

# 640H x 480V, Ultra Low-Power CMOS Digital Image Sensor

## Features

- Ultra low-power, low-cost CMOS image sensor
- VGA-quality image resolution (640H x 480V)
- 1/4-inch optical format
- Superior low-light performance
- Up to 30 frames per second (fps) progressive scan for high-quality video
- Image decimation to arbitrary size with smooth, continuous zoom and pan
- Programmable gain, frame rate, left-right and up-down image reversal, windowing, and panning
- Automatic black level offset correction
- On-chip, 10-bit analog-to-digital converter (ADC)
- Two-wire serial interface
- 10-bit parallel data output

## The Smart Choice

With revolutionary CMOS active-pixel technology, Aptina's ultra low-power MT9V011 image sensor combines superb VGA resolution with many advantages not available in standard charged-coupled devices (CCDs).

It outputs high-quality, progressive-scan images at up to 30 fps while extending battery life much longer than its CCD competitors, making it the smart choice for cellular phones, PDAs, dual-mode PC cameras, and many other consumer and industrial applications.

## Board Space. The Finite Frontier.

The MT9V011's sophisticated camera functions, including windowing, row mirroring, left-right and up-down

frame reversal, electronic rolling shutter (ERS), and column mirroring have been integrated directly onto the chip, reducing the number of additional parts normally needed by CCDs and minimizing the device's form factor and the board space needed by the application.

Its variable functions (also included directly on the chip) like programmable gain, frame rate, and exposure control, can be operated in their default modes or programmed by the end-user through a simple two-wire serial interface.

## Faster Times-To-Market

Another powerful advantage of Aptina's CMOS technology is how fast and easy it is to implement in cameras. Designers are not only able to devise smaller, higher-performance applications that consume less power, but are able to get them on store shelves faster than those who insist on using CCDs.

## Applications

- Cellular phones
- PDAs
- PC cameras
- Other battery-powered products

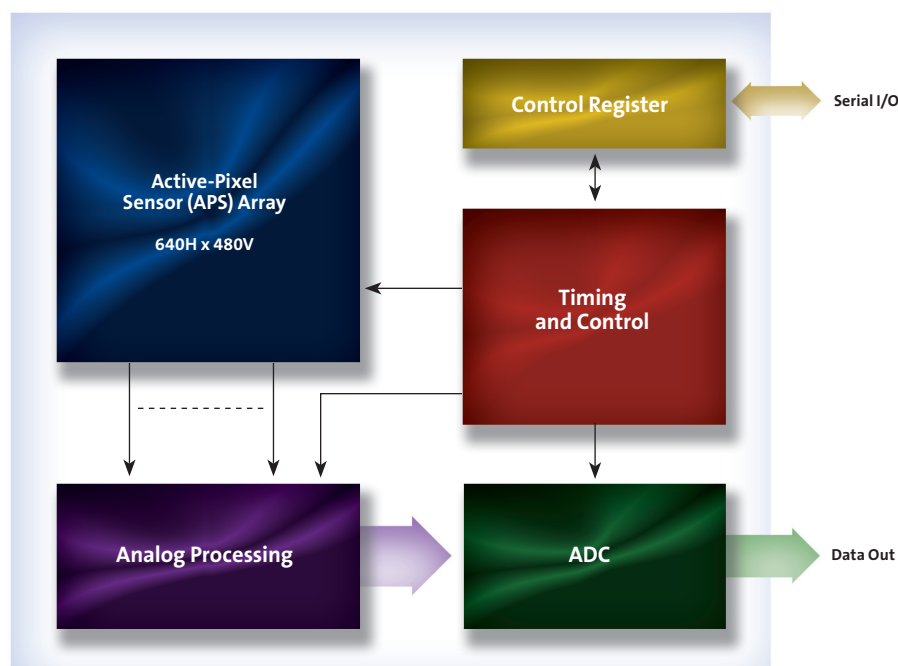
## How to Buy

Production and sample quantities of Aptina products may be ordered through qualified distributors. See our Web site for details. You may also request access to NDA data sheets and other technical documentation by visiting our Web site.

## Specifications

• Pixel Size:	5.6μm x 5.6μm	• ADC:	10-bit, on-chip
• Array Format (active):	640H x 480V	• Data Rate:	13.5 megapixels per second (master clock, 27 MHz)
• Imaging Area:	3.584mm x 2.688mm	• Responsivity:	1.9 V/lux-sec (550nm)
• Color Filter Array:	RGB Bayer color filters	• Signal-to-Noise Ratio:	45dB (MAX)
• Optical Format:	1/4 inch (4:3)	• Dynamic Range:	60dB
• Frame Rate:	30 fps @ 640H x 480V, ≤60 fps @ 352H x 288V, ≤90 fps @ 320H x 240V	• Maximum Analog Gain:	16
• Scan Mode:	Progressive	• Supply Voltage:	2.8V ±0.25V
• Shutter:	Electronic rolling shutter (ERS)	• Power Consumption:	70mW (@ 30 fps)
• Window Size:	Programmable to VGA, QVGA, CIF, and QCIF	• Operating Temp. Range:	−20°C to +60°C
• Programmable Controls:	Gain, frame rate, ADC reference, left-right and up-down image reversal	• Package:	28-pin LLCC or Die

## Block Diagram



[aptina.com](http://aptina.com)

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