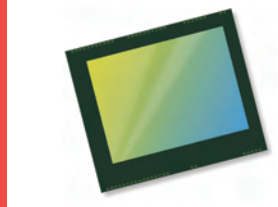


OV12A10-OV12A1B 12MP product brief

12-Megapixel PureCel®Plus Sensors for Dual and Single Cameras in Mobile Applications

lead free

available in a lead-free package

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.

OmniVision

OV12A10-OV12A1B

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

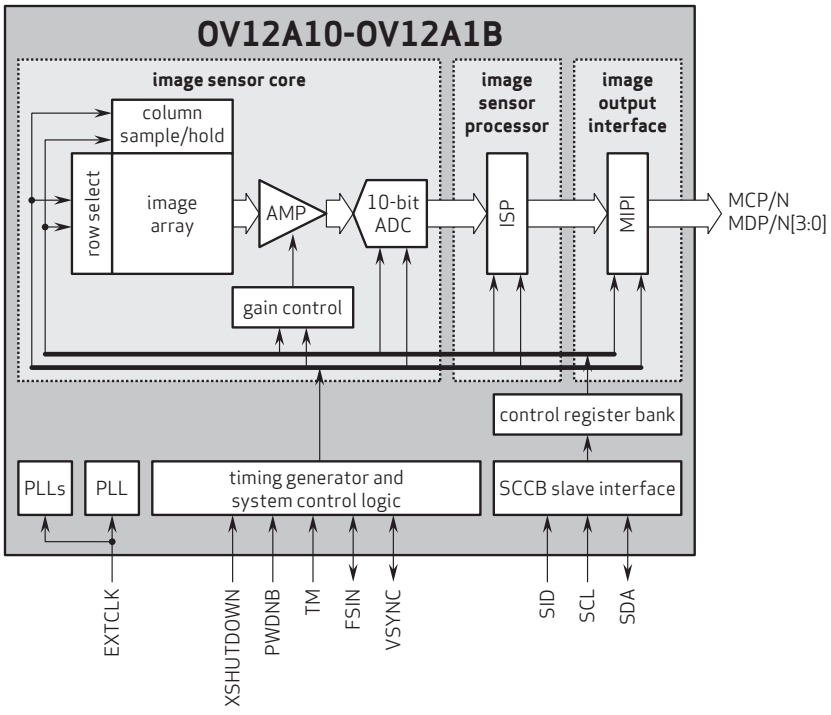
Ordering Information

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

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
- **lens chief ray angle:** 34.5° non-linear
- **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

Functional Block Diagram



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