



DigitalClarity® Technology

More Power, Less Space: Upgrade Your Mobile Design

SMIA85 Compatibility in a 2-Megapixel, 1/4-Inch CMOS Image Sensor

Features

- DigitalClarity® CMOS imaging technology
- SMIA compatible
- Integrated color and lens shading correction
- Parallel and CCP2-compliant sub-low-voltage differential signaling (sub-LVDS)
- Simple two-wire serial interface
- On-die phase-lock loop (PLL)
- 2 x 2 down-size mode
- High frame rate preview mode with arbitrary downsize scaling for maximum resolution
- Programmable controls: gain, frame size/rate, exposure, left-right, and top-bottom image reversal, window size and panning
- Auto black-level calibration
- Support for external LED and Xenon flash
- Low dark current
- Superior low-light performance
- Industry-leading 2.2µm pixel technology
- 22 frames per second (fps) at full UXGA resolution; 60 fps in VGA
- Ultra low-power consumption

Upgrade Your SMIA Design to 2 Megapixel

High resolution; small form factor. Micron's new 2-megapixel, 1/4-inch CMOS image sensor is a great fit for today's increasingly popular thin phone designs.

The MT9D012 image sensor—developed using Micron's advanced 2.2µm pixel technology and featuring our exclusive low-noise DigitalClarity technology—provides best-in-class image quality while maintaining a small form factor. The MT9D012's chief ray angle of 24 degrees enables low-profile camera modules which occupy less space, making it ideal for thin-profile mobile phone applications.

What's more, this sensor is compatible with standard mobile imaging architecture 85 (SMIA85) requirements, which takes the complexity out of designing SMIA camera modules.

Applications

- Cell phones
- PC cameras
- PDAs

Intelligent, Cost-Effective Mobile Design

The MT9D012 is a CMOS active-pixel digital image sensor with a pixel array of 1600(H) x 1200(V). It incorporates sophisticated on-chip camera functions such as windowing, mirroring, column and row skip modes, and snapshot mode.

The MT9D012 image sensor features intelligent color and lens shading correction for improved image quality. Upgrading to the MT9D012 provides better resolution for 1/4-inch, 1.3-megapixel designs, as well as cost and size advantages over 1/3-inch, 2-megapixel sensors.

This sensor also features DigitalClarity technology—Micron's breakthrough low-noise CMOS imaging technology that achieves near-CCD image quality (based on signal-to-noise ratio and low-light sensitivity) while maintaining the inherent size and cost advantages of CMOS. The MT9D012 also includes several features that ease integration: embedded, on-chip PLL; parallel and CCP2-compliant differential signaling; and a simple two-wire interface. The MT9D012 is a progressive-scan sensor that uses



an on-chip, PLL to generate all internal clocks from a single master input clock.

The Complete Picture

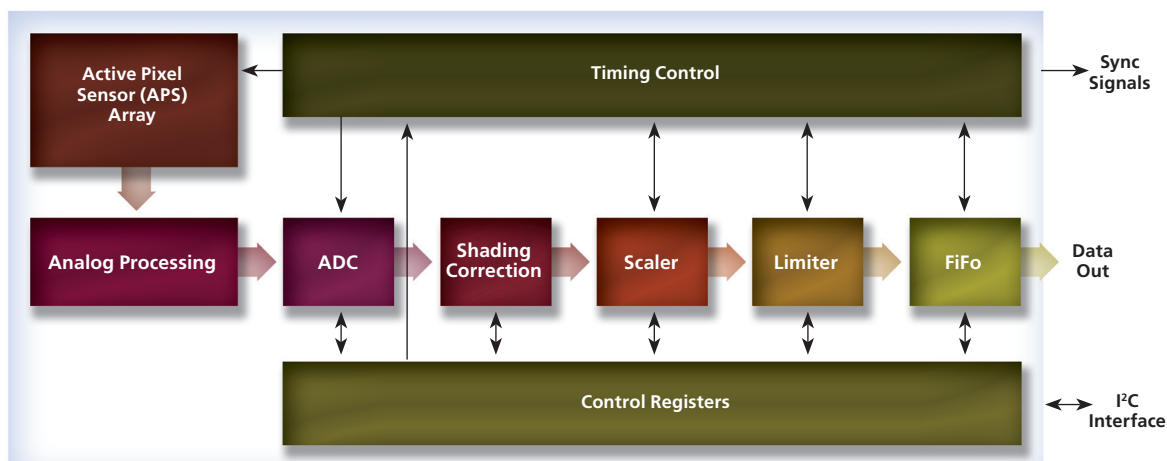
If your cell phone design requires high resolution and a small form factor, Micron has your image sensor solution. With mobile imagers ranging from

VGA to 5 megapixels, you're sure to find one that provides the resolution, form factor, features, and functionality that your customers expect in their high-performance mobile applications. To order, call us at 208-368-3900 or visit us on the Web at www.micron.com/imaging.

Specifications

● Pixel Size:	2.2µm x 2.2µm	● ADC:	10-bit, on-chip
● Array Format (Active):	1600(H) x 1200(V)	● Dynamic Range:	59.5dB
● Imaging Area:	3.56mm(H) x 2.68mm(V)	● Signal-to-Noise Ratio:	37.7dB (MAX)
● Optical Format:	1/4-inch UXGA (4:3)	● Responsivity:	0.53 V/lux-sec
● Color Filter Array:	RGB Bayer pattern	● Supply Voltage:	Analog: 2.40–3.10V Digital: 1.70–1.90V I/O: 1.70–3.10V
● Frame Rates (programmable):	up to 22 fps UXGA up to 60 fps VGA	● Flash Support:	Xenon and LED
● MAX Data Rate:	64 megapixels per second @ 64 MHz	● Operating Temp:	–30°C to +70°C
● Master Clock:	6–27 MHz	● Package:	Die

Block Diagram



www.micron.com

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