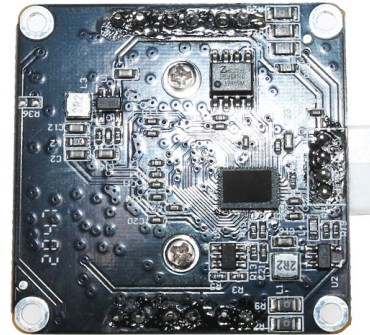
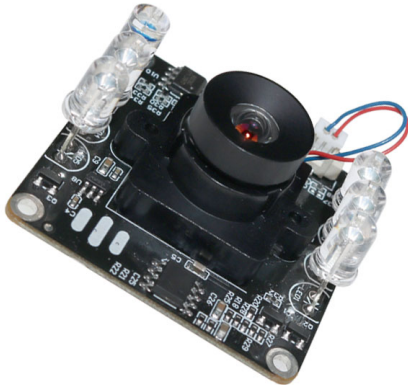


**YDS-USB-0606 V1****2.1MP OnSemi AR0230 M12 Fixed Focus LED USB 2.0 Camera Module**

YDS-USB-0606 V1 is a 2.1MP Fixed Focus USB camera module based on 1/2.7" AR0230 image sensor. It delivers high-speed, 2K resolution ultra sharp image.

The S-mount (M12) lens holder enables customers to choose different lens as per varies applications. This camera module is ideal solution for face recognition, identity detection, automotive, access control.

### Key Features

- 2K resolution (1920 x 1080) OnSemi AR0230 sensor
- High speed USB 2.0 Plug and Play
- MJPG and YUV2 output format
- Low power consumption
- Compact size
- UVC compliant to Windows, Linux, OS with UVC driver
- USB OTG (On-The-Go) support



# YDS CAMERA MODULE

*your best camera partner*

## YDS-USB-0606 V1

### 2.1MP OnSemi AR0230 M12 Fixed Focus LED USB 2.0 Camera Module

|                         |  |
|-------------------------|--|
| Camera Module No.       | YDS-USB-0606 V1  |
| Resolution              | 2.1MP  |
| Image Sensor            | AR0230   |
| Sensor Type             | 1/2.7"   |
| Pixel Size              | 3.0 um x 3.0 um  |
| EFL                     | 3.20 mm  |
| F.NO                    | 2.50   |
| Pixel                   | 1920 x 1080  |
| View Angle              | 96°(DFOV) 85°(HFOV) 50°(VFOV)  |
| Lens Dimensions         | 18.65 x 20.30 x 16.40 mm   |
| Module Type             | Fixed Focus  |
| Lens Model              | YDS-LENS-0606 V1   |
| Interface               | USB 2.0  |
| Output Format           | MJPEG / YUV2   |
| Auto Control            | Saturation, Contrast, Acutance<br>White Balance, Exposure  |
| Audio                   | None   |
| Input Voltage           | DC 5V  |
| Working Current         | Max 500mA  |
| PCB Size                | 38 x 38 mm   |
| System Compatibility    | Windows XP (SP2, SP3), Vista, 7, 8, 10, 11<br>Android, Mac OS, Linux or OS with UVC Driver<br>Raspberry Pi by USB Port |
| Software for USB Camera | AMCAP, Webcam Viewer, V4L2 Controls<br>Contacam, VLC Player, MotionEye OS<br>iSpy, ZoneMider, Yawcam                   |
| Lens Type               | 650nm IR Cut   |
| Operating Temperature   | -30°C to +85°C   |
| USB Cable               | YDS-Cable-U020   |

Wide Compatibility with Windows, Android, Mac OS, Linux, or Raspberry Pi



Windows®



Android



Mac OS



Linux



Raspberry Pi

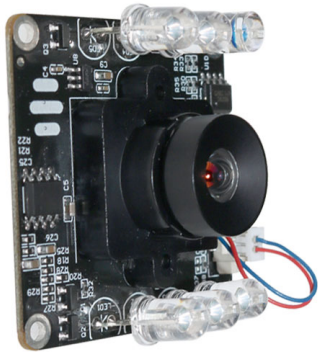
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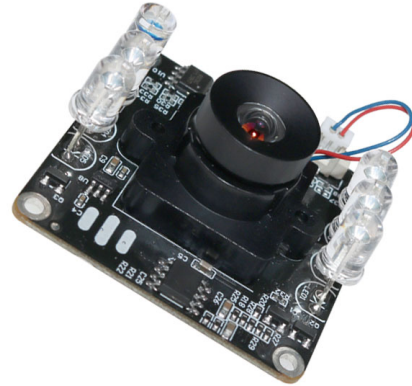


