OV64A 64-megapixel product brief

available in a lead-free package

World's First 1.0 Micron 64MP Image Sensor with Large Optical Format for Best Low Light Performance in High End Mobile Phones

OmniVision's OV64A is a high performance 64 megapixel (MP) image sensor with the largest pixel size in its class, at 1.0 micron, along with a class-leading optical format of 1/1.34". Compared with OmniVision's 0.8 micron 64MP image sensor, the OV64A's 1.0 micron pixel size provides a more than 60% sensitivity increase. These large optics and high resolution provide the greatest possible performance in low light conditions for the wide and ultrawide main cameras in high end smartphones.

Built on OmniVision's PureCel®Plus-S stacked die technology, the OV64A integrates an on-chip, 4-cell (4C) color filter array and hardware remosaic, providing high quality, 64MP Bayer output, or 8K video, in real time. In low light conditions, this sensor can use near-pixel binning to output a 16MP image for 4K2K video with four times the sensitivity, yielding 2.0 micron-equivalent low-light performance for preview and video.

The OV64A features 3-exposure, 4-cell HDR with on-chip combination and tone mapping, as well as a very fast frame rate,

which work in tandem to eliminate motion artifacts and produce the best 64MP signal-to-noise ratio (SNR). This sensor also offers a 2- and 3-exposure staggered HDR timing option, providing smartphone designers with maximum flexibility to select the best HDR method for a given scene.

Output formats include 64MP at 15 frames per second (fps), 16MP with 4C binning at 60 fps, and 4K2K video at 120 fps with the extra pixels needed for electronic image stabilization. In addition, this sensor offers 8K video at 30 fps, 1080p at 240 fps and 720p at 480 fps. Other features include CPHY and DPHY interfaces, and 4C half-shield phase detection for fast autofocus support.

Find out more at www.ovt.com.

OmniVision®

Applications

- Smart Phones
- Video Conferencing
- PC Multimedia

OV64A

Product Features

- automatic black level calibration (ABLC)
- programmable controls for:
  - frame rate
  - mirror and flip
  - binning
  - cropping
  - windowing
- support for dynamic DPC
- supports horizontal and vertical subsampling
- supports typical images sizes:
  - 9248 x 6944
  - 7680 x 4320
  - 4656 x 3496
  - 4608 x 2592
  - 3840 x 2160
  - 1920 x 1080
  - 1280 x 720
- standard serial SCCB interface

- up to 4-lane MIPI TX interface with speed up to 3.0 Gbps/lane
- 2/3 trio CPHY interface, up to 2.45 Gsps/trio
- supports type 2 4C HS PDAF
- 4-cell support:
  - 4-cell binning
  - 4-cell full
- HDR support: stagger HDR 2/3 exposure timing 4C HDR with on-chip combination
- on-chip 4-cell to Bayer converter
- three on-chip phase lock loops (PLLs)
- programmable I/O drive capability
- built-in temperature sensor
- on-chip digital scalar

Technical Specifications
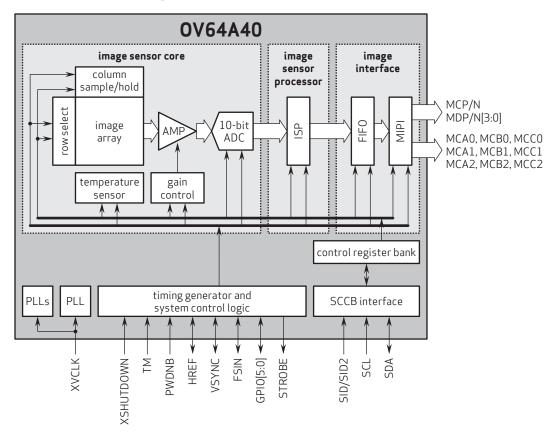
- active array size: 9248 x 6944
- maximum image transfer rate:
  - 9248 x 6944: 15 fps
- power supply:
  - core: 1.1V
  - analog: 2.8V
  - I/O: 1.8V
- power requirements:
  - active: ~765 mV (64MP @ 15 fps)
  - standby: <10 μW
- output formats: 10-bit HDR RGB RAW

- temperature range:
  - operating: -30°C to +85°C junction temperature
  - stable: 0°C to +60°C junction temperature
- lens size: 1/1.32"
- lens chief ray angle: 37.43° non-linear
- scan mode: progressive
- pixel size: 1.008 μm x 1.008 μm
- image area: 9354.24 μm x 7031.808 μm

Functional Block Diagram