

# AR0144 IAS Module

## Prototype 1/4-inch 1.0 Mp Global Shutter Module

### Advance Information

#### IAS1MOD-AR0144CSSM090110-GEVB

The AR0144 1MP IAS module is part of the ON Semiconductor IAS family of modules offering standardized connectors, layout configuration and OTPM protocol. The modules are compatible with Evaluations systems and reference designs offered by ON Semiconductor. The modules are offered from ON Semiconductor as prototype modules not meant for customer production shipments. Customer can work with ON Semiconductor Distribution partners for equivalent mass production versions of these modules.

#### Applications

- Machine Vision
- Robotics
- Smart Building
- Industrial
- Consumer

Table 1. KEY PERFORMANCE PARAMETERS

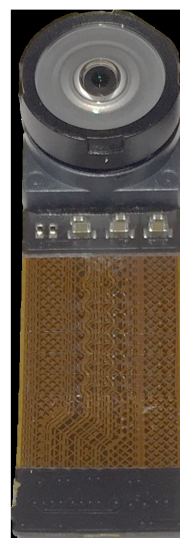
Parameter	Value
<b>SENSOR</b>	
Sensor Part Number	AR0144CSSM28SUD20
<b>FUNCTIONAL</b>	
Output	Raw
CFA	Mono
Max. fps	60 fps @ 1280 x 800
Interface	2-Lane MIPI
<b>MECHANICAL</b>	
Module size X*Y*Z (mm)	9.0 x 30.0 x 6.85
<b>OPTICAL</b>	
Optical Format	1/4"
Image active resolution	1280 (H) x 800 (V) = 1.0 Mp
Pixel size	3.0 $\mu$ m
Focus Range	14 cm~Inf
Hyperfocal Distance	230 mm
Effective Focal Length (EFL)	1.69 mm
Lens F number	2.0
Lens Structure	6P
Diagonal Field of View (DFOV)	150°
Vertical Field of View (VFOV)	79.5°
Horizontal Field of View (HFOV)	127°
TV distortion	$\leq$ 37.2%



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## EVAL BOARD USER'S MANUAL



This document contains information on a new product. Specifications and information herein are subject to change without notice.

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**Table 1. KEY PERFORMANCE PARAMETERS**

Parameter	Value
<b>ELECTRICAL</b>	
Supply voltages	VDDIO: 1.8 V or 2.8 V VDD: 1.2 V VAA: 2.8 V
I2C Pull-up Resistor in Module (Note 1)	2.2k
<b>PROGRAMMABLE STORAGE</b>	
This module has programmable storage.	EEPROM/OTPM is programmed per IAS programming specifications. Please refer to the IAS Module EEPROM and OTPM Application note (AND9865/D) for more information.

1. ON Semiconductor recommends that host sites add a 1.5K pull-up resistor.

**Table 2. ORDERING INFORMATION**

Part Number	Orderable Product Attribute Description
IAS1MOD-AR0144CSSM090110-GEVB	AR0144 1MP 1/4" Mono 28° CRA Die in IAS module with 150° DFOV Lens
IAS1-ADPTR-DM3D1-GEVB	Adapter Board to Demo3, DevWareX Supported

**Table 3. MODULE CONNECTOR PINOUT**

Pin Number	Pin Name	Pin Number	Pin Name
1	VPP	34	SADDR
2	GND	33	GND
3	GND	32	EXTCLK
4	DATA_1P	31	GND
5	DATA_1N	30	DATA_2P
6	GND	29	DATA_2N
7	CLK_P	28	GND
8	CLK_N	27	NC
9	GND	26	NC
10	NC	25	GND
11	NC	24	VDD
12	GND	23	VDD
13	VDDIO	22	SDATA
14	SCLK	21	RESET
15	FLASH	20	TRIGGER
16	GND	19	GND
17	VAA	18	VAA

