

AR2020 PRISM Module

Prototype 1/1.8-inch 20 MP Module

Advance Information

PRISM1M-AR2020CSSC130110-GEVB

The AR2020 20 MP Premier Reference Image Sensor Module (PRISM) module is part of the **onsemi** PRISM family of modules offering standardized connectors, layout configuration and OTPM protocol. The modules are compatible with Evaluations systems and reference designs offered by **onsemi**. The modules are offered from **onsemi** as prototype modules not meant for customer production shipments. Customer can work with **onsemi** Distribution partners for equivalent mass production versions of these modules.

Table 1. KEY PERFORMANCE PARAMETERS

Parameter	Value
SENSOR	
Sensor Part Number	AR2020CSSC13SMTA0-DP-E
FUNCTIONAL	
Output	Raw
CFA	RGB-Color
Max. fps	37 fps @ 5120 x 3840
Interface	4-lane MIPI D-PHY
MECHANICAL	
Module size X*Y*Z(mm)	17 x 17 x 28.52
OPTICAL	
Optical Format	1/1.8"
Image active resolution	5120 x 3840
Pixel size	1.4 μ m
CRA	12.9° (MAX)
Focus Range	0.3 m to infinity
Hyperfocal Distance	3.457 m
Effective Focal Length (EFL)	4.4 mm
Lens F number	2.0
Lens Structure	2G + 6P
Diagonal Field of View (DFOV)	94°
Vertical Field of View (VFOV)	60°
Horizontal Field of View (HFOV)	80°
TV distortion	< 4.1%
ELECTRICAL	
Supply voltages	VDDIO: 1.8 V (1.7 V < Vsupply < 1.9 V) VDD: 1.05 V (1.00 V < Vsupply < 1.10 V) VAA: 2.8 V (2.6 < Vsupply < 2.9 V)
I2C Pull-up Resistor in Module (Note 1)	No pull-up resistor in module



Applications

- Surveillance Camera
- Video Conferencing
- Machine Vision
- 3D and Stereo Imaging

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Table 1. KEY PERFORMANCE PARAMETERS

Parameter	Value
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PROGRAMMABLE STORAGE

This module has programmable storage.	EEPROM/OTPM is programed per PRISM programming specifications. Please refer to the PRISM Module EEPROM and OTPM Application note (AND9865/D) for more information.
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1. **onsemi** recommends that host sites add a 1.5k pull-up resistor.

Table 2. ORDERING INFORMATION

Part Number	Orderable Product Attribute Description
PRISM1M-AR2020CSSC130110-GEVB	AR2020 20MP 1/1.8" color 13° CRA mPBGA package in PRISM module with 94° DFOV Lens
IAS-ADPTR-DM3D2-GEVB	Adapter Board to Demo3, DevWareX Supported

Table 3. MODULE CONNECTOR PINOUT

Pin Number	Pin Name	Pin Number	Pin Name
1	GPIO1	34	GPI3
2	DGND	33	DGND
3	DGND	32	EXTCLK
4	DATA_P	31	DGND
5	DATA_N	30	DATA_2P
6	DGND	29	DATA_2N
7	CLK_P	28	DGND
8	CLK_N	27	DATA_3P
9	DGND	26	DATA_3N
10	DATA_4P	25	DGND
11	DATA_4N	24	VDD
12	DGND	23	VDD
13	VDDIO	22	SDATA
14	SCLK	21	RESET_N
15	GPIO0	20	GPI2
16	DGND	19	AGND
17	VAA	18	VAA

