

OV5630/OV5633 5 megapixel product brief



lead free

available in a lead-free package

low power, high-performance 5 megapixel CameraChip™ image sensor with unparalleled low-light sensitivity

Incorporating OmniVision's proprietary 1.75 micron OmniPixel3-HS™ architecture, the OV5630 delivers best-in-class low-light performance, enabling a new generation of high-performance camera phones that deliver top quality digital photography and video in a small form factor.

The OV5633, a modified version of the OV5630, is an ideal solution for the digital still camera and digital video (DSC/DV) hybrid camera market.

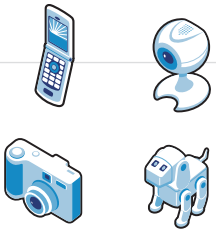
The OV5630 and OV5633 both use OmniPixel3-HS technology, enabling unparalleled low-light image capture with low-light sensitivity of 960mV/(Lux-sec). The 1/3.2-inch RGB raw sensors offer differing chief ray angles (CRA) to suit the specific lens requirements for mobile phone and DSC.DV hybrid applications. The sensors also support automatic exposure control, gain control, white balance, 50/60 Hz luminance detection and black level calibration.

Both sensors can output data in full 5 megapixel resolution at 15 frames per second (fps) and record 720p high definition (HD) video at 60 fps or 1080p at 30 fps. For the data transfer of image data, both sensors are outfitted with a two-lane, high-speed MIPI interface. This enables mobile phone makers to use the OV5630's parallel interface as input for a secondary camera while alternately providing output via the MIPI interface.

The OV5630/OV5633 brings you the best available performance for ultra-compact applications and a user-friendly platform that allows complete control over image quality, formatting and output data transfer.

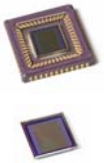
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applications



- mobile phones
- PC multimedia
- digital still camera
- toys/games

OV5630/OV5633



ordering information

- **OV05630-V58A** (color, 58-pin CSP2)
- **OV05633-C48A** (color, 48-pin CLCC)
- **OV05630-G04A** (color, chip probing, 200µm backgrinding, reconstructed wafer)

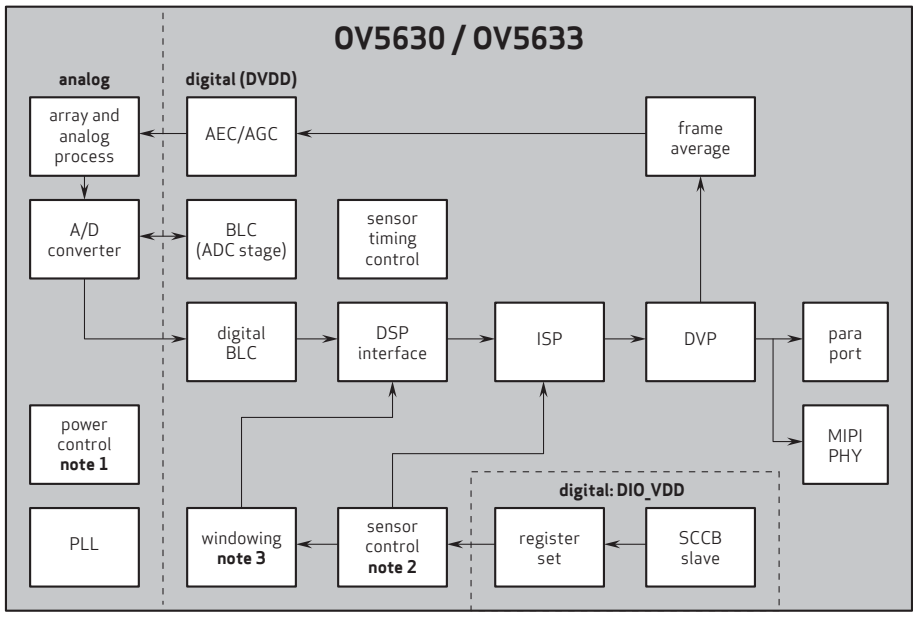
product features

- OmniPixel3-HS technology
- optical size of 1/3.2"
- automatic image control functions:
  - automatic exposure control (AEC)
  - automatic band filter (ABF)
  - automatic 50/60 Hz luminance detection
  - automatic black level calibration (ABLC)
- programmable controls for: frame rate, AEC/AGC, mirror and flip, cropping, windowing and panning
- image quality controls: lens correction, defective pixel canceling
- support for video or snapshot operations
- support for internal and external frame synchronization
- standard serial SCCB interface
- support for LED and flash strobe mode
- support for horizontal and vertical sub-sampling
- digital video port (DVP) parallel output interface
- MIPI interface (two lanes), MIPI hub/secondary camera interface
- embedded one-time programmable (OTP) memory
- on-chip phase lock loop (PLL)
- embedded 1.5V regulator for core power
- programmable I/O drive capability
- support for black sun cancellation
- High Dynamic Range (HDR) ready for sub-sampling resolution providing a dynamic range of -80dB

product specifications

- **active array size:** 2592 x 1944
- **power supply:**
  - **core:** 1.5VDC± 5%
  - **analog:** 2.6 - 3.1V (2.8V typical)
  - **I/O:** 1.7 - 3.1V
- **temperature range:**
  - **operating**: -30° to 70°C
  - **stable image:** 0° to 50°C
- **output format:**
  - 10-bit RGB RAW output
  - I/O tri-state configurability
- **lens size:** 1/3.2"
- **lens chief ray angle:** 25° non-linear
- **input clock frequency:** 6-27 MHz
- **shutter:** rolling shutter
- **max image transfer rate:**
  - **QSXGA:** 15 fps
  - **1080p:** 30 fps
  - **720p:** 60 fps
  - **VGA (640x480)**: 60 fps
  - **1280x960:** 60 fps
- **dynamic range:** - 80 dB
- **pixel size:** 1.75 µm x 1.75 µm
- **package/die dimensions:**
  - CLCC: 14.22 mm x 14.22 mm
  - CSP2: 6385 mm x 6285 mm
  - COB: 6400 mm x 6300 mm

functional block diagram



note 1 power control (positive and negative pump, regulator)

note 2 sensor control (group hold, mask corrupted frame, etc.)

note 3 windowing (crop, mirror, vflip, etc.)

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4275 Burton Drive
Santa Clara, CA 95054

tel: +1 408 567 3000
fax: +1 408 567 3001
www.ovt.com

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