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

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.

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 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

Technical Specifications
- Active array size: 4096 x 3072
- Maximum image transfer rate:
  - 12MP (4096x3072): 30 fps
  - 4K2K: 30 fps
  - 1080p: 90 fps
  - 720p: 120 fps
- 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"
- Lens chief ray angle: 34.5° non-linear
- Pixel size: 1.25 µm x 1.25 µm
- Image area: 5107.10 µm x 3835.30 µm

Functional Block Diagram