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MEM-3220 Datasheet HDR Camera Module

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Revision History

Date	Rev.	Contents
2018/03/12	V1.0	First release



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1. Preface

This documentation describes product specifications to ensure design to meet customer's requirements.

MEM-3220-B66-S2-TC0 is an USB Video Class (UVC) compliant camera module with video feature, designed for portable notebook PC image applications. It is made up of the following components, CMOS sensor(AR0230CS), lens, holder, backend, PCB, image processing circuit and connector, to come out a digital video device. It shall be a reliable device which is embedded in notebook PC to transfer video data through USB interface to notebook PC.

The ON Semiconductor's AR0230CS is a 1/2.7-inch CMOS digital image sensor with an active-pixel array of 1928Hx1088V. It captures images in either linear or high dynamic range(HDR) modes, with a rolling-shutter readout.

The HDR scheme used is multi-exposure HDR. This allows the sensor to handle up to 96 dB of dynamic range. In HDR mode, the sensor sequentially captures two exposures by maintaining two separate read and reset pointers that are interleaved within the rolling shutter readout.

MEM-3220-B66-S2-TC0 not only offers up to Full HD resolution (1920X1080) for image applications to take still image, but also offers video stream for end user to preview/record motion image through USB 2.0 interface. And It can support VGA (300K, 640x480) resolution up to 30 fps at YUY2 mode, 1080P resolution (1920x1080) up to 30fps at MJPG mode.

MEM-3220-B66-S2-TC0 builds in AE, AWB and AGC for automatic image control supported by CMOS sensor. For image quality control, it also offers UVC standardized User Interface (UI) to let end user well tune image by property page.



2. Features

- Compliant to USB2.0 and USB 1.1 Video Class
- Support still image capture and Video Streaming
- Still Image Resolution : 2.1M pixel(1920x1080)
- Window image statistics collection for AE and AWB
- Superior low-light performance
- High dynamic range capture
- Input Voltage: standard 5V

3. Applications

- Notebook PC
- LCD PC
- LCD Monitor
- Industrial PC



4. Key Specification

Module Specification		
Size(LWH/mm)	38.0 x 38.0 x 17.6±0.2 mm (include PCB Thickness)	
PCB Thickness	1.6 mm	
Output Interface	USB 2.0	
Image/Video Format	YUY2 & MJPG	
Output size	VGA	640x480
	HD	1280x720
	UXGA	1920x1080
Video Class Compliant	YES	
Input Voltage	5V	
Operating Temperature	-30°C to +70°C	

Max Frame Rates (fps)			
	640×480	1280×720	1920×1080
YUY2	30	8	5
MJPG	30	30	25

Backend IC Specification	
Type	Backend IC with USB2.0 interface
Compatibility	USB Video class Compliant, Microsoft WHQL Certified
Support Sensor Size	Support to 3M(2048x1536) sensor
OS Supported	Win7, Win8, Win10

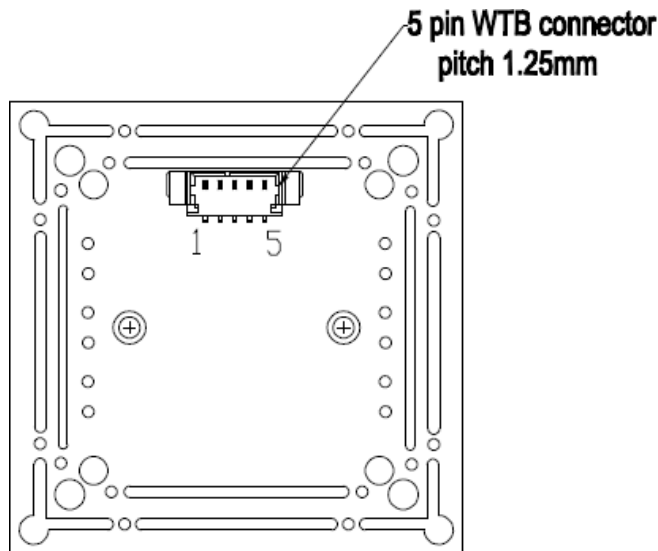
Sensor Specification	
Optical format	1/2.7-inch Full HD CMOS Sensor
Active resolution	1920H×1080V
Unit pixel size	3.0µm x 3.0µm