## YDS-USB-0606 V1

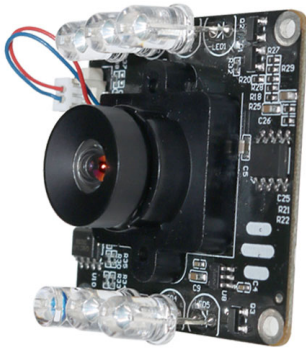
### 2.1MP OnSemi AR0230 M12 Fixed Focus LED USB 2.0 Camera Module



Top View



Side View



Bottom View



Mating Connector

## YDS-USB-0606 V1

### 2.1MP OnSemi AR0230 M12 Fixed Focus LED USB 2.0 Camera Module

| FORMAT | RESOLUTION          | FRAME RATE |
|--------|---------------------|------------|
|        |                     | USB 2.0    |
| MJPG   | 640 x 480 (VGA)     | 25 FPS     |
|        | 1280 x 720 (720P)   | 25 FPS     |
|        | 1920 x 1080 (1080P) | 25 FPS     |
| YUY2   | 640 x 480 (VGA)     | 25 FPS     |
|        | 1280 x 720 (720P)   | 10 FPS     |
|        | 1920 x 1080 (1080P) | 5 FPS      |





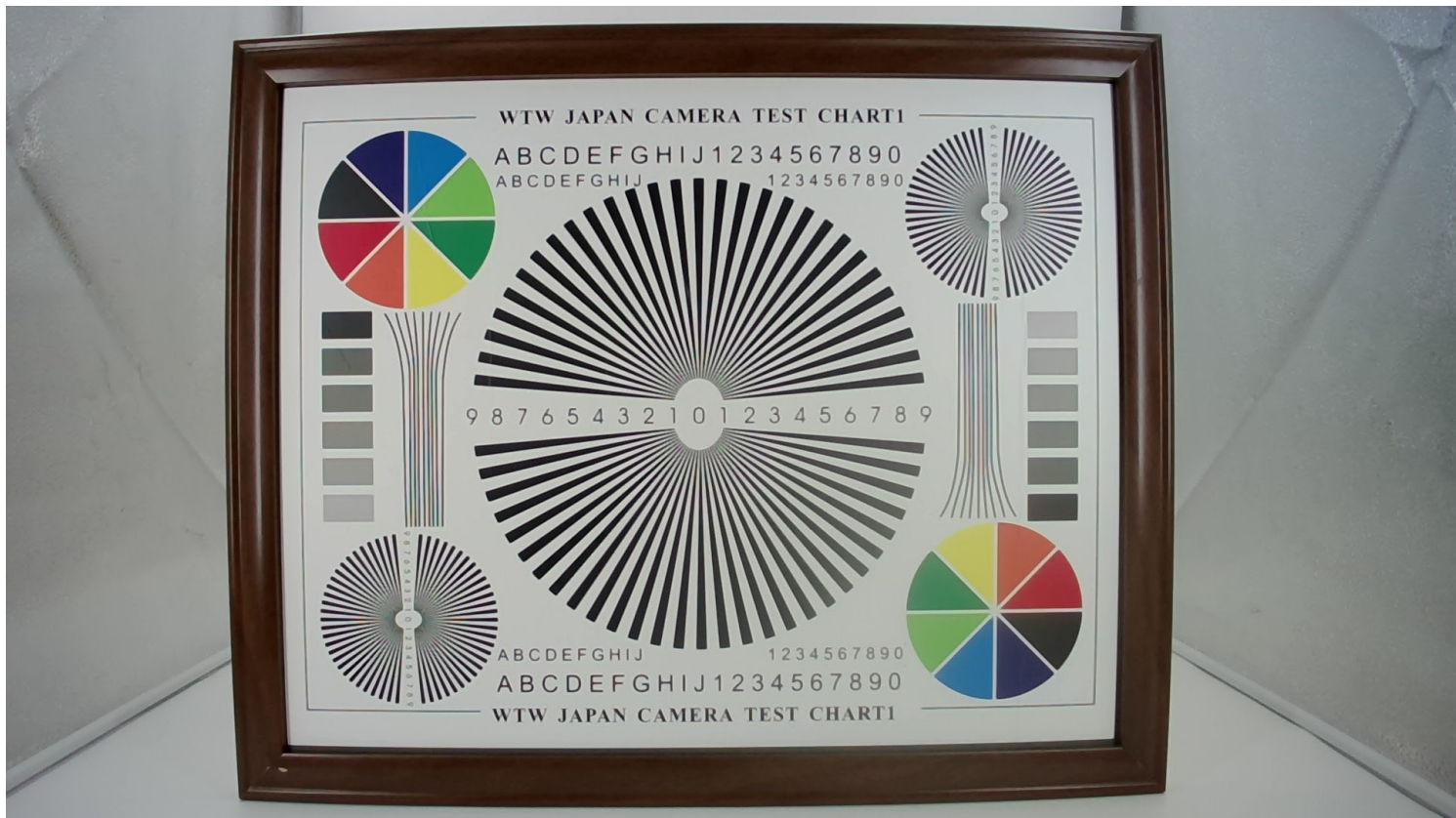
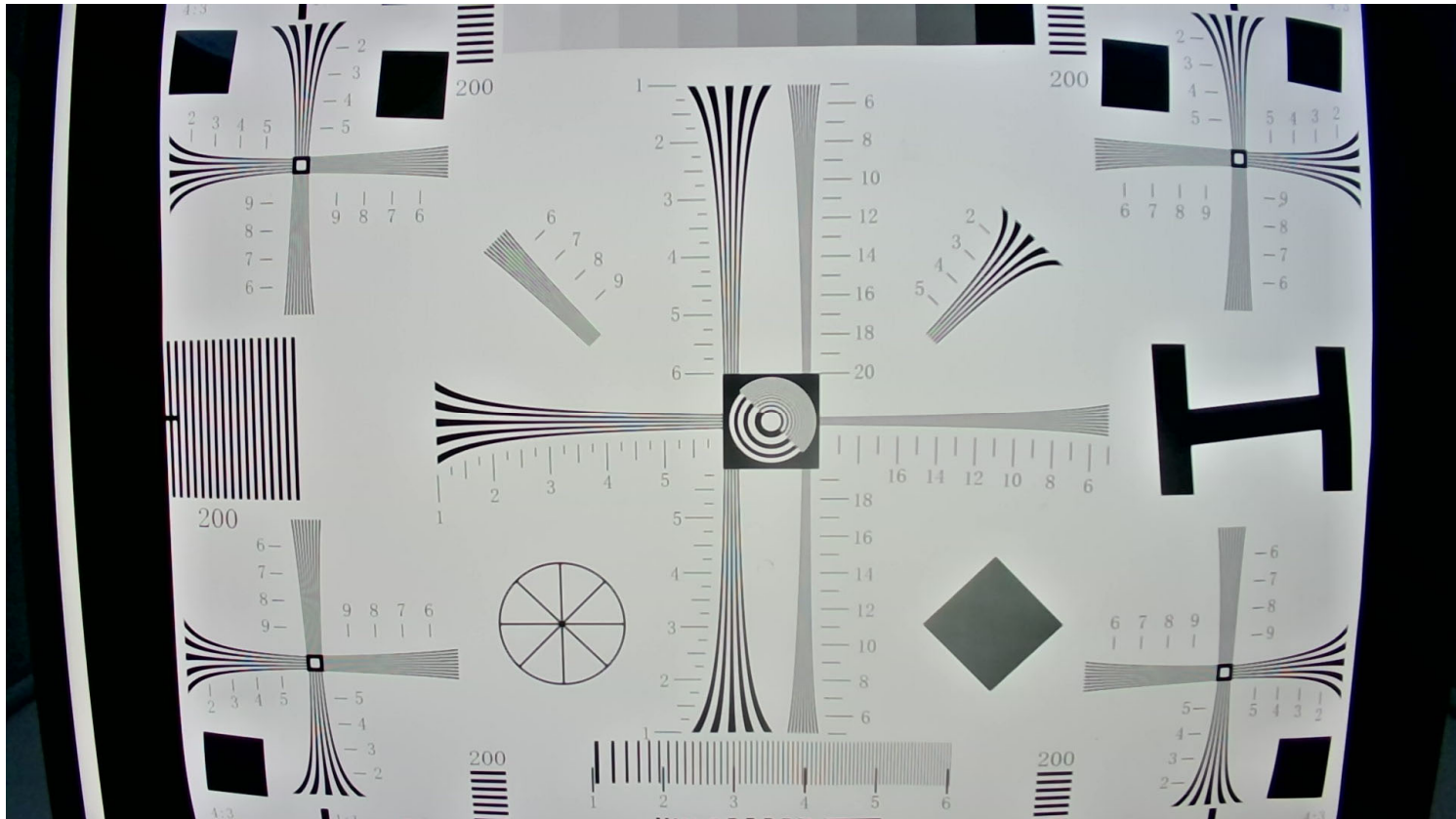
# YDS CAMERA MODULE

