

OV16885 16MP product brief



available in
a lead-free
package

16-Megapixel PureCel®Plus-S Sensor with Second-Generation 1.0-Micron Pixel for Mainstream Smartphones

OmniVision's OV16885 is a high-resolution image sensor built on OmniVision's second-generation, 1.0-micron PureCel®Plus-S pixel architecture that is well-suited for world-facing mobile cameras. The OV16885 enhances mainstream 16-megapixel resolution images and video with advanced features such as zig-zag high dynamic range (zHDR) and support for phase detection autofocus (PDAF), enabling crisp image and video details with excellent scene reproduction.

zHDR uses a long and a short exposure in a single frame to extend dynamic range capabilities of the sensors. Long and short exposure lines are diagonally interlaced across the entire pixel array in a zig-zag pattern. This

enables live preview and video recording in HDR mode and single-shot full-resolution HDR images in capture mode without any shutter lag.

Leveraging OmniVision's PureCel®Plus-S stacked die technology, the OV16885 captures full-resolution 16-megapixel images and video with zHDR functionality at 30 frames per second (fps), 4K2K video at 60 fps, and 1080p at 120 fps. The OV16885 sensor fits into industry-standard module form factors for slim mobile devices.

Find out more at www.ovt.com.



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Applications

- Smartphones
- Video Conferencing
- PC Multimedia

Product Features

- 16MP @ 30 fps, 4K2K @ 60 fps
- supports ZigZag HDR timing
- supports phase detection auto focus (PDAF)
- supports dynamic defect pixel correction (DPC)
- automatic black level calibration (ABLC)
- total embedded one-time programmable (OTP) memory: 2048 bytes, 896 bytes for customer use, remaining bytes for internal use
- supports typical images sizes:
 - 4672 x 3504
 - 3840 x 2160
 - 2336 x 1752
 - 1920 x 1080
 - 1280 x 720
 - 800 x 480
- supports horizontal and vertical subsampling
- programmable controls for:
 - frame rate
 - mirror and flip
 - cropping
 - windowing
- up to 4-lane MIPI TX interface with speed up to 1.6 Gbps/lane
- programmable I/O drive capability
- standard serial SCCB interface
- supports output formats:
 - 10-bit RAW RGB
 - DPCM 10-8 compression
- two on-chip phase lock loops (PLLs)
- built-in temperature sensor
- typical module size: 8.5 x 8.5 x 4.5 mm

OV16885



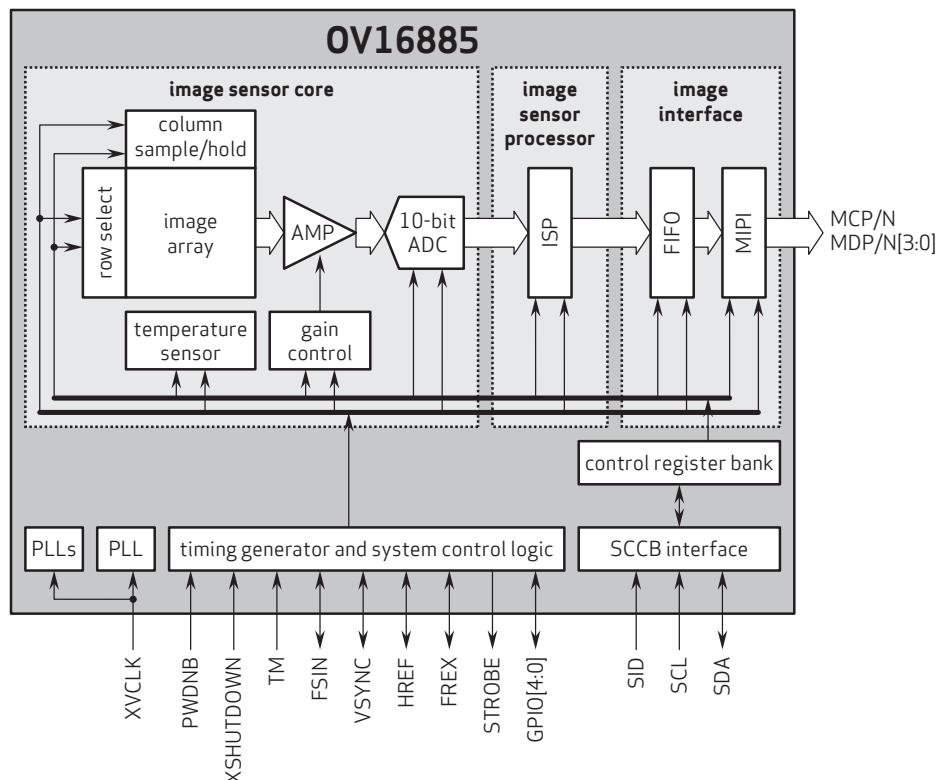
Ordering Information

- OV16885-GA5A
(color, chip probing, 150 μ m backgrinding, reconstructed wafer with good die)

Product Specifications

- active array size: 4672 x 3504
- power supply:
 - core: 1.2V
 - analog: 2.8V
 - I/O: 1.8V
- power requirements:
 - active: 300 mW
 - XSHUTDOWN: 1 μ W
- temperature range:
 - operating: -30°C to +85°C junction temperature
 - stable image: 0°C to +60°C junction temperature
- input clock frequency: 6 - 64 MHz
- lens size: 1/3.06"
- lens chief ray angle: 34.2° non-linear
- sensitivity: 3.2 Ke-/Lux-sec
- maximum image transfer rate:
 - 4672 x 3504: 30 fps
 - 3840 x 2160: 60 fps
 - 2336 x 1752: 60 fps
 - 1080p: 120 fps
 - 720p: 180 fps
 - 800 x 480: 240 fps
- max S/N ratio: 36.8 dB
- dynamic range: 72 dB @ 16x gain
- dark current: 4 e-/sec @ 60°C junction temperature
- scan mode: progressive
- pixel size: 1.0 μ m x 1.0 μ m
- image area: 4741.63 μ m x 3564.29 μ m
- die dimensions:
 - COB: 5690 μ m x 4050 μ m
 - RW: 5740 μ m x 4120 μ m

Functional Block Diagram



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