Lens Specification	
F/No.	2.45 ± 5%
Field of View	95.8° (Diagonal) 87.8° (Horizontal) 57.2° (Vertical)
Focus Distance	80cm

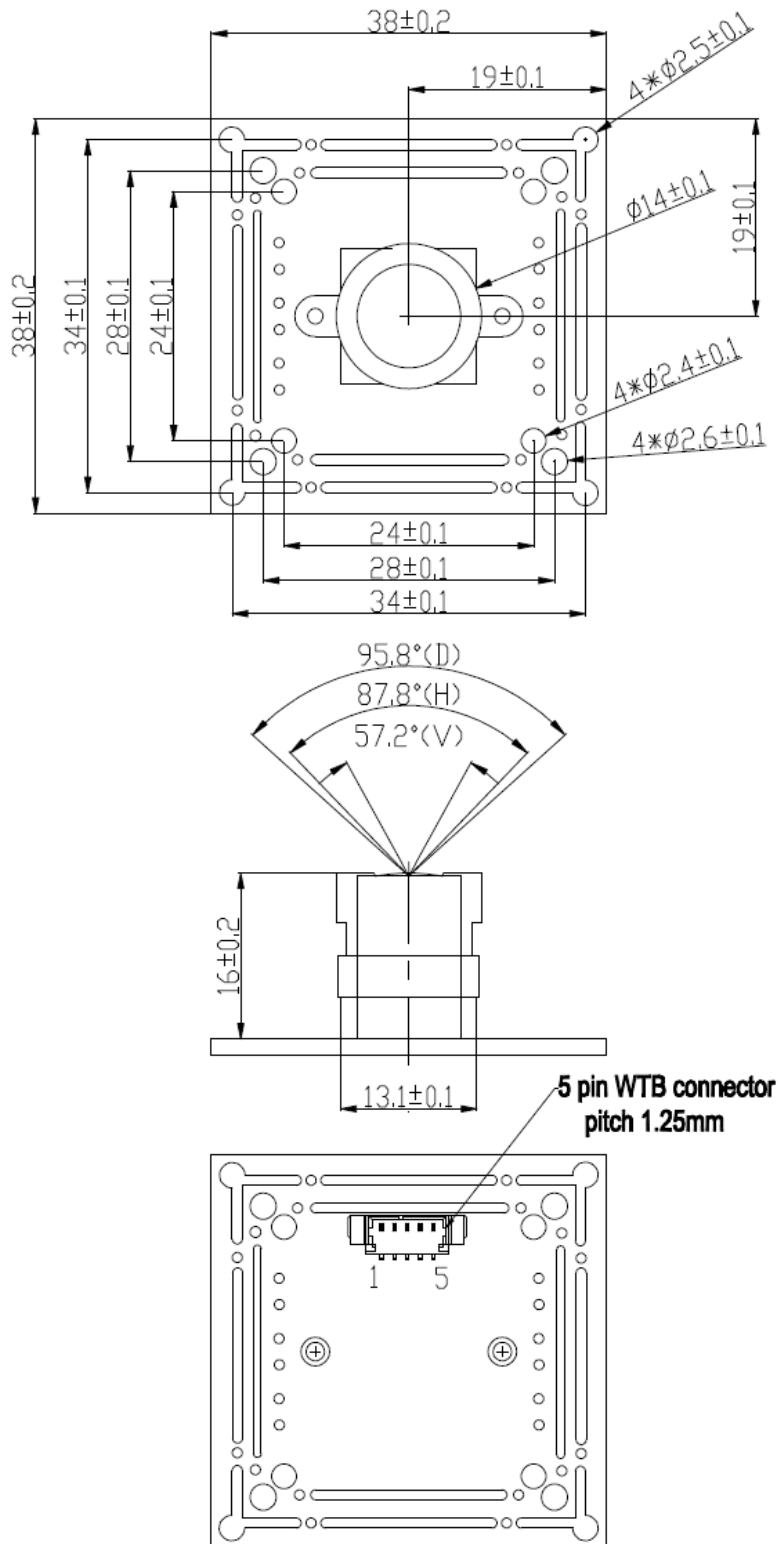
5. Pin Description

Pin Description			
Pin Number	Name	Pin Type	Function Description
1	VCC	Power	USB Power Supply 5.0V
2	D-	Data Pin	USB Data Transmission
3	D+	Data Pin	USB Data Transmission
4	GND	GND	System Ground
5	GND	GND	System Ground



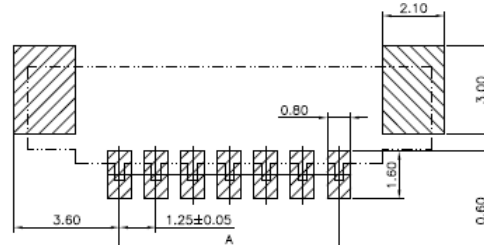
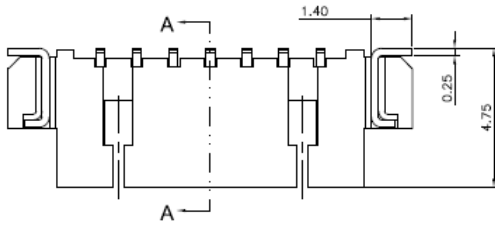


6. Outline Specification

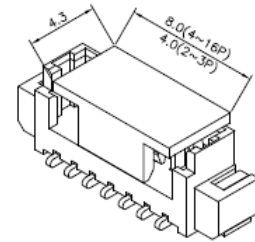
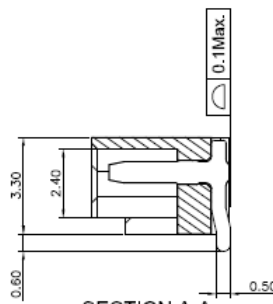
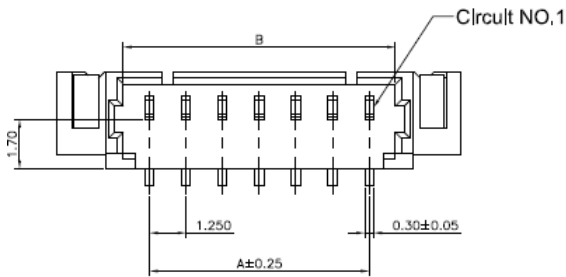




