AR0544 PRISM Module

Prototype 1/4.2-inch 5 MP Module

Preliminary Document

PRISM1M-AR0544CSSC130110-G EVB

The AR0544 5 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.

Table 1. KEY PERFORMANCE PARAMETERS

Parameter	Value
SENSOR	
Sensor Part Number	AR0544CSSC33SMD20-E
FUNCTIONAL	
Output	Raw
CFA	RGB-Color
Max. fps	60 fps @ 2592 x 1944
Interface	2-lane MIPI D-PHY
MECHANICAL	
Module size X*Y*Z(mm)	8.5 x 23.5 x 51.5
Module Weight	≈0.4 g
OPTICAL	
Optical Format	1/4.2-inch
Image active resolution	2592 x 1944
Pixel size	1.4 μm
CRA	33.2° (MAX)
Focus Range	0.21 m~INFINITE
Hyperfocal Distance	0.44 m
Effective Focal Length (EFL)	1.64 mm
Lens F number	2.2
Lens Structure	5P
Diagonal Field of View (DFOV)	120°
Vertical Field of View (VFOV)	80.1°
Horizontal Field of View (HFOV)	99.2°
TV distortion	≤ |±10%|

Applications

- Security Camera
- IoT
- Car DVR

This Preliminary document is for informational purposes only. **onsemi** may update or withdraw it without notice. Content and referenced products are under development and subject to change.

Table 1. KEY PERFORMANCE PARAMETERS (continued)

Parameter	Value
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
PROGRAMMABLE STORAGE	
This module has programmable storage.	EEPROM is programed per PRISM programming specifications. OTPM is supported but not programmed. Please refer to the PRISM Module EEPROM and OTPM Application note (AND90264/D) for more information.

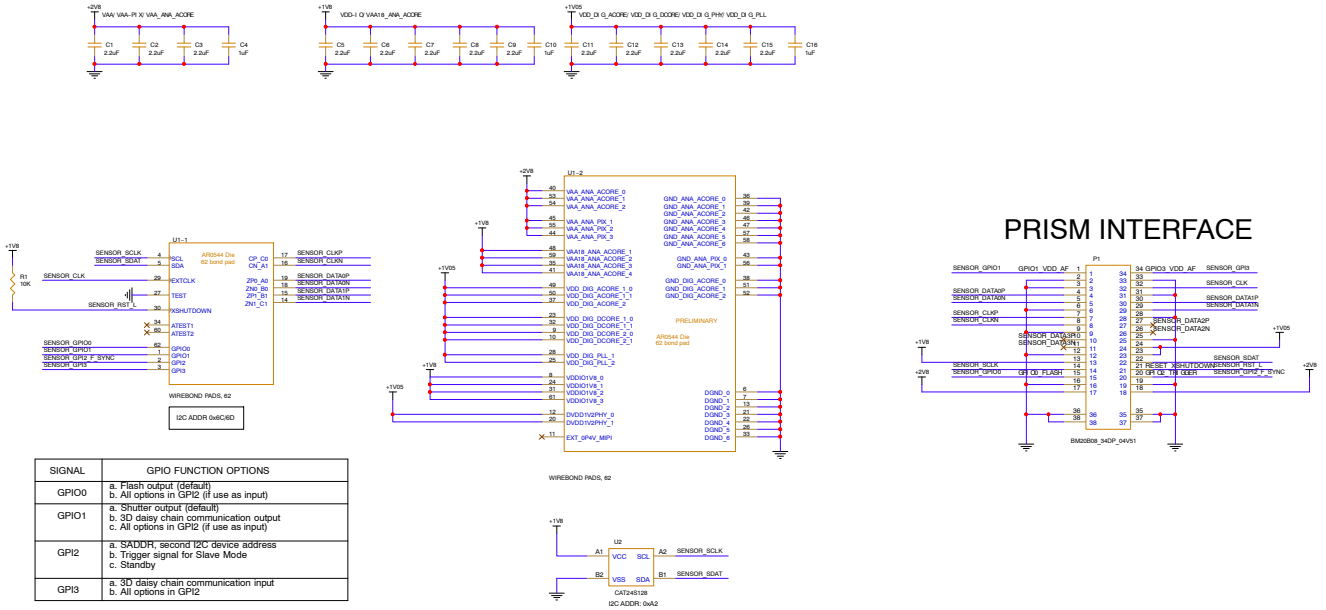
1. **onsemi** recommends that host sites add a 1.5k pull-up resistor.

