

OV12830 12.8-megapixel product brief



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

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.

OmniVision

OV12830



Applications

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

Ordering Information

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

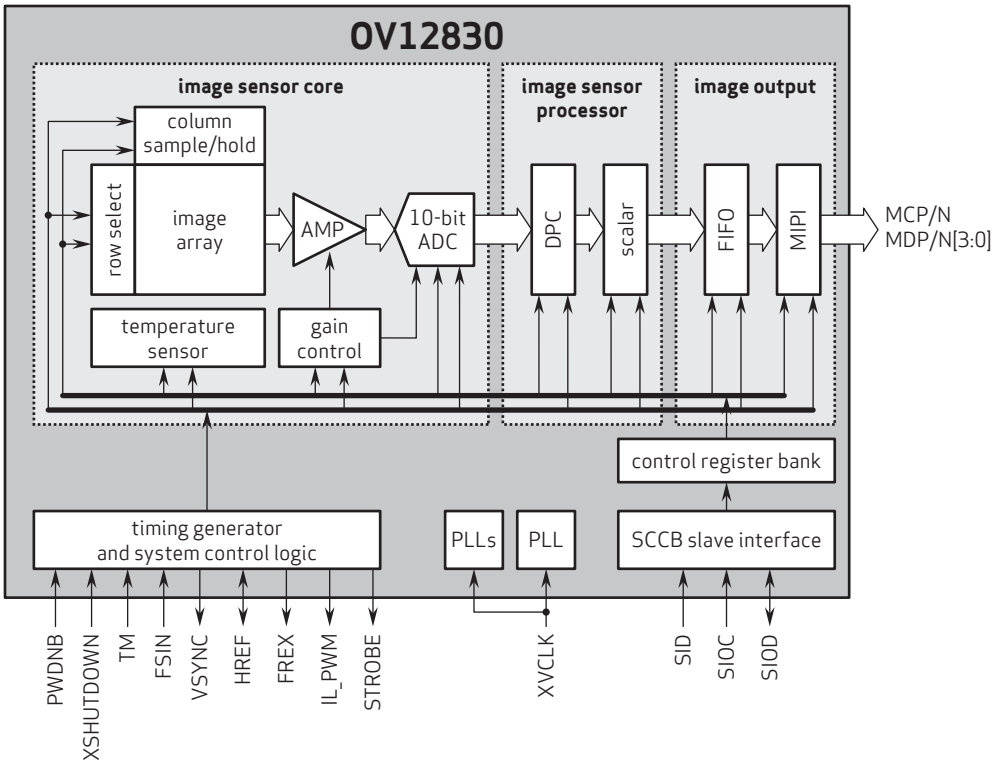
Product Features

- 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)

Product Specifications

- **active array size:** 4256 x 3016
- **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
- **max S/N ratio:** 35.0 dB
- **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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