

# TECHNICAL BRIEF

## 1.3 MEGAPIXEL, 1/2-INCH COLOR CMOS ACTIVE-PIXEL DIGITAL IMAGE SENSOR

Micron Part Number: MT9M001C12STC-ES

### Description

With the superior image-capture of 1.3 megapixels and advanced noise-reduction technology, Micron's MI-1300 image sensor combines the image quality of CCD technology with the compact size, adaptability, and ease-of-design of CMOS.

The low-power MI-1300 uses a 5.2 $\mu$ m x 5.2 $\mu$ m pixel size in an RGB Bayer pattern, resulting in a 1/2-inch optical format. Sophisticated camera functions include on-chip timing and control, programmable gain, exposure control, auto black level calibration, and snapshot and viewfinder modes. Its sync-input, strobe-output, windowing, and horizontal and vertical blanking controls enable the MI-1300 to capture both continuous video and single frames, which it outputs in high-quality, progressive-scan images at up to 30 frames per second (fps). Variable functions, like frame rate, exposure, and gain settings, can be operated from the device's default mode or programmed through a simple two-wire serial host interface.

For more information about the MI-1300 or to order samples, call your Micron® Imaging representative or Micron's Web site at [www.micron.com/imaging](http://www.micron.com/imaging).

### Features

- Low-power CMOS image sensor
- 1.3 Megapixel resolution (1,280H x 1,024V)
- 1/2-inch optical format
- Up to 30 fps progressive scan for high-quality video
- Programmable gain and exposure control
- Auto black level calibration
- Viewfinder and Snapshot modes
- On-chip, 10-bit analog-to digital converter (ADC)
- Two-wire serial host interface
- 10-bit parallel data output

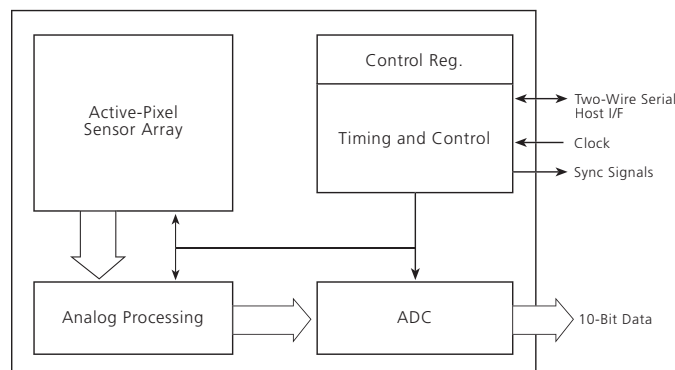
### APPLICATIONS

- Digital still cameras
- Digital video cameras
- PC cameras

## Specifications

Array Format (Active):	1,280H x 1,024V
Pixel Size:	5.2 $\mu$ m x 5.2 $\mu$ m
Imaging Area:	6.83mm x 5.45mm
Color Filter Array:	RGB Bayer primary color filters
Optical Format:	1/2 inch
Supply Voltage:	3.3V (3.0V–3.6V)
Frame Rate:	30 fps with programmable blanking, progressive
Data Rate:	48 MSPS
Responsivity (green pixels):	1.8V/lux-sec @ 550nm illumination
SNR:	45dB
Minimum Illumination:	0.3 lux nominal (SNR = 1, f# = 2.8, exposure = 100ms, daylight)
Dynamic Range:	61dB
Shutter:	Electronic rolling shutter (ERS), continuous (video) and single frame (still)
Exposure Control:	10 $\mu$ s to 500ms
Programmable Controls:	Gain, horizontal and vertical blanking, windowing, sampling rates, exposure, auto black level offset correction, image mirroring
Window Size:	Programmable
Operating Temperature Range:	0°C to 60°C
Dark Current @ 25°C	20 e/sec
Q. E. (Green)	52%
Temporal Noise	10e
Pixel Capacity	40Ke
Conversion Gain	32 $\mu$ V/e
Master Clock	48 MHz
Power Consumption	325W nominal (275 $\mu$ W standby)
ESD Tolerances	2000V HBM, 200V MM
Package	48-pin CLCC
Color Sampling Rates	Full, 1/2, 1/4, 1/8 (in viewfinder mode)
Gain	MAX 15X, MIN step size 0.125
ADC	10 bit

## Block Diagram



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