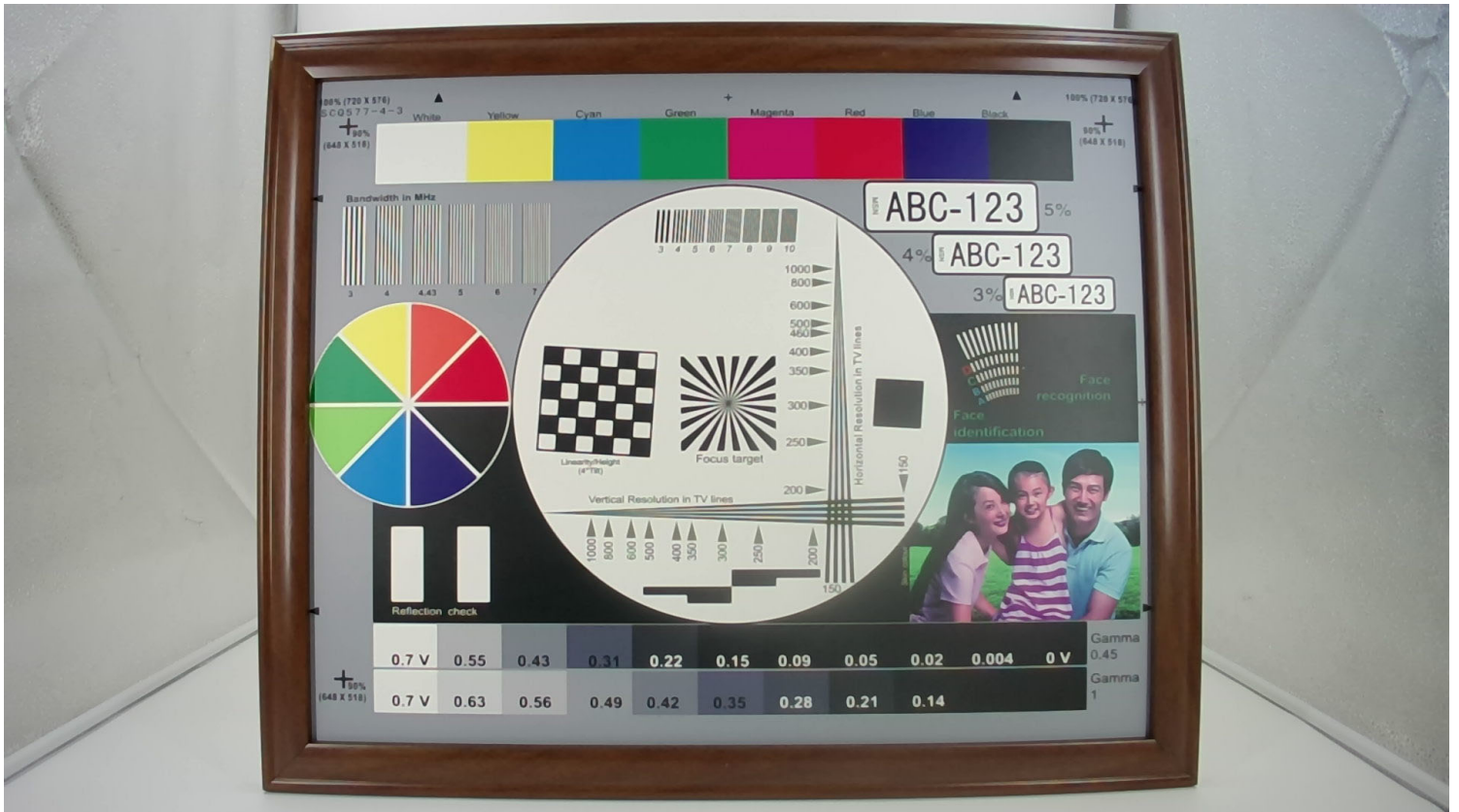
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A

B

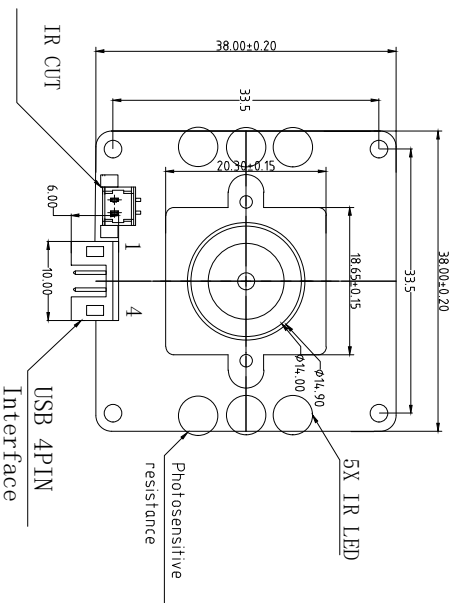
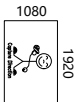
C

