

## Micron's MT9V022 Image Sensor

# Introducing a CMOS Image Sensor Specifically Designed for Automotive Scene-Understanding Systems

## Finally, an Image Sensor Supplier for the Automotive Industry

Micron recognizes the automotive industry requires specialized parts and dedicated resources. For more than 25 years, we've built high-quality semiconductors for a range of markets and applications. And we've never expected our customers to compromise. That's why we're proud to introduce Micron's new MT9V022, our CMOS image sensor designed exclusively for the demanding automotive environment.

The MT9V022 provides global shutter, a high frame rate, near infrared sensitivity, and the ability to synchronize cameras in stereovision systems. Most importantly, it performs superbly under low-light and bright-light conditions, and in extremely low to very high temperatures. We've developed this sensor with the help of numerous automotive subsystem suppliers, so Micron's MT9V022 fits many automotive processing applications.

## Keys to Superior Performance in the Harsh Automotive Environment

The automotive environment can be severe. But, unlike sensors designed for digital cameras and cell phones, Micron's MT9V022 automotive sensor continues to provide clear images under a range of conditions.

**Extended light sensitivity.** The MT9V022 boasts a 110dB+ dynamic range. This enables the sensor to capture scenes containing both low light levels (down to sub-0.1 lux!) and direct sunlight.

**Wide temperature range.** The MT9V022 functions brilliantly at -40°C to +85°C, and withstands temperatures up to +125°C. See for yourself the

strength of this high-performance sensor. View actual photos taken with it on the back of this flyer.

## Scene-Understanding Applications

- Smart air bag deployment
- Occupant identification and classification
- Biometric identification/security
- Drowsiness detection
- Vehicle and contents theft identification
- Lane tracking and departure warning
- Adaptive cruise control
- Blind spot detection
- Windshield wiper control
- High beam dimming
- Collision avoidance/pedestrian protection
- Active suspension
- Drive-by wire

## We Design and Manufacture, You Enjoy Greater Responsiveness

With Micron, you get more than just design expertise. You gain the advantages of in-house fabrication. This means we control the parts we manufacture, making us more responsive to our customers' needs. Our design and manufacturing facilities in Asia, Europe, and the United States provide increased capacity and enable us to better serve you no matter where you do business.

## Get All the Facts

Call us at 208-368-3900 to discuss all the advantages of Micron's automotive-specific MT9V022. And ask about our full line of automotive products, including industrial temperature DRAM, Q-Flash® and NAND Flash memory, and our MT9V111 image sensor for automotive display applications.



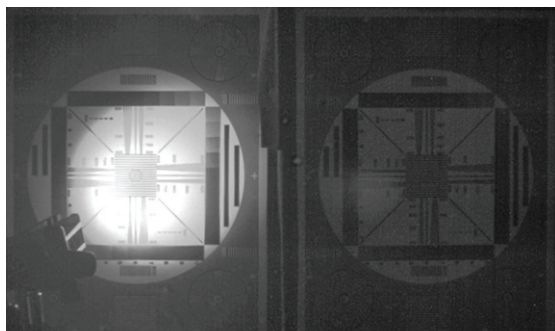
## Specifications

● <b>Pixel Size:</b>	6 $\mu$ m x 6 $\mu$ m	● <b>ADC:</b>	10-, 8-bit, selectable
● <b>Array Format (active):</b>	750H x 480V	● <b>Data Rate:</b>	26.6 megapixels per second (master clock, 26 MHz)
● <b>Imaging Area:</b>	4.55mm x 2.97mm	● <b>Responsivity:</b>	2.0 V/lux-sec (550nm)
● <b>Color Filter Array:</b>	Monochrome or RGB Bayer color filters	● <b>Minimum Detectable Light:</b>	sub-0.1 lux (mono), 5 lux (color)
● <b>Optical Format:</b>	1/3-inch	● <b>Saturation Signal:</b>	30k+
● <b>Frame Rate:</b>	60 fps @ 750H X 480V, higher frame rates at lower resolutions	● <b>Lag:</b>	0.5%, 0%–100% of full well
● <b>Dynamic Range:</b>	75dB–110dB+	● <b>Dark Current:</b>	<10% of saturation signal at +85°C
● <b>Shutter:</b>	TrueSNAP™ simultaneous integrate and readout global shutter	● <b>Spectral Range:</b>	450nm–1,050nm
● <b>Data Format:</b>	Parallel/LVDS (serial), selectable 10 to 8 bits	● <b>Quantum Efficiency:</b>	>40% (@ 850nm)
● <b>Window Size:</b>	Programmable to any size (e.g., QVGA, CIF, QCIF, etc.)	● <b>Conversion Gain:</b>	30 uV/e-
● <b>Scan Mode:</b>	Progressive or interlaced	● <b>Pixel Read Noise:</b>	<25e-
● <b>Automatic and Programmable Functions:</b>	Regionally weighted exposure, black level offset correction, horizontal blanking, vertical blanking, defect identification and correction, lighting control, left-right and top-bottom image reversal, windowing, regional gain, image decimation	● <b>Supply Voltage:</b>	3.0V–3.6V (3.3V nominal)
		● <b>Power Consumption:</b>	<150mW (@ 60 fps), <100 $\mu$ W standby
		● <b>Operating Temp. Range:</b>	-40°C to +85°C
		● <b>Storage Temp. Range:</b>	-40°C to +125°C
		● <b>Package:</b>	52-ball iBGA, wafer or die, automotive-qualified

### Images Shot at +35°C

30,000 lux

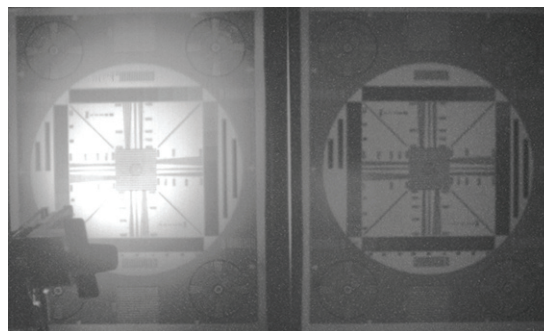
2 lux



### Images Shot at +85°C

30,000 lux

2 lux



[www.micron.com](http://www.micron.com)

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

Micron, the Micron logo, and TrueSNAP are trademarks of Micron Technology, Inc. All other trademarks are the property of their respective owners. ©2004 Micron Technology, Inc. All rights reserved. 10/02/04 EN.L

