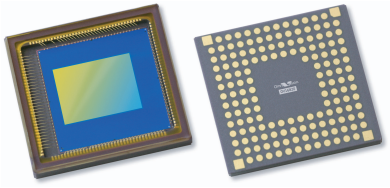


OV16820/OV16825 16-megapixel product brief

lead free

available in a lead-free package

16-Megapixel Burst Photography and Ultra High Resolution 4K2K Video at 60 fps

OmniVision's OV16820 and OV16825 are 16-megapixel CameraChip™ sensors that support 16-megapixel burst photography and can capture 4K2K or Quad Full High Definition (QFHD) video at 60 frames per second (fps). Built on OmniVision's high-performance 1.34-micron OmniBSI-2™ pixel architecture, the OV16820 and OV16825 support emerging standards in high-resolution video recording for the digital still camera (DSC), digital video camera (DVC) and high-end smartphone markets.

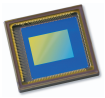
The 1/2.3-inch CameraChip sensors are capable of operating in full resolution (4608 x 3456) at 30 fps, 4K2K (3840 x 2160) video at 60 fps, and 1080p HD video at 60 fps with extra pixels for electronic image stabilization (EIS). The sensors are capable of capturing high resolution images in rapid succession. All required image processing functions, including defective pixel and noise canceling, RAW scaling, image size, frame rate, exposure, gain, cropping and orientation are programmable through the serial camera control bus (SCCB) interface.

The OV16820 and OV16825 support 10-12 bit RAW RGB images and 8-10 DPCM compression. Both offer industry-standard connectivity, including up to 8-lane MIPI and LVDS output interfaces for high data transfer rates. The OV16820 is available in a ceramic land grid array (CLGA) package, while the OV16825 is available in die form (RW/COB).

Find out more at www.ovt.com.

OmniVision

OV16820/OV16825



Applications

- Digital Still Cameras
- HD Video Camcorders
- Cellular and Mobile Phones
- Telepresence

Product Features

- OmniBSI-2™ (second generation BSI)
- support for image sizes: 4608 x 3456 and below
- 16 megapixel at 30 fps
- 4K2K at 60 fps
- 8-lane LVDS/MIPI serial output interface
- two-wire serial bus control (SCCB)
- four-wire serial interface
- strobe output to control flash
- embedded 2048 bytes of one-time programmable (OTP) memory
- on-chip phase lock loop (PLL)
- supports pixel binning, re-sampling filter
- on-chip scalar
- 2x2, 3x3 binning support
- support for output format: 10/12 bits RAW RGB and DPCM 10-8 compression
- capable of maintaining register values at power down
- programmable controls: gain, exposure, frame rate, image size, horizontal mirror, vertical flip, cropping, RAW scaling, windowing, and panning
- image control functions: manual exposure (MEC), manual gain control (MGC) and automatic black level calibration (ABLC)
- image quality controls: defect pixel correction
- low dark current
- support for black sun cancellation

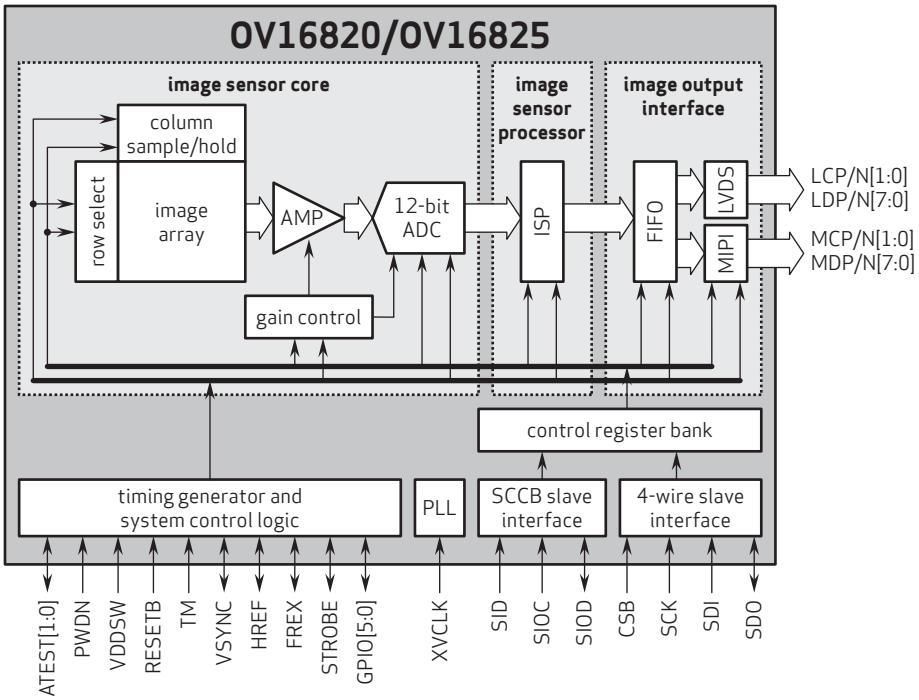
Ordering Information

- **OV16820-C28A**
  (color, lead-free, 161-pin CLGA)
- **OV16825-G04A**
  (color, chip probing, 200 µm backgrinding, reconstructed wafer)

Product Specifications

- **active array size:** 4608 x 3456
- **power supply:**
  - **analog:** 2.8V
  - **core:** 1.26V
  - **I/O:** 2.8V/1.8V
- **power requirements:**
  - **active:** 310 mA
  - **standby:** 10 µA
- **temperature range:**
  - **operating:** -30°C to 70°C junction temperature
  - **stable image:** 0°C to 60°C junction temperature
- **output interfaces:** up to 8 data lanes LVDS/MIPI output
- **output formats:** RAW RGB data
- **lens size:** 1/2.3"
- **lens chief ray angle:**
  - **DSC/DVC:** 8.5° non-linear
  - **mobile:** 29.7° non-linear
- **input clock frequency:** 6 - 27 MHz
- **maximum image transfer rate:**
  - **16MP:** 30 fps
- **scan mode:** progressive
- **shutter:** rolling
- **maximum exposure interval:** 1 frame - $4T_{line}$
- **sensitivity:** 800 mV/lux-sec
- **max S/N ratio:** 36.4 dB
- **dynamic range:** 68.6 dB @ 8x gain
- **pixel size:** 1.34 µm x 1.34 µm
- **dark current:** 30 e⁻/s @ 60°C junction temperature
- **image area:** 6239.04 µm x 4673.92 µm
- **package/die dimensions:**
  - **CLGA:** 12.8 mm x 11.8 mm
  - **COB:** 9200 µm x 8900 µm

Functional Block Diagram



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