CMOS CAMERA MODULES

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JAL-KM7-OV5670-LEFT V1.0

OmniVision OV5670 MIPI Interface Fixed Focus 5MP Camera Module

Camera Module No.	JAL-KM7-OV5670-LEFT V1.0
Image Sensor	OV5670
EFL	2.32 mm
F.NO	2.2
Pixel	2592 x 1944
View Angle	80°
Lens Type	1/5 inch
Lens Dimensions	6.5 x 6.5 x 3.9 mm
Module Size	43.08 x 9.85 mm
Module Type	Fixed Focus
Interface	MIPI

Mating Connector Part No. DF37B-20DS-0.4V

Mating Connector On Main Board. Sold Separately.

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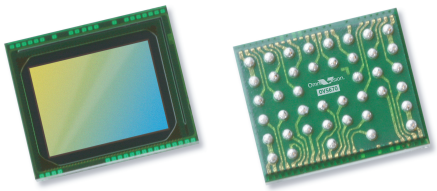


OV5670 5-megapixel product brief

5-Megapixel PureCel® Image Sensor Brings Improved Image Quality to Rear- and Front-Facing Cameras in Mobile Devices

lead free

available in a lead-free package

The OV5670 is a 5-megapixel PureCel image sensor that leverages a 1.12-micron pixel to deliver exceptional still images and high-definition (HD) video to front- and rear-facing cameras in smartphones and tablets.

The OV5670 PureCel image sensor can capture full resolution 5-megapixel (2592x1944) images at 30 frames per second (fps), quad HD video at 30 fps, cropped 1080p HD at 60 fps, or 720p HD at 60 fps. When recording 720p HD video with binning, the sensor achieves sensitivity and signal-to-noise ratio that is comparable to the industry's popular 1.75-micron pixel. Additionally, the sensor's 1.12-micron pixel achieves similar full-well capacity (FWC) as the previous generation's 1.4-micron pixel.

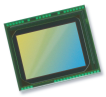
When recording full resolution video, the OV5670 uses approximately 35 percent less power compared to OmniVision's previous generation 5-megapixel sensor. The sensor's ultra low power mode further reduces power consumption, thus minimizing battery drain.

The OV5670 fits into a compact 6 x 6 x 3.5 mm camera module, and is available in a cost-effective chip scale package (CSP).

Find out more at www.ovt.com.

OmniVision

OV5670



Applications

- Smartphones and Feature Phones
- Tablets
- PC Multimedia
- Wearables

Product Features

- 1.12 µm x 1.12 µm pixel
- 5MP at 30 fps
- programmable controls for frame rate, mirror and flip, cropping, and windowing
- supports images sizes:
  - 5MP (2592x1944)
  - Quad HD (2560x1440)
  - 1080p (1920x1080)
  - 720p (1280x720)
  - VGA (640x480), and more
- 2k bits of embedded one-time programmable (OTP) memory for customer use
- ultra low power mode (ULPM)
- support for output formats: 10-bit RGB RAW
- interleave row HDR output
- two-wire serial bus control (SCCB)
- MIPI serial output interface (1- or 2-lane)
- 2x binning support
- image quality control:
  - defect pixel correction
  - automatic black level calibration

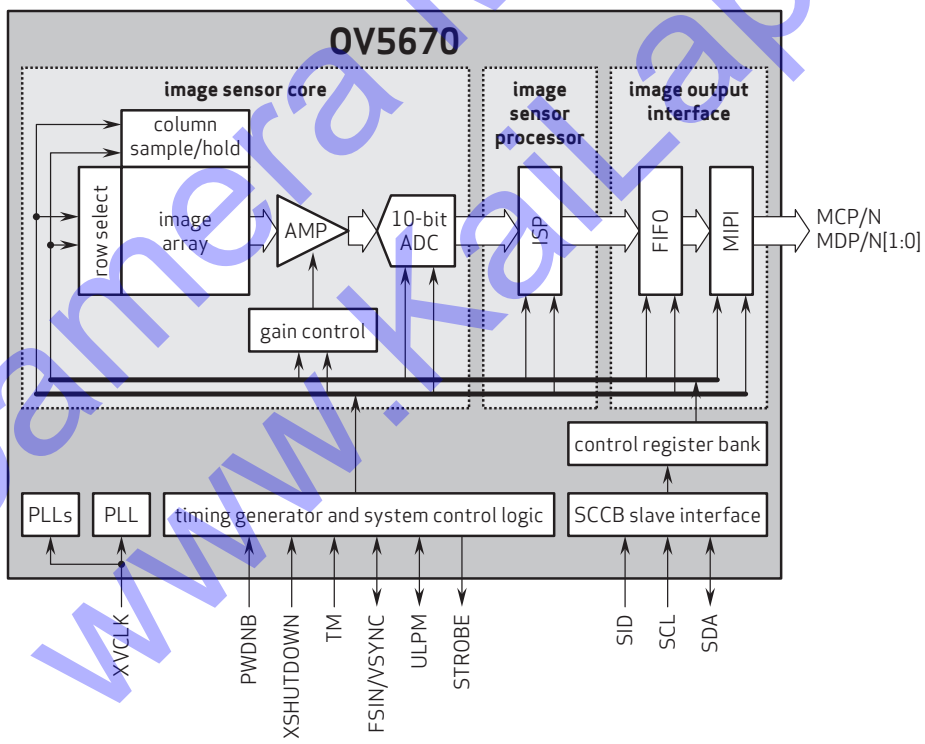
Ordering Information

- **OV05670-G04A**
  (color, chip probing, 200 µm backgrinding, recontructed wafer)
- **OV05670-H42A**
  (color, lead-free, 42-pin CSP5)

Product Specifications

- **active array size:** 2592 x 1944
- **power supply:**
  - **core:** 1.14 - 1.26V (1.2V nominal)
  - **analog:** 2.6 - 3.0V (2.8V nominal)
  - **I/O:** 1.7 - 1.9V (1.8V nominal)
- **power requirements:**
  - **active:** 126 mW
  - **standby:** 166 µW
  - **XSHUTDOWN:** 1 µW
- **temperature range:**
  - **operating:** -30°C to +85°C junction temperature
  - **stable image:** -20°C to +60°C junction temperature
- **output interfaces:**
  2-lane MIPI serial output
- **output formats:** 10-bit RAW RGB data
- **lens size:** 1/5"
- **lens chief ray angle:** 31.24° non-linear
- **input clock frequency:** 6 - 27 MHz
- **max S/N ratio:** 35.6 dB
- **dynamic range:** 68.4 dB @ 16x gain
- **maximum image transfer rate:**
  - **5MP (2592x1944):** 30 fps
  - **Quad HD (2560x1440):** 30 fps
  - **1080p (1920x1080):** 60 fps
  - **720p (1280x720):** 60 fps
  - **VGA (640x480):** 120 fps
- **sensitivity:** 490 mV/lux-sec
- **pixel size:** 1.12 µm x 1.12 µm
- **dark current:** 14 e-/sec @ 60°C junction temperature
- **image area:** 2945.7 µm x 2214 µm
- **package/die dimensions:**
  - **CSP5:** 4080 µm x 3430.2 µm
  - **COB:** 4050 µm x 3400.2 µm
  - **RW:** 4100 µm x 3450.2 µm

Functional Block Diagram



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