

## Product Overview

### AR0138AT: CMOS Image Sensor, Digital, 1.2 MP, 1/2.6-Inch, 4.2 μm BSI pixel

For complete documentation, see the data sheet.

ON Semiconductor AR0138AT is a 1/2.6-inch CMOS digital image sensor with a 1288 H x 968 V active-pixel array. This advanced automotive sensor captures images in either linear, or high dynamic range, with rolling-shutter readout. AR0138AT is optimized for both low light and challenging high dynamic range scene performance, with a 4.2 m BSI pixel and on-sensor 120 dB HDR capture capability. The sensor includes flexible functions such as in-pixel binning, windowing, and both video and single frame modes. The sophisticated sensor fault detection features and embedded data on AR0138AT are designed to enable camera ASIL B compliance. The device is programmable through a simple two-wire serial interface, and supports multiple output interface options, including MIPI and Parallel. The AR0138AT sensor is also supported by ON Semiconductor automotive co-processor products, delivering a total HDR video solution for the latest automotive viewing applications (RVC, Surround View, and CMS applications).

### Features

- High Performance 4.2 m Automotive Grade Backside Illuminated (BSI) Pixel with DR-Pix Technology
  - Advanced On-Sensor HDR Reconstruct with Flexible Exposure Ratio Control
  - Fast 69 FPS Video Capture at 1280 x 960 and 3-exposure HDR
  - Sensor Fault Detection for ASIL-B Compliance Support
  - 2x2 In-pixel Binning Mode
  - Data Interfaces: 4-lane MIPI CSI-2, or Parallel
  - Selectable Automatic or User Controlled Black Level Control
  - Frame to Frame Switching Among up to 4 Contexts to Enable Multi-function Systems
  - Spread-spectrum Input Clock Support
  - Multi-Camera Synchronization Support
- For more features, see the data sheet

### Applications

- 1.2 MP, High Performance ADAS (Automotive Driver Assistant System)
- 960p, 720p Automotive Rear View or Backup
- 960p, 720p Automotive Surround View

### Part Electrical Specifications

Product	Compliance	Status	Type	Megapixels	Frame Rate (fps)	Optical Format	Shutter Type	Pixel Size (μm)	Output Interface	Color	Package Type
AR0138AT3C00XUEA 0-DPBR-E	Pb-free	Active	CMOS	1.2	69 fps	-	Electronic Rolling	4.2 x 4.2	Parallel	Other	IBGA-109
	Halide free								MIPI		
AR0138AT3C00XUEA 0-DRBR-E	Pb-free	Active	CMOS	1.2	69 fps	-	Electronic Rolling	4.2 x 4.2	MIPI	Other	IBGA-109
	Halide free								Parallel		
AR0138AT3R00XUEA 0-DPBR	AEC Qualified	Active	CMOS	1.2	69 fps	-	Electronic Rolling	4.2 x 4.2	MIPI	Other	IBGA-109
	PPAP Capable										
	Pb-free										
	Halide free										
AR0138AT3R00XUEA 0-DPBR-E	Pb-free	Active	CMOS	1.2	69 fps	-	Electronic Rolling	4.2 x 4.2	MIPI	Other	IBGA-109
	Halide free								Parallel		

For more information please contact your local sales support at [www.onsemi.com](http://www.onsemi.com).

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