

2MP Monochrome MIPI Camera based on Onsemi AR0234 Sensor

Vadzo Bolt-234MGS is a Full HD MIPI Camera based on Onsemi AR0234 Global Shutter Sensor coupled with high-performance ISP. The camera delivers max resolution of 2MP and Video streaming of 1080p, 720p and VGA. Applicable in use cases such as automation camera, robotics camera, AGV camera, drone camera, measurement systems camera, smart parking camera, etc. Bolt-234MGS has been integrated with solutions based on platforms such as Raspberry PI, Nvidia Nano, Nvidia XavierNX, etc.

Key Features

- Sensor Model: AR0234 Onsemi Sensor
- Max Resolution: 2MP
- Pixel Size: 3.0 μm x 3.0 μm
- Shutter: Global Shutter
- Lens FOV: 74 DFOV
- Compliance: RoHS 3, REACH



Applications

- **Warehouse Robotics:** Object Scanning, Document Scanning, OCR, Obstacle Detection.
- **Smart Surveillance:** Facial Recognition, Day/Night Video Recording, Smart Parking, Pedestrian Safety.
- **Retail Analytics & Automation:** Inventory Monitoring, Age Verification, Demography Analysis, Shelf Monitoring, Self-Checkout.

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1. Introduction

Bolt-234MGS is a MIPI Fixed-Focus Global Shutter Monochrome camera based on Onsemi AR0234 sensor. This is a two-board camera solution that comprises of the camera module board and the adapter board. There are two variants of the adapter board to 2-Lane MIPI CSI 2 as well as 4-Lane MIPI CSI 2 interfaces.

2. Camera Specifications

General Information	
Product Family	Bolt series
Camera Model	Vadzo Bolt-234MGS
Sensor	
Sensor	AR0234 Sensor from Onsemi
Sensor Format	1/2.6"
Pixel Size	3.0 μm x 3.0 μm
Max Resolution	2MP – 1920(H) x 1200(V)
Shutter	Global Shutter
Chroma	Mono
Camera Data	
Interface	2-Lane MIPI CSI 2 & 4-Lane MIPI CSI 2
Pixel Depth	8bit / 10bit
Output Format	YUV422
Exposure Control	Manual Control via software & Auto-Exposure
GPIO	2 x NC
Camera Hardware	
Lens	S Mount (M12 Standard)
MIPI connector	XF3M (1)-1515-1B (2 Lane) & 54548-2271 (4 Lane)
Power Requirement	Max: 1.45 W at 3.3VDC Min: 0.80 W at 3.3VDC

Operating Temperature	-40°C to 85°C
Dimension	38mm (L) x 38mm (B) convertible to 32mm (L) x 32mm (B)
Weight	13 Grams (Without Lens)
Camera Software	
Video Resolutions	VGA, HD, and FHD
Video formats	Y8
Still Image Resolutions	VGA, HD, and FHD
Image Capture formats	Y8
Image Capture Modes	Software trigger
Camera Controls	Exposure, Gain
Conformity	
Conformity	RoHS 3, REACH

3. Supported Resolutions

Resolution	Frame Rates (FPS) in 4-Lane MIPI CSI 2
	YUV
640 x 480 (VGA)	120
1280 x 720 (HD)	60
1920 x 1080 (FHD)	60

4. Supported Camera Functions

The List of functions supported by the Bolt-234MGS camera are:

- Resolution Control
- Image Format Setting
- Video Format Setting – Y8
- Image Capture Software Trigger
- Gain – Auto & Manual
- Exposure – Auto & Manual

5. MIPI Interface

The camera module supports both 4-Lane MIPI CSI 2 as well as 2-Lane MIPI CSI 2 interface.

Vadzo has designed the camera hardware such that it can be directly integrated with Raspberry PI as well Nvidia Jetson development kit via the 2-Lane MIPI CSI 2 interface. Vadzo has used the XF3M (1)-1515-1B from Omron for this interface.

Vadzo has integrated the capability of functioning in the 4-Lane MIPI CSI 2 bandwidth as well to ensure that you can achieve faster frame rates.

