

YDS-VSN-AR0144 V1.0 NIR
1MP OnSemi AR0144CS Global Shutter MIPI Interface
No IR Fixed Focus Camera Module



Front View



Back View

Specifications

| | |
|---------------------------------|---------------------------------------|
| Camera Module No. | YDS-VSN-AR0144 V1.0 NIR |
| Resolution | 1MP |
| Image Sensor | AR0144CS Global Shutter |
| Sensor Type | 1/4" |
| Pixel Size | 3.0 um x 3.0 um |
| EFL | 1.02 mm |
| F.NO | 2.25 |
| Pixel | 1280 x 800 |
| View Angle | 161.0°(DFOV) 145.0°(HFOV) 93.0°(VFOV) |
| Lens Dimensions | 8.00 x 8.00 x 10.50 mm |
| Module Size | 100.00 x 8.00 mm |
| Module Type | Fixed Focus |
| Interface | MIPI |
| Auto Focus VCM Driver IC | None |
| Lens Type | No IR Filter Lens |
| Operating Temperature | -40°C to +85°C |
| Mating Connector | AXT524124 |



YDS-VSN-AR0144 V1.0 NIR 1MP OnSemi AR0144CS Global Shutter MIPI Interface No IR Fixed Focus Camera Module



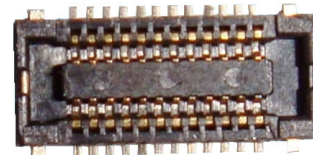
Top View



Side View



Bottom View

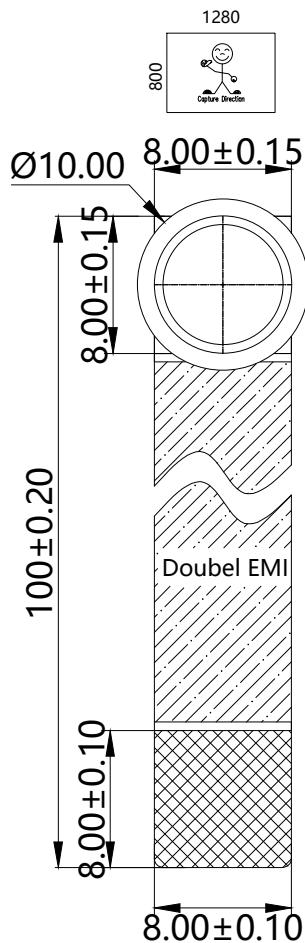


Mating Connector

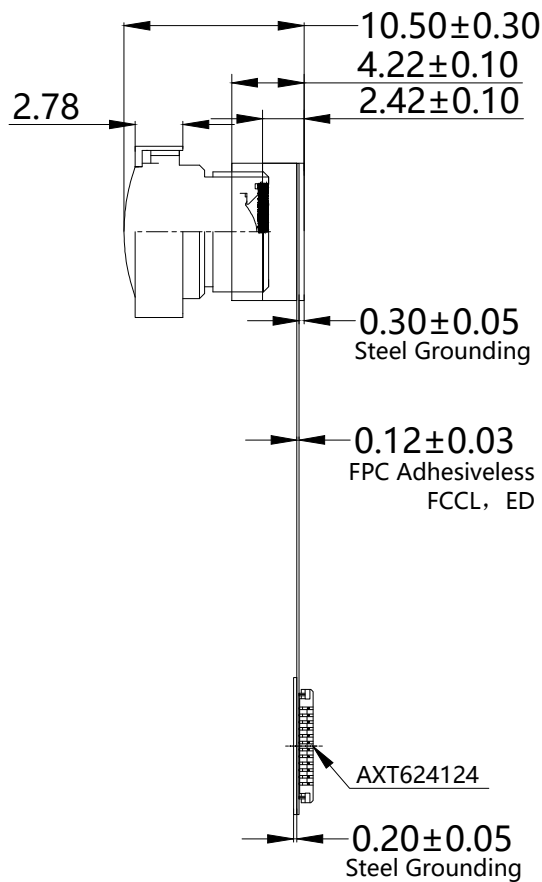
RoHS

| PIN | SIGNAL |
|-----|-----------|
| 1 | SDA |
| 2 | SCL |
| 3 | DOVDD1.8V |
| 4 | MCP |
| 5 | MCN |
| 6 | DGND |
| 7 | MDP1 |
| 8 | MDN1 |
| 9 | DGND |
| 10 | MDP2 |
| 11 | MDN2 |
| 12 | DGND |
| 13 | NC |
| 14 | SHUTTER |
| 15 | AGND |
| 16 | TRIGGER |
| 17 | SADDR |
| 18 | DVDD1.2V |
| 19 | XCLK |
| 20 | FLASH |
| 21 | RESET |
| 22 | AVDD 2.8V |
| 23 | NC |
| 24 | DGND |

