

**OV7940 Color CMOS NTSC/PAL CAMERACHIP with OmniPixel® Technology**  
**OV7441 B&W CMOS NTSC/PAL CAMERACHIP with OmniPixel® Technology**

### General Description

The OV7940 (color) and OV7441 (black & white) single chip CMOS CAMERACHIPS are design to provide a high level of functionality for all applications requiring a small footprint, low voltage, low power consumption and high performance color or B&W video camera.

Both devices support NTSC/PAL composite video output and can directly interface with a VCR TV monitor or other device with 75 ohm loading.



**Note:** The OV7940/OV7441 is available in a 48-pin CLCC lead-free package.

### Features

- Single chip 1/3" format video camera
- Composite video (NTSC/PAL) differential output drive
- Sensitivity boost (+42 dB)
- Automatic exposure/gain with 16 zone control
- Auto white balance control
- Aperture/Gamma correction
- 50/60 Hz flicker cancellation
- External frame sync capability
- SPI/EEPROM used to control overlay and set other customer variables
- I2C control interface for register programming
- Low power consumption
- Extreme low dark current for high temperature applications
- Defective pixel correction
- Genlock
- Differential analog output

### Ordering Information

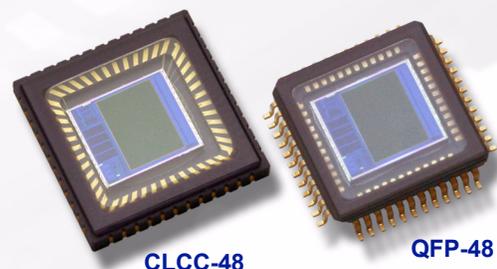
Product	Packages
OV07940-Q10A (Color, NTSC)	QFP-48
OV07940-Q20A (Color, PAL)	QFP-48
OV07441-Q10A (B&W with microlens, NTSC)	QFP-48
OV07441-Q20A (B&W with microlens, PAL)	QFP-48
OV07940-C10A (Color, NTSC)	CLCC-48
OV07940-C20A (Color, PAL)	CLCC-48
OV07441-C10A (B&W with microlens, NTSC)	CLCC-48
OV07441-C20A (B&W with microlens, PAL)	CLCC-48

### Applications

- Security/Surveillance cameras
- Video Conferencing
- Video phones
- Video e-mail
- Toys
- Finger print equipment
- Medical and dental equipment

### Key Specifications

Array Size	PAL	628 x 586
	NTSC	510 x 496
Power Supply	Analog/ADC/IO	3.3 VDC ± 5%
	Digital Core	1.8 VDC ± 5%
Power Consumption		TBD
Image Area		5.961 mm x 4.276 mm
Exposure Time Range	OV7940	1/60s - 12 μs (NTSC) 1/50s - 12.5 μs (PAL)
	OV7441	1/30s - 12 μs (NTSC) 1/25s - 12.5 μs (PAL)
Minimum Illumination (3000K)	OV7940	TBD
	OV7441	TBD
S/N Ratio		TBD
Dynamic Range		TBD
Pixel Size		9.2 μm x 7.2 μm
Dark Current		TBD
Fixed Pattern Noise		TBD
Package Dimensions		14.22 mm x 14.22 mm



OV 0 7 9 4 0 - C 1 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 2.1, 04/21/05

