

OV14825 14 megapixel product brief



Premium 1080p/60 HD Video and 14.6 Megapixel Photography



available in
a lead-free
package

The OV14825 is the ultimate mobile imaging solution, combining 14.6-megapixel photography with 1080p/60 high definition (HD) video. The 1/2.33-inch OV14825 utilizes OmniVision's most advanced 1.4-micron OmniBSI™ pixel architecture to achieve optimal performance and low-light sensitivity in the industry's smallest format. The 1/2.33-inch OV14825 has an active array of 4416 x 3312 backside illumination pixels operating at 15 fps in full resolution, while delivering full 1080p HD video at 60 fps, using a binning feature to achieve higher sensitivity. In full HD video mode, the sensor also provides additional pixels used for electronic image stabilization (EIS).

The OV14825's 28° chief ray angle (CRA) optimizes it for use in mobile camera applications. The sensor's small form factor is largely attributable to its CSP3 packaging, allowing for the development of ultra compact mobile

products. The OV14825 is also available in RW (bare die) for module integrators. The OV14825 enables camera designs with a low bill of materials and reduced power consumption. It is offered with industry-standard connectivity including LVDS, MIPI and DVP and does not require external IC components.

All required image processing functions, including exposure control, white balance, defective pixel canceling, noise canceling are programmable through the SCCB interface. In addition, OmniVision image sensors use proprietary sensor technology to improve image quality by reducing or eliminating common lighting/electrical sources of image contamination, such as fixed pattern noise and smearing to produce a clean, fully stable color image.

Find out more at www.ovt.com.

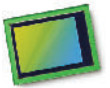
Applications

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

Product Features

- ultra high performance
- automatic image control functions:
 - automatic exposure control (AEC)
 - automatic gain control (AGC)
 - automatic white balance (AWB)
 - automatic band filter (ABF)
 - automatic 50/60 Hz luminance detection
 - automatic black level calibration (ABLC)
- programmable controls for frame rate, mirror and flip, cropping, and windowing
- image quality controls: lens correction and defective pixel canceling
- support for output formats:
 - 9/10/11/12-bit RAW RGB (DVP), 9/10/11/12-bit RAW RGB (MIPI/LVDS), CCIR656
- support for horizontal and vertical subsampling
- support for images sizes: 14.6 Mpixel, 12.7 Mpixel, electronic image stabilization (EIS) 1080p, 1080p, EIS720p, 720p, VGA, QVGA, etc.
- support for binning
- standard serial SCCB interface
- digital video port (DVP) parallel output interface
- LVDS serial output interface
- MIPI serial output interface
- embedded one-time programmable (OTP) memory for part identification, etc.
- on-chip phase lock loop (PLL)
- programmable I/O drive capability
- built-in 1.5 V regulator for core

OV14825



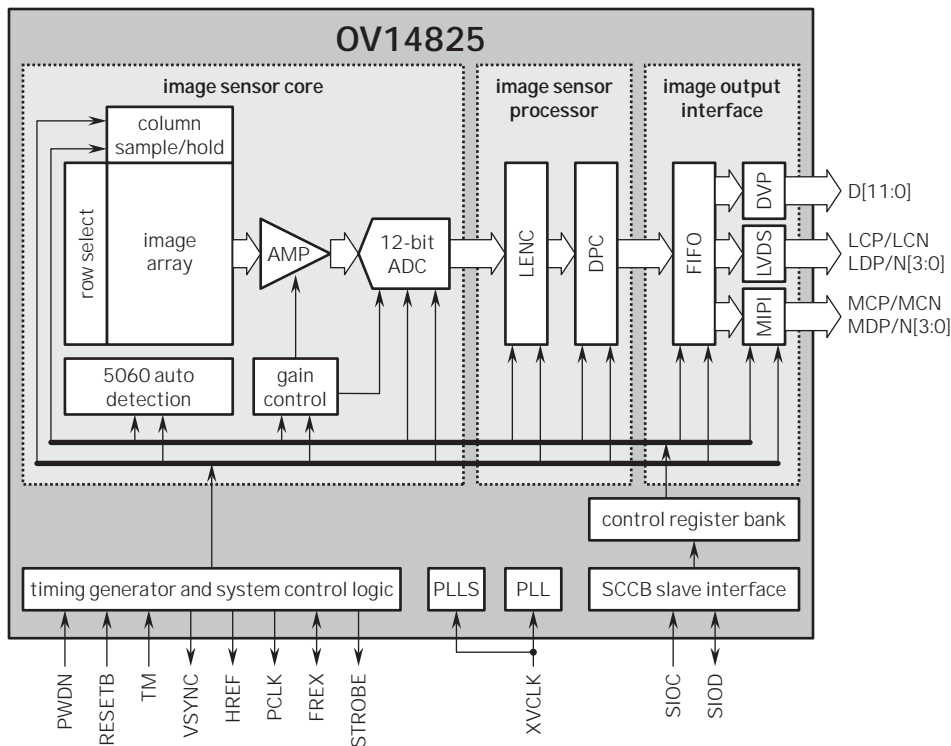
Ordering Information

- OV14825-G04A
(color, chip probing, 200 μ m backgrounding, reconstructed wafer)

Product Specifications

- active array size: 4416 x 3312
- maximum image transfer rate:
 - 14.6M (10-bit): 15 fps
 - EIS1080p (9-bit): 60 fps
- sensitivity: >650 mV/(lux-sec)
- scan mode: progressive
- maximum exposure interval:
 - 3336 x t_{row}
- pixel size: 1.4 μ m x 1.4 μ m
- well capacity: 4.5 Ke⁻
- dark current: 7.6 mV/sec at 60°C
- fixed pattern noise (FPN):
 - < 1% of $V_{PEAK-TO-PEAK}$
- image area: 6227 μ m x 4653 μ m
- package dimensions:
 - 8950 μ m x 6990 μ m
- power supply:
 - core: 1.5 VDC \pm 5% (internal regulator option)
 - analog: 2.6 - 3.0 V
 - I/O: 1.7 - 3.0 V
- temperature range:
 - operating: -30°C to 70°C
 - stable image: 0°C to 50°C
- output formats: 9/10/11/12-bit RAW RAW (DVP), 9/10/11/12-bit RAW RAW (MIPI/LVDS)
- lens size: 1/2.33"
- lens chief ray angle: 28°
- input clock frequency: 6 - 27 MHz
- S/N ratio: 35 dB
- dynamic range: 67 dB

Functional Block Diagram



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