D

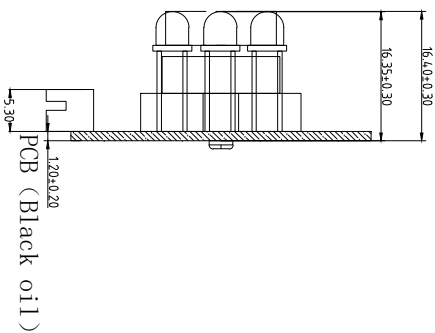
E

|         |               |           |
|---------|---------------|-----------|
| Version | Information   | Date      |
| V1.0    | First Version | 5-26-2022 |

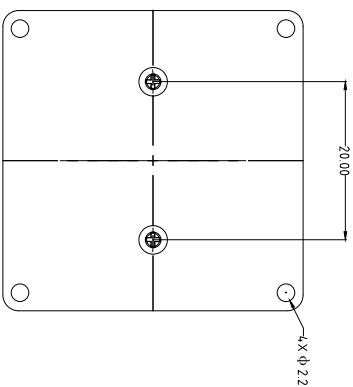
| PIN NO | SIGNAL |
|--------|--------|
| PIN1   | USB 5V |
| 02     | D-     |
| 03     | D+     |
| 04     | DGND   |



TOP VIEW



SIDE VIEW



BOTTOM VIEW

Parameter:

1、Sensor specification:

Image Sensor: AR0230  
 Pixel: 3.0um×3.0um  
 Lens Type: 1/2.7  
 Important Voltage Description: USB 5V  
 (external power supply);

2、Lens specification:

FOV: 96°(D),85°(H),50°(V)  
 F/NO: 2.5  
 TV distortion: <-8%  
 Focallength: 3.2  
 Composition: 2P2G+IR FILTER  
 IR Cut Coating: 650nm±10nm@50%

Designed By

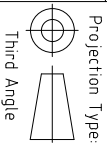
Kevin

Model Name:

USB-003-0606

Checked By

Aouly\_Yan



Unit: mm

Scale: 1:1

Sheet: 1 of 1

Version: 1/0

A

B

C

D

E

3

2

1

3

2

1



## Product Overview

### AR0230CS: 2 MP 1/2.7" CMOS Image Sensor

For complete documentation, see the data sheet.

The AR0230CS is a 1/2.7-inch CMOS digital image sensor with an active-pixel array of 1928 (H) x1088 (V). It captures images in either linear or high dynamic range modes, with rolling-shutter readout. It includes sophisticated camera functions such as in-pixel binning, windowing and both video and single frame modes. It is designed for both low light and high dynamic range scene performance. It is programmable through a simple two wire serial interface. The AR0230CS produces extraordinarily clear, sharp digital pictures, and its ability to capture both continuous video and single frames makes it the perfect choice for a wide range of applications, including surveillance and HD video.

### Features

- High Dynamic Range

### Applications

- Security

### Part Electrical Specifications

| Product                | Compliance             | Status | Type | Megapixels | Frame Rate (fps) | Optical Format | Shutter Type                                | Pixel Size (µm) | Output Interface | Color | Package Type |
|------------------------|------------------------|--------|------|------------|------------------|----------------|---|-----------------|------------------|-------|--------------|
| AR0230CSSC00SUEA0-DRBR | Pb-free<br>Halide free | Active | CMOS | 2.1        | 60               | 1/2.7 inch     | Electronic Rolling and Global Reset Release | 3.0 x 3.0       | Multi            | RGB   | IBGA-80      |

For more information please contact your local sales support at [www.onsemi.com](http://www.onsemi.com).

