Biometric Security for Next-Generation Smartphones, Tablets, and Notebooks

OmniVision’s OV2281 is a PureCel® sensor that brings enhanced biometric security functionality to mobile devices. The low-power, ultra-compact OV2281 leverages a 1.12-micron pixel with PureCel technology to enable accurate, reliable iris recognition for smartphones, tablets, and notebooks.

The 1/7.5-inch OV2281 PureCel sensor can record 1080p high-definition (HD) video at 60 frames per second (fps) in both landscape and portrait modes to support apps with horizontal or vertical orientation.

When recording full-resolution 1944 x 1944 video at 30 fps, the sensor requires just 126 mW, and supports ultra-low power mode to reduce power consumption to approximately 25 mW. Additionally, the OV2281 features optimized IR sensitivity to produce a clear, fully stable image in difficult, low-light conditions.

The OV2281 sensor fits into a 5.5 x 5.5 mm module with a z-height of less than 4.5 mm.

Find out more at www.ovt.com.
**OV2281**

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

**Product Features**
- 1.12 µm x 1.12 µm pixel
- 1920x1080 at 60 fps, 1080x1920 at 30 fps
- Programmable controls for:
  - Frame rate
  - Mirror and flip
  - Cropping
  - Windowing
- Supports image sizes:
  - 1944x1944
  - 1080(1920x1080)
  - 1080x1920, and more
- 260 bytes of embedded one-time programmable (OTP) memory for customer use
- Ultra low power mode (ULPM)
- Support for output formats: 10-bit B&W RAW
- Interleave row HDR output
- Two-wire serial bus control (SCCB)
- MIPI serial output interface
- Two-lane MIPI serial output
- Output formats: 10-bit B&W RAW
- Lens size: 1/7.5"

**Functional Block Diagram**

**Product Specifications**
- **Active array size:** 1944 x 1944
- **Power supply:**
  - Core: 1.14 to 1.26V (1.2V nominal)
  - Analog: 2.6 to 3.0V (2.8V nominal)
  - I/O: 1.7 to 1.9V (1.8V nominal)
- **Power requirements:**
  - Active: 126 mW
  - Standby: 1.65 µW
  - XSHUTDOWN: 1 µW
- **Temperature range:**
  - Operating: -30°C to +85°C junction temperature
  - Stable image: -20°C to +60°C junction temperature
- **Output interface:**
  - Two-lane MIPI serial output
- **Output formats:** 10-bit B&W RAW
- **Lens size:** 1/7.5"
- **Input clock frequency:** 6 - 27 MHz
- **Lens chief ray angle:** 30.9° non-linear
- **Maximum image transfer rate:**
  - 1944x1944: 30 fps
  - 1080p (1920x1080): 60 fps
  - 1080x1920: 30 fps
- **Sensitivity:** 555 mV/lux-sec
- **Max S/N ratio:** 35.6 dB
- **Dynamic range:** 68.4 dB @ 16x gain
- **Pixel size:** 1.12 µm x 1.12 µm
- **Dark current:** 14 e-/sec
  - @ 60°C junction temperature
- **Image area:** 2214 µm x 2214 µm
- **Die dimensions:**
  - COB: 4050 µm x 3400.2 µm
  - RW: 4100 µm x 3450.2 µm

**Ordering Information**
- OV2281-GA4A
  (B&W, chip probing, 200 µm backgrinding, reconstructed wafer)