

## General Description

The CmoX CX2032 is a 1/3 –inch CMOS active-pixel digital image sensor which has a 2 million resolution of 1600 x 1200 and is capable of operating at up to 20 frames per seconds (fps). It incorporates camera functions on-chip such as sub-line sampling, vertical and horizontal flipping. It is programmable through a simple two-wire serial bus interface. It has super low noise and very low power consumption.

CX2032 uses advanced sensor technology to reduce noise at low light condition and features proprietary sub-line exposure control to improve picture quality at extreme high lux lighting condition.

## Features

- Super low noise CMOS image sensor
- Excellent low lux performance
- Programmable sub-sampling size: 2M, skipped-2M (S2M), and double skipped 2M (DS2M)
- High frame rate up to 20 fps
- Auto dark compensation
- Extreme low power consumption
- Horizontal/Vertical flip function for normal & windowed image
- Windowing function
- Two-wire serial bus interface
- Electronic exposure/gain control
- Idle & power down mode
- Median filter
- Sub-line exposure for extreme high lux exposure control
- Global shutter mode with low power dissipation
- Wide dynamic range enhancement
- Power-on reset and software reset function

## Applications

- Cellular Phones
- PC Camera
- PDA Camera
- Digital Still Camera
- MP3 Camera
- Toys

**Table 1: Key Specifications**

Parameter		Typical Value
Optical Format		1/3 Inch
Active Imager Size		5.12mm x 3.84mm (H x V) 6.40mm Diagonal
Active Pixels		1600 x 1200 (H x V)
Pixel Size		3.2um x 3.2um
Color Filter Array		RGB Bayer Pattern
Maximum Data Rate		48 MHz
Maximum Master Clock		96 MHz
Frame Rate	UXGA (1600X1200)	20 fps max
	1/4 UXGA (800X600)	40 fps max
	1/16 UXGA (400X300)	80 fps max
Output format		10-bit RGB raw data
Sensitivity		TBD
Dynamic Range		TBD
SNR <sub>MAX</sub>		TBD
Dark Current		<2mV/sec@35°C
		<15mV/sec@60°C
Supply Voltage	I/O Digital	2.8 volts
	Core Digital	1.8 volts
	Analog	2.8 volts
Power Consumption(*)		27mA@48MHz
Operating Temperature		-20°C~70°C
Packaging		PLCC, CLCC, COB, CSP

(\*)Excluding I/O power

CX2032 can be programmed by users for frame size, exposure control, gain setting, and other parameters. It can also be operated in its default mode. The maxima output frame rate of a 2Mega-pixel-size image is 20 frames per second (fps) at the maximum data rate of 48 MHz. LINE\_REF and FRAME\_REF signals are dedicated output pins, along with a pixel clock (PCLK) which is synchronous with valid data. On-chip analog to digital converters (ADC) provide 10-bit resolution per pixel.