OV8856 8MP product brief

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available in a lead-free package

High Performance PureCel® Sensor Brings 8-Megapixel Selfies to Mainstream Smartphones

OmniVision's OV8856 is a new 1/4-inch 8 megapixel PureCel sensor designed for front- and rear-facing camera applications in mainstream mobile devices. Built on advanced 1.12-micron pixel architecture, the extremely compact OV8856 offers industry-leading image quality and improved performance when compared with previous-generation 8-megapixel image sensors.

The 1/4-inch OV8856 leverages OmniVision's PureCel pixel architecture to capture full-resolution 8-megapixel images and video at 30 frames per second (fps), and 1080p high-definition (HD) video at 60 fps. The power-efficient OV8856 sensor also supports interlaced high dynamic range (iHDR) for clear images and video in high- and low-light conditions. Using a high-speed four-lane MIPI interface, the OV8856 can output full-resolution, 8-megapixel 30 fps video over two MIPI lanes without requiring any data compression.

The OV8856 is one of the smallest 8-megapixel sensors on the market, and is approximately 15 percent smaller than OmniVision's previous-generation OV8858 image sensor. The OV8856 can fit into a 6.5 mm x 6.5 mm fixed-focus module with a z-height of approximately 4 mm.

Find out more at www.ovt.com.

OmniVision

OV8856

Applications

- Cellular Phones
- Tablets
- PC Multimedia

Product Features

- 1.12 µm x 1.12 µm pixel
- optical size of 1/4"
- 32.9° CRA for < 5mm Z-height
- programmable controls for frame rate, mirror and flip, cropping, and windowing
- supports images sizes:
  8MP (4:3, 3264x2448),
  8MP (16:9, 3264x1836),
  EIS 1080p (2112x1188),
  1080p (1920x1080),
  EIS 720p (1408x792), and more
- 8MP at 30 fps
  (720Mbps/4-lane or 1.44Gbps/2-lane)
- two on-chip phase lock loops (PLLs)
- two-wire serial bus control (SCCB)
- 8k bits of embedded one-time programmable (OTP) memory
- image quality control: defect pixel correction, automatic black level calibration, lens shading correction and alternate row HDR

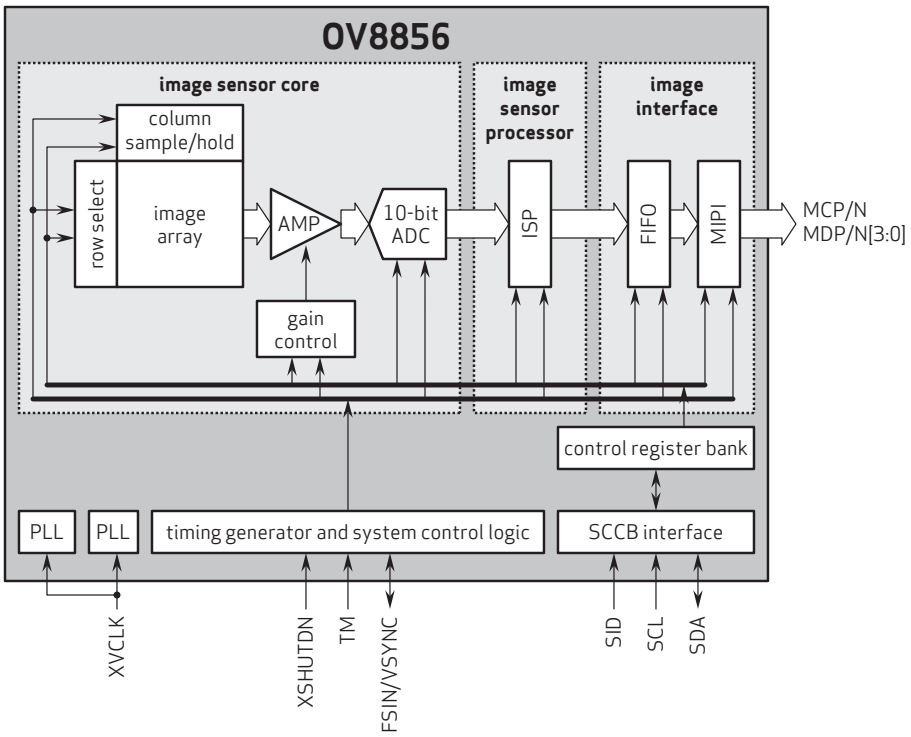
Ordering Information

- **OV08856-GA4A**
  (color, chip probing, 200 µm backgrinding, reconstructed wafer with good die)

Product Specifications

- **active array size:** 3264 x 2448
- **power supply:**
  - **core:** 1.14 - 1.26V (1.2V nominal)
  - **analog:** 2.6 - 3.0V (2.8V nominal)
  - **I/O:** 1.7 - 1.9V (1.8V)
- **power requirements:**
  - **active:** 150 mW
  - **standby:** 0.8 µW
  - **XSHUTDN:** 1 µW
- **temperature range:**
  - **operating:** -30°C to +85°C junction temperature
  - **stable image:** 0°C to +60°C junction temperature
- **output interfaces:** up to 4-lane MIPI serial output
- **output formats:** 10-bit RGB RAW
- **lens size:** 1/4"
- **lens chief ray angle:** 32.9° non-linear
- **input clock frequency:** 6 - 27 MHz
- **max S/N ratio:** 36.5 dB
- **dynamic range:** 70 dB @ 8x gain
- **maximum image transfer rate:**
  - **3264x2448:** 30 fps
  - **3264x1836:** 30 fps
  - **2112x1188:** 60 fps
  - **1920x1080:** 60 fps
  - **1408x792:** 90 fps
- **sensitivity:** 480 mV/lux-sec
- **scan mode:** progressive
- **pixel size:** 1.12 µm x 1.12 µm
- **dark current:** 12 e^-/sec
  @ 60°C junction temperature
- **image area:** 3678.336 µm x 2767.68 µm
- **die dimensions:**
  - **COB:** 4806 µm x 3969 µm
  - **RW:** 4856 µm x 4019 µm

Functional Block Diagram



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