Created on: 9/30/2017



# YDS CAMERA MODULE

*your best camera partner*

## Camera Module Pinout Definition Reference Chart

| OmniVision                    | Sony   | Samsung   | On-Semi                 | Aptina  | Himax                              | GalaxyCore | PixArt | SmartSens | Sensors |
|-------------------------------|--|---|-------------------------|---|------------------------------------|------------|--------|-----------|---------|
| Pin Signal                    |  | Description                                     |                         |   |                                    |            |        |           |         |
| DGND                          | GND  | ground for digital circuit                      |                         |   |                                    |            |        |           |         |
| AGND                          |  | ground for analog circuit                       |                         |   |                                    |            |        |           |         |
| PCLK                          | DCK  | DVP PCLK output                                 |                         |   |                                    |            |        |           |         |
| XCLR                          | PWDN   | XSHUTDOWN                                       | STANDBY                 | power down active high with internal pull-down resistor |                                    |            |        |           |         |
| MCLK                          | XVCLK  | XCLK  | INCK                    | system input clock                                      |                                    |            |        |           |         |
| RESET                         | RST  | reset active low with internal pull-up resistor |                         |   |                                    |            |        |           |         |
| NC                            | NULL   | no connect                                      |                         |   |                                    |            |        |           |         |
| SDA                           | SIO_D  | SIOD  | SCCB data               |   |                                    |            |        |           |         |
| SCL                           | SIO_C  | SIOC  | SCCB input clock        |   |                                    |            |        |           |         |
| VSYNC                         | XVS  | FSYNC   | DVP VSYNC output        |   |                                    |            |        |           |         |
| HREF                          | XHS  | DVP HREF output                                 |                         |   |                                    |            |        |           |         |
| DOVDD                         | power for I/O circuit                              |   |                         |   |                                    |            |        |           |         |
| AFVDD                         | power for VCM circuit                              |   |                         |   |                                    |            |        |           |         |
| AVDD                          | power for analog circuit                           |   |                         |   |                                    |            |        |           |         |
| DVDD                          | power for digital circuit                          |   |                         |   |                                    |            |        |           |         |
| STROBE                        | FSTROBE  | strobe output                                   |                         |   |                                    |            |        |           |         |
| FSIN                          | synchronize the VSYNC signal from the other sensor |   |                         |   |                                    |            |        |           |         |
| SID                           | SCCB last bit ID input                             |   |                         |   |                                    |            |        |           |         |
| ILPWM                         | mechanical shutter output indicator                |   |                         |   |                                    |            |        |           |         |
| FREX                          | frame exposure / mechanical shutter                |   |                         |   |                                    |            |        |           |         |
| GPIO                          | general purpose inputs                             |   |                         |   |                                    |            |        |           |         |
| SLASEL                        | I2C slave address select                           |   |                         |   |                                    |            |        |           |         |
| AFEN                          | CEN chip enable active high on VCM driver IC       |   |                         |   |                                    |            |        |           |         |
| <b>MIPI Interface</b>         |  |   |                         |   |                                    |            |        |           |         |
| MDN0                          | DN0  | MD0N  | DATA_N                  | DMO1N   | MIPI 1st data lane negative output |            |        |           |         |
| MDP0                          | DP0  | MD0P  | DATA_P                  | DMO1P   | MIPI 1st data lane positive output |            |        |           |         |
| MDN1                          | DN1  | MD1N  | DATA2_N                 | DMO2N   | MIPI 2nd data lane negative output |            |        |           |         |
| MDP1                          | DP1  | MD1P  | DATA2_P                 | DMO2P   | MIPI 2nd data lane positive output |            |        |           |         |
| MDN2                          | DN2  | MD2N  | DATA3_N                 | DMO3N   | MIPI 3rd data lane negative output |            |        |           |         |
| MDP2                          | DP2  | MD2P  | DATA3_P                 | DMO3P   | MIPI 3rd data lane positive output |            |        |           |         |
| MDN3                          | DN3  | MD3N  | DATA4_N                 | DMO4N   | MIPI 4th data lane negative output |            |        |           |         |
| MDP3                          | DP3  | MD3P  | DATA4_P                 | DMO4P   | MIPI 4th data lane positive output |            |        |           |         |
| MCN                           | CLKN   | CLK_N   | DCKN                    | MIPI clock negative output                              |                                    |            |        |           |         |
| MCP                           | CLKP   | MCP   | CLK_P                   | DCKN  | MIPI clock positive output         |            |        |           |         |
| <b>DVP Parallel Interface</b> |  |   |                         |   |                                    |            |        |           |         |
| D0                            | DO0  | Y0  | DVP data output port 0  |   |                                    |            |        |           |         |
| D1                            | DO1  | Y1  | DVP data output port 1  |   |                                    |            |        |           |         |
| D2                            | DO2  | Y2  | DVP data output port 2  |   |                                    |            |        |           |         |
| D3                            | DO3  | Y3  | DVP data output port 3  |   |                                    |            |        |           |         |
| D4                            | DO4  | Y4  | DVP data output port 4  |   |                                    |            |        |           |         |
| D5                            | DO5  | Y5  | DVP data output port 5  |   |                                    |            |        |           |         |
| D6                            | DO6  | Y6  | DVP data output port 6  |   |                                    |            |        |           |         |
| D7                            | DO7  | Y7  | DVP data output port 7  |   |                                    |            |        |           |         |
| D8                            | DO8  | Y8  | DVP data output port 8  |   |                                    |            |        |           |         |
| D9                            | DO9  | Y9  | DVP data output port 9  |   |                                    |            |        |           |         |
| D10                           | DO10   | Y10   | DVP data output port 10 |   |                                    |            |        |           |         |
| D11                           | DO11   | Y11   | DVP data output port 11 |   |                                    |            |        |           |         |

