OV8835 8-megapixel product brief

Best-In-Class Pixel Performance and High Frame Rate Photography for Smartphones and Tablets

lead free

available in a lead-free package

The OV8835 leverages OmniVision's newly improved OmniBSI-2™ pixel architecture to deliver best-in-class pixel performance to next-generation smartphones and tablets. It is capable of capturing full resolution 8-megapixel high-speed photography at 30 frames per second (fps) or 1080p high definition (HD) video at 30 fps with electronic image stabilization (EIS) and 720p high-definition (HD) video at 60 fps.

The 1/3.2-inch OV8835 is built on an enhanced 1.4-micron OmniBSI-2 pixel that delivers dramatically improved sensitivity of 1000 mV/lux-sec, a 20 percent improvement over the previous generation OV8830. Other performance improvements over the previous generation 8-megapixel image sensor include a 20 percent improvement in low-light performance and more than a 25 percent improvement in full-well capacity.

The new CameraChip™ sensor supports an active array of 3264 x 2448 pixels (8-megapixel) operating at 30 fps for zero shutter lag. Its 2x2 binning functionality with post-binning resampling filter minimizes special artifacts and removes image artifacts around edges to deliver clean, crisp color image quality for industry-leading HD video recording.

The OV8835 fits into an industry standard 8.5 x 8.5 module size and is pin-to-pin compatible with the previous generation OV8830.
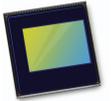
Find out more at www.ovt.com.

Omni Vision®

Applications

- Cellular and Mobile Phones
- Digital Video Camcorders (DVC)
- Digital Still Cameras (DSC)
- PC Multimedia

OV8835

Ordering Information

- OV08835-G04A
  (color, chip probing, 200 μm backgrinding, reconstructed wafer with good die)

Product Features

- 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
- supports output formats: 10-bit RAW RGB (MIPI)
- supports horizontal and vertical subsampling
- supports images sizes: 8MP, EIS1080p, 1080p, EIS720p, EISQ 1080p, Q1080p, EISVGA, VGA, QVGA, etc.
- fast mode switching
- support 2x2 binning, re-sampling filter
- 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.
- three on-chip phase lock loops (PLLs)
- programmable I/O drive capability
- built-in 1.2V regulator for core
- built-in temperature sensor
- supports alternate row HDR timing
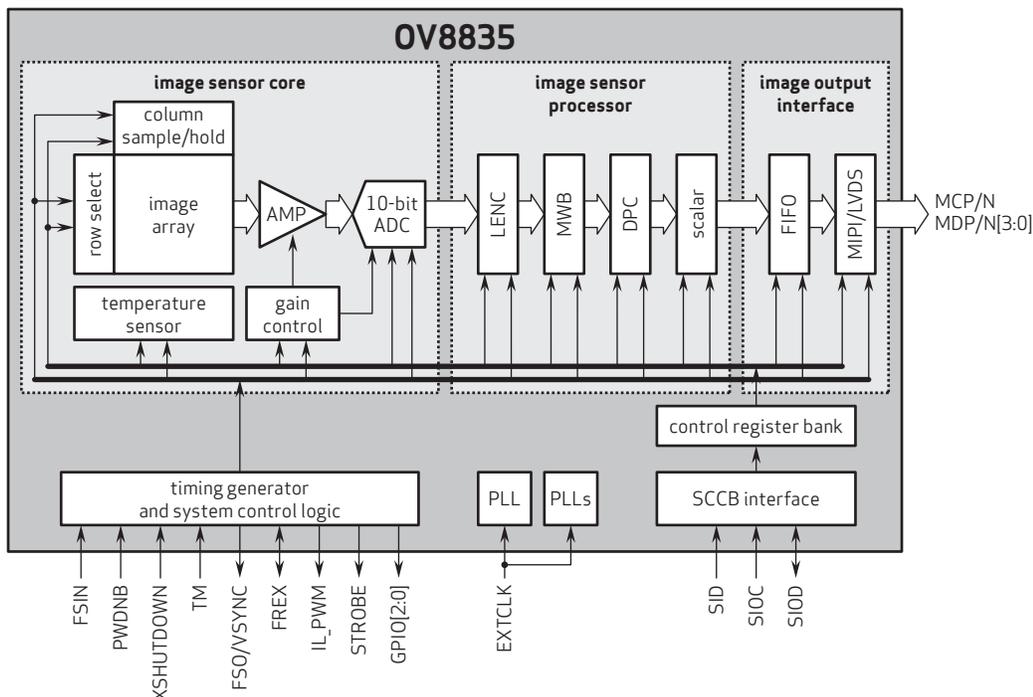- supports ULPS and triggers in forward direction only

Product Specifications

- **active array size:** 3264 x 2448
- **power supply:**
  - core (for applications up to 30 fps): 1.2 - 1.32V for up to 800 Mbps/lane
  - core (for applications up to 24 fps): 1.14 - 1.32V for up to 800 Mbps/lane or 1.27 - 1.32V for up to 1 Gbps/lane
  - analog: 2.6 - 3.0V
  - I/O: 1.7 - 3.0V
- **power requirements:**
  - active (for up to 30 fps): 152 mA (265 mW), if the internal regulator is used, a higher power consumption 316 mW with DOVDD = 1.8V is achieved
  - active (for up to 24 fps): 132 mA (235 mW), if the internal regulator is used, a higher power consumption 280 mW with DOVDD = 1.8V is achieved
  - standby: 300 μA
  - XSHUTDOWN: 10 μA
- **temperature range:**
  - operating (for applications up to 30 fps): 0°C to 70°C junction temperature
  - operating (for applications up to 24 fps): -30°C to 70°C junction temperature
  - stable image: 0°C to 50°C junction temperature

- **output formats:** 10-bit RAW RGB data
- **lens size:** 1/3.2"
- **lens chief ray angle:** 27° non-linear
- **input clock frequency:** 6 - 27 MHz
- **max S/N ratio:** 36.6 dB
- **dynamic range:** 68.7 dB @ 8x gain
- **maximum image transfer rate:**
  - 8MP: 30 fps
  - EIS1080p: 30 fps
  - EIS720p: 60 fps
- **sensitivity:** 824 mV/lux-sec
- **scan mode:** progressive
- **maximum exposure interval:** $2480 \times t_{ROW}$
- **pixel size:** 1.4 μm x 1.4 μm
- **dark current:** 10 e-/s @ 50°C junction temperature
- **image area:** 4592 μm x 3450 μm
- **die dimensions:** 6410 μm x 5940 μm

Functional Block Diagram

OmniVision.