OV60A 60-megapixel product brief



World's First 0.61 µm pixel, High Resolution 4K Image Sensor for High-End Mobile Phone Front Facing & Rear Facing Cameras

OMNIVISION'S OV60A is the world's first 0.61 micron (µm) pixel high resolution CMOS image sensor that will revolutionize the capabilities of next-generation mobile phone cameras. The OV60A offers 60-megapixel (MP) resolution with the smallest pixel size in its class at 0.61 µm. The sensor can fit into a 1/2.8 inch optical format in either 3:4 or 16:9 aspect ratio configurations. The 4-cell color filter array on the OV60A uses near pixel binning to output up to 15MP images with 4x the sensitivity offering 1.22 µm equivalent performance for preview and native 4K video with extra pixels for electronic image stabilization (EIS). The sensor also supports low power mode for "always on" sensing that can save precious battery life when paired with the phone's artificial intelligence functions.

Built on OMNIVISION's PureCel®Plus-S stacked die technology, the new 0.61 µm pixel is 24 percent smaller in area than the previous generation 0.7 µm pixel solution, yet it can achieve higher Quantum Efficiency (QE) with better crosstalk and angular response than the 0.7 µm generation.

Output formats include 15MP or 4K2K with EIS resolutions at 60 frames per second and supports staggered HDR timing for high dynamic range video enablement. The "always on" low power modes include an ambient light sensing mode for wake up as well as a low power streaming mode. In addition, this sensor also can support dual I/O voltage rails (1.8V and 1.2V) as well as CPHY interface.

Find out more at www.ovt.com.



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OV60A

Ordering Information

• OV60A40-GA5A-001A (color, chip probing, 150 µm backgrinding, reconstructed wafer with good die)

Applications

- smart phones
- video conferencing

Technical Specifications

- active array size: 9152 x 6592
- maximum image transfer rate: - 9152 x 6592: 15 fps
- power supply:
- core: 1.1V analog: 2.8V
- I/O: 1.8V or 1.2V
- power requirements:
- active: 320 mW (15MP @ 60 fps) standby: <10 µA
- output formats:
- normal mode: 10-bit RGB RAW
- ULP mode: 8-bit RGB RAW

temperature range:
 operating: -30°C to +85°C

PC multimedia

- junction temperature stable: 0°C to +60°C
- junction temperature
- maximum lens size: 1/2.61"
- Iens chief ray angle: 36.4° non-linear
- scan mode: progressive
- pixel size: 0.612 μm x 0.612 μm
- image area: 5640.192 μm x 4073.472 μm

Product Features

- automatic black level calibration (ABLC)
 supports typical images sizes:
- programmable controls for:
 - frame rate
- mirror and flip - binning
- cropping
- windowing
- support for dynamic DPC
- supports output formats: 10-bit RGB RAW for normal mode
- 8-bit RGB RAW for ULP mode
- supports horizontal and vertical subsampling
- supports ambient light sensor (ALS) mode
- supports ultra low power (ULP) mode
- up to 4-lane MIPI D-PHY TX interface with speeds up to 3.0 Gbps/lane
- 2/3 trio C-PHY interface, up to 3.0 Gsps/trio
- standard serial SCCB interface

- 9152 x 6592 - 4576 x 3296
- 4384 x 3288
- 4576 x 2574
- 2288 x 1648 - 1920 x 1080 and 1280 x 720
- for normal mode
- 1024 x 768 and 512 x 384 for ULP mode
- supports always-on (AO)
- 4-cell support:
- 4-cell binning - 4-cell full
- HDR support: stagger HDR 2/3 exposure timing
- three on-chip phase lock loops (PLLs)
- programmable I/O drive capability
- dual I/O power supply (1.2V/1.8V)
- built-in temperature sensor
- 0.612 µm pixel



Functional Block Diagram

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