

# OV2281 1080p product brief



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



available in  
a lead-free  
package

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](http://www.ovt.com).



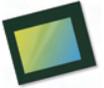
## Applications

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

## Product Features

- 1.12  $\mu\text{m}$  x 1.12  $\mu\text{m}$  pixel
- 1920x1080 at 60 fps, 1080x1920 at 30 fps
- programmable controls for:
  - frame rate
  - mirror and flip
  - cropping
  - windowing
- supports images sizes:
  - 1944x1944
  - 1080p (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 (1- or 2-lane)
- 2x binning support
- image quality control:
  - defect pixel correction
  - automatic black level calibration

# OV2281



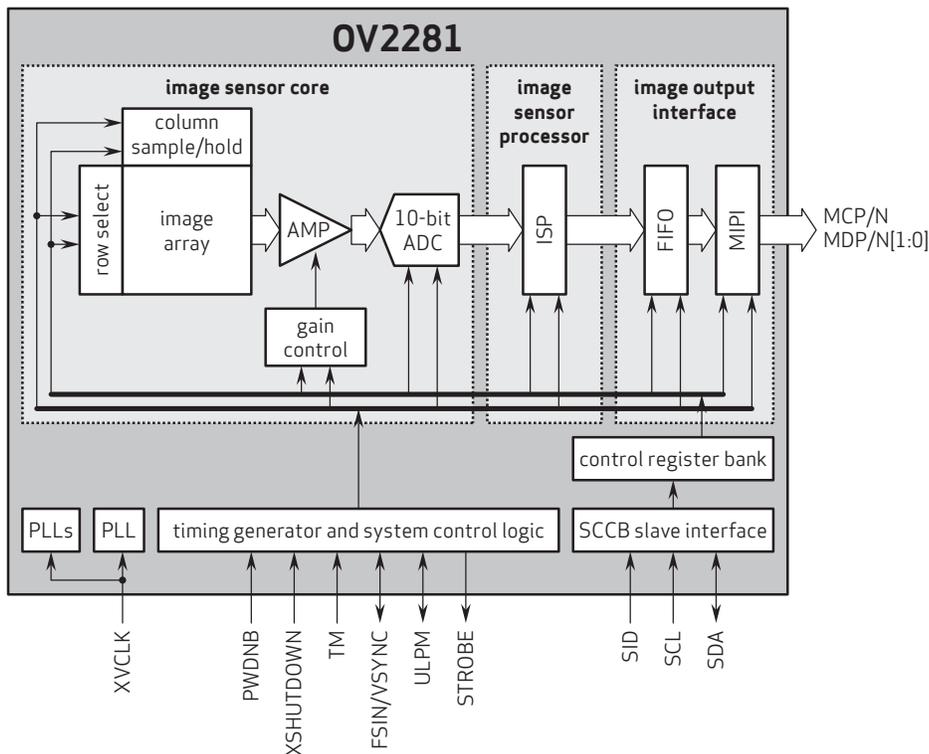
## Ordering Information

- OV02281-GA4A**  
(B&W, chip probing, 200  $\mu\text{m}$  backgrinding, reconstructed wafer)

## Product Specifications

- active array size:** 1944 x 1944
- input clock frequency:** 6 - 27 MHz
- 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)
- lens chief ray angle:** 30.9° non-linear
- power requirements:**
  - active: 126 mW
  - standby: 166  $\mu\text{W}$
  - XSHUTDOWN: 1  $\mu\text{W}$
- 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
- temperature range:**
  - operating: -30°C to +85°C junction temperature
  - stable image: -20°C to +60°C junction temperature
- dynamic range:** 68.4 dB @ 16x gain
- output interface:** 2-lane MIPI serial output
- pixel size:** 1.12  $\mu\text{m}$  x 1.12  $\mu\text{m}$
- output formats:** 10-bit B&W RAW
- dark current:** 14 e<sup>-</sup>/sec @ 60°C junction temperature
- image area:** 2214  $\mu\text{m}$  x 2214  $\mu\text{m}$
- die dimensions:**
  - COB: 4050  $\mu\text{m}$  x 3400.2  $\mu\text{m}$
  - RW: 4100  $\mu\text{m}$  x 3450.2  $\mu\text{m}$
- lens size:** 1/7.5"

## Functional Block Diagram



4275 Burton Drive  
Santa Clara, CA 95054  
USA

Tel: + 1 408 567 3000  
Fax: + 1 408 567 3001  
www.ovt.com

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