

## OV5610 Color CMOS QSXGA (5.17 MPixel) CAMERACHIP™ with OmniPixel® Technology

### General Description

The OV5610 (color) CAMERACHIP™ is a high performance 5.17 mega-pixel CAMERACHIPS for digital still image and video camera products.

This device incorporates a 2592 x 1944 image array and an on-chip 10-bit A/D converter capable of operating at up to 4 frames per second (fps) in full resolution. Proprietary sensor technology utilizes advanced algorithms to cancel Fixed Pattern Noise (FPN), eliminate smearing, and drastically reduce blooming and dark current. The control registers allow for flexible control of timing, polarity, and CAMERACHIP operation, which, in turn, allows the engineer a great deal of freedom in product design.



**Note:** The OV5610 is available in a lead-free package.

### Features

- Optical black level calibration
- Video or snapshot operations
- Programmable/Auto Exposure and Gain Control
- Programmable/Auto White Balance Control
- Horizontal and vertical sub-sampling (4:2 and 4:2)
- High frame rate output mode
- Programmable image windowing/zooming/panning
- Variable frame rate control
- On-chip R/G/B Channel and Luminance Average Counter
- Internal/External frame synchronization
- Serial bus interface
- Power-on reset and power-down modes

### Applications

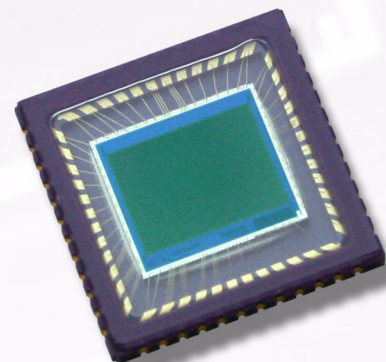
- Digital still cameras
- PC camera/dual mode
- Video conference
- Machine vision
- Security cameras
- Biometrics

### Ordering Information

Product	Package
OV5610-C03A (Color)	CLCC-48

### Key Specifications

Array Size	QSXGA	2592 x 1944
	SXGA	1280 x 960
	VGA	640 x 480; 1280 x 480
	HF	320 x 200; 1280 x 200
Power Supply		3.3VDC / 1.8VDC (± 5%)
Power Requirements	Active	40 mA
	Standby	10 µA
Electronics Exposure	QSXGA	Up to 1998:1
	SXGA	Up to 978:1
	VGA	Up to 488:1
	HF	Up to 208:1
Output Format		10-bit digital RGB Raw data
Lens Size		1/1.8"
Lens Chief Ray Angle		15°
Max Image Transfer Rate	QSXGA	4 fps
	SXGA	15 fps
	VGA	30 fps
	HF	70 fps
Sensitivity		1.2 V/Lux-sec
S/N Ratio		42 dB
Dynamic Range		60 dB (due to ADC limitations)
Scan Mode		Progressive
Pixel Size		2.775 µm x 2.775 µm
Dark Current		10 mV/sec at 60°
Fixed Pattern Noise		0.05% of V <sub>PEAK-TO-PEAK</sub>
Image Area		7.33 mm x 5.44 mm
Package Dimensions		14.22 mm x 14.22 mm



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**OmniVision Technologies**

**Resolution**

- 01 = Linear sensor
- 02 = 2 MegaPixel digital sensor
- 03 = 3 MegaPixel digital sensor
- 04 = 4 MegaPixel digital sensor
- 05 = 5 MegaPixel digital sensor/  
Low resolution analog sensor
- 06 = CIF digital sensor/  
Low resolution analog sensor
- 07 = VGA digital sensor/  
Full resolution analog sensor
- 08 = SVGA digital sensor
- 09 = SXGA 1.3 MegaPixel digital sensor
- 10 = High Dynamic Range (HDR) sensor

**Type**

(Analog vs. Digital, Color vs. B&W)

- 1 = B&W digital
- 4 = B&W analog
- 6 = Color digital
- 9 = Color analog

**Major Iteration of Chip**

**Minor Iteration of Chip**

- 0 = Color sensor with microlens
- 1 = B&W sensor with microlens
- 2 = Color sensor with microlens shift
- 3 = Sensor using CSP2 packaging
- 4 = Additional or custom features
- 5 = Additional or custom features
- 8 = SMIA-compliant sensor (except OV7648)

**Grade**

- A, B, or C
- V = Automotive grade

**Package Features**

- 0 = 48-pin
- 1 = 28-pin
- 2 = 24-pin
- 3 = 48-pin (large cavity CLCC)
- 4 = 16-pin
- 5 = 36-pin
- 6 = 22-pin
- 7 = 42-pin
- 8 = 40-pin

**If Package Type = G or W, then:**

- 0 = Chip probing
- 1 = No chip probing

**Chip Features**

- 0 = Digital sensor
- 1 = Analog NTSC sensor
- 2 = Analog PAL sensor
- L = Lead-free package

**If Package Type = G or W, then:**

- 0 = No backgrinding
- 1 = Custom
- 2 = Standard backgrinding (300 µm)

**Package Type**

- C = Ceramic
- P = Plastic
- K = Chip Scale Package (CSP)
- Q = Quad Flat Package (QFP)
- V = CSP2
- G = Die (for COB applications)
- W = Wafer

[www.ovt.com](http://www.ovt.com)

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