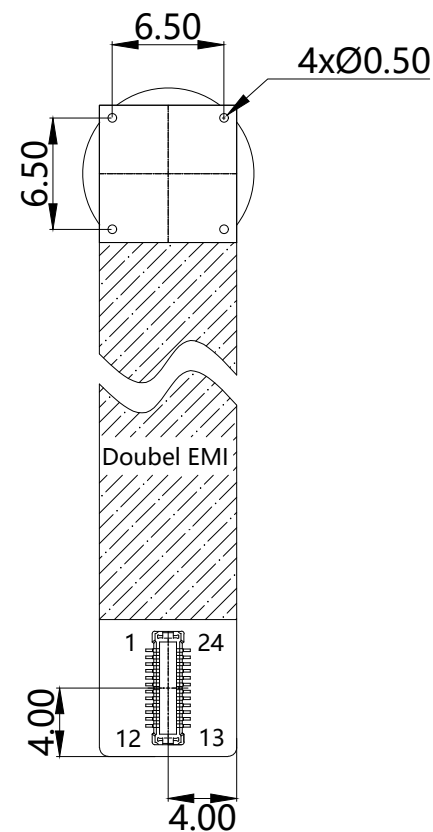
| Version | Information | Date |
|---------|---------------|-----------|
| V1.0 | First Version | 5-20-2023 |



TOP VIEW



SIDE VIEW



BOTTOM VIEW

NOTE:

1.Sensor I2C slave address:0x20 If SADDR=0;
or 0x30 If SADDR=1

Parameters:

1、 Sensor specification:

ImageSensor:
AR0144CSSC20SUKA0-CRBR
Pixel: 3um*3um
Lens Type: 1/4
Important Voltage Description:
DVDD1.2V (external power supply);

2、 Lens specification:

FOV: 161°(D);145°(H);93°(V);
F/NO.: 2.25
TV distortion: <12.5%
Focal length: 1.02mm
Composition: 2G2P(No IR FILTER)

Designed By

Kevin

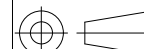
Model Name:

VSN-AR0144 V1.0 NIR

Checked By

Aouly_Yan

Projection Type:



Third Angle

Unit:

mm

Scale:

1:1

Material:

Sheet:

1 of 1

Version:

1/0

Product Overview

AR0144CS: CMOS Image Sensor, Digital, Global Shutter, 1.0 MP, 1/4-Inch

For complete documentation, see the [data sheet](#).

The AR0144 is a 1/4-inch 1.0 Mp CMOS digital image sensor with an active-pixel array of 1280H x 800V. It incorporates a new innovative global shutter pixel design optimized for accurate and fast capture of moving scenes. The sensor produces clear, low noise images in both low-light and bright scenes. It includes sophisticated camera functions such as auto exposure control, windowing, row skip mode, column-skip mode, pixel-binning and both video and single frame modes. It is programmable through a simple two-wire serial interface. The AR0144 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 scanning and industrial inspection.

Features

- Best Global Shutter Efficiency
- Low Dark Current/Hot Pixels
- High Linear Full Well
- Low Operational Power
- Small Form Factor

Applications

- Barcode Scanning
- 3D Scanning
- Virtual/Augmented Reality
- Positional Tracking
- Gesture Recognition

Benefits

- Improved image quality for fast moving objects
- Total Noise Floor Reduction, SNR Improvement
- High Dynamic Range
- Ideal for battery powered applications
- Ideal for space constrained applications like Handheld Scanners

End Products

- Barcode Scanners
- Head Mounted Displays
- Biometric Scanners
- Virtual Reality/Augmented Reality Glasses
- Drones

