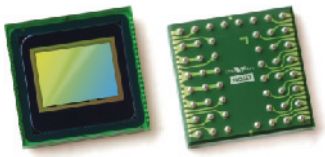


OV3660 3-megapixel product brief

lead free

available in a lead-free package

1/5-Inch 3-Megapixel CMOS Image Sensor Based on OmniBSI™ Technology Delivers Best-in-Class Sensitivity and 720p HD Video for Entry Level Smart Phones

The OV3660 is OmniVision's first 3-megapixel CMOS image sensor based on its OmniBSI™ pixel architecture. Extending the company's portfolio of BSI sensors, the 1.4-micron OmniBSI pixel architecture enables the OV3660 to offer high performance imaging and 720p high-definition (HD) video in an ultra-compact 1/5-inch optical format, making it an ideal choice for entry-level and mainstream smart phones. Because the OV3660 fits into an industry-standard 6.5 x 6.5 mm module it offers a quick and easy upgrade from existing 2-megapixel camera designs.

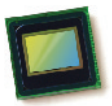
The OV3660 supports 720p HD video recording at 30 frames per second (fps) with cropping and scaling, as well as 4:3 still image capture, allowing users to capture and share both HD video and photography. For still images, the sensor outputs JPEG compressed images that are ready-to-use, allowing the OV3660 to be integrated into a broad selection of platforms. The sensor also supports Scalado™ SpeedTags for faster image rendering that improves user experience for the preview and zoom modes.

The OV3660 offers automatic image control functions including exposure control, white balance, auto 50/60 Hz flicker detection, and black level calibration. Additional features include color saturation, hue, gamma, sharpness (edge enhancement), lens correction, defective pixel and noise cancellation. Camera controls are accessed over a standard serial camera control bus interface and RAW or YUV video data is output through a parallel output interface.

Find out more at www.ovt.com.

OmniVision

OV3660



Applications

- Cellular Phones
- Toys
- PC Multimedia
- Digital Still Cameras

Product Features

- 1.4 µm x 1.4 µm pixel with OmniBSI technology for high performance (high sensitivity, low crosstalk, low noise, improved quantum efficiency)
- optical size of 1/5"
- automatic image control functions:
  - automatic exposure control (AEC)
  - automatic white balance (AWB)
  - automatic flicker detection
  - automatic black level calibration (ABLC)
- programmable controls for frame rate, AEC/AGC 16-zone size/position/weight control, mirror and flip, cropping, windowing, and panning
- image quality controls: color saturation, hue, gamma, sharpness (edge enhancement), lens correction, defective pixel canceling, and noise canceling
- support for output formats: raw RGB data, RGB565/555/444, CCIR656, YCbCr422, and compression
- support for LED and flash strobe mode
- support for horizontal and vertical sub-sampling, binning
- support for 2x2 binning with binning filter to minimize binning artifacts
- support for data compression output
- standard serial SCCB interface
- digital video port (DVP) parallel output interface
- embedded 1.5 V regulator for core power
- programmable I/O drive capability, I/O tri-state configurability
- support for black sun cancellation
- support for images sizes: 3 megapixel, and any arbitrary size scaling down from 3 megapixel
- embedded microcontroller
- suitable for module size of 6.5 x 6.5 x <6mm

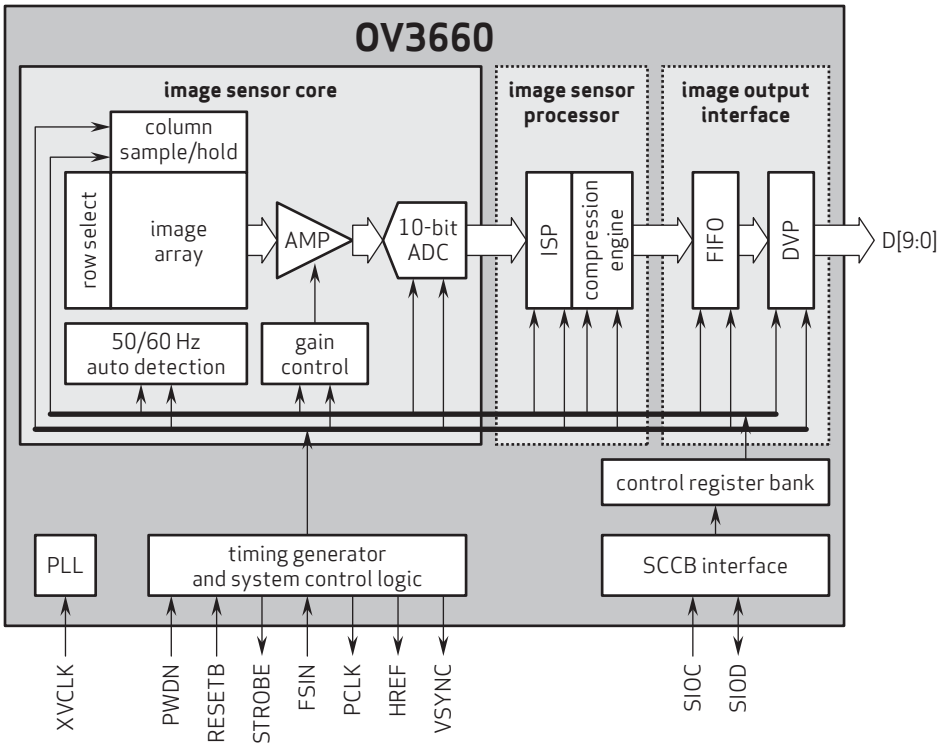
Ordering Information

- **OV3660-A51A**
  (color, lead-free, 51-pin CSP3)
- **OV3660-G04A**
  (color, chip probing, 200 µm backgrinding, reconstructed wafer)

Product Specifications

- **active array size:** 2048 x 1536
- **power supply:**
  - **core:** 1.5 V ±5%
    (with embedded 1.5 V regulator)
  - **analog:** 2.6 - 3.0 V (2.8 V typical)
  - **I/O:** 1.8 V/ 2.8 V (1.8 V recommended)
- **power requirements:**
  - **active:** 98 mA
  - **standby:** 20 µA
- **temperature range:**
  - **operating:** -20°C to 70°C junction temperature
  - **stable image:** 0°C to 50°C junction temperature
- **output formats:** 8/10-bit RAW, RGB and YCbCr output, compression
- **lens size:** 1/5"
- **lens chief ray angle:** 27.6°
- **input clock frequency:** 6 - 27 MHz
- **max S/N ratio:** 34 dB
- **dynamic range:** 70 dB @ 8x gain
- **maximum image transfer rate:**
  - **2048x1536:** 15 fps
  - **1080p:** 20 fps
  - **720p:** 45 fps
  - **XGA (1024x768):** 45 fps
  - **VGA (640x480):** 60 fps
  - **QVGA (320x240):** 120 fps
- **sensitivity:** 670 mV/lux-sec
- **shutter:** rolling shutter
- **maximum exposure interval:** 1560 x t_{ROW}
- **pixel size:** 1.4 µm x 1.4 µm
- **image area:** 2912 µm x 2167.2 µm
- **package/die dimensions:**
  - **CSP3:** 5010 µm x 4960 µm
  - **COB:** 5000 µm x 4950 µm

Functional Block Diagram



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