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 0.8µ 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.
OV32A

Applications
- Mobile Smart Phones
- Security Cameras
- Smart Home / IoT Devices

Product Features
- automatic black level calibration (ABLC)
- programmable controls for:
  - frame rate
  - mirror and flip
  - 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

Product Specifications
- Input clock frequency: 6 - 64 MHz
- Lens chief ray angle: 34.5° non-linear
- Lens size: 1.275*
- 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
- Minimum exposure: 8 lines
- Scan mode: progressive
- Pixel size: 0.8 µm x 0.8 µm
- Image area: 5254.66 µm x 3947.33 µm
- Dimensions:
  - COB: 6003 µm x 5418 µm
  - RW: 6053 µm x 5468 µm

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

Functional Block Diagram

- OV32A1Q
- image sensor core
- image sensor processor
- image interface
- control register bank
- PLLs
- PLL
- SCCB interface
- timing generator and system control logic
- XVLK, XVSHUTDOWN, TM, PMDB, HREF, SSYNC, FSN, GP[0][3:0], STRBE, SID, SCL, SDO
- 10-bit ADC
- column sample/hold
- image array
- amplifier (AMP)
- gain control
- temperature sensor
- automatic black level calibration (ABLC)
- 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)
- 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
- PLLs
- PLL
- image sensor core
- image sensor processor
- image interface