Part Electrical Specifications

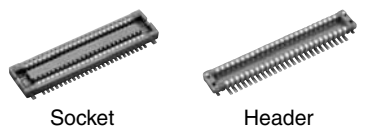
| Product | Pricing (\$/Unit) | Compliance | Status | Type | Megapixels | Frame Rate (fps) | Optical Format | Shutter Type | Pixel Size (µm) | Output Interface | Color | Package Type |
|-------------------------|-------------------|------------------------|-----------------|------|------------|------------------|----------------|----------------|-----------------|------------------|-------|--------------|
| AR0144CSSC00SUD20 | | Pb-free Halide free | Active | CMOS | 1MP | 60 | 1/4 Inch | Global Shutter | 3.0 x 3.0 | Multi | RGB | |
| AR0144CSSC00SUKA0-CPBR | | Pb-free Halide free | Active | CMOS | 1MP | 60 | 1/4 Inch | Global Shutter | 3.0 x 3.0 | Multi | RGB | ODCSP-69 |
| AR0144CSSC00SUKA0-CPBR1 | | Pb-free Halide free | Active | | | | | | | | | ODCSP-69 |
| AR0144CSSC00SUKA0-CPBR2 | | Pb-free Halide free | Active | | | | | | | | | ODCSP-69 |
| AR0144CSSC00SUKA0-CRBR | | Pb-free Halide free | Active | CMOS | 1MP | 60 | 1/4 Inch | Global Shutter | 3.0 x 3.0 | Multi | RGB | ODCSP-69 |
| AR0144CSSC00SUKA0-CRBR1 | | Pb-free Halide free | Active | | | | | | | | | ODCSP-69 |
| AR0144CSSC20SUD20 | | Pb-free Halide free | Active | CMOS | 1MP | 60 | 1/4 Inch | Global Shutter | 3.0 x 3.0 | Multi | RGB | |
| AR0144CSSC20SUKA0-CPBR | | Pb-free Halide free | Active | CMOS | 1MP | 60 | 1/4 Inch | Global Shutter | 3.0 x 3.0 | Multi | RGB | ODCSP-69 |
| AR0144CSSC20SUKA0-CRBR | | Pb-free Halide free | Active | CMOS | 1MP | 60 | 1/4 Inch | Global Shutter | 3.0 x 3.0 | Multi | RGB | ODCSP-69 |
| AR0144CSSM00SUD20 | | Pb-free Halide free | Active | CMOS | 1MP | 60 | 1/4 Inch | Global Shutter | 3.0 x 3.0 | Multi | Mono | |
| AR0144CSSM00SUKA0-CPBR | | Pb-free Halide free | Active | CMOS | 1MP | 60 | 1/4 Inch | Global Shutter | 3.0 x 3.0 | Multi | Mono | ODCSP-69 |
| AR0144CSSM00SUKA0-CPBR1 | | Pb-free Halide free | Active | | | | | | | | | ODCSP-69 |
| AR0144CSSM00SUKA0-CPBR2 | | Pb-free Halide free | Active | | | | | | | | | ODCSP-69 |
| AR0144CSSM00SUKA0-CRBR | | Pb-free Halide free | Active | CMOS | 1MP | 60 | 1/4 Inch | Global Shutter | 3.0 x 3.0 | Multi | Mono | ODCSP-69 |
| AR0144CSSM20SUD20 | | Pb-free Halide free | Active | CMOS | 1MP | 60 | 1/4 Inch | Global Shutter | 3.0 x 3.0 | Multi | Mono | |
| AR0144CSSM20SUKA0-CPBR | | Pb-free Halide free | Active | CMOS | 1MP | 60 | 1/4 Inch | Global Shutter | 3.0 x 3.0 | Multi | Mono | ODCSP-69 |
| AR0144CSSM20SUKA0-CPBR1 | | Pb-free Halide free | Active | CMOS | 1MP | 60 | 1/4 Inch | Global Shutter | 3.0 x 3.0 | Multi | Mono | ODCSP-69 |
| AR0144CSSM20SUKA0-CRBR | | Pb-free Halide free | Active | CMOS | 1MP | 60 | 1/4 Inch | Global Shutter | 3.0 x 3.0 | Multi | Mono | ODCSP-69 |
| AR0144CSSM20SUKA0-CRBR1 | | Pb-free Halide free | Active | CMOS | 1MP | 60 | 1/4 inch | Global Shutter | 3.0 x 3.0 | Multi | Mono | ODCSP-69 |
| AR0144CSSM28SUD20 | | Pb-free Halide free | Active | CMOS | 1MP | 60 | 1/4 Inch | Global Shutter | 3.0 x 3.0 | Multi | Mono | |
| AR0144CSSM28SUKA0-CPBR | | Pb-free Halide free | ProductP review | | | | | | | | | ODCSP-69 |

For more information please contact your local sales support at www.onsemi.com.

