

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

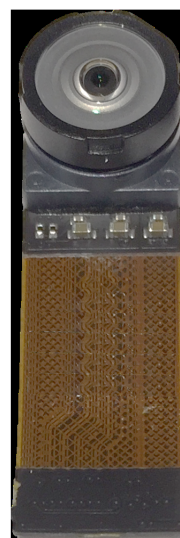
Parameter	Value
SENSOR	
Sensor Part Number	AR0144CSSM28SUD20
FUNCTIONAL	
Output	Raw
CFA	Mono
Max. fps	60 fps @ 1280 x 800
Interface	2-Lane MIPI
MECHANICAL	
Module size X*Y*Z (mm)	9.0 x 30.0 x 6.85
OPTICAL	
Optical Format	1/4"
Image active resolution	1280 (H) x 800 (V) = 1.0 Mp
Pixel size	3.0 μ m
Focus 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%



ON Semiconductor®

www.onsemi.com

EVAL BOARD USER'S MANUAL



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

IAS1MOD-AR0144CSSM090110-GEVB

Table 1. KEY PERFORMANCE PARAMETERS

Parameter	Value
ELECTRICAL	
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
PROGRAMMABLE STORAGE	
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

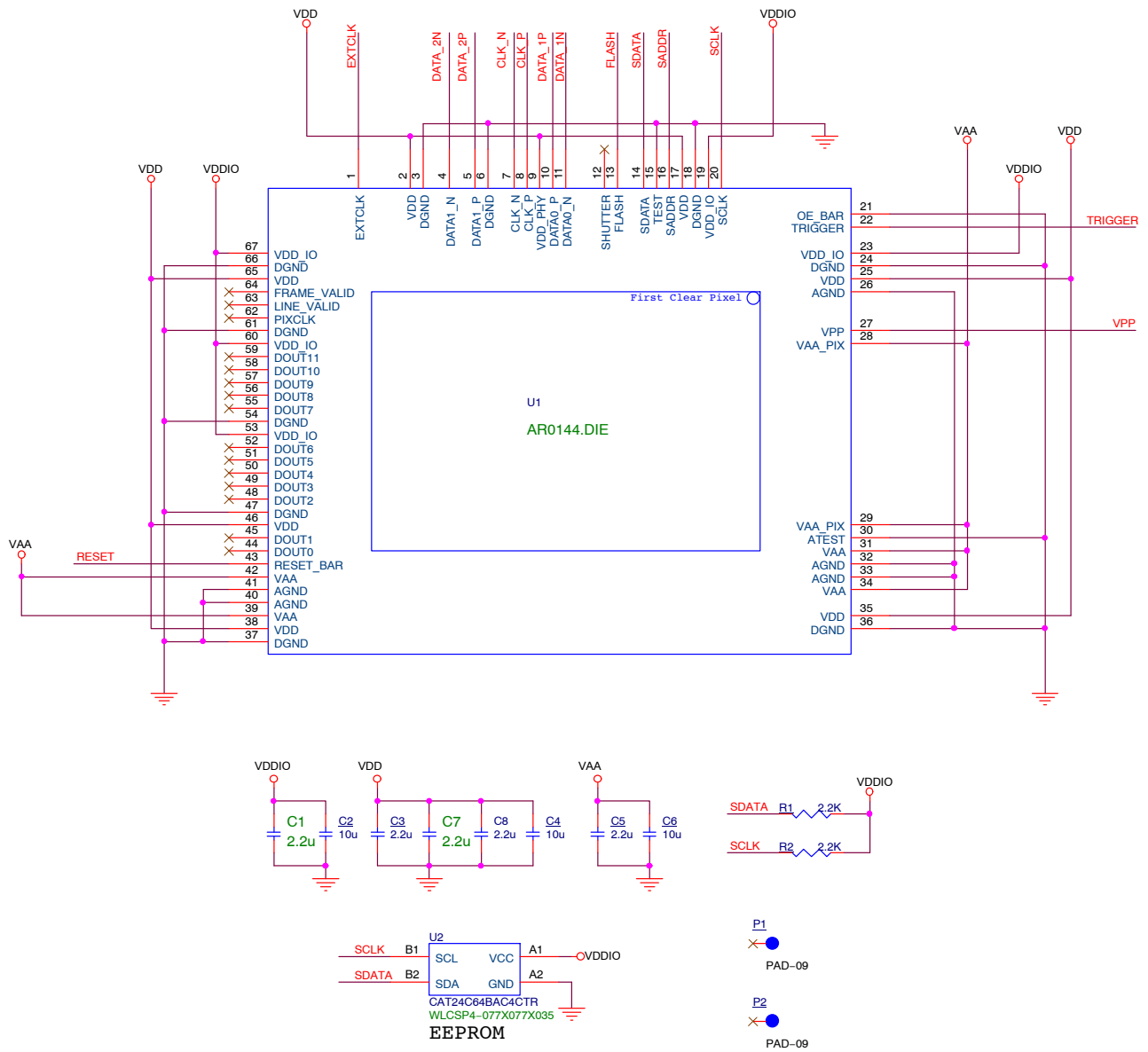


Figure 1. Typical Connections

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

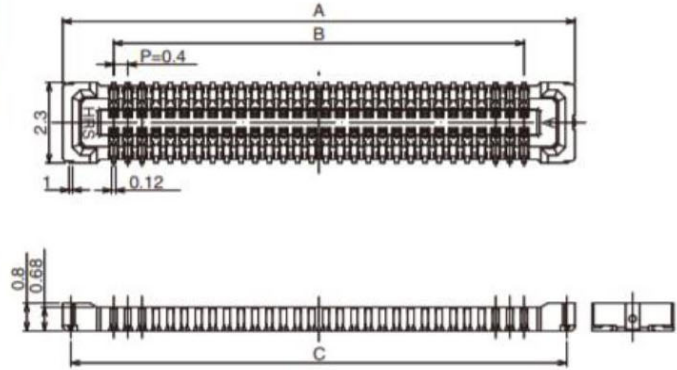
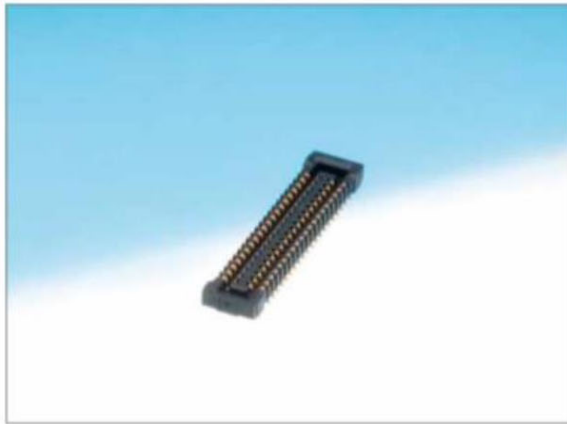


Figure 2.

IAS1MOD-AR0144CSSM090110-GEVB

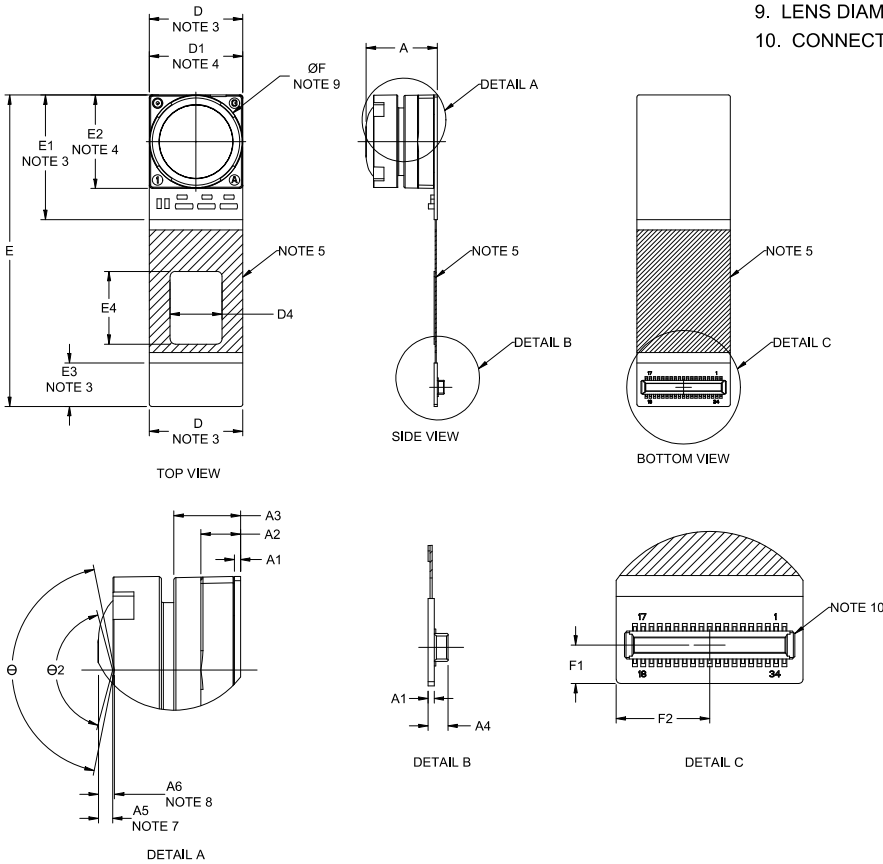
PACKAGE DIMENSIONS

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
 Θ - OPTICAL FIELD OF VIEW
8. MECHANICAL FIELD OF VIEW START POINT
 Θ_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		
Θ	150°		
Θ_2	157°		

