
# 3-Megapixel CMOS Digital Image Sensor for Wide FOV and Electronic Pan/Tilt Cameras

## Micron Performance for Commercial Security

### Features

- DigitalClarity® CMOS imaging technology
- 3-megapixel resolution (2048H x 1536V)
- 1/2-inch optical format
- 3.2µm-x-3.2µm pixel size
- Low-power CMOS image sensor
- Global pixel reset
- Row and column pixel binning
- Programmable gain and exposure
- Automatic black level calibration
- Viewfinder and snapshot modes
- On-chip, 10-bit analog-to-digital converter (ADC)

### Complex Digital Functions

What do you get when you combine 3.1 million pixels with a crisp digital ouput? Micron's MT9T031 CMOS image sensor, complete with electronic pan and tilt capabilities. At 3.1 megapixels, the MT9T031 provides a wide field of view (FOV) that can be subwindowed, positioned, and sized to enable a low-cost, high-performance, highly reliable pan/tilt camera with no moving parts.

With the subwindow sized to produce VGA video, the camera focuses on 300,000 of the 3.1 million pixels at one time, leaving the rest of the scene to be accessed through the pan and tilt functions. The MT9T031 supports both 2X and 3X reductions of the output resolution and enables independent binning of rows and columns—which means precise manipulation of images and a wider FOV image is possible without having to output all of the pixels that the scene comprises. Additionally, the MT9T031 enables an electronic zoom function by ending the binning and selecting a subwindow frame or by reading out all of the pixels.

### High Resolution, High Speed

The MT9T031 showcases Micron's groundbreaking DigitalClarity technology, which enables brilliant, high-resolution color images that rival CCD-level image quality (based on signal-to-noise ratio and low-light sensitivity) without CCD-level power consumption. The MT9T031 superbly captures single frames as well as continuous video. What's more, the sensor's high-speed readout and viewfinder modes eliminate two common commercial security camera problems: shot-to-shot delay and video-to-still lag—the delay between when someone presses the camera's button and when the picture is actually taken.

### Ease of Design. Speed of Development.

With fewer required parts compared to CCD-based sensors, Micron's MT9T031 CMOS image sensor simplifies camera design. Its on-chip analog-to-digital conversion, clock generation, and other sophisticated camera functions enable designers to create smaller, higher-performance, lower-cost applications within shorter product development periods.

### Perfect for These Applications

- High-resolution security cameras
- Electronic pan/tilt cameras
- Wide field of view cameras

## Unparalleled CMOS Image Quality

Micron's exclusive DigitalClarity technology dramatically reduces noise levels in our CMOS sensors. While some security cameras generate shots that look like abstract paintings, your MT9T031-equipped camera will deliver sharp, crystal-clear images. Our sensor provides best-in-class image quality—whether capturing continuous video or single frames—even in extremely low light.

## Better Service for Better Designs

Micron's MT9T031 incorporates a number of features and functions to streamline your designs and improve your customers' imaging experiences. To order, call us at +1 208-368-3900 or visit us on the Web at ***www.micron.com/imaging***.

## Specifications

- **Pixel Size:** 3.2µm x 3.2µm
- **Array Format (active):** 2048H x 1536V
- **Imaging Area:** 6.55mm x 4.92mm (8.19mm diagonal)
- **Color Filter Array:** RGB Bayer color filters
- **Optical Format:** 1/2 inch (4:3)
- **Frame Rates:** 12 fps (QXGA), 20 fps (UXGA), 27 fps (SXGA), 43 fps (XGA), 93 fps (VGA), with programmable blanking
- **Scan Mode:** Progressive
- **Shutter:** Electronic rolling shutter (ERS), global pixel reset
- **Windowing:** Programmable in size and location
- **Programmable Controls:** Gain, horizontal blanking, vertical blanking, sampling rates, exposure time, auto black level offset correction, image mirroring
- **ADC Resolution:** 10 bit
- **Gain:** Analog – 8X MAX step size 0.125 MIN
- **Data Rate:** 48 megapixels per second
- **Dynamic Range:** >61dB
- **Signal-to-Noise Ratio:** >43dB (MAX)
- **Supply Power:** 3.3V nominal (3.0V to 3.6V)
- **Operating Temperature Range:** 0°C to +60°C
- **Package:** 48-pin PLCC or die

**www.micron.com**

*Products are warranted only to meet Micron's production data sheet specifications. Products and specifications are subject to change without notice.*