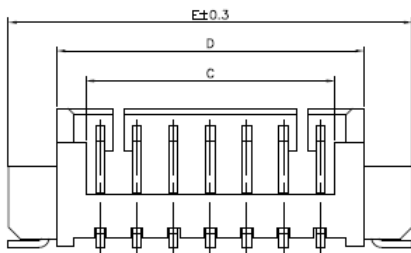
7. Connector Specification



Recommended P.C. Board Layout



WITH CAP VIEW



CTK	DIMENSIONS				
	A	B	C	D	E Δ
2	1,25	3,05	2,25	4,25	7,25
3	2,50	4,30	3,50	5,50	8,50
4	3,75	5,55	4,75	6,75	9,75
5	5,00	6,80	6,00	8,00	11,00
6	6,25	8,05	7,25	9,25	12,25
7	7,50	9,30	8,50	10,50	13,50
8	8,75	10,55	9,75	11,75	14,75
9	10,00	11,80	11,00	13,00	16,00
10	11,25	13,05	12,25	14,25	17,25
11	12,50	14,30	13,50	15,50	18,50
12	13,75	15,55	14,75	16,75	19,75
13	15,00	16,80	16,00	18,00	21,00
14	16,25	18,05	17,25	19,25	22,25
15	17,50	19,30	18,50	20,50	23,50
16	18,75	20,55	19,75	21,75	24,75