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## Cameras Applications



### IMAGING DEVICES



## Camera Reliability Test

| Reliability Inspection Item |                             | Testing Method  | Acceptance Criteria     |                         |
|-----------------------------|-----------------------------|---|-------------------------|-------------------------|
| Category                    | Item                        |   |                         |                         |
| Environmental               | Storage Temperature         | High 60°C 96 Hours  | Temperature Chamber     | No Abnormal Situation   |
|                             |                             | Low -20°C 96 Hours  | Temperature Chamber     | No Abnormal Situation   |
|                             | Operation Temperature       | High 60°C 24 Hours  | Temperature Chamber     | No Abnormal Situation   |
|                             |                             | Low -20°C 24 Hours  | Temperature Chamber     | No Abnormal Situation   |
|                             | Humidity                    | 60°C 80% 24 Hours   | Temperature Chamber     | No Abnormal Situation   |
|                             | Thermal Shock               | High 60°C 0.5 Hours<br>Low -20°C 0.5 Hours<br>Cycling in 24 Hours | Temperature Chamber     | No Abnormal Situation   |
| Physical                    | Drop Test (Free Falling)    | Without Package 60cm  | 10 Times on Wood Floor  | Electrically Functional |
|                             |                             | With Package 60cm   | 10 Times on Wood Floor  | Electrically Functional |
|                             | Vibration Test              | 50Hz X-Axis 2mm 30min   | Vibration Table         | Electrically Functional |
|                             |                             | 50Hz Y-Axis 2mm 30min   | Vibration Table         | Electrically Functional |
|                             |                             | 50Hz Z-Axis 2mm 30min   | Vibration Table         | Electrically Functional |
|                             | Cable Tensile Strength Test | Loading Weight 4 kg<br>60 Seconds<br>Cycling in 24 Hours          | Tensile Testing Machine | Electrically Functional |
| Electrical                  | ESD Test                    | Contact Discharge 2 KV  | ESD Testing Machine     | Electrically Functional |
|                             |                             | Air Discharge 4 KV  | ESD Testing Machine     | Electrically Functional |
|                             | Aging Test                  | On/Off 30 Seconds<br>Cycling in 24 Hours                          | Power Switch            | Electrically Functional |
|                             | USB Connector               | On/Off 250 Times  | Plug and Unplug         | Electrically Functional |



## Camera Inspection Standard

| Inspection Item  |          | Inspection Method | Standard of Inspection      |  |                                 |
|------------------|----------|-------------------|-----------------------------|--|---------------------------------|
| Category         | Item     |                   |                             |  |                                 |
| Appearance       | FPC/ PCB | Color             | The Naked Eye               | Major Difference is Not Allowed.           |                                 |
|                  |          | Be Torn/Chopped   | The Naked Eye               | Copper Crack Exposure is Not Allowed.      |                                 |
|                  |          | Marking           | The Naked Eye               | Clear, Recognizable (Within 30cm Distance) |                                 |
|                  | Holder   | Scratches         | The Naked Eye               | The Inside Crack Exposure is Not Allowed   |                                 |
|                  |          | Gap               | The Naked Eye               | Meet the Height Standard                   |                                 |
|                  |          | Screw             | The Naked Eye               | Make Sure Screws Are Presented (If Any)    |                                 |
|                  |          | Damage            | The Naked Eye               | The Inside Crack Exposure is Not Allowed   |                                 |
|                  | Lens     | Scratch           | The Naked Eye               | No Effect On Resolution Standard           |                                 |
|                  |          | Contamination     | The Naked Eye               | No Effect On Resolution Standard           |                                 |
|                  |          | Oil Film          | The Naked Eye               | No Effect On Resolution Standard           |                                 |
|                  |          | Cover Tape        | The Naked Eye               | No Issue On Appearance.                    |                                 |
|                  | Function | Image             | No Communication            | Test Board                                 | Not Allowed                     |
|                  |          |                   | Bright Pixel                | Black Board                                | Not Allowed In the Image Center |
| Dark Pixel       |          |                   | White board                 | Not Allowed In the Image Center            |                                 |
| Blurry           |          |                   | The Naked Eye               | Not Allowed                                |                                 |
| No Image         |          |                   | The Naked Eye               | Not Allowed                                |                                 |
| Vertical Line    |          |                   | The Naked Eye               | Not Allowed                                |                                 |
| Horizontal Line  |          |                   | The Naked Eye               | Not Allowed                                |                                 |
| Light Leakage    |          |                   | The Naked Eye               | Not Allowed                                |                                 |
| Blinking Image   |          |                   | The Naked Eye               | Not Allowed                                |                                 |
| Bruise           |          |                   | Inspection Jig              | Not Allowed                                |                                 |
| Resolution       |          |                   | Chart                       | Follows Outgoing Inspection Chart Standard |                                 |
| Color            |          |                   | The Naked Eye               | No Issue                                   |                                 |
| Noise            |          |                   | The Naked Eye               | Not Allowed                                |                                 |
| Corner Dark      |          |                   | The Naked Eye               | Less Than 100px By 100px                   |                                 |
| Color Resolution |          |                   | The Naked Eye               | No Issue                                   |                                 |
| Dimension        | Height   | The Naked Eye     | Follows Approval Data Sheet |  |                                 |
|                  | Width    | The Naked Eye     | Follows Approval Data Sheet |  |                                 |
|                  | Length   | The Naked Eye     | Follows Approval Data Sheet |  |                                 |
|                  | Overall  | The Naked Eye     | Follows Approval Data Sheet |  |                                 |

