OV8850 8-megapixel product brief

lead free

available in a lead-free package

1.1-Micron Pixel 1/4-inch 8-Megapixel CMOS Image Sensor Utilizes OmniBSI-2™ Technology for Next-Generation Mobile Applications

The 1/4-inch OV8850 leads the CMOS sensor pixel design race in the smartphone market by enabling autofocus modules that are 20 percent slimmer than today's 1/3.2-inch 8-megapixel modules. Besides a small footprint, the 1.1-micron OmniBSI-2 pixel offers significant improvements in power efficiency and comparable image quality to the previous generation 1.4-micron OmniBSI™ pixel, making it an attractive solution for next-generation smartphones and tablets.

An integrated scaler allows the camera to maintain full field of view in 1080p/30 fps high-definition (HD) video and preview modes and provides extra adjustable resolution for electronic image stabilization (EIS). Additionally, the sensor's 2x2 binning functionality provides EIS for 720p/60 fps HD video recording. Other advanced features of the OV8850 include an on-chip temperature sensor, two PLLs, context switching, 4 Kbits of one-time programmable memory, lens shading correction, defective pixel cancelling, black sun elimination, and alternate row exposure for high dynamic range (HDR) video and still image capture.

The OV8850 supports 8-bit and 10-bit RAW image output with all standard image quality control functions supported through the SCCB interface. The sensor fits in an 8.5 x 8.5 mm autofocus camera module with a build height of 4.7 mm and features a 4-lane MIPI/LVDS that facilitates the required high data transfer rate.

Find out more at www.ovt.com.

OmniVision

OV8850

Applications

- Cellular and Mobile Phones
- Tablets
- Digital Video Camcorders (DVC)

Product Features

- 1.1 micron OmniBSI-2™ pixel technology
- automatic black level calibration (ABLC)
- programmable controls for frame rate, mirror and flip, cropping, windowing, and scaling
- image quality controls: lens correction and defective pixel canceling, black sun elimination
- supports output formats: 8/10-bit RAW
- supports 2x2 binning, re-sampling filter
- embedded full scaler
- supports horizontal and vertical subsampling
- supports images sizes: 8MP, EIS1080p, 1080p, EIS720p, EISQ 1080p, Q1080p, EISVGA, VGA, etc.
- fast mode switching
- standard serial SCCB interface
- up to 4-lane MIPI serial output interface
- up to 4-lane LVDS serial output interface
- embedded 4K bits one-time programmable (OTP) memory for part identification, etc.
- two on-chip phase lock loop (PLL)
- programmable I/O drive capability
- built-in 1.2V regulator for core
- built-in temperature sensor
- supports alternate row High Dynamic Range (HDR) timing

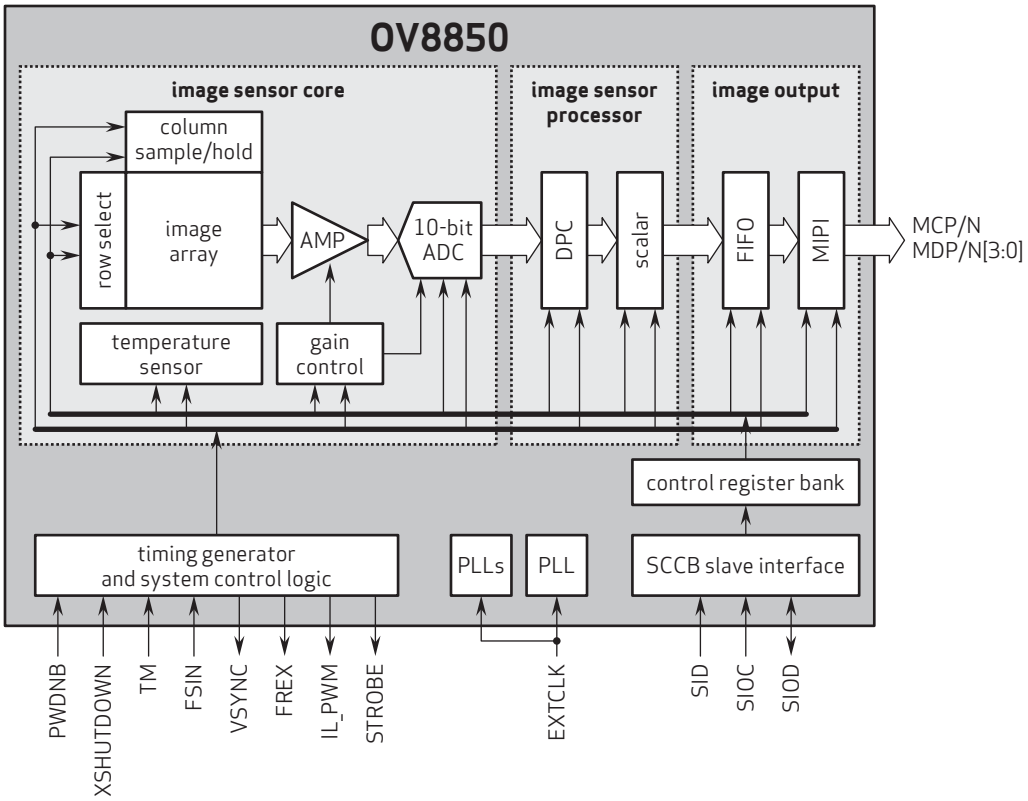
Ordering Information

- **OV08850-G04A-2B**
  (color, chip probing, 200 µm backgrinding, reconstructed wafer with good die)

Product Specifications

- **active array size:** 3280 x 2464
- **power supply:**
  - **core:** 1.14 - 1.33V (for up to 8MP @ 24 fps)
  - **analog:** 2.6 - 3.0V
  - **I/O:** 1.7 - 3.0V
- **power requirements:**
  - **active:** 160 mA
  - **standby:** 300 µA (PWDN)
  - **XSHUTDOWN:** 10 µA
- **temperature range:**
  - **operating:** -30°C to 70°C junction temperature
- **output formats:** 8/10-bit RAW RGB data
- **lens size:** 1/4"
- **lens chief ray angle:** 30°
- **input clock frequency:** 6 - 27 MHz
- **max S/N ratio:** 34.9 dB
- **dynamic range:** 65 dB @ 8x gain
- **maximum image transfer rate:**
  - **8MP:** 24 fps
  - **EIS1080p:** 30 fps
  - **EIS720p:** 60 fps
- **sensitivity:** 650 mV/lux-sec
- **scan mode:** progressive
- **maximum exposure interval:** 2480 x t_{ROW}
- **pixel size:** 1.1 µm x 1.1 µm
- **image area:** 3625.6 µm x 2750 µm
- **die dimensions:** 5550 µm x 5400 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

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