

# AR0144CS IAS Module

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

### Advance Information

#### IAS1MOD-AR0144CSSM080210

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)           | 9.5 x 24.8 x 3.91                                 |
| <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                     | 24 cm~Inf                                         |
| Hyperfocal Distance             | 50 cm                                             |
| Effective Focal Length (EFL)    | 2.48 mm                                           |
| Lens F number                   | 2.2                                               |
| Lens Structure                  | 4P                                                |
| Diagonal Filed of View (DFOV)   | 84.1°                                             |
| Vertical Field of View (VFOV)   | 51.2°                                             |
| Horizontal Field of View (HFOV) | 75.0°                                             |
| TV distortion                   | ≤1.0%                                             |
| <b>ELECTRICAL</b>               |                                                   |
| Supply voltages                 | VDDIO: 1.8 V or 2.8 V<br>VDD: 1.2 V<br>VAA: 2.8 V |



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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>                       |                                                                                                                                                                 |
| 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.

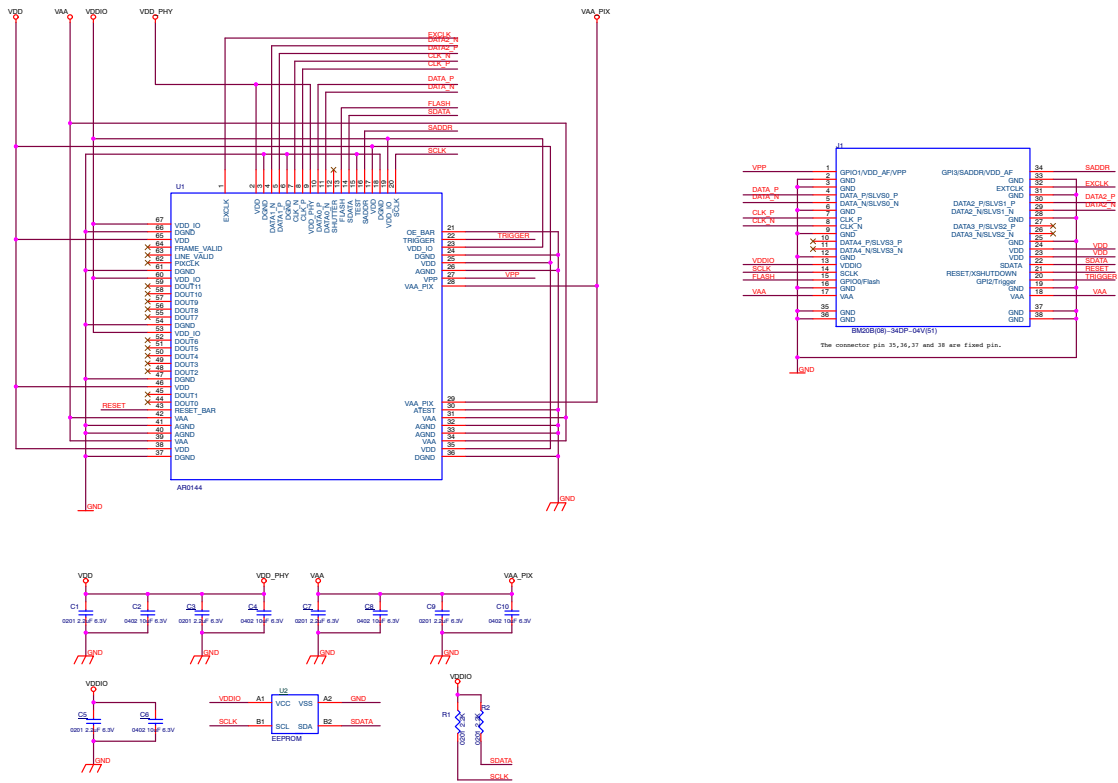
**Table 2. ORDERING INFORMATION**

| Part Number                   | Orderable Product Attribute Description                             |
|-------------------------------|---------------------------------------------------------------------|
| IAS1MOD-AR0144CSSM080210-GEVB | AR0144 1MP 1/4" Mono 28° CRA Die in IAS module with 84.1° 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-AR0144CSSM080210**