Created on: 6/17/2020

NARROW-PITCH, THIN AND SLIM CONNECTOR FOR BOARD-TO-FPC CONNECTION

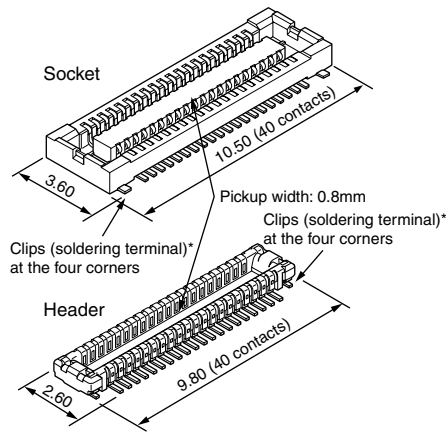
NARROW PITCH (0.4 mm) CONNECTORS F4S SERIES



Compliance with RoHS Directive

FEATURES

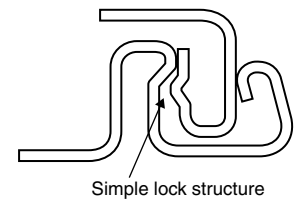
1. Space-saving (3.6 mm widthwise)
 The required space is smaller than our F4 series (40-contact type):
 Socket — 27% smaller,
 Header — 38% smaller
 The small size contributes to the miniaturization of target equipment.



* Clips for preventing the solder joints from being removed

2. Highly reliable
TOUGH CONTACT has strong resistance to adverse environments.
 (See Page 6 for details of the structure)
 Note: If extra resistance to shock caused by dropping is required, we recommend using our previous F4 Series.

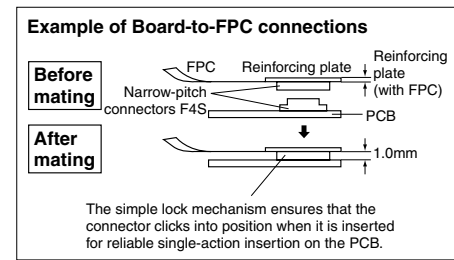
3. The simple lock structure gives tactile feedback that ensures a superior mating/unmating operation feel.



4. Gull-wing type terminals
 The gull-wing type terminals facilitate automatic mounting inspections.
5. Connectors for inspection available
 Connectors for inspection are available that are ideal for modular unit inspection and inspection in device assembly processes.

APPLICATIONS

Compact portable devices “Cellular phones, DVC, Digital cameras, etc”



ORDERING INFORMATION

AXT **4**

5: Narrow Pitch Connector F4S (0.4 mm pitch) Socket
 6: Narrow Pitch Connector F4S (0.4 mm pitch) Header

Number of contacts (2 digits)

Mated height
 <Socket>
 1: For mated height 1.0 mm
 2: For mated height 1.2 mm
 <Header>
 1: For mated height 1.0 mm
 2: For mated height 1.2 mm

Functions
 <Socket, Header>
 2: Without positioning bosses

Surface treatment (Contact portion / Terminal portion)
 <Socket>
 4: Base: Ni plating Surface: Au plating (for Ni barrier available)
 <Header>
 4: Base: Ni plating Surface: Au plating

Note: Please note that models with a mated height of 1.0 mm (7th digit of part number is “1”) and 1.2 mm (7th digit of part number is “2”) are not compatible.

