OMV12A10-OV12A1B 12MP product brief

OmniVision's color OV12A10 and monochrome OV12A1B are 12-megapixel image sensors designed to deliver premium image quality for both single-camera solutions and, in particular, dual-camera solutions in high-end and mainstream mobile markets. These 1.25-micron image sensors enable mobile dual-camera solutions to produce advanced DSLR features such as optical zoom, high dynamic range (HDR), and hand jitter reduction with excellent low-light performance and low power consumption.

The OV12A10 and OV12A1B sensors are built on OmniVision's PureCel®Plus technology, which implements buried color filter array (BCFA) and deep trench isolation (DTI) for dramatically reduced color crosstalk, as well as improved signal-to-noise ratio (SNR) and sensor angular response.

The 1/2.8-inch OV12A10 and OV12A1B include phase detection autofocus (PDAF) support and capture full-resolution 12-megapixel resolution at 30 frames per second (fps), 4K2K video at 30 fps, and 1080p resolution at 90 fps.

The OV12A10 and OV12A1B come in a package size of 8.5 mm x 8.5 mm with a z-height of 5 mm.

Find out more at www.ovt.com.
Applications

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

Product Features

- 1.25 µm x 1.25 µm pixel
- optical size of 1/2.8”
- 34.5° CRA
- 12MP at 30 fps
- programmable controls for:
  - frame rate
  - mirror and flip
  - cropping
  - windowing
- supports images sizes:
  - 12MP (4096x3072)
  - 4K2K (3840x2160)
  - 1080p (1920x1080), and more
- 416 bytes of embedded one-time programmable (OTP) memory for customer use
- support for output formats:
  - 10-bit RGB RAW
- 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
  - automatic black level calibration
  - lens shading correction
- built-in temperature sensor
- suitable for module size of 8.5 x 8.5 x <5 mm

Functional Block Diagram

Product Specifications

- active array size: 4096 x 3072
- power supply:
  - analog: 2.7 to 3.0V (2.8V nominal)
  - core: 1.14 to 1.26V (1.2V nominal)
  - I/O: 1.7 to 1.9V (1.8V nominal)
- power requirements:
  - active: 217 mW (typical for 12MP @ 30 fps)
  - standby: 890 µW (typical)
  - XSHUTDOWN: 1.5 µW (typical)
- 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 formats: 10-bit RGB RAW
- lens size: 1/2.8”
- input clock frequency: 6 - 27 MHz
- maximum image transfer rate:
  - 12MP (4096x3072): 30 fps
  - 4K2K: 30 fps
  - 1080p: 90 fps
  - 720p: 120 fps
- sensitivity: 4800 e-/Lux-sec
- max S/N ratio: 38 dB
- dynamic range: 75 dB @ 16x gain
- minimum exposure: 4-row
- maximum exposure: VTS-8
- pixel size: 1.25 µm x 1.25 µm
- image area: 5107.10 µm x 3835.30 µm
- die dimensions:
  - COB: 6228 µm x 5292 µm
  - RW: 6278 µm x 5342 µm

Ordering Information

- OV12A10-GA5A
  - (color, chip probing, 150 µm backgrinding, reconstructed wafer)
- OV12A1B-GA5A-Z
  - (b&w, chip probing, 150 µm backgrinding, reconstructed wafer)