



OV32A

32-megapixel product brief



0.8 Micron, 32-Megapixel Image Sensor for High-End Smartphones

OMNIVISION's OV32A is a 0.8 micron pixel image sensor with 32 megapixel (MP) resolution. Built on our PureCel®Plus stacked die technology, the OV32A offers leading-edge performance for high-end smartphones. It provides a compact form factor, combined with many advanced features.

The OV32A's submicron 0.8 μ pixel size can provide leading-edge 32MP resolution with a 1/2.8 inch optical format. It uses a 4-cell color filter array, and features on-chip re-mosaic, for full-resolution, 32MP Bayer output in normal

light conditions. In low light conditions, the OV32A can use near-pixel binning to output an 8MP image with 4 times the sensitivity. It can output a variety of formats, including 32MP at 15 frames per second (fps), 8MP with 4-cell binning at 60 fps, 4K2K video at 60 fps, 1080p video at 120 fps and 720p video at 240 fps. Additionally, its pad locations on the top and bottom of the image sensor reduce module size in the x-direction, which is ideal for front-facing cameras in thin-bezel, infinity-display smartphones.

Find out more at www.ovt.com.



- OV32A1Q-GA5A
(color, chip probing, 150 μm backgrinding, reconstructed wafer with good die)

Applications

- mobile smart phones
- security cameras
- smart home / IoT devices

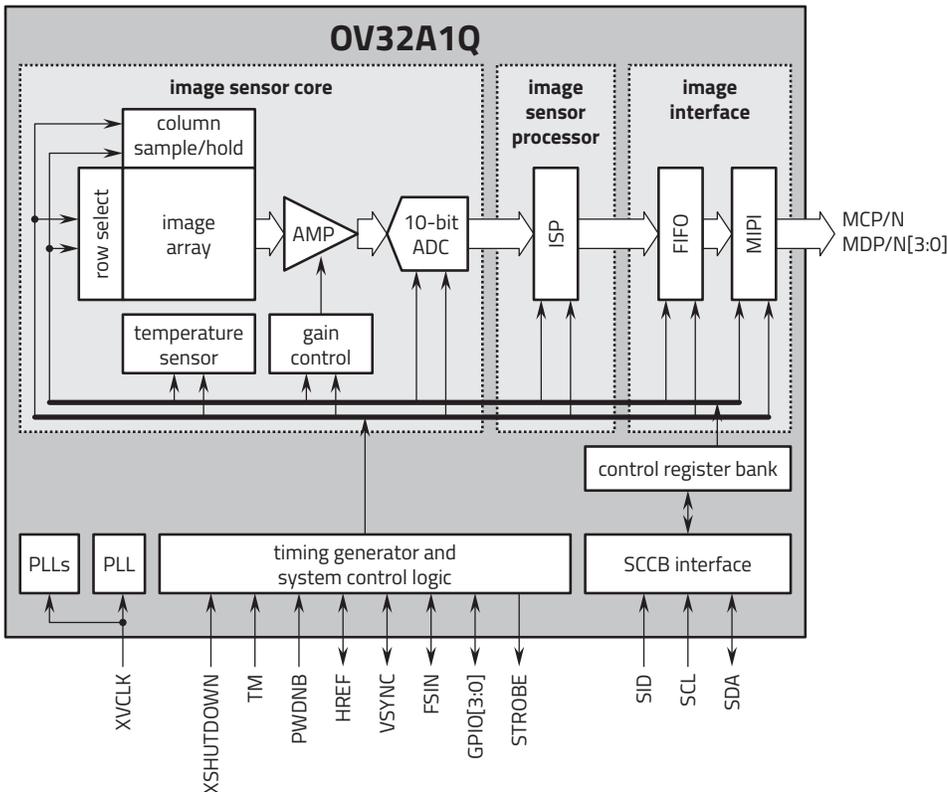
Technical Specifications

- active array size:** 6528 x 4896
- maximum image transfer rate:**
 - 6528 x 4896 (4C pattern): 24 fps
 - 6528 x 4896 with 4C-to-Bayer converter enabled (Bayer pattern): 15 fps
 - 3264 x 2448 (Bayer pattern): 60 fps
 - 1920 x 1080 (Bayer pattern): 240 fps
 - 1280 x 720 (Bayer pattern): 240 fps
- power supply:**
 - core: 1.1V
 - analog: 2.8V
 - I/O: 1.8V
- power requirements:**
 - active:
 - 473 mW for 32MP Bayer @ 15 fps
 - 324 mW for 8MP Bayer @ 60 fps
 - XSHUTDOWN: 1.5 μA
- temperature range:**
 - operating: -30°C to +85°C junction temperature
 - stable: 0°C to +60°C junction temperature
- output formats:**
 - 10-bit RGB 4-cell pattern
 - Bayer RAW
- lens size:** 1/2.75"
- lens chief ray angle:** 34.5° non-linear
- scan mode:** progressive
- pixel size:** 0.8 μm x 0.8 μm
- image area:** 5254.56 μm x 3947.328 μm

Product Features

- automatic black level calibration (ABLC)
- programmable controls for:
 - frame rate
 - mirror and flip
 - binning
 - cropping
 - windowing
- support for dynamic DPC cancellation
- supports output formats:
 - 10-bit RGB 4-cell (4C) pattern
 - Bayer RAW
- supports horizontal and vertical subsampling
- supports typical images sizes:
 - 6528 x 4896
 - 3264 x 2448
 - 1920 x 1080
 - 1280 x 720
- standard serial SCCB interface
- up to 4-lane MIPI TX interface with speed up to 2.5 Gbps/lane
- 2/3 trio CPHY interface, up to 2.0 Gbps/trio
- programmable I/O drive capability
- embedded 16k bits of one-time programmable (OTP) memory (4k bits reserved for customer use)
- 4-cell support:
 - 4-cell binning
 - 4-cell full
 - 4-cell HDR timing
- on-chip 4-cell to Bayer converter
- three on-chip phase lock loops (PLLs)
- programmable I/O drive capability
- built-in temperature sensor
- typical module size: 9 x 9 x ~5.5 mm

Functional Block Diagram



Version 1.1, March 2023

