



OV50E

50-Megapixel Product Brief



50MP CMOS Image Sensor Brings Industry-Leading Low Light Still Image and Ultra HDR Video to Rear-Facing Smartphone Cameras

The OV50E CMOS image sensor brings the industry's best low light image and high dynamic range (HDR) video capturing capabilities to rear-facing main cameras in high-end and mainstream smartphones.

The OV50E features staggered HDR and DCG™ technology for improved HDR and crop zoom support, 100% quad phase detection (QPD) for enhanced autofocus, and better low light performance over previous-generation image sensors. The OV50E combines 50MP resolution and 1.008 μm pixel size in a 1/1.550-inch optical format.

The OV50E can achieve up to 64x analog gain for full resolution, or 256x analog gain for 4-cell binning resolution. Built on OMNIVISION's PureCel®Plus-S stacked die technology, the OV50E can also use near-pixel binning to output a 12.5MP image or 4K2K video with four times

the sensitivity, yielding 2.0 μm -equivalent performance for preview and video. The maximum dynamic range reaches more than 100 dB.

The OV50E's second-generation QPD enables 2x2 phase detection autofocus across the sensor's entire image array for 100% coverage, resulting in improved distance calculation, faster autofocus and better low-light performance. Premium image quality is further enabled by the combination of on-chip remosaic for the QPD color filter array to full Bayer resolution.

Output formats include 50MP, or 8K video, with QPD autofocus at 30 frames per second (fps); 12.5MP with QPD autofocus at 60 fps; 4K2K video with QPD autofocus at 60 fps; and 1080p at 240 fps. The OV50E supports the CPHY/DPHY MIPI interface and dual DOVDD 1.8/1.2V.

Applications

- Smart phones
- Video conferencing
- PC multimedia

Features

- **Active array size:** 8192 x 6144
- **Maximum image transfer rate:**
 - 8192 x 6144: 30 fps
- **Power supply:**
 - Core: 1.1V
 - Analog: 2.8V
 - I/O: 1.8V/1.2V
- **Output interfaces:**
 - Up to 4-lane D-PHY MIPI TX interface with speeds up to 3.0 Gbps/lane
- **Output formats:** 10/12/14-bit RGB RAW
- **Lens size:** 1/1.550"
- **Pixel size:** 1.008 μm x 1.008 μm

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