

DigitalClarity[®] Technology

3.1-Megapixel, 1/4-Inch CMOS Digital Image Sensor

High-Resolution and Small Form Factor Combined for World-Class Image Quality

Features

- DigitalClarity[®] CMOS imaging technology
- Low-power, low-cost, progressive scan CMOS image sensor
- 3.1-megapixel resolution (2048H x 1536V)
- 1/4-inch optical format
- 15 fps progressive scan with full resolution (2048 x 1536); 30 fps preview mode
- 2 x 2 pixel binning with improved image quality
- Support for external mechanical shutter and external LED or xenon flash
- Programmable gain and exposure control
- On-chip phase lock loop (PLL) for versatile clock-in scheme
- Standby mode for reduced current consumption
- Failsafe I/Os with programmable slew rate
- On-chip, 10-bit analog-to-digital converter (ADC)
- Two-wire serial programming interface
- One-time programmable (OTP) memory for storing module information
- Data interfaces: 10-bit parallel or serial (1-lane MIPI- and CCP2-compliant) interface

Mobile Size with Superb Mobile Capabilities

Micron's MT9T013 is a color image sensor that outputs sharp, clear, progressive scan images while extending an application's battery life. That combination, together with all of the usual advantages CMOS image sensors provide—design simplicity, reduced chip count, low integration costs, and fast time to market—make Micron imagers a smart choice.

Extraordinary Image Quality

The MT9T013 is a 3.1-megapixel, low-power CMOS image sensor that features Micron's DigitalClarity technology, which reduces noise levels and enables the sensor to capture superb-quality color images without increasing power requirements.

Maximizing Board Space

The MT9T013 integrates many advanced features—scaling, windowing, row mirroring, left-right frame reversal, column mirroring, and a power-on reset—right on the chip. This minimizes its form factor and maximizes board-space efficiency to enable handling more pixels in the same 1/4-inch module format.

Designer and User Flexibility

The MT9T013 enables the end-user to adjust its variable functions, such as frame rate, programmable gain, and exposure control, through a simple 2-wire serial interface. Designers will benefit from the easy application designs they can make around the MT9T013. Designs can be smaller than ever, ensuring higher-performance products that take better-quality pictures and consume less power.

Small Size, Great Performance

With enhanced low-light performance on a 1.75 μm -x-1.75 μm pixel size and 1/4-inch optical format, the MT9T013 holds a lot of features within its small form factor, like programmable gain and exposure control. Other programmable controls include horizontal and vertical blanking, windowing, ADC reference, left-right and top-bottom image reversal.

Applications

- Cellular phones
- Digital still cameras
- PC cameras
- PDAs



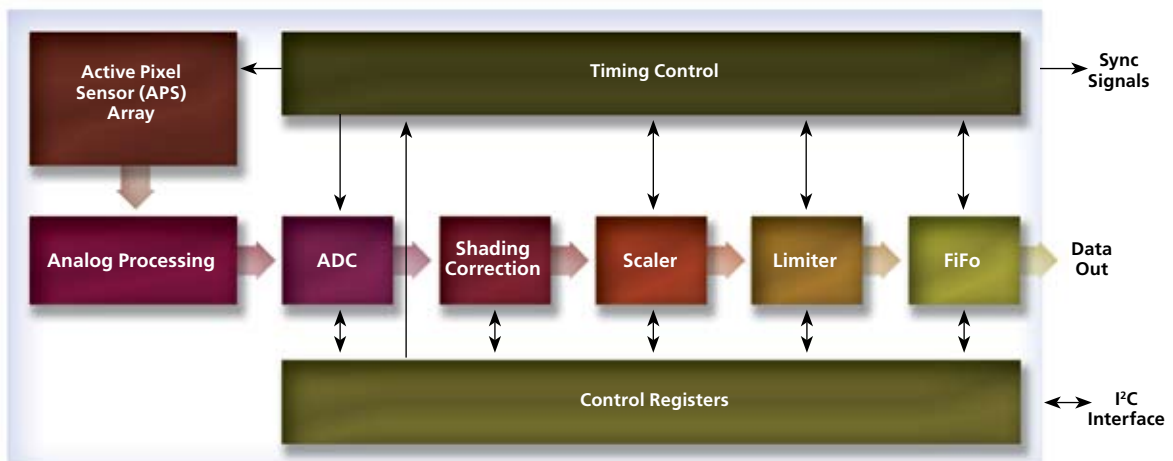
The MT9T013 provides the technical advantages CMOS technology enjoys over CCDs, including a smaller form factor, lower power consumption, lower

cost, and ease of design. To order parts, or for more information, call us at 208-368-3900 or visit us on the Web at www.micron.com/imaging.

Specifications

● Pixel Size:	1.75µm x 1.75µm	● Output Interface:	10-bit parallel, single lane MIPI or CCP2
● Array Format (Active):	2048H x 1536V (4:3)	● MAX Data Rate:	Parallel: 72 Mp/s @ 72 MHz PIXCLK CCP: 650 Mb/s MIPI: 650 Mb/s per lane
● Imaging Area:	3.61mm x 2.72mm: 4.52mm diagonal	● Data Clock:	72 MHz PIXCLK (Max)
● Optical Format:	1/4-inch	● Responsivity:	0.57 V/Lux-sec (550nm)
● Color Filter Array:	RGB Bayer color filters	● Signal-to-Noise Ratio:	64.4dB
● Frame Rate:	15 fps (full resolution); 30 fps (video mode)	● Dynamic Range:	39.2dB
● Scan Mode:	Progressive	● 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 output: 1.7–1.9V (1.8V nominal)
● Shutter Modes:	Electronic rolling shutter (ERS) and global reset mode	● Operating Temp:	–30°C to +70°C (at junction)
● Automatic Functions:	Auto black level calibration and 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	● Fixed Focus Module Size:	8mm x 8mm
● Windowing:	Programmable to any size	● CRA:	25° and 23° CRA profile
● ADC:	10-bit, on-chip		

Block Diagram



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