6. Status LED

Status LED's indicate the below:

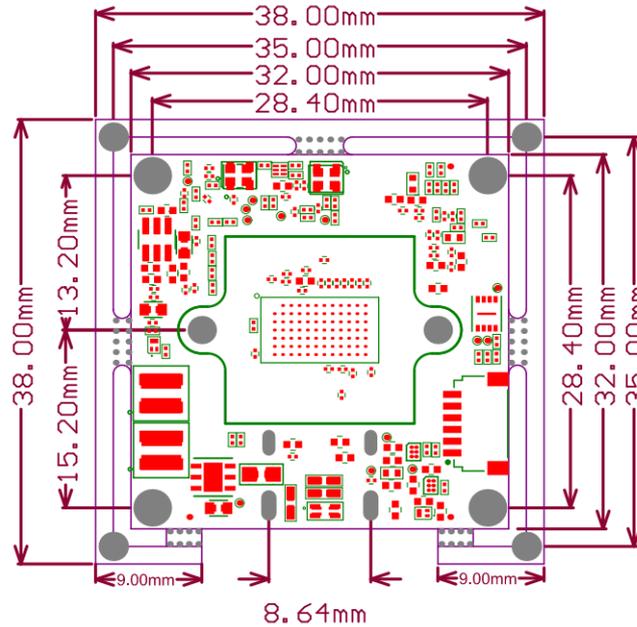
- Red color indicates Device is powered ON with no Streaming.
- Yellow color indicates: Camera is currently Streaming.

7. Temperature and Humidity Specifications

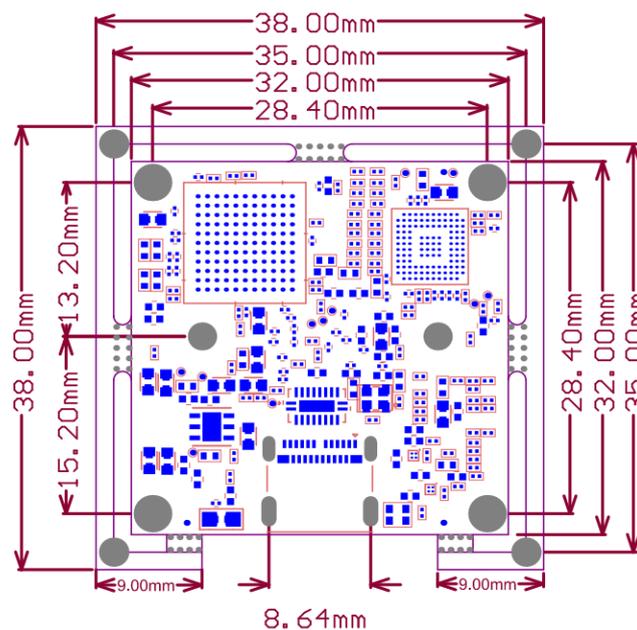
Description	Specification
Operating Temperature	-40°C to 85°C
Storage Temperature	-40°C to 85°C
Humidity	20% to 80%, Relative, non-condensing.

