

# OV48B 48-megapixel product brief



available in  
a lead-free  
package

## OmniVision's First 48 Megapixel, 0.8 $\mu\text{m}$ Image Sensor

OmniVision's OV48B is its first 48 megapixel (MP) image sensor with the industry's smallest die size, featuring a 0.8  $\mu\text{m}$  pixel size to enable high resolution smartphone cameras with a 1/2" optical format. Built on OmniVision's PureCel<sup>®</sup>Plus stacked die technology, this sensor provides leading edge still image capture and video performance for both mainstream and high end smartphones. Additionally, it offers a wide range of features such as digital crop zoom and a CPHY interface, making it a versatile sensor for all types of rear facing cameras in multi-camera configurations, including main, wide angle and telephoto.

The OV48B integrates an on-chip 4-cell color filter array and hardware re-mosaic, which provides high quality, 48MP Bayer output in real time. In low light conditions, this sensor can use near-pixel binning to output a 12MP image with four times the sensitivity. The OV48B can consistently capture the best quality images and videos without motion blur, as well as enabling digital crop zoom with 12MP resolution and fast mode switch.

This sensor also features both DPHY and CPHY MIPI interfaces, which enables fast frame rates using fewer pins. The OV48B includes 2x2 microlens phase detection autofocus (ML-PDAF) to boost accuracy, especially in low light.

Output formats include:

- 48MP at 10 frames per second (fps) with remosaic
- 12MP with 4-cell binning at 30 fps
- 4K2K video at 60 fps
- 1080p video at 240 fps
- 720p video at 480 fps

Find out more at [www.ovt.com](http://www.ovt.com).



## Applications

- Smart Phones
- Video Conferencing
- PC Multimedia

## Product Features

- automatic black level calibration (ABLC)
- programmable controls for:
  - frame rate
  - mirror and flip
  - binning
  - cropping
  - windowing
- support for dynamic DPC cancellation
- supports output formats:
  - 10-bit RGB 4C pattern
- supports horizontal and vertical subsampling
- supports typical images sizes:
  - 8000 x 6000
  - 4000 x 3000
  - 3840 x 2160
  - 1920 x 1080
  - 1280 x 720
- standard serial SCCB interface
- up to 4-lane MIPI TX interface with speed up to 2.35 Gbps/lane
- 2/3 trio CPHY interface, up to 1.45 Gbps/trio
- embedded 16k bits of one-time programmable (OTP) memory (4k bits reserved for customer use)
- supports 2x2 ML PD
- 4-cell support:
  - 4-cell binning
  - 4-cell full
- on-chip 4-cell to Bayer converter
- three on-chip phase lock loops (PLLs)
- programmable I/O drive capability
- built-in temperature sensor
- typical module size: 9.5 x 9.5 x 5.9 mm

# OV48B



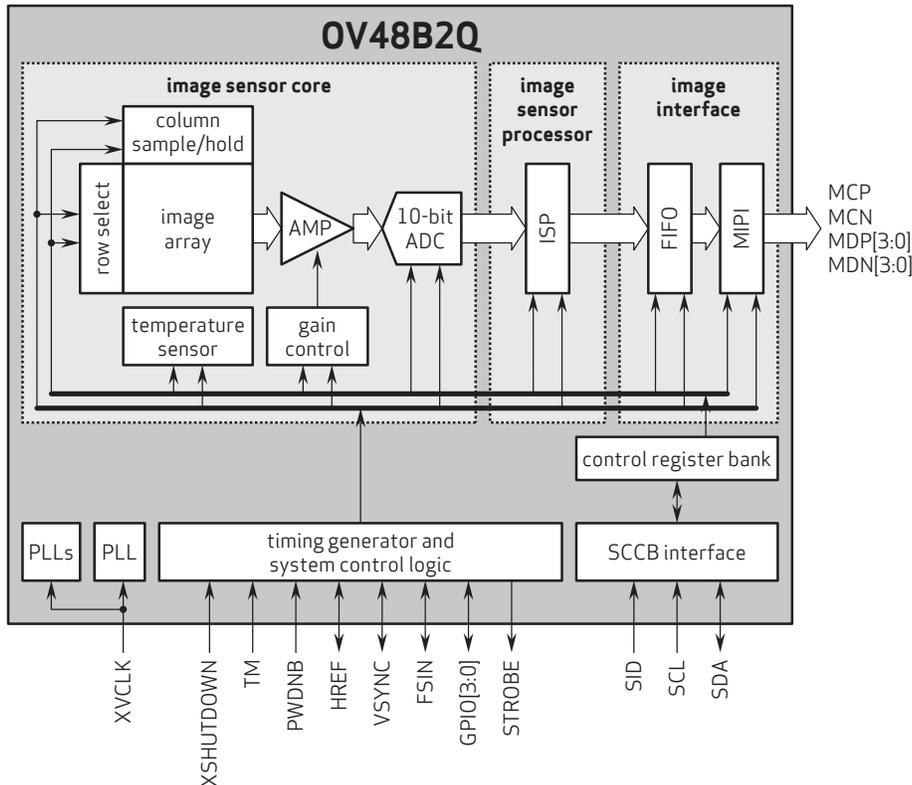
## Ordering Information

- OV48B2Q-GA5A-Z**  
(color, chip probing, 150  $\mu\text{m}$  backgrinding, reconstructed wafer with good die)

## Product Specifications

- active array size:** 8032 x 6032
- lens size:** 1/2.26"
- power supply:**
  - core: 1.15V
  - analog: 2.8V
  - I/O: 1.8V
- power requirements:**
  - active: 550 mW
  - standby: <10  $\mu\text{A}$
- temperature range:**
  - operating: -30°C to +85°C junction temperature
  - stable: 0°C to +60°C junction temperature
- output formats:**
  - 10-bit RGB RAW
- input clock frequency:** 6 - 27 MHz
- lens chief ray angle:** 34.9° non-linear
- maximum image transfer rate:**
  - 8000 x 6000: 10 fps
- maximum exposure:** VTS - 14 lines
- minimum exposure:** 8 lines
- sensitivity:** 2000 e<sup>-</sup>/Lux-sec
- max S/N ratio:** 34.1 dB
- dynamic range:** 69.5 dB @ 16x gain
- scan mode:** progressive
- pixel size:** 0.8  $\mu\text{m}$  x 0.8  $\mu\text{m}$
- image area:** 6433.632  $\mu\text{m}$  x 4831.632  $\mu\text{m}$
- dimensions:**
  - COB: 7540  $\mu\text{m}$  x 5440  $\mu\text{m}$
  - RW: 7590  $\mu\text{m}$  x 5490  $\mu\text{m}$

## Functional Block Diagram



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