

## AR0220AT

# CMOS Image Sensor, Digital, 1.7 MP, 1/1.8-Inch, 4.2 $\mu$ m BSI pixel

## Product Overview

For complete documentation, see the data sheet.

ON Semiconductor AR0220AT is a 1/1.8inch CMOS digital image sensor with an 1828 H x 948 V activepixel array. This advanced automotive sensor captures images in either linear or high dynamic range, with rollingshutter readout. AR0220AT is optimized for both low light and challenging high dynamic range scene performance, with a 4.2  $\mu$ m BSI pixel and onsensor 120 dB HDR capture capability. The sensor includes flexible functions such as inpixel binning, windowing, and both video and single frame modes. The sophisticated sensor fault detection features and embedded data on AR0220AT are designed to enable camera ASIL B compliance. The device is programmable through a simple twowire serial interface, and supports MIPI output interface.

## 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 60 FPS Video Capture at 1820 x 940 and 4-exposure HDR
- Sensor Fault Detection for ASIL-B Compliance Support
- 2x2 In-pixel Binning Mode and Color Binning Mode
- Data Interfaces: 4-lane MIPI CSI-2
- 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

- 1.7 MP, High Performance ADAS (Automotive Driver Assistant System)
- Automotive Rear View or Backup
- Automotive Surround View

## End Products

- Automotive Camera Systems

## 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 |
|------------------------------|-------------------|-------------------------------------------------------------------------------------|-----------------|------|------------|------------------|----------------|--------------|-----------------|------------------|-------|--------------|
| AR0220AT4B00 XUD20           |                   |    | Active          |      |            |                  |                |              |                 |                  |       | IBGA-87      |
| AR0220AT4B00 XUEA2-DPBR      |                   |    | Active          |      |            |                  |                |              |                 |                  |       | IBGA-87      |
| AR0220AT4B00 XUEA2-DRBR      |                   |    | Active          |      |            |                  |                |              |                 |                  |       | IBGA-87      |
| AR0220AT4B00 XUEA2-TPBR      |                   |    | Active          |      |            |                  |                |              |                 |                  |       | IBGA-87      |
| AR0220AT4B00 XUEA2-TRBR      |                   |    | Active          |      |            |                  |                |              |                 |                  |       | IBGA-87      |
| AR0220AT4B00 XUEA2-VL-TPBR   |                   |    | Product Preview |      |            |                  |                |              |                 |                  |       | IBGA-87      |
| AR0220AT4C00 XUEA2-DPBR      |                   |    | Product Preview |      |            |                  |                |              |                 |                  |       | IBGA-87      |
| AR0220AT4C00 XUEA2-DPBR-E    |                   |    | Active          |      |            |                  |                |              |                 |                  |       | IBGA-87      |
| AR0220AT4C00 XUEA2-DRBR      |                   |    | Product Preview |      |            |                  |                |              |                 |                  |       | IBGA-87      |
| AR0220AT4C00 XUEA2-DRBR-E    |                   |    | Active          |      |            |                  |                |              |                 |                  |       | IBGA-87      |
| AR0220AT4C00 XUEA2-TPBR      |                   |   | Product Preview |      |            |                  |                |              |                 |                  |       | IBGA-87      |
| AR0220AT4C00 XUEA2-TPBR-E    |                   |  | Active          |      |            |                  |                |              |                 |                  |       | IBGA-87      |
| AR0220AT4C00 XUEA2-TRBR      |                   |  | Product Preview |      |            |                  |                |              |                 |                  |       | IBGA-87      |
| AR0220AT4C00 XUEA2-TRBR-E    |                   |  | Active          |      |            |                  |                |              |                 |                  |       | IBGA-87      |
| AR0220AT4C00 XUEA2-VL-TPBR   |                   |  | Product Preview |      |            |                  |                |              |                 |                  |       | IBGA-87      |
| AR0220AT4C00 XUEA2-VL-TPBR-E |                   |  | Active          |      |            |                  |                |              |                 |                  |       | IBGA-87      |
| AR0220AT4R00 XUEA1-DPBM      |                   |  | Active          |      |            |                  |                |              |                 |                  |       | IBGA-87      |
| AR0220AT4R00 XUEA1-DRBM      |                   |  | Active          |      |            |                  |                |              |                 |                  |       | IBGA-87      |
| AR0220AT4R00 XUEA1-TPBM      |                   |  | Active          |      |            |                  |                |              |                 |                  |       | IBGA-87      |
| AR0220AT4R00 XUEA1-TRBM      |                   |  | Active          |      |            |                  |                |              |                 |                  |       | IBGA-87      |
| AR0220AT4R00 XUEA1-VL-TPBM   |                   |  | Active          |      |            |                  |                |              |                 |                  |       | IBGA-87      |
| AR0220AT4R00 XUEA2-DPBR      |                   |  | Active          |      |            |                  |                |              |                 |                  |       | IBGA-87      |
| AR0220AT4R00 XUEA2-DRBR      |                   |  | Active          |      |            |                  |                |              |                 |                  |       | IBGA-87      |
| AR0220AT4R00 XUEA2-TPBR      |                   |  | Active          |      |            |                  |                |              |                 |                  |       | IBGA-87      |
| AR0220AT4R00 XUEA2-TRBR      |                   |  | Active          |      |            |                  |                |              |                 |                  |       | IBGA-87      |

|                                   |  |                                                                   |        |  |  |  |  |  |  |  |  |             |
|-----------------------------------|--|-------------------------------------------------------------------|--------|--|--|--|--|--|--|--|--|-------------|
| AR0220AT4R00<br>XUEA2-VL-<br>TPBR |  | <div> <div>A</div> <div>P</div> <div>Pb</div> <div>H</div> </div> | Active |  |  |  |  |  |  |  |  | IBGA-<br>87 |
|-----------------------------------|--|-------------------------------------------------------------------|--------|--|--|--|--|--|--|--|--|-------------|

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