# IAS1MOD-AR0144CSSM090110-GEVB

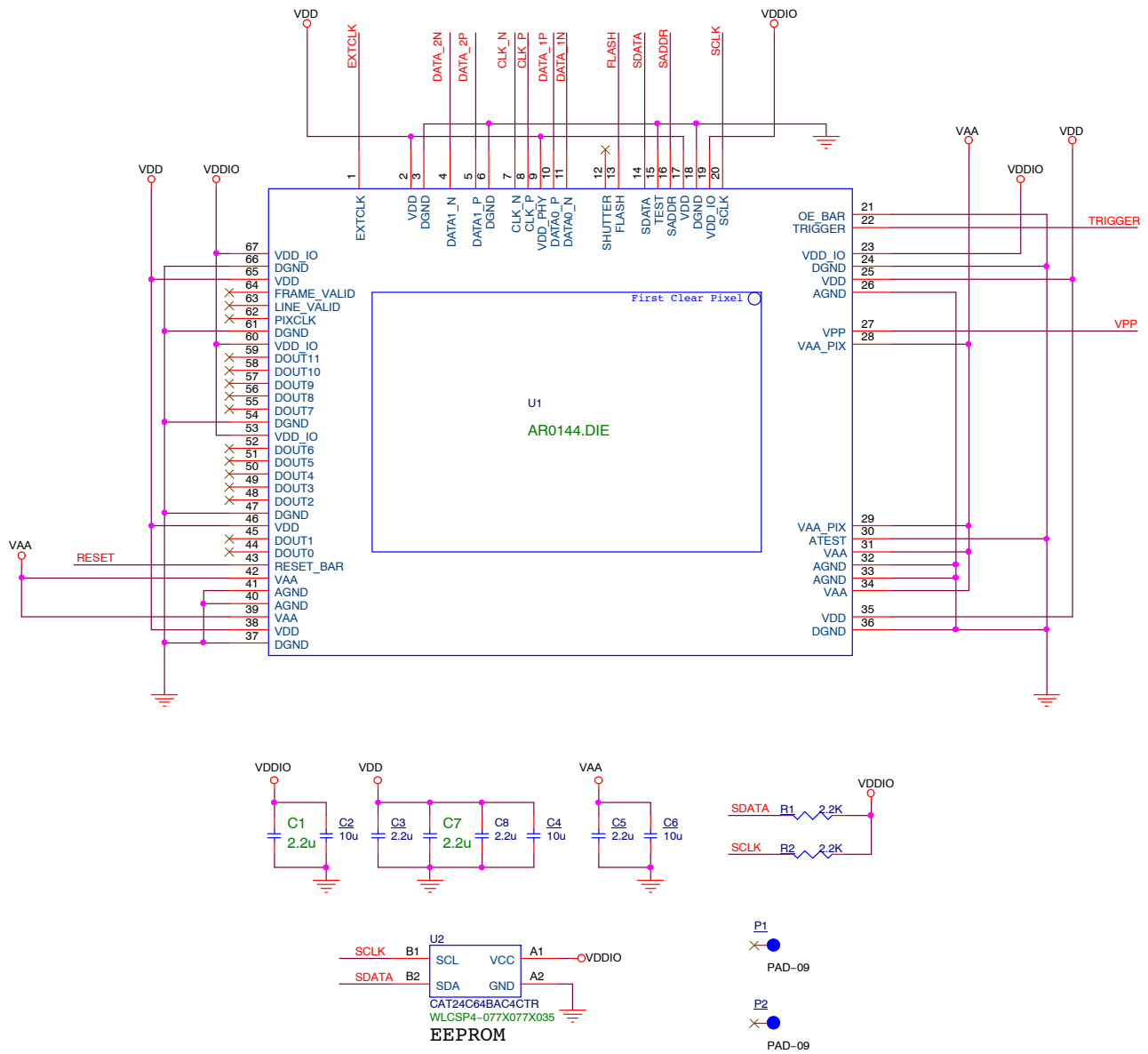


Figure 1. Typical Connections

# IAS1MOD-AR0144CSSM090110-GEVB

## MODULE CONNECTOR

Part Number	Number of Pins	A	B	C
BM20B(0.8)-34DP-0.4V(51)	34	9.28	6.4	8.82

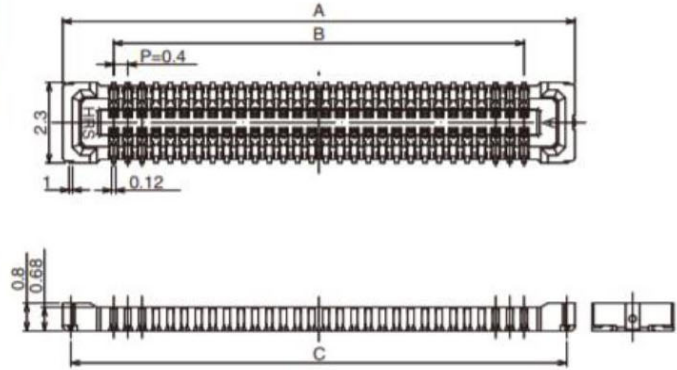
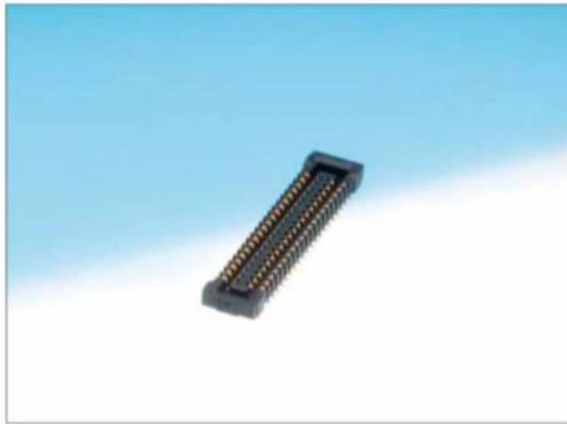


Figure 2.