AXT5, 6

PRODUCT TYPES

| Mated height | Number of contacts | Part number | | Packing | |
|--------------|--------------------|-------------|-----------|--------------|--------------|
| | | Socket | Header | Inner carton | Outer carton |
| 1.0mm | 10 | AXT510124 | AXT610124 | 3,000 pieces | 6,000 pieces |
| | 12 | AXT512124 | AXT612124 | | |
| | 14 | AXT514124 | AXT614124 | | |
| | 16 | AXT516124 | AXT616124 | | |
| | 18 | AXT518124 | AXT618124 | | |
| | 20 | AXT520124 | AXT620124 | | |
| | 22 | AXT522124 | AXT622124 | | |
| | 24 | AXT524124 | AXT624124 | | |
| | 26 | AXT526124 | AXT626124 | | |
| | 28 | AXT528124 | AXT628124 | | |
| | 30 | AXT530124 | AXT630124 | | |
| | 32 | AXT532124 | AXT632124 | | |
| | 34 | AXT534124 | AXT634124 | | |
| | 36 | AXT536124 | AXT636124 | | |
| | 38 | AXT538124 | AXT638124 | | |
| | 40 | AXT540124 | AXT640124 | | |
| | 42 | AXT542124 | AXT642124 | | |
| | 44 | AXT544124 | AXT644124 | | |
| | 46 | AXT546124 | AXT646124 | | |
| | 48 | AXT548124 | AXT648124 | | |
| 50 | AXT550124 | AXT650124 | | | |
| 54 | AXT554124 | AXT654124 | | | |
| 60 | AXT560124 | AXT660124 | | | |
| 64 | AXT564124 | AXT664124 | | | |
| 70 | AXT570124 | AXT670124 | | | |
| 80 | AXT580124 | AXT680124 | | | |
| 1.2mm | 10 | AXT510224 | AXT610224 | | |
| | 30 | AXT530224 | AXT630224 | | |
| | 40 | AXT540224 | AXT640224 | | |
| | 50 | AXT550224 | AXT650224 | | |
| | 80 | AXT580224 | AXT680224 | | |

- Notes: 1. Order unit: For mass production: in 1-inner-box (1-reel) units
 Samples for mounting check: in 50-connector units. Please contact our sales office.
 Samples: Small lot orders are possible. Please contact our sales office.
2. The above part numbers are for connectors without positioning bosses, which are standard. When ordering connectors with positioning bosses, please contact our sales office.
3. Please contact us for connectors having a number of contacts other than those listed above.

SPECIFICATIONS

1. Characteristics

| | Item | Specifications | Conditions |
|---|--|--|---|
| Electrical characteristics | Rated current | 0.3A/contact (Max. 5 A at total contacts) | |
| | Rated voltage | 60V AC/DC | |
| | Breakdown voltage | 150V AC for 1 min. | No short-circuiting or damage at a detection current of 1 mA when the specified voltage is applied for one minute. |
| | Insulation resistance | Min. 1,000M Ω (initial) | Using 250V DC megger (applied for 1 min.) |
| | Contact resistance | Max. 90m Ω | Based on the contact resistance measurement method specified by JIS C 5402. |
| Mechanical characteristics | Composite insertion force | Max. 0.981N/contacts \times contacts (initial) | |
| | Composite removal force | Min. 0.165N/contacts \times contacts | |
| Environmental characteristics | Contact holding force (Socket contact) | Min. 0.49N/contacts | Measuring the maximum force. As the contact is axially pull out. |
| | Ambient temperature | -55°C to +85°C | No freezing at low temperatures. No dew condensation. |
| | Soldering heat resistance | Peak temperature: 260°C or less (on the surface of the PC board around the connector terminals) 300°C within 5 sec. 350°C within 3 sec. | Infrared reflow soldering Soldering iron |
| | Storage temperature | -55°C to +85°C (product only) -40°C to +50°C (emboss packing) | No freezing at low temperatures. No dew condensation. |
| | Thermal shock resistance (header and socket mated) | 5 cycles, insulation resistance min. 100M Ω , contact resistance max. 90m Ω | Sequence 1. -55 $\frac{3}{5}$ °C, 30 minutes 2. ~, Max. 5 minutes 3. 85 $\frac{3}{5}$ °C, 30 minutes 4. ~, Max. 5 minutes |
| | Humidity resistance (header and socket mated) | 120 hours, insulation resistance min. 100M Ω , contact resistance max. 90m Ω | Bath temperature 40 \pm 2°C, humidity 90 to 95% R.H. |
| | Saltwater spray resistance (header and socket mated) | 24 hours, insulation resistance min. 100M Ω , contact resistance max. 90m Ω | Bath temperature 35 \pm 2°C, saltwater concentration 5 \pm 1% |
| H ₂ S resistance (header and socket mated) | 48 hours, contact resistance max. 90m Ω | Bath temperature 40 \pm 2°C, gas concentration 3 \pm 1 ppm, humidity 75 to 80% R.H. | |
| Lifetime characteristics | Insertion and removal life | 50 times | Repeated insertion and removal speed of max. 200 times/hours |
| Unit weight | | 20-contact type: Socket: 0.03 g Header: 0.01 g | |

