



OS04E10

2048 x 2048 product brief



2K2K Square Resolution CMOS Image Sensor for Security Wide-Field-of-View and AR/VR/MR Pass-Through Cameras

OMNIVISION's OS04E10 is a 2K2K (2048 x 2048) square resolution CMOS image sensor designed for 1:1 aspect ratio security wide-field-of-view (dome, fisheye, and doorbell) and pass-through (AR/VR/MR) cameras. The OS04E10 is the industry's first image sensor with digital watermarking, a built-in anti-spoofing feature that ensures the original video source is not tampered with. The sensor captures real-time fast-moving video and features always-on low-power mode at 512p for excellent pre-roll video recording capabilities.

The OS04E10 image sensor has a 2.0-micron pixel with a 1/3.11-inch optical format and is based on OMNIVISION's revolutionary PureCel®Plus technology, which reduces pixel crosstalk and noise for better color reproduction under low-light conditions. Its onboard Nyxel® near-infrared (NIR) technology ensures low to no ambient light image capture with IR source will result in clear and crisp images and provides opportunities for camera designers to extend battery life. The sensor's two-exposure staggered HDR mode increases dynamic range. The OS04E10 supports MIPI and LVDS interfaces.

Find out more at www.ovt.com.



Featuring
1:1 aspect ratio



- OS04E10-A47A-001A-Z (color, lead-free)
47-pin CSP

Applications

- doorbell security camera
- dome / WFOV security camera
- AR / VR pass through camera
- action camera

Technical Specifications

- active array size:** 2048 x 2048
- maximum image transfer rate:**
 - 2048 x 2048: 60 fps
 - 1920 x 1080: 80 fps
 - 1024 x 1024: 120 fps
 - 512 x 512: 240 fps
- power supply:**
 - core: 1.1V
 - analog: 2.8V
 - I/O: 1.8V
- power requirements:**
 - active: 178 mW
 - XSHUTDOWN: <5 μ A
- output formats:** 10/12-bit RAW RGB
- temperature range:**
 - operating: -30°C to +85°C junction temperature
 - stable: 0°C to +60°C junction temperature
- lens size:** 1/3.11"
- lens chief ray angle:** 18° linear
- scan mode:** progressive
- pixel size:** 1.998 μ m x 1.998 μ m
- image area:** 4123.872 μ m x 4123.872 μ m

Product Features

- programmable controls for:
 - frame rate
 - mirror and flip
 - cropping
 - windowing
- supports output formats: 12-bit/10-bit RAW RGB
- supports images sizes:
 - 4MP (2048x2048)
 - 1080p (1920x1080)
 - sub2 (1024x1024)
 - sub4 (512x512)
- supports 2x2 binning
- standard serial SCCB interface
- up to 4-lane MIPI serial output interface (supports maximum speed up to 1500 Mbps/lane * 2-lane, or 1200 Mbps/lane * 4-lane)
- staggered HDR RAW data output
- programmable I/O drive capability
- built-in temperature sensor
- MIPI serial output interface (1-lane, 2-lane, or 4-lane)
- image quality controls:
 - defect pixel correction
 - automatic black level calibration
- always-on; low power mode
- RAW watermarking capability

Functional Block Diagram