Table 2. ORDERING INFORMATION

Part Number	Orderable Product Attribute Description
PRISM1M-AR0544CSSC130110-GEVB	AR0544 5 MP 1/4.2” color 33° CRA CSP package in PRISM module with 120.2° DFOV Lens
PRISM1_ADPTR_DM3D1_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_0P	31	DGND
5	DATA_0N	30	DATA_1P
6	DGND	29	DATA_1N
7	CLK_P	28	DGND
8	CLK_N	27	NC
9	DGND	26	NC
10	NC	25	DGND
11	NC	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



SIGNAL	GPIO FUNCTION OPTIONS
GPIO0	a. Flash output (default) b. All options in GPI2 (if use as input)
GPIO1	a. Shutter output (default) b. 3D daisy chain communication output c. All options in GPI2 (if use as input)
GPI2	a. SADDR, second I2C device address b. Trigger signal for Slave Mode c. Standby
GPI3	a. 3D daisy chain communication input b. All options in GPI2

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.

REVISION HISTORY

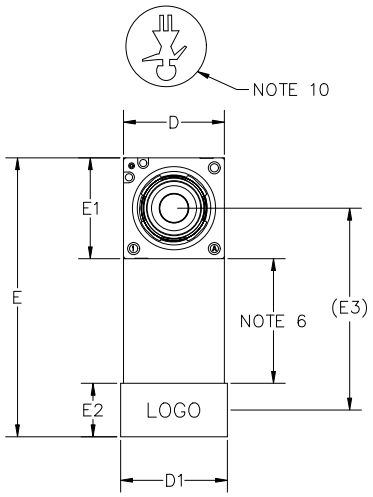
Revision	Description of Changes	Date
P1	Made this document public.	2/26/2026
P2	Added module weight to Table 1.	3/23/2026

This document has undergone updates prior to the inclusion of this revision history table. The changes tracked here only reflect updates made on the noted approval dates.

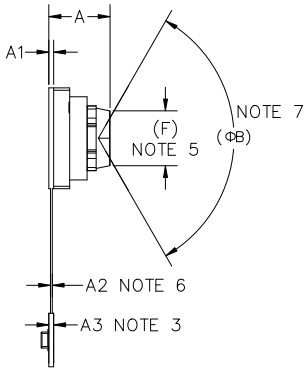
MECHANICAL DIMENSIONS

MODULE−34, 8.50x23.50x5.15
CASE MODGT
ISSUE A

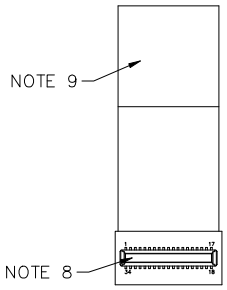
DATE 02 DEC 2025



TOP VIEW



SIDE VIEW



BOTTOM VIEW

NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5, 2018.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. RIGID PCB AREA.
4. RIGID PCB AND HOLDER.
5. LENS TOP 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. OBJECT ORIENTATION IS DEFINED BY THE IMAGE SHOWN.

MILLIMETERS			
DIM	MIN	NOM	MAX
A	5.00	5.15	5.30
A1	0.35	0.40	0.45
A2	0.10	0.15	0.20
A3	0.35	0.40	0.45
D	8.35	8.50	8.65
D1	8.80	9.00	9.20
E	23.30	23.50	23.70
E1	8.35	8.50	8.65
E2	4.30	4.50	4.70
E3	17.00 (REF)		
F	4.60 (REF)		
ΦB	120.20° (REF)		

ADDITIONAL INFORMATION

TECHNICAL PUBLICATIONS:
Technical Library: www.onsemi.com/design/resources/technical−documentation
onsemi Website: www.onsemi.com

ONLINE SUPPORT: www.onsemi.com/support
For additional information, please contact your local Sales Representative at www.onsemi.com/support/sales