2. Material and surface treatment

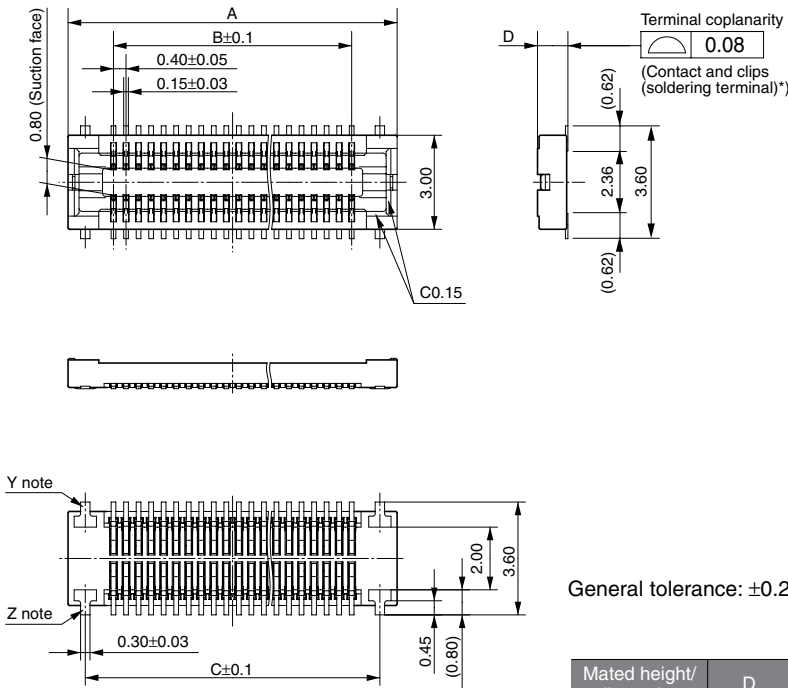
| Part name | Material | Surface treatment |
|------------------|---------------------|--|
| Molded portion | LCP resin (UL94V-0) | — |
| Contact and Post | Copper alloy | Contact portion: Base: Ni plating Surface: Au plating Terminal portion: Base: Ni plating Surface: Au plating (except the terminal tips) The socket terminals close to the portion to be soldered have nickel barriers (exposed nickel portions). Metal clips: Sockets: Base: Ni plating Surface: Pd+Au flash plating (except the terminal tips) Headers: Base: Ni plating Surface: Au plating (except the terminal tips) |

AXT5, 6

DIMENSIONS (Unit: mm) The CAD data of the products with a **CAD Data** mark can be downloaded from: <http://panasonic-electric-works.net/ac>

Socket (Mated height: 1.0 mm and 1.2 mm)

CAD Data



General tolerance: ±0.2

| Mated height/ dimension | D |
|----------------------------|------|
| 1.0mm | 0.97 |
| 1.2mm | 1.17 |

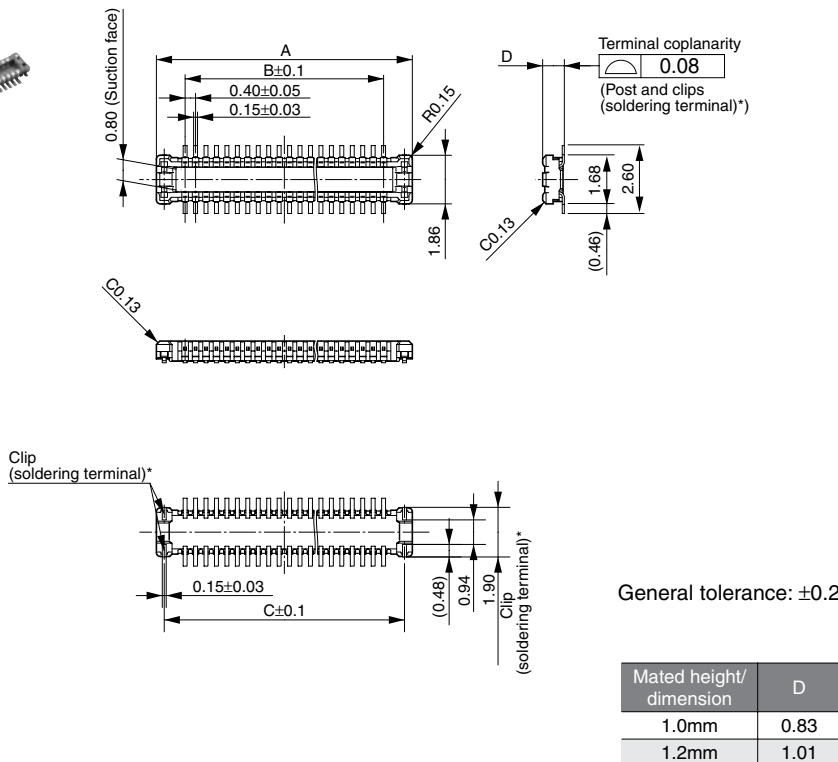
Note: Since the clip (soldering terminal)* has a single-piece construction, sections Y and Z are electrically connected.

