

1.3-Megapixel, 1/2-Inch Color CMOS Active-Pixel Digital Image Sensor

Features

- Low-power CMOS image sensor
- 1.3-megapixel resolution (1,280H x 1,024V)
- 1/2-inch optical format
- Up to 30 frames per second (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 programming interface
- 10-bit parallel data output

CCD-Like Image Quality

Blending the superior image-capture of 1.3 megapixels with advanced noise-reduction technology, Micron's MI-1300 is a revolutionary CMOS image sensor that achieves sharp, CCD-level image quality. At the same time, it retains all the advantages that CMOS technology is famous for, including its smaller form factor, lower power consumption, higher performance, and ease of design.

Powerful Features

The MI-1300 uses a 5.2 μ m x 5.2 μ m pixel size in an RGB Bayer pattern, resulting in a 1/2-inch optical format. Sophisticated camera functions, including programmable gain, exposure control, auto black-level calibration, and snapshot and viewfinder modes, have been integrated directly onto the chip, reducing the need for additional parts and increasing available board space.

Its sync-input, strobe-output, windowing, and horizontal and vertical blanking controls enable it to capture both continuous video and single frames, which it outputs in high-quality, progressive-scan images at up to 30 fps. The user has the choice of operating the MI-1300's variable functions, including the frame rate, exposure, and gain settings, in the default mode or programming them through a simple two-wire serial host interface.

Faster Time-to-Market

The MI-1300's CMOS-based technology is also much simpler to implement in camera designs compared to conventional CCD technology, enabling designers to create smaller, higher-performance applications with shorter development periods.

Applications

- Digital still cameras
- Digital video cameras
- PC cameras

Micron's truly innovative MI-1300 image sensor is the highest-quality 1.3 megapixel CMOS image sensor on the market, one that combines the image quality of CCD technology with the compact size, adaptability, and ease-of-design of CMOS. For more information about it or to order samples, call your Micron® Imaging representative or visit Micron's Web site at www.micron.com/imaging.

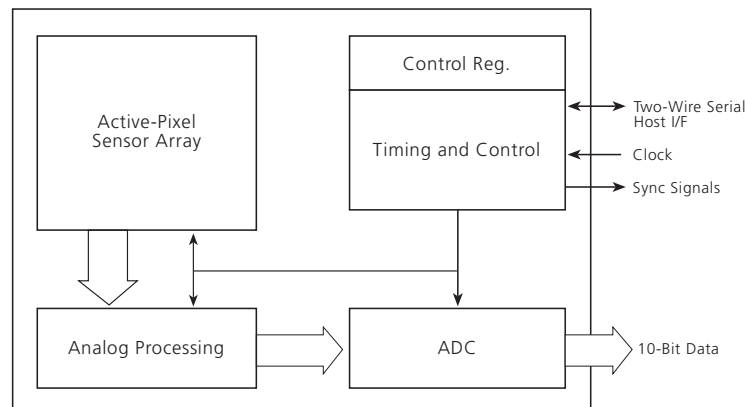




Specifications

- **Pixel Size:** 5.2µm x 5.2µm
- **Array Format (active):** 1,280H x 1,024V
- **Imaging Area:** 6.83mm x 5.45mm
- **Color Filter Array:** R, G, B primary color filters, Bayer pattern
- **Optical Format:** 1/2 inch
- **Frame Rate:** 30 fps with programmable blanking
- **Scan Mode:** Progressive
- **Shutter:** Electronic rolling shutter (ERS), continuous (video) and single frame (still)
- **Windowing:** Programmable
- **Programmable Controls:** Gain, horizontal and vertical blanking, windowing, sampling rates, exposure, auto black-level offset correction, image mirroring
- **ADC:** 10-bit serial
- **Color Sampling Rates:** Full, 1/2, 1/4, 1/8 (in viewfinder mode)
- **Data Rate:** 48 MSPS
- **Exposure Control:** 10µs–500ms
- **Responsivity (green):** >1.8 V/lux-sec @ 550nm illumination
- **SNR:** >45dB
- **MIN Illumination:** 5 lux, f = 2.8, 4 fps (SNR >10dB)
- **Dynamic Range:** >62dB
- **Maximum Analog Gain:** 15X, MIN step size 0.125
- **Dark Current @ 20°C:** 20–30 elec/sec
- **Q. E. (green):** 52%
- **Temporal Noise:** <10e
- **Saturation Voltage:** 1.8V
- **Pixel Capacity:** 40Ke
- **Conversion Gain:** 32 uV/e
- **Master Clock:** 48 MHz
- **Supply Voltage:** 3.3V (3.0V–3.6V)
- **Power Consumption:** 370mW nominal (<100µW standby)
- **Operating Temp. Range:** 0°C to 60°C
- **ESD Tolerances:** 2,000V HBM, and 500 CDM
- **Package:** 48-pin CLCC

Block Diagram



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