# AR0233AT

# Hayabusa CMOS Image Sensor, 2.6 MP, 1/2.5", HDR + LFM

## Product Overview

For complete documentation, see the data sheet.

The AR0233AT image sensor delivers exceptional sensitivity for a wide variety of automotive applications. Built on a 3 mm Back Side Illuminated (BSI) pixel, the sensor provides greater than 140 dB of dynamic range and excels in low light conditions. It features an active array size of 2048 x 1280 with 1080p output at 60 frames per second. The new pixel technology includes LED Flicker Mitigation (LFM) while maintaining high dynamic range output, limiting the appearance of flicker from LED lighting and AC sources particularly important for camera monitor system (CMS) applications as well as machine vision algorithms.

The AR0233AT is available in multiple automotive-qualified package options including iBGA and bare die. It is ASIL-B safety design compliant per ISO26262 and supports ASIL-B or higher safety ratings for camera systems. The sensor is compatible with image signal processor (ISP) companion chips from ON Semiconductor as well as third-party ISPs.

With new requirements being added to the New Car Assessment Program (NCAP), Advanced Driver Assistance Systems (ADAS) require sensors with higher functionality to meet the evolving standards for car safety. Automotive camera systems are performing more complex algorithms at higher vehicle speeds and in new, challenging lighting conditions. OEMs also want to offer more features for their customers by leveraging cameras for both viewing and sensing applications.

## Features

- New 3.0 µm Dual Conversion Gain BSI Pixel Technology

- Multi-Exposure Mode for >140d B High Dynamic Range

- Full Resolution LED Flicker Mitigation with 120 dB High Dynamic Range

- >95 dB dynamic range from one exposure

- ASIL-B safety design, ISO26262 compliant

- Low-noise, low-power analog architecture

- Generation-3 Motion Compensation

- Adaptive Noise Reduction Filter

- Advanced Context Switching

- 4-lane MIPI CSI-2 Interface
  For more features, see the data sheet

## Benefits

- Real-time Functional Safety Mechanisms and Fault Detection

- Multi-Camera Synchronization Support

- Configurable through low-cost SPI Flash and EEPROM devices

## Applications

- Automotive ADAS

- Automotive Viewing

## End Products

- Front View Camera (ADAS)

- High–end Surround View and Rear View Camera

- ADAS + Viewing Fusion

- Camera Monitor Systems for Mirror Replacement

# Part Electrical Specifications

| Product | Pricing ($/Unit) | Compliance | Status | Type | Megapixels | Frame Rate (fps) | Optical Format | Shutter Type | Pixel Size (µm) | Output Interface | Color | Package Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AR0233ATSC17XUEA1-DPBR | | (A) (P) (Pb) (H) | Active | CMOS | 2.6 | 60 | 1/2.5 inch | Electronic Rolling | 3.0 x 3.0 | MIPI | RGB | IBGA-80 |
| AR0233ATSC17XUEA1-DRBR | | (A) (P) (Pb) (H) | Active | CMOS | 2.6 | 60 | 1/2.5 inch | Electronic Rolling | 3.0 x 3.0 | MIPI | RGB | IBGA-80 |
| AR0233ATSC17XUEA1-TPBR | | (A) (P) (Pb) (H) | Active | CMOS | 2.6 | 60 | 1/2.5 inch | Electronic Rolling | 3.0 x 3.0 | MIPI | RGB | IBGA-80 |
| AR0233ATSC17XUEA1-TRBR | | (A) (P) (Pb) (H) | Active | CMOS | 2.6 | 60 | 1/2.5 inch | Electronic Rolling | 3.0 x 3.0 | MIPI | RGB | IBGA-80 |
| AR0233ATSE17XUD20 | | (A) (P) (Pb) (H) | Active | CMOS | 2.6 | 60 | 1/2.5 inch | Electronic Rolling | 3.0 x 3.0 | MIPI | RGB | |