OmniVision’s First Image-Sensor Family with 0.9-micron Pixels Enables Best-in-Class Performance and Features for High-End Smartphones

The OV24A sensors are OmniVision’s first sensors with 0.9-micron pixels. Built on PureCel® Plus stacked-die architecture, the sensors offer quantum efficiency performance matching that of the latest 1.0-micron pixel sensors. The combination of smaller pixels, higher resolution and improved performance makes the OV24A sensors an ideal camera solution for front- and rear-facing camera applications in high-end smartphones.


The OV24A1Q, with its unique four-cell color-filter pattern, is ideal for front-facing camera applications. This sensor has an on-chip, in-pixel binning feature that captures four times more light photons than a standard 0.9-micron pixel, enabling better image quality in low-light conditions.

When used as the primary, rear-facing camera in a dual-camera configuration, the OV24A1B (monochrome) and OV24A10 (Bayer) sensors enable higher zoom ratios and higher-quality still images and video even in low-light conditions.

All three versions of the OV24A sensors are available in a 1/2.8-inch optical format and support phase detection autofocus and high dynamic range. The sensors are capable of recording ultra-high-quality video in a wide range of resolution formats, including full-resolution 24-megapixel, 4K2K, 1080p and 720p.

Find out more at www.ovt.com.
**Applications**

- Smartphones
- PC Multimedia
- Video Conferencing

**Product Features**

- Automatic black level calibration (ABLC)
- Programmable controls for:
  - Frame rate
  - Mirror and flip
  - Binning
  - Croppping
  - Windowing
- Support for dynamic DPC cancellation
- Supports output formats:
  - 10-bit RGB RAW
  - DPCM 10-8 compression
- Supports horizontal and vertical subsampling
- Supports typical image sizes:
  - 5664 x 4248
  - 3840 x 2160
  - 1920 x 1080
  - 1280 x 720
- Standard serial SCCB interface
- Up to 4-lane MIPI TX interface with speed up to 2.5 Gbps/ lane
- Programmable I/O drive capability
- Gyro interface with 3-/4-wire SPI support
- Embedded 16k bits of one-time programmable (OTP) memory
  (4k bits reserved for customer use)
- 4-cell support (OV24A1Q without PDAF)
- 4-cell binning
- 4-cell full
- 4-cell HDR timing
- Sequential multi-frame HDR
  (OV24A10/OV24A1B)
- ZigZag HDR timing
  (OV24A10/OV24A1B)
- Three on-chip phase lock loops (PLLs)
- Programmable I/O drive capability
- Built-in temperature sensor
- Typical module size: 8.5 x 8.5 x 5.5 mm

**Product Specifications**

- Active array size: 5664 x 4248
- Output formats:
  - Progressive:
    - 8 lines
    - 120 fps
    - 1920 x 1080
    - 3840 x 2160
    - 5664 x 4248
  - Dynamic range: 71.0 dB
  - Scan mode: progressive
  - Pixel size: 0.9 μm x 0.9 μm
  - Image area: 5112 μm x 3852 μm
  - Dimensions: 0.9 μm x 0.9 μm
- Sensor size: 1/2.83”
- Lens chief ray angle: 35.1° non-linear
- Input clock frequency: 6 – 27 MHz
- Operating temperature range:
  - Stable: 0°C to +60°C junction temperature
  - -30°C to +85°C junction temperature
- Power supply:
  - Core: 1.05V
  - Analog: 2.8V
  - I/O: 1.8V
- Maximum power requirements:
  - Active: 390 mW
  - XSHUTDOWN: 1.5 μW
- Maximum exposure: VTS – 14 lines
- Minimum exposure: 8 lines
- Sensitivity:
  - OV24A10: 2700 e-/Lux-sec
  - OV24A1B: 3000 e-/Lux-sec
- Maximum image transfer rate:
  - 5664 x 4248: 30 fps
  - 3840 x 2160: 60 fps
  - 1920 x 1080: 120 fps
  - 1280 x 720: 240 fps
- Built-in temperature sensor
- Maximum temperature range:
  - 0°C to +60°C junction temperature
  - -30°C to +85°C junction temperature
- Built-in temperature sensor
- Programmable I/O drive capability
- Typical module size: 8.5 x 8.5 x 5.5 mm
- Timing generator and system control logic
- SCCB interface
- Control register bank

**Ordering Information**

- OV24A10-GASA-Z
  (color, chip probing, 150 μm backgrinding, reconstructed wafer with good die)
- OV24A1B-GASA-Z
  (B&W, chip probing, 150 μm backgrinding, reconstructed wafer with good die)
- OV24A1Q-GASA-Z
  (color, chip probing, 150 μm backgrinding, reconstructed wafer with good die)