onsemi, **Onsemi**, and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "**onsemi**" or its affiliates and/or subsidiaries in the United States and/or other countries. **onsemi** owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of **onsemi**'s product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. **onsemi** is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

The evaluation board/kit (research and development board/kit) (hereinafter the "board") is not a finished product and is not available for sale to consumers. The board is only intended for research, development, demonstration and evaluation purposes and will only be used in laboratory/development areas by persons with an engineering/technical training and familiar with the risks associated with handling electrical/mechanical components, systems and subsystems. This person assumes full responsibility/liability for proper and safe handling. Any other use, resale or redistribution for any other purpose is strictly prohibited.

THE BOARD IS PROVIDED BY ONSEMI TO YOU "AS IS" AND WITHOUT ANY REPRESENTATIONS OR WARRANTIES WHATSOEVER. WITHOUT LIMITING THE FOREGOING, ONSEMI (AND ITS LICENSORS/SUPPLIERS) HEREBY DISCLAIMS ANY AND ALL REPRESENTATIONS AND WARRANTIES IN RELATION TO THE BOARD, ANY MODIFICATIONS, OR THIS AGREEMENT, WHETHER EXPRESS, IMPLIED, STATUTORY OR OTHERWISE, INCLUDING WITHOUT LIMITATION ANY AND ALL REPRESENTATIONS AND WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE, NON-INFRINGEMENT, AND THOSE ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE CUSTOM OR TRADE PRACTICE.

onsemi reserves the right to make changes without further notice to any board.

You are responsible for determining whether the board will be suitable for your intended use or application or will achieve your intended results. Prior to using or distributing any systems that have been evaluated, designed or tested using the board, you agree to test and validate your design to confirm the functionality for your application. Any technical, applications or design information or advice, quality characterization, reliability data or other services provided by **onsemi** shall not constitute any representation or warranty by **onsemi**, and no additional obligations or liabilities shall arise from **onsemi** having provided such information or services.

onsemi products including the boards are not designed, intended, or authorized for use in life support systems, or any FDA Class 3 medical devices or medical devices with a similar or equivalent classification in a foreign jurisdiction, or any devices intended for implantation in the human body. You agree to indemnify, defend and hold harmless **onsemi**, its directors, officers, employees, representatives, agents, subsidiaries, affiliates, distributors, and assigns, against any and all liabilities, losses, costs, damages, judgments, and expenses, arising out of any claim, demand, investigation, lawsuit, regulatory action or cause of action arising out of or associated with any unauthorized use, even if such claim alleges that **onsemi** was negligent regarding the design or manufacture of any products and/or the board.

This evaluation board/kit does not fall within the scope of the European Union directives regarding electromagnetic compatibility, restricted substances (RoHS), recycling (WEEE), FCC, CE or UL, and may not meet the technical requirements of these or other related directives.

FCC WARNING – This evaluation board/kit is intended for use for engineering development, demonstration, or evaluation purposes only and is not considered by **onsemi** to be a finished end product fit for general consumer use. It may generate, use, or radiate radio frequency energy and has not been tested for compliance with the limits of computing devices pursuant to part 15 of FCC rules, which are designed to provide reasonable protection against radio frequency interference. Operation of this equipment may cause interference with radio communications, in which case the user shall be responsible, at its expense, to take whatever measures may be required to correct this interference.

onsemi does not convey any license under its patent rights nor the rights of others.

LIMITATIONS OF LIABILITY: **onsemi** shall not be liable for any special, consequential, incidental, indirect or punitive damages, including, but not limited to the costs of requalification, delay, loss of profits or goodwill, arising out of or in connection with the board, even if **onsemi** is advised of the possibility of such damages. In no event shall **onsemi**'s aggregate liability from any obligation arising out of or in connection with the board, under any theory of liability, exceed the purchase price paid for the board, if any.

The board is provided to you subject to the license and other terms per **onsemi**'s standard terms and conditions of sale. For more information and documentation, please visit www.onsemi.com.

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