Dimension table (mm)

| Number of contacts/ dimension | A | B | C |
|----------------------------------|------|------|------|
| 10 | 4.5 | 1.6 | 3.4 |
| 12 | 4.9 | 2.0 | 3.8 |
| 14 | 5.3 | 2.4 | 4.2 |
| 16 | 5.7 | 2.8 | 4.6 |
| 18 | 6.1 | 3.2 | 5.0 |
| 20 | 6.5 | 3.6 | 5.4 |
| 22 | 6.9 | 4.0 | 5.8 |
| 24 | 7.3 | 4.4 | 6.2 |
| 26 | 7.7 | 4.8 | 6.6 |
| 28 | 8.1 | 5.2 | 7.0 |
| 30 | 8.5 | 5.6 | 7.4 |
| 32 | 8.9 | 6.0 | 7.8 |
| 34 | 9.3 | 6.4 | 8.2 |
| 36 | 9.7 | 6.8 | 8.6 |
| 38 | 10.1 | 7.2 | 9.0 |
| 40 | 10.5 | 7.6 | 9.4 |
| 42 | 10.9 | 8.0 | 9.8 |
| 44 | 11.3 | 8.4 | 10.2 |
| 46 | 11.7 | 8.8 | 10.6 |
| 48 | 12.1 | 9.2 | 11.0 |
| 50 | 12.5 | 9.6 | 11.4 |
| 54 | 13.3 | 10.4 | 12.2 |
| 60 | 14.5 | 11.6 | 13.4 |
| 64 | 15.3 | 12.4 | 14.2 |
| 70 | 16.5 | 13.6 | 15.4 |
| 80 | 18.5 | 15.6 | 17.4 |

Header (Mated height: 1.0 mm and 1.2 mm)

CAD Data



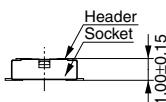
General tolerance: ±0.2

| Mated height/ dimension | D |
|----------------------------|------|
| 1.0mm | 0.83 |
| 1.2mm | 1.01 |

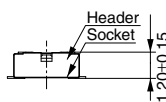
Dimension table (mm)

| Number of contacts/ dimension | A | B | C |
|----------------------------------|------|------|------|
| 10 | 3.8 | 1.6 | 3.2 |
| 12 | 4.2 | 2.0 | 3.6 |
| 14 | 4.6 | 2.4 | 4.0 |
| 16 | 5.0 | 2.8 | 4.4 |
| 18 | 5.4 | 3.2 | 4.8 |
| 20 | 5.8 | 3.6 | 5.2 |
| 22 | 6.2 | 4.0 | 5.6 |
| 24 | 6.6 | 4.4 | 6.0 |
| 26 | 7.0 | 4.8 | 6.4 |
| 28 | 7.4 | 5.2 | 6.8 |
| 30 | 7.8 | 5.6 | 7.2 |
| 32 | 8.2 | 6.0 | 7.6 |
| 34 | 8.6 | 6.4 | 8.0 |
| 36 | 9.0 | 6.8 | 8.4 |
| 38 | 9.4 | 7.2 | 8.8 |
| 40 | 9.8 | 7.6 | 9.2 |
| 42 | 10.2 | 8.0 | 9.6 |
| 44 | 10.6 | 8.4 | 10.0 |
| 46 | 11.0 | 8.8 | 10.4 |
| 48 | 11.4 | 9.2 | 10.8 |
| 50 | 11.8 | 9.6 | 11.2 |
| 54 | 12.6 | 10.4 | 12.0 |
| 60 | 13.8 | 11.6 | 13.2 |
| 64 | 14.6 | 12.4 | 14.0 |
| 70 | 15.8 | 13.6 | 15.2 |
| 80 | 17.8 | 15.6 | 17.2 |