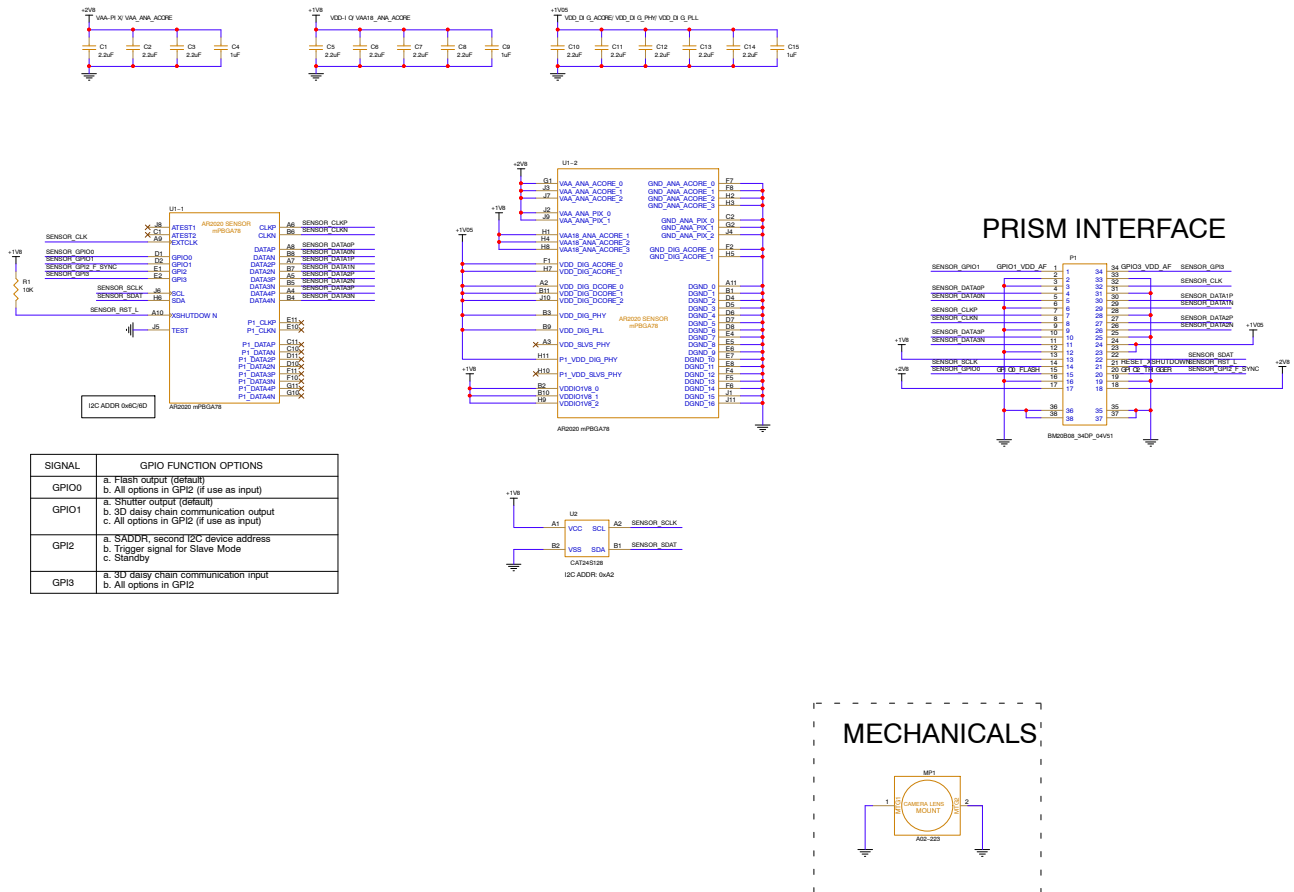


Figure 1. Typical Connections

MODULE CONNECTOR

Part Number	Number of Pins	A	B	C
BM20B(0.8)-34DP-0.4V(51)	Plug	34	0.8 mm	0.4 mm

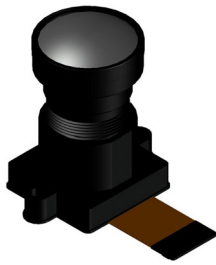


Figure 2.

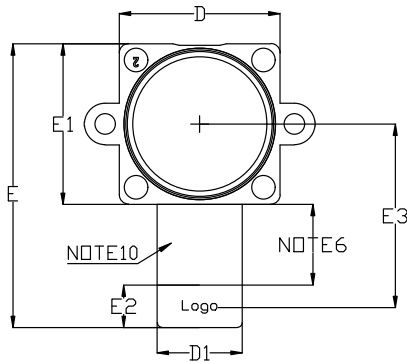
MECHANICAL DIMENSIONS

MODULE34 17.00x30.00x28.52
CASE MODGE
ISSUE O

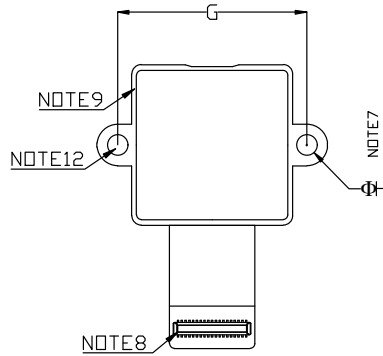
DATE 30 JUN 2023



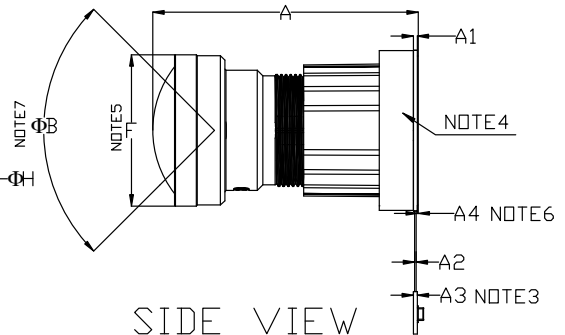
NOTE11



TOP VIEW



BOTTOM VIEW



SIDE VIEW

NOTES:

- 1.DIMENSIONING AND TOLERANCING PER. ASME Y14.5,2009.
- 2.CONTROLLING DIMENSION:MILIMETERS
- 3.RIGID PCB AREA
- 4.RIGID PCB AND HOLDER
- 5.LENS DIAMETER
- 6.FLEXIBLE PRINTED CIRCUIT
- 7.OPTICAL FIELD OF VIEW AT ϕB
- 8.CONNECTOR:BM20B(0.8)-34DP-0.4V(51),34 PINS
- 9.BACKSIDE GROUNDED
- 10.MARK/LABEL AREA 4mmx4mm
- 11.OBJECT ORIENTATION IS DEFINED BY THE IMAGE SHOWN
- 12.Holder HAS 2 PIN HOLES FOR ASSEMBLY ALIGN WITH PCB

DIM	MILLIMETERS		
	MIN.	NOM.	MAX
A	28.37	28.52	28.67
A1	0.35	0.40	0.45
A2	0.10	0.15	0.20
A3	0.35	0.40	0.45
A4	0.10 (REF)		
D	16.85	17.00	17.15
D1	8.80	9.00	9.20
E	29.80	30.00	30.20
E1	16.85	17.00	17.15
E2	4.30	4.50	4.70
E3	19.40 (REF)		
F	16.00 (REF)		
ϕB	90° (REF)		
G	20.00 (REF)		
ϕH	2.20 (REF)		

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