  - frame rate
  - mirror and flip
  - cropping
  - windowing
- supports images sizes:
  - 13MP (4208x3120)
  - 10MP (4208x2368)
  - 3MP (2104x1560)
  - 1080p, and more

- support for output formats:
  - 10-bit RAW RGB
- total embedded one-time programmable (OTP) memory: 512 bytes
- two-wire serial bus control (SCCB)
- MIPI serial output interface (1-lane, 2-lane, or 4-lane)
- two on-chip phase lock loops (PLLs)
- 2x binning support
- image quality controls:
  - defect pixel correction (DPC)
  - automatic black level calibration (ABLC)
- suitable for module size of 8.5 x 8.5 x <5 mm

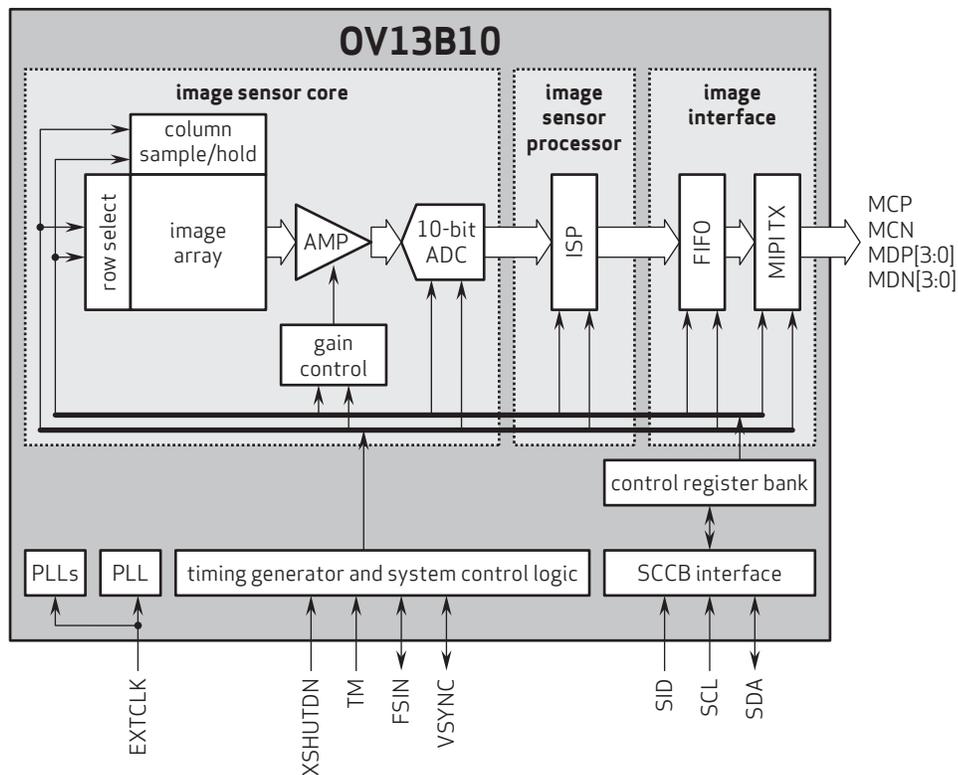## Product Specifications

- **active array size:** 4208 x 3120
- **power supply:**
  - **analog:** 2.7 to 2.9V (2.8V nominal)
  - **core:** 1.14 to 1.26V (1.2V nominal)
  - **I/O:** 1.7 to 1.9V (1.8V nominal)
- **temperature range:**
  - **operating:** -30°C to +85°C junction temperature
  - **stable image:** 0°C to +60°C junction temperature
- **output interface:** 4-lane MIPI serial output
- **output format:** 10-bit RGB RAW
- **lens size:** 1/3.06"
- **input clock frequency:** 6 - 64 MHz

- **lens chief ray angle:** 33.25° non-linear
- **maximum image transfer rate:**
  - **13MP (4208x3120):** 30 fps
  - **10MP (4208x2368):** 30 fps
  - **3MP (2104x1560):** 60 fps
  - **1080p (1920x1080):** 60 fps
- **minimum exposure:** 4-row
- **maximum exposure:** VTS-8
- **pixel size:** 1.12 µm x 1.12 µm
- **image area:** 4713.984 µm x 3499.776 µm
- **die dimensions:**
  - **COB:** 5412.6 µm x 4741.2 µm
  - **RW:** 5462.6 µm x 4791.2 µm

Functional Block Diagram

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