



DigitalClarity™

1/4-Inch, 1.3 Megapixel CMOS Image Sensor System-on-Chip

Features

- DigitalClarity™ CMOS imaging technology
- VDD power disable switch for reduced standby current
- On-die phase lock loop (PLL)
- Programmable I/O slew rate
- 2 x 2 pixel binning
- Simple two-wire serial programming interface
- ITU-R BT.656 (YCbCr), 565RGB, 555RGB, or 444RGB formats (progressive scan)
- System-on-chip (SOC)—a completely integrated camera system
- Ultra low-power, low-cost, progressive scan CMOS image sensor
- 1.3-megapixel resolution (1,280H x 1,024V)
- 1/4-inch optical format
- 15 frames per second (fps) at full resolution
- Superior low-light performance
- On-die image flow processor performs sophisticated processing: color recovery and correction, sharpening, gamma, lens shading correction, and on-the-fly defect correction
- Mechanical shutter support
- Filtered image downscaling to arbitrary size with smooth, continuous zoom and pan

Getting the Picture...in Style

Mobile applications with small form factors are in demand, and not surprisingly, customers are expecting to find more features in their new slimmer, sleeker cell phones. They want to snap a photo at the family picnic or capture a good time with friends at a party. The 1/4-inch, 1.3-megapixel SOC image sensor opens the door to slim designs that take great pictures. Its specially engineered microlenses produce high-quality images and enable low-profile camera modules.

Focused on Design

The MT9M112 is a fully integrated system-on-chip (SOC) sensor, incorporating additional logic on the

device that simplifies the camera module design, related manufacturing processes, system integration, power management, and component count. It incorporates sophisticated camera functions on-chip and is programmable through a simple two-wire serial interface. This yields more space and makes the sensor easier to design with. Additionally, this device enables mobile phone manufacturers to simply upgrade their existing 1/4-inch VGA cameras to 1/4-inch megapixel cameras, occupying the same height and footprint.

Enhanced Capabilities

The device features 2 x 2 pixel binning, programmable input/output slew rate, mechanical shutter support, and continuous, smooth zoom and pan, as well as day and night mode configurations. It has three-channel gamma correction, lens shading correction, and color correction. The camera control sequencer automates the camera's flash and video clip snapshots. The device also has an on-board PLL and supports pixel binning as an enhanced form of image size reduction.

You Get a Complete Solution

The MT9M112 is sure to improve your designs, as will working with Micron. In addition to high-quality products, you'll also get the added advantages of doing business with a top-tier supplier: advanced technology, worldwide facilities, technical expertise, and sales support—a superior solution from an industry leader.

Samples for this device are available now, and production will commence in December of 2005. For more information or to order the MT9M112, call your Micron Imaging representative or visit Micron's Web site at www.micron.com/imaging.

Specifications

● Pixel Size:	2.8µm x 2.8µm	● Dynamic Range:	68dB
● Active Imager Size:	3.6mm (H) x 2.9mm (V) 4.59mm Diagonal	● Signal-to-Noise Ratio:	44dB (MAX)
● Active Pixels:	1,280H x 1,024V	● Supply Voltage:	Digital I/O: 1.7V–3.1V Digital Core: 1.7V–1.9V (1.8V nominal) Analog: 2.5V_3.1V (2.8V nominal)
● Color Filter Array:	RGB Bayer pattern	● Window Size:	Arbitrary (including VGA, QVGA, CIF, QCIF)
● Shutter:	Electronic rolling shutter (ERS)	● Power Consumption:	160mW at 1.8V, 15 fps SXGA 90mW at 1.8V, 30 fps VGA binning enabled
● Automatic Functions:	On-the-fly defect correction, exposure, white balance, black reference, flicker avoidance, and color saturation	● Flash Support:	Xenon and LED
● Max Data Rate/ Master Clock:	27 MPS/54 MHz	● Operating Temp. Range:	-30°C to +70°C
● Frame Rate:	15 fps @ full resolution, 30 fps in preview mode (640 x 512)	● Package:	Die
● ADC:	10 bit, on-chip		
● Responsivity:	1.0 V/lux-sec (550nm)		

Block Diagram

