

Introducing a 1/3-Inch, Wide VGA CMOS Image Sensor for Automotive Scene-Understanding Systems

Finally, an Image Sensor Supplier for the Automotive Industry

Aptina recognizes the automotive industry requires specialized parts and dedicated resources. And we've never expected our customers to compromise. That's why we're proud to introduce Aptina'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 conditions, and in extremely low to very high temperatures. We've developed this sensor with the help of numerous automotive subsystem suppliers, so Aptina'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, Aptina's MT9V022 automotive sensor continues to provide clear images under a range of conditions.

Extended light sensitivity. The MT9V022 boasts a 100dB+ dynamic range. This enables the sensor to capture scenes containing both low light levels (down to sub-0.1 lux!) or direct sunlight.

Wide temperature range. The MT9V022 functions brilliantly at -40°C to $+85^{\circ}\text{C}$ and withstands temperatures up to $+125^{\circ}\text{C}$. 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

How to Buy

Production and sample quantities of Aptina products may be ordered through qualified distributors. See our Web site for details. You may also request access to NDA data sheets and other technical documentation by visiting our Web site.

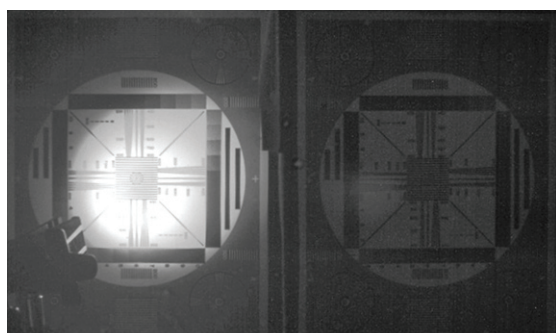
Specifications

• Pixel Size:	6 μ m x 6 μ m	• ADC:	10-, 8-bit, selectable
• Array Format (active):	752H x 480V	• Data Rate:	26.6 megapixels per second (master clock, 26 MHz)
• Imaging Area:	4.55mm x 2.97mm	• Responsivity:	4.8 V/lux-sec (550nm)
• Color Filter Array:	Monochrome or RGB Bayer color filters	• Minimum Detectable Light:	sub-0.1 lux (mono), 5 lux (color)
• Optical Format:	1/3-inch	• Lag:	0.5%, 0–100% of full well
• Frame Rate:	60 fps at 752H x 480V, higher frame rates at lower resolutions	• Dark Current:	<10% of saturation signal at +85°C
• Dynamic Range:	80–100dB	• Spectral Range:	450–1050nm
• Shutter:	Simultaneous integrate and readout global shutter	• Quantum Efficiency:	>34% (at 850nm)
• Data Format:	Parallel/LVDS (serial), selectable 10 to 8 bits	• Conversion Gain:	30 μ V/e-
• Window Size:	Programmable to any size (e.g., QVGA, CIF, QCIF)	• Pixel Read Noise:	<25e-
• Scan Mode:	Progressive or interlaced	• Supply Voltage:	3.0–3.6V (3.3V nominal)
• Automatic and Programmable Functions:	Regionally weighted exposure, black level offset correction, horizontal blanking, vertical blanking, lighting control, left-right and top-bottom image reversal, windowing, regional gain, image decimation	• Power Consumption:	<320mW (at 60 fps), <120 μ W standby
		• Operating Temp. Range:	–40°C to +85°C
		• Storage Temp. Range:	–55°C to +125°C
		• Package:	52-ball iBGA or die, automotive-qualified

Images Shot at +35°C

30,000 lux

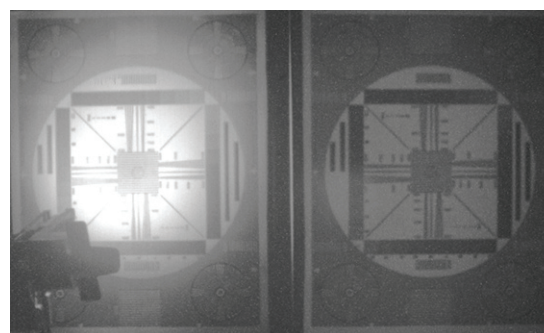
2 lux



Images Shot at +85°C

30,000 lux

2 lux



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