OV9640 Color CMOS 1.3 MegaPixel (VarioPixel®) CAMERACHIP™

General Description

The OV9640 CAMERACHIP™ is a low voltage CMOS image sensors that provides the full functionality of a single-chip 1.3 MegaPixel camera and image processor in a small footprint package. The OV9640 provides full-frame, sub-sampled or windowed 8-bit/10-bit images in a wide range of formats, controlled through the Serial Camera Control Bus (SCCB) interface.

This product has an image array capable of operating at up to 15 frames per second (fps) in full resolution (1280 x 960) with complete user control over image quality, formatting and output data transfer. All required image processing functions, including exposure control, gamma, white balance, color saturation, hue control and more, are also programmable through the SCCB interface. In addition, OmniVision CAMERACHIPS use proprietary sensor technology to improve image quality by reducing or eliminating common lighting/electrical sources of image contamination, such as fixed pattern noise, smearing, blooming, etc., to produce a clean, fully stable color image.

Features

- High sensitivity for low-light operation
- Low operating voltage for embedded portable applications
- Standard SCCB interface
- Supports 1280 x 960 resolution, VGA, QVGA, QQVGA, CIF, QCIF, QQCIF, and windowed outputs with Raw RGG, RGB (GRB 4:2:2), YUV (4:2:2) and YCbCr (4:2:2) formats
- VarioPixel® method for sub-sampling formats (VGA, QVGA, QQVGA, CIF, QCIF, and QQCIF)
- Automatic image control functions including: Automatic Exposure Control (AEC), Automatic Gain Control (AGC), Automatic White Balance (AWB), Automatic Band Filter (ABF), and Automatic Black-Level Calibration (ABLC)
- Image quality controls including color saturation, hue, gamma, sharpness (edge enhancement), and anti-blooming

Ordering Information

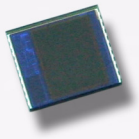
Product	Package
OV09640-K02A (Color, w/ lead)	CSP-24
OV09640-KL2A (Color, w/o lead)	CSP-24

Applications

- Cellular and Picture Phones
- Toys
- PC Multimedia
- Digital Still Cameras

Key Specifications

Active Array Size		1304 x 968
Power Supply	**Core**	1.8VDC ± 10%
	Analog	2.45 to 2.8 VDC
	I/O	2.5V to 3.3V
Power Requirements	**Active**	50 mW (15 fps, no I/O power)
	Standby	30 µW
Temperature Range	**Operation**	-10°C to 70°C
	Stable Image	0°C to 50°C
Output Formats (8-bit)		• YUV/YCbCr 4:2:2 • GRB 4:2:2 • Raw RGB Data
Lens Size		1/4"
Maximum Image Transfer Rate	**1280 x 960**	15 fps
	VGA	30 fps
	QVGA, QQVGA, CIF	60 fps
	QCIF, QQCIF	120 fps
Sensitivity		0.9 v/Lux-sec
S/N Ratio		40 dB
Dynamic Range		62 dB
Scan Mode		Progressive
Max. Exposure Interval		1000 x t_{ROW}
Gamma Correction		Programmable
Pixel Size		3.18 µm x 3.18 µm
Dark Current		30 mV/s
Well Capacity		28 Ke
Fixed Pattern Noise		<0.03% of $V_{PEAK-TO-PEAK}$
Image Area		4.15 mm x 3.08 mm
Package Dimensions		4975 µm x 5365 µm



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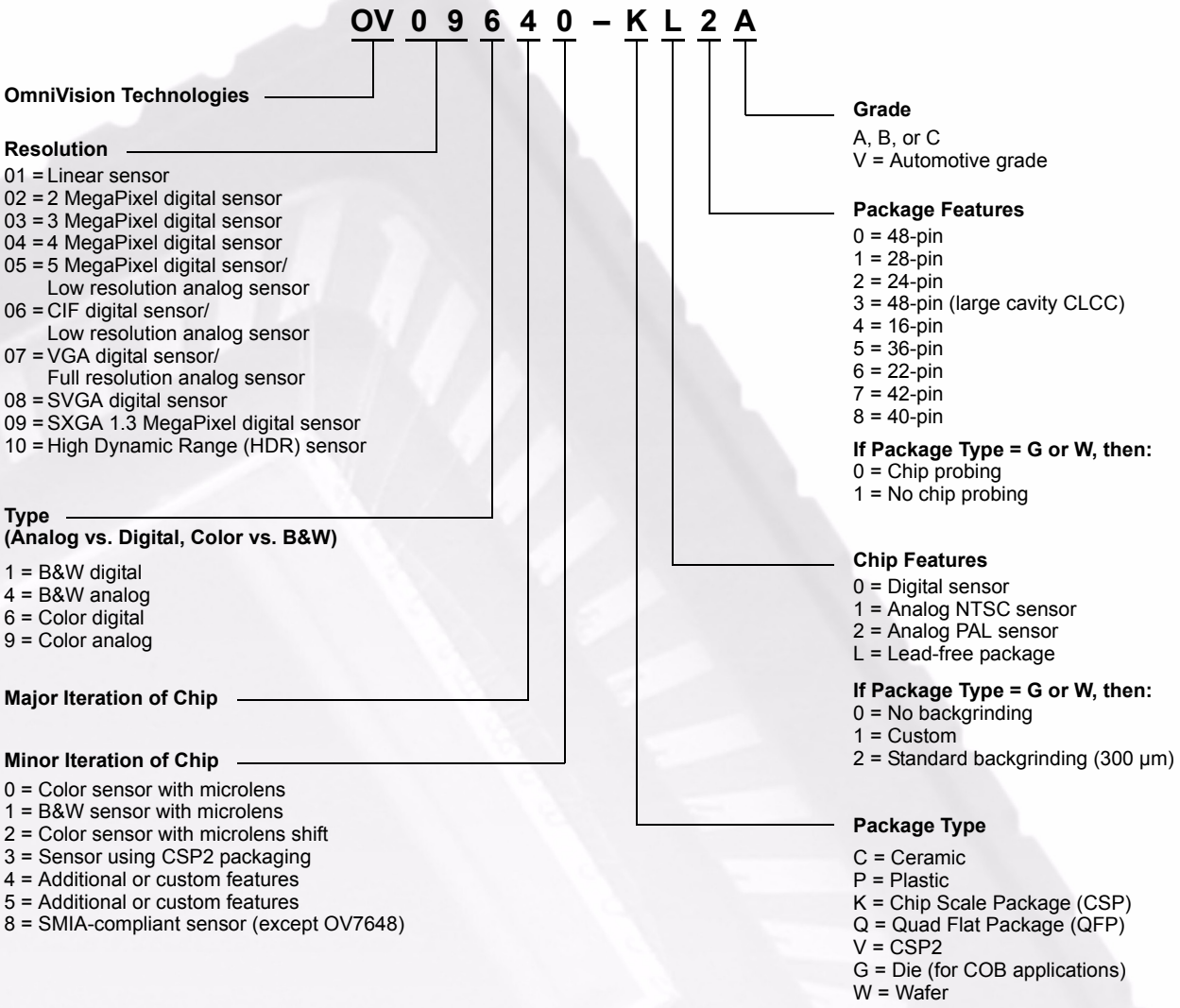

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