OV60A 60-megapixel product brief

available in a lead-free package

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.

OmniVision

OV60A

Applications

- Smart Phones
- Video Conferencing
- PC Multimedia

Product Features

- automatic black level calibration (ABLC)
- 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 and 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
- supports typical images sizes:
  - 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

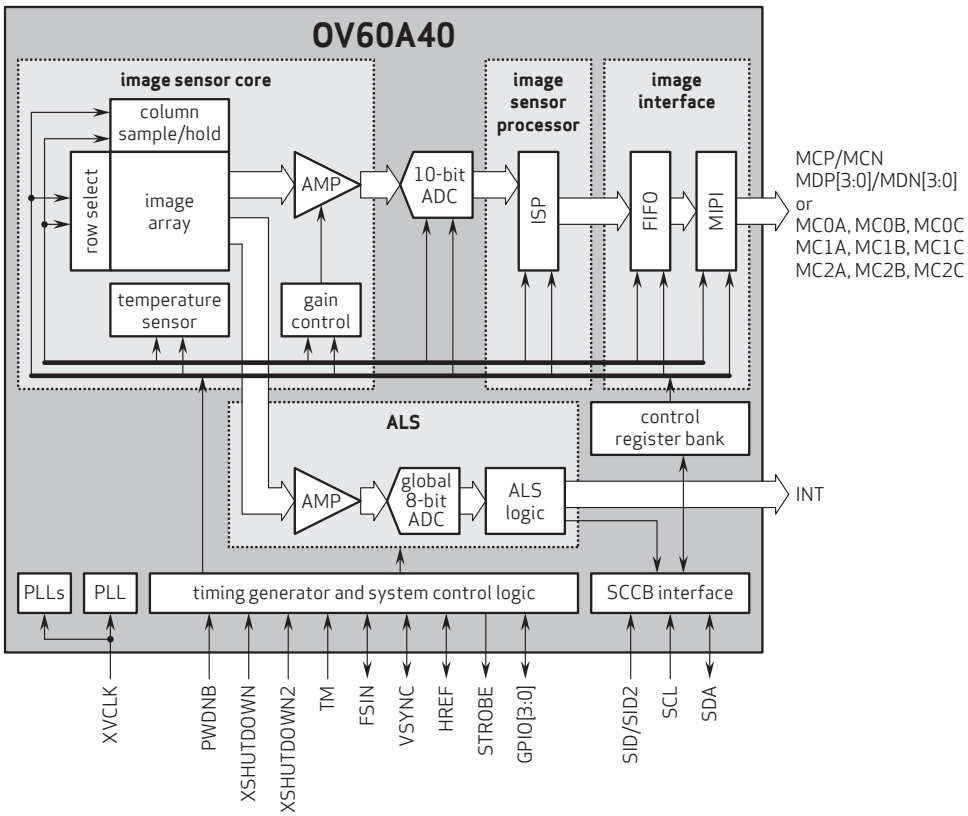
Ordering Information

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

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:** 470 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 junction temperature
  - **stable:** 0°C to +60°C junction temperature
- **maximum lens size:** 1/2.61"
- **lens 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

Functional Block Diagram



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