8. Dimensions

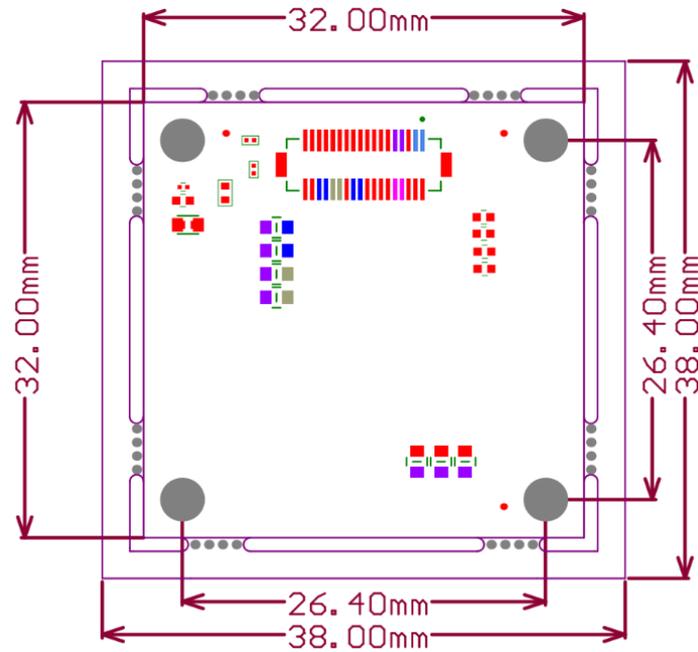
Board Top Side – 2D



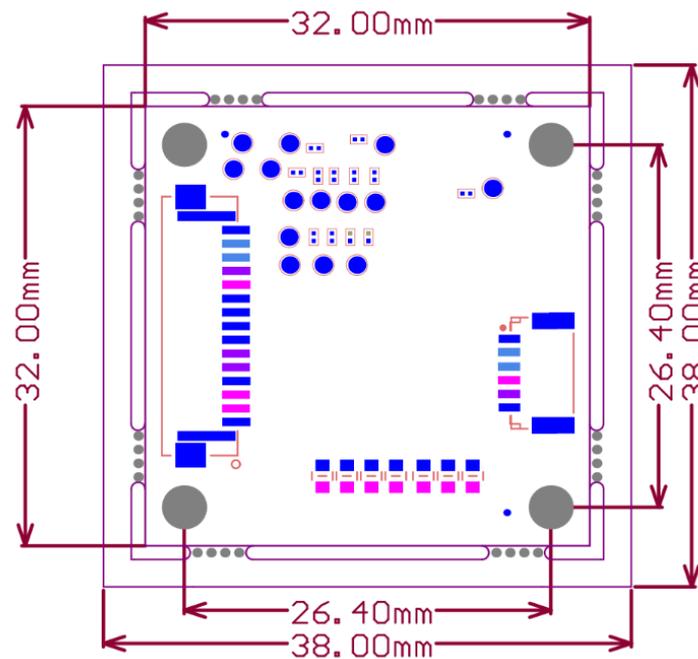
Board Bottom Side - 2D



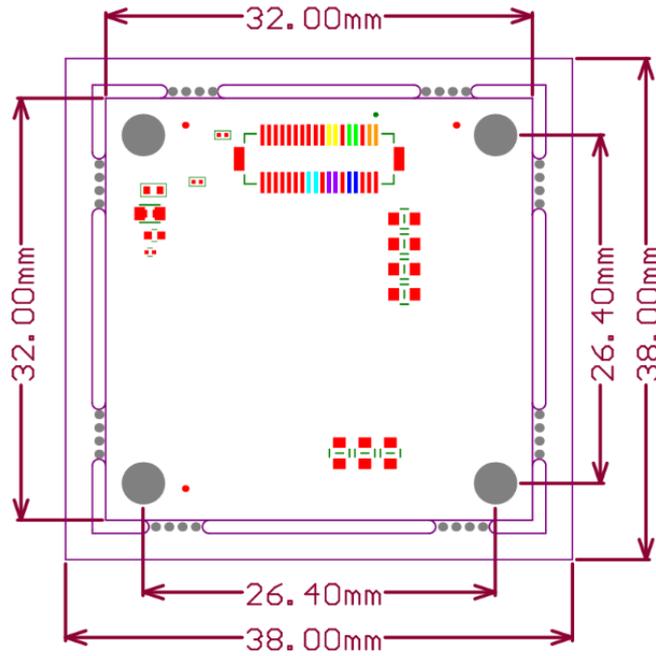
ATR Board 2-Lane Top Side – 2D



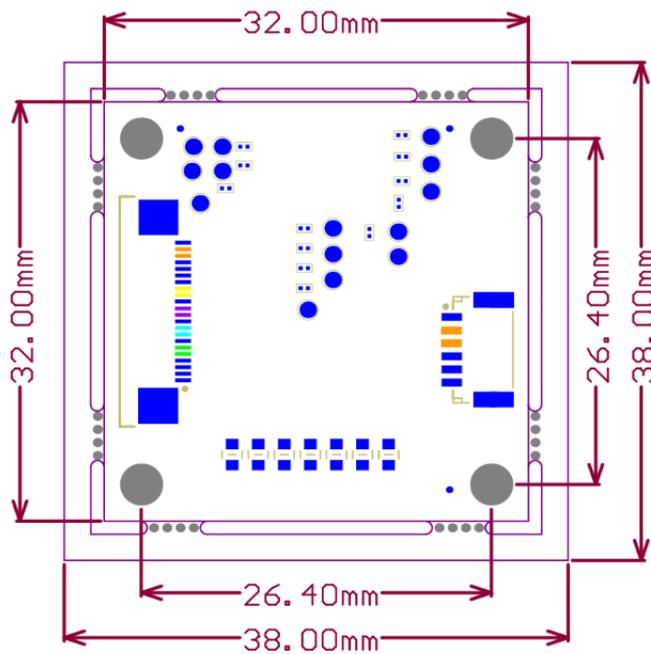
ATR Board 2-Lane Bottom Side – 2D



ATR Board 4-Lane Top Side – 2D



ATR Board 4-Lane Bottom Side – 2D



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