



OV40A 40-megapixel product brief



40MP Image Sensor for Smartphone Main, Wide, Ultrawide and Video Cameras with Cutting-Edge Features and Excellent Performance



available in
a lead-free
package

OmniVision's OV40A is a 40MP, 1.0 micron pixel image sensor that features super high gain and de-noise technologies for the best-in-class low light camera performance in the 1/1.7" optical format. This sensor also offers multiple HDR options for the best quality still and video captures. It supports 1080p high-speed video captures at 240 frames per second (fps) with phase-detection autofocus.

The OV40A provides super high gain of up to 256x, and is embedded with multi-sampling de-noise functionality for enhanced low light performance. This sensor also offers excellent HDR through selective conversion gain for the optimum balance between low-light image quality and HDR, along with 2- and 3-exposure staggered HDR timing. These features provide designers with maximum flexibility to select the best HDR method for the contrasting light and dark areas in a given scene.

Built on OmniVision's PureCel®Plus-S stacked die technology, the OV40A uses a 4-cell (4C) color filter array and features on-chip

re-mosaic, for high quality, 40MP Bayer output in normal light conditions. For low light conditions, this sensor can use near-pixel binning to output a 10MP image, as well as 4K2K video, with four times the sensitivity, yielding 2.0 micron pixel-equivalent low-light performance. In either case, the OV40A can consistently capture the highest quality images for different resolution video modes through fast mode switch.

Output formats include 40MP at 30 fps, 10MP with 4C binning at 120 fps, 4K2K video at 60 fps and 1080p video at 240 fps. All of these formats can be captured with phase-detection autofocus. Other features include a CPHY interface, multi-camera sync and a 34.7 degree chief ray angle.

Find out more at www.ovt.com.



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 4C non-HDR
 - 10-bit RGB Bayer non-HDR
- supports horizontal and vertical subsampling
- supports typical images sizes:
 - 7360 x 5504
 - 3680 x 2752
 - 3840 x 2160
 - 1920 x 1080
 - 1840 x 1376
 - 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 2.6 Gbps/trio
- supports type-1.5 2x2 HS4 PDAF
- 4-cell support:
 - 4-cell binning
 - 4-cell full
- HDR support:
 - stagger HDR 2/3 exposure timing
- on-chip 4-cell to Bayer converter
- three on-chip phase lock loops (PLLs)
- programmable I/O drive capability
- built-in temperature sensor
- 1.008 μm pixel

OV40A



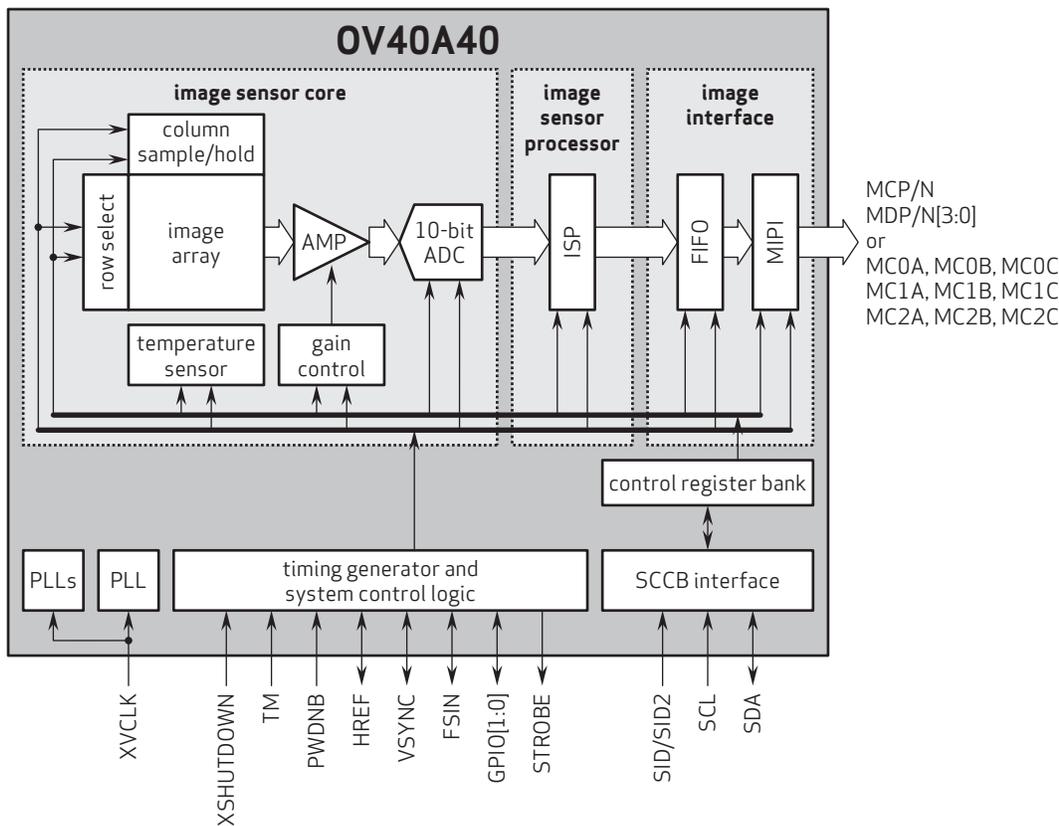
Ordering Information

- OV40A40-GA5A-002A-Z**
(color, chip probing, 150 μm backgrinding, reconstructed wafer with good die)

Technical Specifications

- active array size:** 7360 x 5504
- maximum image transfer rate:**
 - 7360 x 5504: 30 fps
- power supply:**
 - core: 1.1V
 - analog: 2.8V
 - I/O: 1.8V
- power requirements:**
 - standby: <10 μA
- output formats:** 10-bit RGB RAW
- temperature range:**
 - operating: -30°C to +85°C junction temperature
 - stable: 0°C to +60°C junction temperature
- lens size:** 1/1.7"
- lens chief ray angle:** 34.6° non-linear
- scan mode:** progressive
- pixel size:** 1.008 μm x 1.008 μm
- image area:** 7451.136 μm x 5580.288 μm

Functional Block Diagram



4275 Burton Drive
Santa Clara, CA 95054
USA

Tel: +1 408 567 3000
Fax: +1 408 567 3001
www.ovt.com

OmniVision reserves the right to make changes to their products or to discontinue any product or service without further notice. OmniVision, the OmniVision logo and PureCel are registered trademarks of OmniVision Technologies, Inc. All other trademarks are the property of their respective owners.



OmniVision