• Socket and Header are mated



Mated height: 1.0 mm



Mated height: 1.2 mm

Cameras Applications



Automotive Driver Pilot



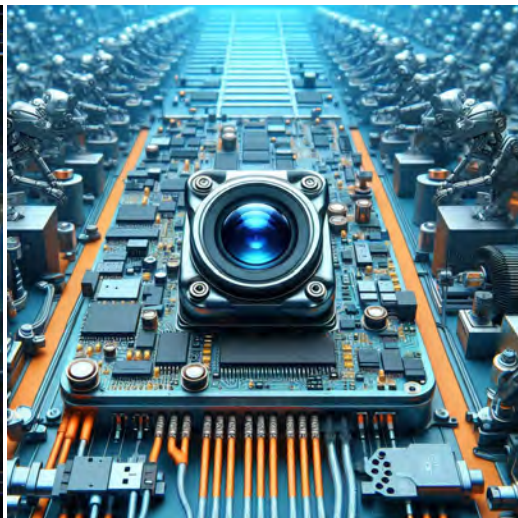
Live Streaming



Video Conference



Eye Tracker Biometric Detection



Machine Vision



Agricultural Monitor



Night Vision Security



Drone and Sports Eagle Eyes



Interactive Pet Camera



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 | | | | | | | | |
| MIPI Interface | | | | | | | | | |
| 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 | | | | |
| DVP Parallel Interface | | | | | | | | | |
| 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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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 Low -20°C 0.5 Hours 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 60 Seconds 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 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

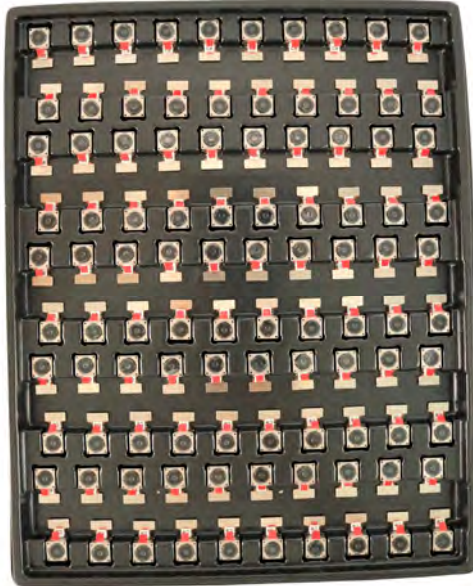


Place Cameras on the Tray

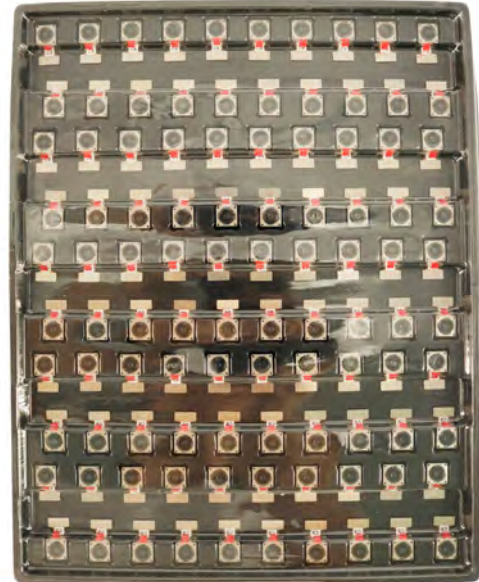


YDSCAM Package Solutions

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

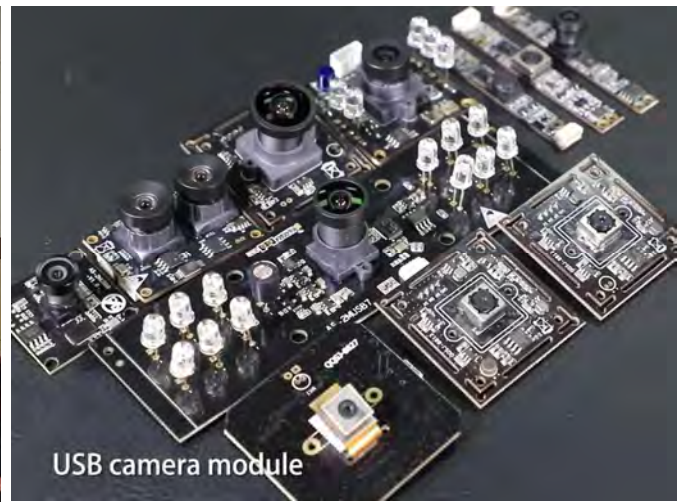
your best camera partner

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. 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

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YDS Strength

Powerful Factory



Professional Service



Promised Delivery



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