## YDSCAM Package Solutions

YDS Camera Module



Complete with Lens Protection Film



Tray with Grid and Space



Place Cameras on the Tray

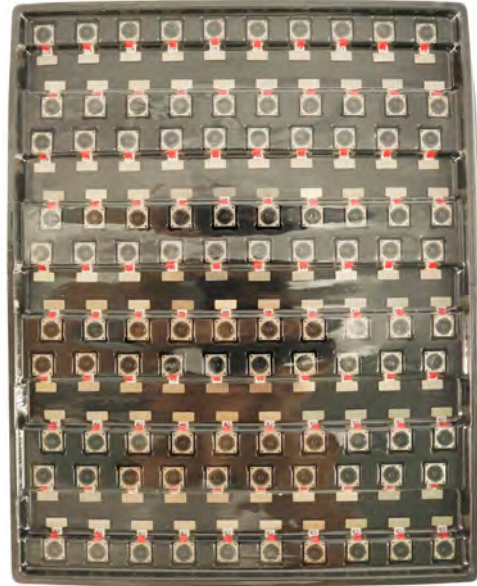


## YDSCAM Package Solutions

Full Tray of Cameras



Cover Tray with Lid



Place Tray into Anti-Static Bag



Vacuum the Anti-Static Bag



## YDSCAM Package Solutions

### Sealed Vacuum Anti-Static Bag with Labels

1. Model and Description 2. Quantity 3. Manufacturing Date Code 4. Caution





## YDSCAM Package Solutions

Place Foam Sheets Between Tray Bags



Foam Sheets are Larger Than Trays



Place Foam Sheets and Trays into Box



Foam Sheets are Tightly Fitting in Box



Seal the Carbon Box



Label the Carbon Shipping Box





## YDSCAM Package Solutions

USB Camera Module

Complete with Lens Protection Film



Place Camera Sample into Anti-Static Bag

Place USB Cameras into Tray



Seal the Tray with Anti-Static Bag

Label the Carbon Shipping Box



## YDSCAM Package Solutions

Place Camera Sample into Anti-Static Bag



Place Connectors into Anti-Static Bag



Label the Sample Bags



Place Connectors into Reel



Place Samples into the Carbon Box



Place Connectors into the Carbon Box





# YDS CAMERA MODULE

*your best camera partner*

## Company YDSCAM

YingDeShun Co. Ltd. (YDS) was established in 2017, a next-generation technology driven manufacturer specialized in research, design, and produce of audio and video products. YDS is occupying 20,000 square feet automated plants with 100 employees of annual throughput 30,000,000 units cameras.

YDS provides OEM, ODM design, contract manufacturing, and builds the camera products. You may provide the requirements to us, even with a hand draft, our sales and engineering work together to meet your needs. We consider ourselves your last-term partner in developing practical and innovative solutions.

Our team covers everything from initial concept development to mass produced product. YDS specializes in customized camera design, raw material, electronic engineering, firmware/software development, product testing, and packing design. Our experienced strategic supply systems offer a robust and dependable manufacturing capacity for orders of various sizes.



## Limited Warranty

YDS provides the following limited warranty if you purchased the Product(s) directly from YDS company or from YDS's website [www.YDSCAM.com](http://www.YDSCAM.com). Product(s) purchased from other sellers or sources are not covered by this Limited Warranty. YDS guarantees that the Product(s) will be free from defects in materials and workmanship under normal use for a period of one (1) year from the date you receive the product ("Warranty Period").

For all Product(s) that contain or develop material defects in materials or workmanship during the Warranty Period, YDS will, at its sole option, either: (i) repair the Product(s); (ii) replace the Product(s) with a new or refurbished Product(s) (replacement Product(s) being of identical model or functional equivalent); or (iii) provide you a refund of the price you paid for the Product(s).

This Limited Warranty of YDS is solely limited to repair and/or replacement on the terms set forth above. YDS is not reliable or responsible for any subsequent events.



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# YDS CAMERA MODULE

*your best camera partner*

## YDS Strength

### Powerful Factory



### Professional Service



### Promised Delivery



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