

MT9V024



WVGA  
1/3-inch  
Stand-Alone CMOS Sensor  
52-ball IBGA

## 5 Reasons the MT9V024 is Ideal for Automotive Systems

### 1 Reliable Operation in Extreme Temperatures

The -40 to +105°C operating range meets AEC-Q100 specifications, ensuring optimum performance in harsh environments.

### 2 Context Switching for Simultaneous Applications

An additional register bank provides the ability to run two different imaging applications simultaneously from a single sensor.

### 3 Wide Dynamic Range for Superb High-Contrast Imaging

Extended knee-points provide greater control and excellent output for excellent output in high-contrast conditions.

### 4 Accurate Fast-Motion Capture

The fine shutter control (via sub-row integration) of our TrueSNAP™ global shutter enables fast-moving object capture without image tearing.

### 5 Small Footprint

Measuring just 9 millimeters square, the MT9V024's automotive-grade ball grid array (BGA) package is one of the smallest in the industry.

## Applications

- Lane departure warning
- Adaptive cruise control
- Collision avoidance
- Traffic sign recognition
- Automatic headlamp control
- Pedestrian protection
- Occupant identification
- Drowsiness detection
- Smart airbag deployment
- Vehicle theft identification
- Drive-by wire
- Blind spot detection



## 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.



## Features

- Wide dynamic range
- Real-time exposure context-switching; dual register
- Operating temperature range up to +105°C
- Tested to AEC-Q100 specifications
- TrueSNAP™ global shutter with simultaneous integrate and readout
- Monochrome, RGB Bayer, or RCCC (red/clear) color filters available
- Enhanced near-IR performance
- Programmable to any window size (QVGA, CIF, QCIF, etc.)
- Progressive or interlaced readout modes
- 2x2 and 4x4 binning at full resolution
- Simple two-wire serial interface
- Automatic and programmable functions: regionally weighted exposure, black level offset correction, horizontal blanking, vertical blanking, lighting control, windowing, left-right and top-bottom image reversal, regional gain, image decimation, manual or automatic high dynamic range

## Specifications

### Imaging Array

- Optical Format: 1/3-inch
- Chief Ray Angle: 7°
- Active Array: 752(H) x 480(V)

### Speed/Output

- Imaging Area: 4.55mm(H) x 2.97mm(V)
- Frame Rate: 60 fps @ 752H x 480V; (higher frame rates at lower resolutions)
- Data Rate: 27 Mp/s
- Master Clock: 26 MHz
- Data Format: Parallel/LVDS (serial); selectable 10 to 8 bits

### Sensitivity

- Pixel Size: 6µm x 6µm
- Dynamic Range: 80dB to >100dB
- Responsivity: 4.8 V/lux-sec (550nm)
- Minimum Detectable Light: sub-0.1 lux (mono), 5 lux (color)

### Power

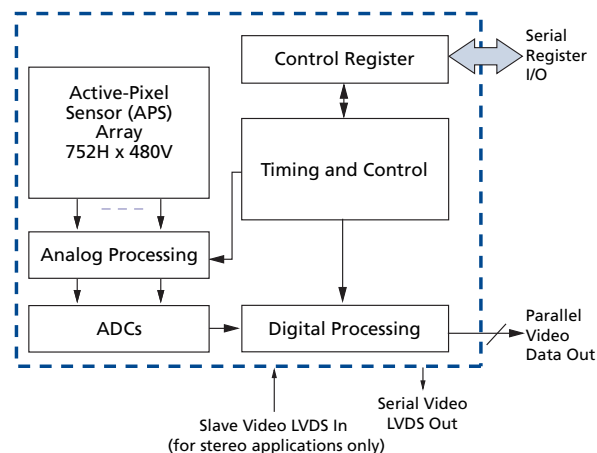
- Supply: 3.0–3.6V (3.3V nominal)
- Consumption: <160mW @ 60 fps; <120µW standby

### Temperature Range

- Operating: –40°C to +105°C
- Storage: –50°C to +125°C

**Package:** automotive qualified 52-ball iBGA (9mm x 9mm) or die

## Block Diagram



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