

## OV3620 Color CMOS QXGA (3.2 MPixel) CAMERACHIP™ with OmniPixel® Technology

### General Description

The OV3620 (color) CAMERACHIP™ is a high performance 3.2 mega-pixel CMOS image sensors for digital still image and video/still camera products.

The device incorporates a 2048 x 1536 (QXGA) image array and an on-chip 10-bit A/D converter capable of operating at up to 7.5 frames per second (fps) in full resolution mode. Proprietary sensor technology utilizes advanced algorithms to cancel Fixed Pattern Noise (FPN), eliminate smearing, and drastically reduce blooming. 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 OV3620 is available in a lead-free package.

### Features

- Optical black level calibration
- Line optical black level output capability
- 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 for auto focus mode
- Programmable image windowing
- Zooming and panning functions
- Variable frame rate control
- On-chip R/G/B Channel and Luminance Average Counter
- Internal/External frame synchronization
- SCCB slave interface
- Power-on reset and power-down modes

### Ordering Information

Product	Package
OV03620-C00A (Color, QXGA, XGA, DV, HF)	CLCC-48

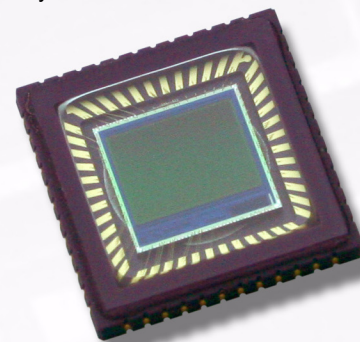
### Applications

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

### Key Specifications

Array Size	QXGA	2048 x 1536
	XGA	1024 x 768
	DV	1024 x 510
	HF	1024 x 190
Power Supply		3.3VDC / 1.8VDC ( $\pm 5\%$ )
Power Requirements	Active	< 40 mA
	Standby	< 10 $\mu$ A
Electronics Exposure	QXGA	Up to 1550:1
	XGA	Up to 780:1
	DV	Up to 520:1
	HF	Up to 200:1
Output Format		10-bit digital RGB Raw data
Lens Size		1/2"
Lens Chief Ray Angle		12°
Maximum Image Transfer Rate	QXGA	7.5 fps <sup>a</sup>
	XGA	20 fps <sup>b</sup>
	DV	30 fps <sup>b</sup>
	HF	78 fps <sup>b</sup>
Sensitivity		> 1 V/Lux-sec
S/N Ratio		46 dB
Dynamic Range		60 dB (due to ADC limitations)
Scan Mode		Progressive
Pixel Size		3.18 $\mu$ m x 3.18 $\mu$ m
Dark Current		0.5 mV/sec at room temp
Fixed Pattern Noise		<0.03% of $V_{PEAK-TO-PEAK}$
Image Area		6.59 mm x 4.90 mm
Package Dimensions		.560 in. x .560 in.

- a. At 27 MHz system clock  
b. At 24 MHz system clock



OV 0 3 6 2 0 - C 0 0 A

**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)

OmniVision reserves the right to make changes to their products or to discontinue any product or service without further notice. 'OmniVision', the OmniVision logo, 'VarioPixel', and 'OmniPixel' are registered trademarks of OmniVision Technology. All other trademarks are the property of their respective owners.

Version 1.7, 03/16/05

