

OV12830 12.8-megapixel product brief



Full Resolution 12.8-Megapixel High-Speed Photography and 1080p/60 HD Video for Smartphones and Tablets



available in
a lead-free
package

OmniVision's OV12830 is a 12.8-megapixel CameraChip™ sensor designed to meet the high quality image and video recording standards of the next generation high-end smartphones and tablets. In addition to capturing 1080p/60 high-definition (HD) video, the sensor is capable of capturing full resolution 12.7-megapixel images at 24 frames per second (fps), enabling high-speed photography.

The OV12830 utilizes 1.1-micron OmniBSI-2™ pixel architecture to enable an active array of 4224 x 3000 pixels (12.8-megapixel) operating at 24 fps, which minimizes shutter lag from shot-to-shot. An on-chip RAW scalar allows the sensor to capture 10-megapixel resolution video in a 16:9 aspect ratio (4224 x 2376 pixels) at 30 fps, while maintaining full field of view. Furthermore, the 1/3.2-inch OV12830 is capable of

capturing full 1080p HD video at 60 fps with additional pixels for EIS. The OV12830 provides alternate row output from full-resolution at two different exposures, enabling high-dynamic range (HDR) still or video recording.

The sensor comes in die format with industry standard 4-lane MIPI interface connectivity. The sensor offers programmable controls for frame rate, mirror and flip, cropping, windowing and scaling, as well as support for horizontal and vertical sub-sampling. All required image quality controls, including defective pixel correction, lens shading correction and black level calibration are programmable through the SCCB interface.

Find out more at www.ovt.com.

Applications

- Cellular and Mobile Phones
- Tablets
- Digital Still and Video Cameras (DSC/DVC)
- PC Multimedia
- 3D Cameras

Product Features

- OmniBSI-2™ pixel technology
- programmable controls for frame rate, mirror and flip, cropping, windowing, and scaling
- image quality controls: defect pixel correction, lens shading correction, and black level calibration
- supports horizontal and vertical subsampling
- supports 2x2 binning, re-sampling filter
- support for image sizes:
 - 12.7MP (4224x3000)
 - 12MP (4000x3000)
 - 10MP (4224x2376)
 - EIS 1080p (2112x1188)
 - EIS 720p (1536x864)
- support for output formats:
 - 10-bit RAW RGB and DPCM 10-8 compression
- fast mode switching
- supports 3D applications
- programmable I/O drive capability
- on chip RAW scalar
- up to 4-lane MIPI serial output interface
- embedded 4K bits one-time programmable (OTP) memory for part identification, etc...
- standard serial SCCB interface
- built-in temperature sensor
- HDR via alternative row exposure
- two on-chip phase lock loop (PLL)

OV12830



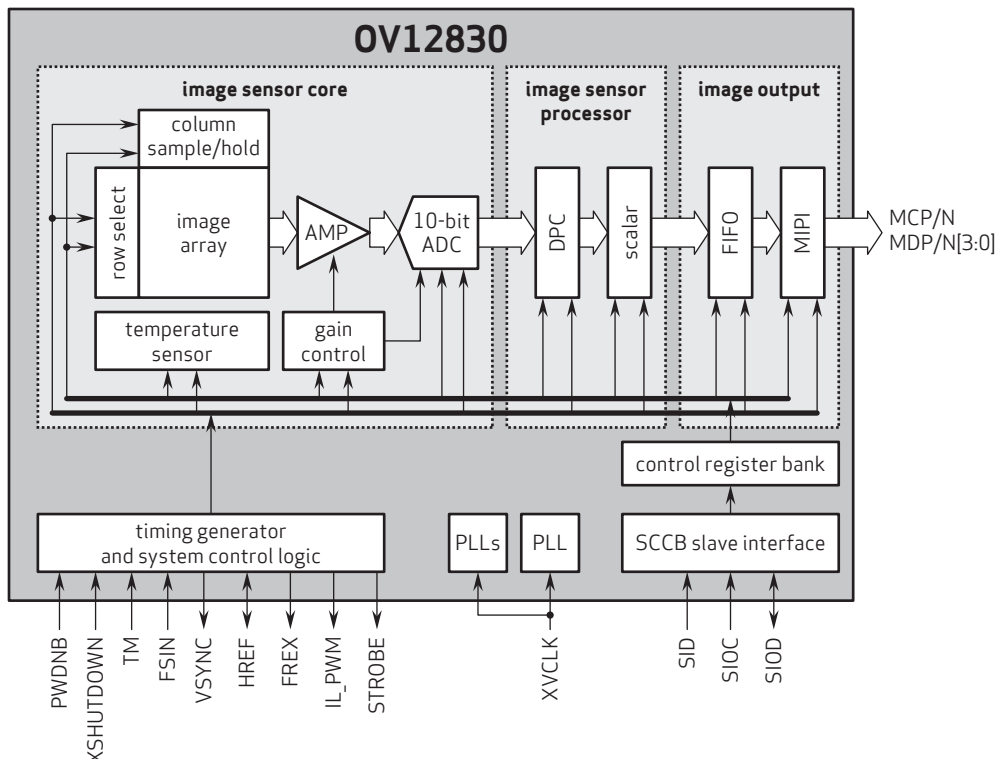
Ordering Information

- OV12830-G04A**
(color, chip probing, 200 μm backgrinding, reconstructed wafer with good die)

Product Specifications

- active array size:** 4256 x 3016
- max S/N ratio:** 35.0 dB
- power supply:**
 - analog: 2.6 - 3.0V
 - core: 1.27 - 1.32V for up to 1 Gbps/lane MIPI
 - I/O: 1.7 - 3.0V
- power requirements:**
 - active: 296 mW
 - standby: 400 μW
 - XSHUTDOWN: 5 μW
- temperature range:**
 - operating: -30°C to 70°C junction temperature
 - stable image: 0°C to 60°C junction temperature
- output formats:** RAW RGB data
- lens size:** 1/3.2"
- input clock frequency:** 6 - 27 MHz
- lens chief ray angle:** 30.3° non-linear
- dynamic range:** 66.6 dB @ 8x gain
- maximum image transfer rate:**
 - 12.8MP: 24 fps
 - 12MP: 24 fps
 - 10MP (4224x2376): 30 fps
 - EIS1080p: 60 fps
 - EIS720p: 60 fps
 - VGA: 120 fps
- sensitivity:** 600 mV/lux-sec
- scan mode:** progressive
- pixel size:** 1.1 μm x 1.1 μm
- dark current:** 2.4 mV/sec @ 60°C junction temperature
- image area:** 4681.6 μm x 3317.6 μm
- die dimensions:** 6300 μm x 5570 μm

Functional Block Diagram



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