### Figure 1. Typical Connections

MODULE CONNECTOR

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

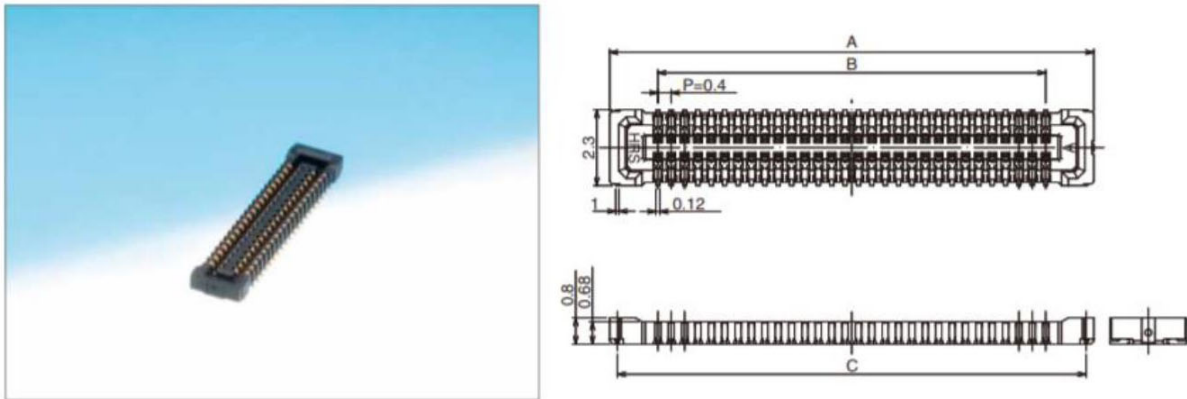
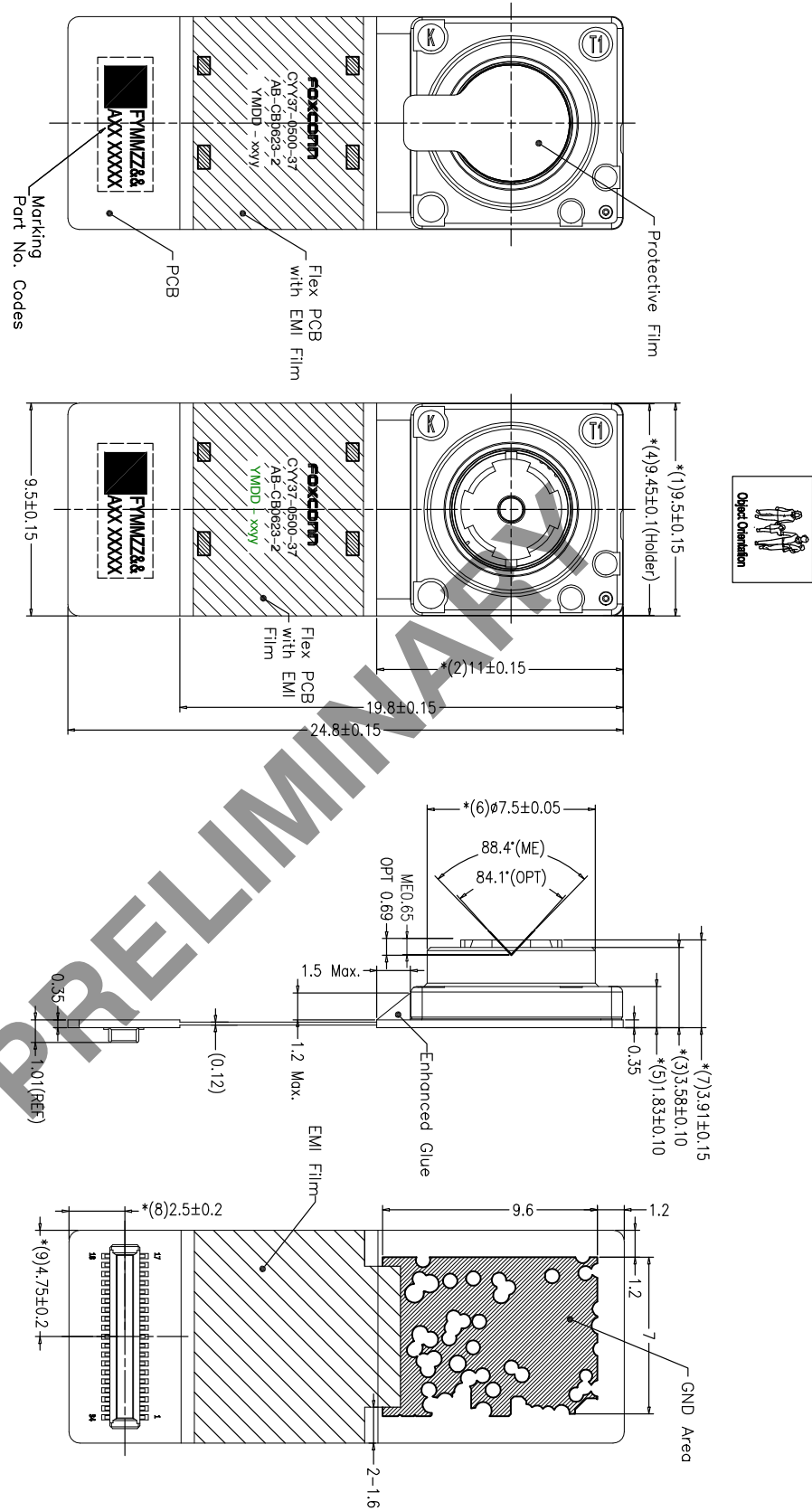


Figure 2.

MECHANICAL DIMENSIONS



NOTES:

1. SYMBOL \* ( ) IS THE CRITICAL DIMENSION.
2. THE FPCB FINGER DIMENSIONS FOLLOW CONNECTOR SPECIFICATION.
3. CONNECTOR: HRS BM208(0.8)-34DP-0.4V(51)
4. SENSOR: ON SEMICONDUCTOR AR-0144CS 1M HD MONO.
5. LENS: EP-D432-F05

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