

OV8825 8-megapixel product brief



available in
a lead-free
package

High Performance 8-Megapixel Camera With Advanced OmniBSI+ Pixel Architecture for Superior Image Quality With Low-Cost Structure

The 1/3.2-inch OV8825 is an 8-megapixel CameraChip™ sensor built on OmniVision's advanced OmniBSI+™ pixel architecture, providing many significant improvements over the previous OmniBSI™ generation, including a 60 percent increase in full-well capacity, a 10 percent increase in quantum efficiency and a 10 percent improvement in low-light sensitivity. OmniBSI+ pixel architecture enables the OV8825 to dramatically improve image and video capture in both bright and low-light conditions, making it a highly attractive solution for next generation for smartphones and tablets.

The OV8825 operates at 24 frames per second (fps) in full resolution, and in 1080p high-definition (HD) video mode at 30 fps or 720p at 60 fps. The sensor's high frame rate also helps eliminate image lag for shutter-less designs, and enables continuous shooting, minimized rolling shutter effect and real-time image capture with no lag between resolutions. A high-speed, 4-lane MIPI interface facilitates the required high data transfer rates necessary for capturing 10-bit 8-megapixel images and HD video.

An integrated scaler offers electronic image stabilization and enables it to maintain full field-of-view (FOV) with improved signal-to-noise performance in 1080p high-definition (HD) video mode at 30 fps. The sensor's 2 x 2 binning functionality with a post-binning re-sampling filter function minimizes spatial artifacts and removes image artifacts around edges, delivering clean, crisp color images.

The OV8825 fits into the industry standard 8.5 x 8.5 mm module size and features certain image processing functions such as lens shading correction and defect pixel correction, as well as 256-bytes of embedded one-time programmable memory.

Find out more at www.ovt.com.

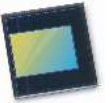
Applications

- Mobile Phones
- Digital Video Camcorders (DVC)
- Digital Still Cameras (DSC)

Product Features

- OmniBSI+™ 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
- support for output formats: 10-bit RAW RGB (MIPI)
- support for horizontal and vertical subsampling
- support for images sizes: 8 Mpixel, EIS1080p, 1080p, EIS720p, EISQ 1080p, Q1080p, EISVGA, VGA, QVGA, etc.
- support 2x2 binning
- standard serial SCCB interface
- MIPI serial output interface
- 256 bytes embedded one-time programmable (OTP) memory for part identification, etc.
- on-chip phase lock loop (PLL)
- programmable I/O drive capability
- built-in 1.5V regulator for core

OV8825



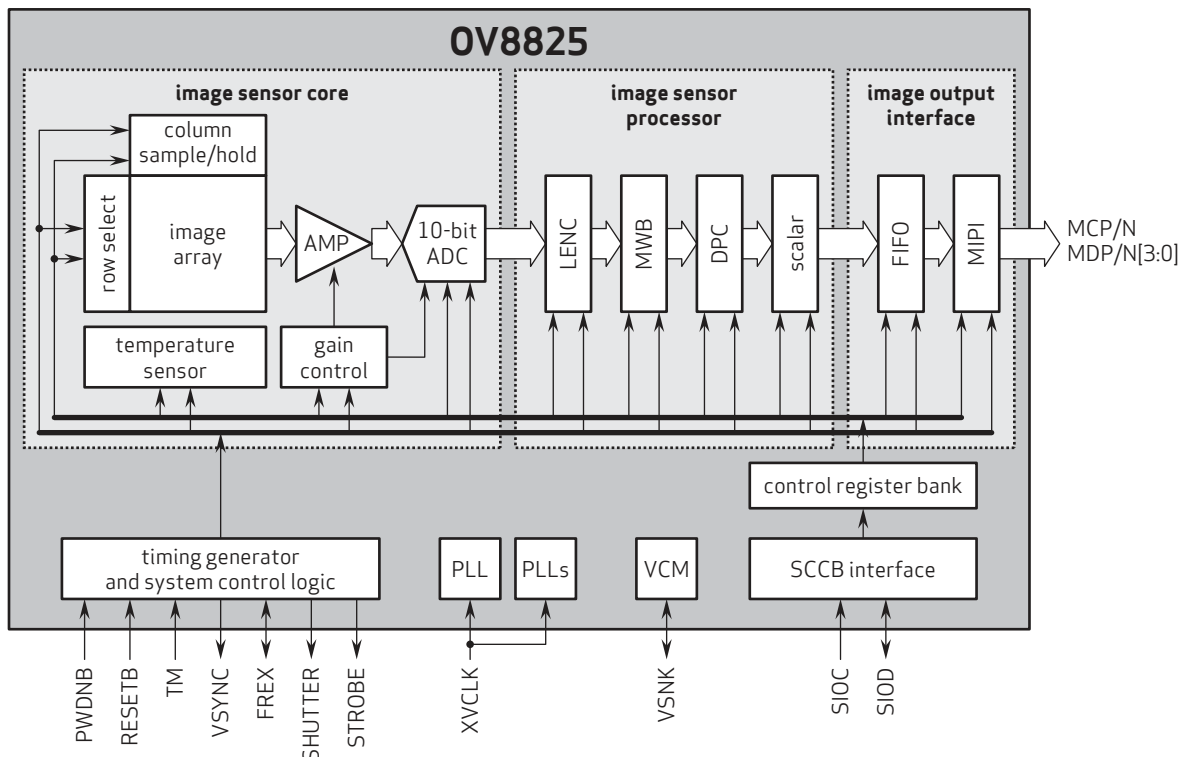
Ordering Information

- OV08825-G04A
(color, chip probing, 200 μm backgrinding, reconstructed wafer)

Product Specifications

- active array size: 3296 x 2460
- max S/N ratio: 35.7 dB
- power supply:
 - core: 1.5 VDC ±5% (internal regulator optional)
 - analog: 2.6 - 3.0V
 - I/O: 1.7 - 3.0V
- power requirements:
 - active: 160 mA (358 mW)
 - standby: 30 μA
- temperature range:
 - operating: -30°C to 70°C junction temperature
 - stable image: 0°C to 50°C junction temperature
- output formats: 10-bit RGB RAW
- lens size: 1/3.2"
- lens chief ray angle: 27° non-linear
- input clock frequency: 6 - 27 MHz
- dynamic range: 70.45 dB @ 8x gain
- maximum image transfer rate:
 - 8MP: 24 fps
 - EIS1080p: 30 fps
 - EIS720p: 60 fps
- sensitivity: 725 mV/lux-sec
- scan mode: progressive
- maximum exposure interval: 2480 x t_{row}
- pixel size: 1.4 μm x 1.4 μm
- dark current: 8 mV/s @ 50°C junction temperature
- image area: 4614 μm x 3444 μm
- die dimensions: 6350 μm x 6750 μm

Functional Block Diagram



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