



5-Megapixel, 1/3.2-Inch CMOS Digital Image Sensor

High-Resolution Sensor: Taking Image Quality to the Next Level

Features

- Low-power, progressive scan CMOS image sensor
- 5-megapixel resolution (2592H x 1944V)
- 1/3.2-inch optical format
- 15 frames per second (fps) for full resolution; 30 fps preview mode (720 progressive scan)
- Binning with improved image quality and enhanced viewing
- Support for external mechanical shutter and external LED or Xenon flash
- Programmable gain and exposure control
- On-chip phase-locked loop (PLL) for versatile clock-in scheme
- Standby mode for reduced current consumption
- On-chip, 12-bit analog-to-digital converter (ADC)
- Two-wire serial programming interface
- One-time programmable memory (OTPM) for storing module information
- Data interfaces: 12-bit parallel or serial (2-lane MIPI- and CCP2-compliant) interface

New Possibilities with Improved Performance

Aptina's MT9P012 is a color image sensor that incorporates sophisticated on-chip camera functions such as windowing, mirroring, column-skip, row-skip, and snapshot modes. Advanced functions—pixel binning (to smooth alias artifacts) and global reset for snapshot modes—make the MT9P012 the ideal choice for next-generation, high-end camera phones and digital still cameras.

Extraordinary Image Quality

The MT9P012 is a 5-megapixel, low-power CMOS image sensor that features Aptina's technology that reduces noise levels and enables the sensor to capture

superb-quality color images without increasing power requirements.

High-Resolution Image Capture

With Aptina's advanced 12-bit ADC, the MT9P012 enables next-level, high-resolution image capture and HDTV video formats that rival the performance of CCD-based digital still cameras. The MT9P012 captures high definition video at 60 fps and 720p and at 30 fps and 1080p.

Proven Technology Provides Great Performance

With the third-generation of 1.75 μ m-x-1.75 μ m pixel technology, the MT9P012 offers a lot of features, like programmable gain, exposure control, horizontal and vertical blanking, frame sizing, window sizing, panning, and left-right/top-bottom image reversal.

Applications

- Cellular phones
- Digital still cameras
- HDTV video cameras

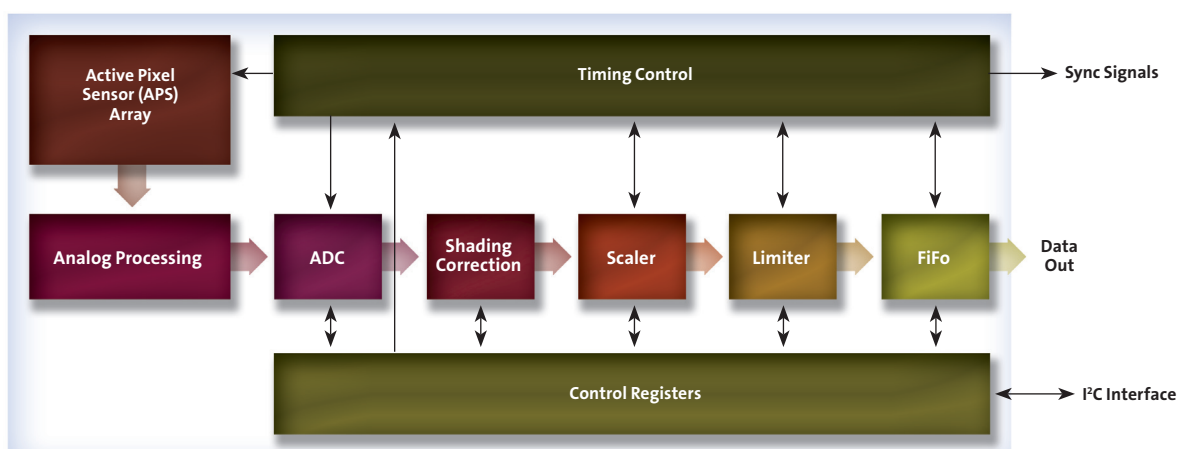
How to Buy

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:	1.75 μ m x 1.75 μ m	• ADC:	12-bit, on-chip
• Active Array Size:	2,592(H) x 1,944(V)	• Output Interface:	12-bit parallel, serial 2-lane MIPI and CCP2
• Imaging Area:	4.54mm x 3.40mm	• Max Data Rate:	Parallel: 96 Mp/s at 96 MHz PIXCLK CCP: 650 Mb/s MIPI: 768 Mb/s per lane
• Optical Format:	1/3.2-inch (4:3)	• Data Clock:	96 MHz PIXCLK (Max)
• Color Filter Array:	RGB Bayer color filters	• Responsivity:	0.39 V/Lux-sec (550nm)
• Frame Rate:	15 fps (full resolution), 30 fps (video mode)	• Signal-to-Noise Ratio:	40.4dB
• Scan Mode:	Progressive	• Dynamic Range:	62.8dB
• Shutter Modes:	Electronic rolling shutter (ERS) and global release mode	• Supply Voltage:	Analog: 2.4–3.1V (2.8V nominal) Digital: 1.7–1.9V (1.8V nominal) I/O: 1.7–1.9V or 2.4–3.1V CCP/MIPI: 1.7–1.9V (1.8V nominal)
• Automatic Function:	Auto black level calibration	• Operating Temp:	–30°C to 70°C (at junction)
• Feature:	Lens shading correction	• Package:	Bare die in reconstructed wafer form
• Programmable Controls:	Gain, frame size/rate, exposure left–right and top–bottom image reversal, window size, and panning	• Target Module Size:	9.5mm x 9.5mm x 7.6mm
• Windowing:	Programmable to any size	• CRA:	25°
• Input Clock Frequency:	6–64 MHz		

Block Diagram



aptina.com

Products are warranted only to meet Aptina's production data sheet specifications. Products and specifications are subject to change without notice. Aptina and the Aptina logo are trademarks of Aptina Imaging Corporation. All other trademarks are the property of their respective owners. ©2012 Aptina Imaging Corporation. All rights reserved. 5/7/12 EN.L

