New RGB-Ir Image Sensor Brings Biometric Applications to Mainstream Notebooks

OmniVision’s OV9738 is a 1/9 inch, 1.4 micron RGB-Ir image sensor that combines RGB and infrared (IR) imaging capabilities in a single chip for improved performance at lower system cost. Leveraging OmniVision’s PureCel® Plus technology, the OV9738 reduces color crosstalk to capture high-quality color images and video.

This single-chip solution makes biometric authentication applications such as Windows® Hello affordable for a broader range of devices because it only requires a single camera. The sensor is ideally suited for bringing IR biometric capabilities for facial recognition and gesture tracking to mainstream laptops and handheld consumer-electronic devices.

The OV9738 offers 720p resolution at 30 frames per second. Additionally, it includes OmniVision’s industry-leading RGB-Ir technology for improved quantum-efficiency performance in near-IR light, which can help reduce LED power consumption. At the same time, the OV9738 uses PureCel® Plus technology to reduce color crosstalk, which helps provide the best possible color-reproduction quality.

This sensor is available in chip on board (COB) and reconstructed wafer (RW) formats.

Find out more at www.ovt.com.
Applications
- Smartphones
- PC Multimedia
- Tablets
- Digital Still Cameras
- Toys

Product Features
- support for image sizes:
  - full size (1280x720)
  - VGA (640x480)
- support for output formats:
  - RAW RGB-Ir output with 1-lane MIPI
- capable of maintaining register values at software power down
- programmable controls for:
  - frame rate
  - mirror and flip
  - gain/exposure
  - windowing
- support for horizontal and vertical sub-sampling
- automatic black level calibration (ABLC)
- support for black sun cancellation
- standard SCCB interface
- on-chip phase lock loop (PLL)
- GPIO tri-state configurability and programmable polarity
- RGB-Ir with 4x4 pattern

Product Specifications
- active array size: 1.280 x 720
- power supply:
  - analog: 2.6 - 3.0V (2.8V normal)
  - I/O: 1.8V
- power requirements:
  - active: 69 mW
  - XSHUTDN: 0.9 µW
- temperature range:
  - operating: -30°C to +85°C junction temperature
  - stable image: 0°C to +50°C junction temperature
- output formats: 10-bit RAW RGB-Ir
- lens size: 1/9" (RGB-Ir, chip probing, 150 µm backgrinding, reconstructed wafer with good die)
- lens chief ray angle: 32.1°
- pixel size: 1.4 µm x 1.4 µm
- maximum exposure interval: 798 x tROW
- pixel size: 1.4 µm x 1.4 µm
- max S/N ratio: 36.4 dB
- dynamic range: 68.4 dB @ 16x gain
- dark current: 2 e-/sec @ 50°C junction temperature
- image area: 1819.58 µm x 1033.34 µm
- die dimensions:
  - COB: 2502 µm x 1692 µm
  - RW: 2552 µm x 1742 µm
- scan mode: progressive
- maximum image transfer rate: 30 fps
- sensitivity: 585 mV/Lux-sec
- shutter: rolling shutter
- maximum exposure interval: 798 x tROW
- pixel size: 1.4 µm x 1.4 µm
- max S/N ratio: 36.4 dB
- dynamic range: 68.4 dB @ 16x gain
- dark current: 2 e-/sec @ 50°C junction temperature
- image area: 1819.58 µm x 1033.34 µm
- die dimensions:
  - COB: 2502 µm x 1692 µm
  - RW: 2552 µm x 1742 µm

Ordering Information
- OV9738-GASA-Z
  (RGB-Ir; chip probing, 150 µm backgrinding, reconstructed wafer with good die)