# IAS1MOD-AR0144CSSM090110-GEVB

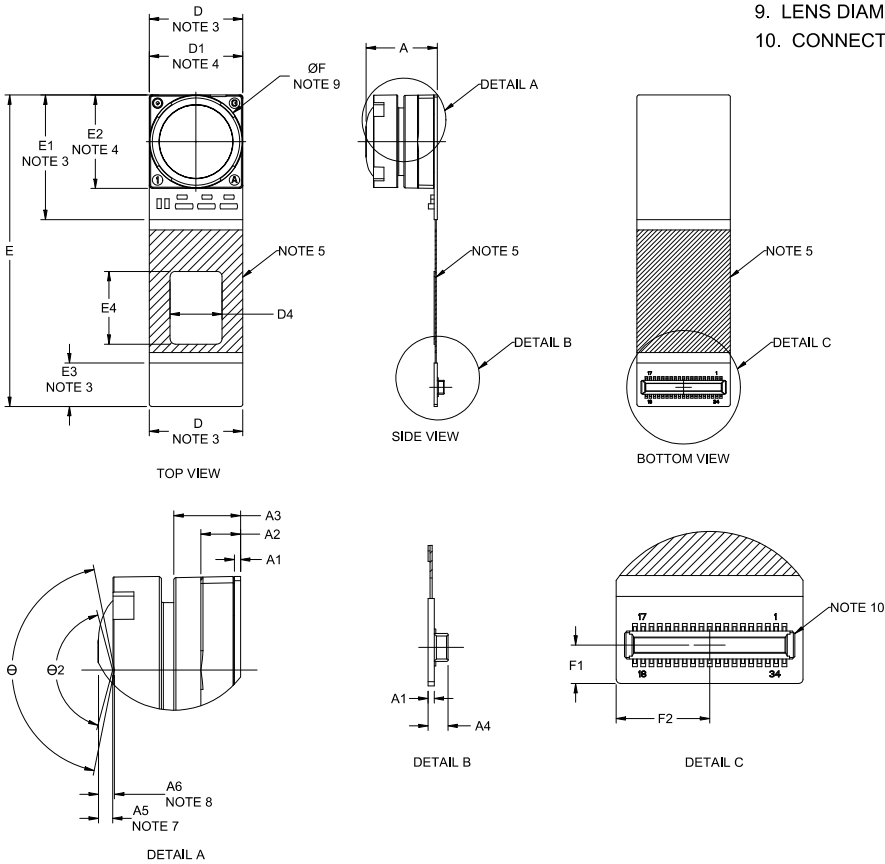
## PACKAGE DIMENSIONS

MODULE34 9x30  
CASE MODGS  
ISSUE O

DATE 09 APR 2019

NOTES:

1. DIMENSIONING AND TOLERANCING PER. ASME Y14.5M, 2009.
2. CONTROLLING DIMENSION: MILLIMETERS
3. PCB AREA
4. HOLDER
5. BENDING AREA
6. DIMENSIONS D4 AND E4 DENOTE LABEL AREA
7. OPTICAL FIELD OF VIEW START POINT  
 $\Theta$  - OPTICAL FIELD OF VIEW
8. MECHANICAL FIELD OF VIEW START POINT  
 $\Theta_2$  - MECHANICAL FIELD OF VIEW
9. LENS DIAMETER
10. CONNECTOR: HRS BM20B(0.8)-34DP-0.4V(51)



DIM	MILLIMETERS		
	MIN.	NOM.	MAX.
A	6.70	6.85	7.00
A1	0.25	0.30	0.35
A2	1.76	1.91	2.06
A3	3.06	3.21	3.36
A4	0.96 REF		
A5	1.33	1.38	1.43
A6	1.51	1.56	1.61
D	8.85	9.00	9.15
D1	8.95	9.00	9.05
D4	5.0 REF		
E	29.85	30.00	30.15
E1	12.0 REF		
E2	8.95	9.00	9.05
E3	4.2 REF		
E4	7.0 REF		
F	8.90	9.00	9.10
F1	1.85 REF		
F2	4.50 REF		
$\Theta$	150°		
$\Theta_2$	157°		

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