

YDS-MAA12-IMX586 V1.0

48MP Sony IMX586 MIPI Interface Auto Focus Camera Module



Front View



Back View

Specifications

Camera Module No.	YDS-MAA12-IMX586 V1.0
Resolution	48MP
Image Sensor	IMX586
Sensor Type	1/2.0"
Pixel Size	0.8 um x 0.8 um
EFL	4.74 mm
F.NO	1.79
Pixel	8000 x 6000
View Angle	79.4°(DFOV) 67.2°(HFOV) 53.2°(VFOV)
Lens Dimensions	10.80 x 10.80 x 6.40 mm
Module Size	18.61 x 9.00 mm
Module Type	Auto Focus
Interface	MIPI
Auto Focus VCM Driver IC	DW9767
Lens Model	YDS-LENS-PS60122A100
Lens Type	650nm IR Cut
Operating Temperature	-20°C to +70°C
Mating Connector	OK-10F030-04



YDS-MAA12-IMX586 V1.0

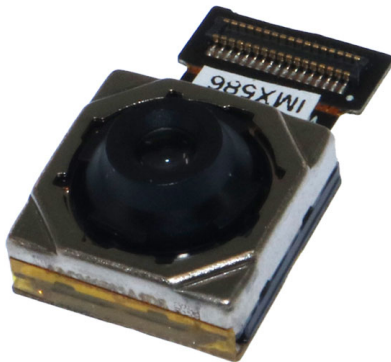
48MP Sony IMX586 MIPI Interface Auto Focus Camera Module



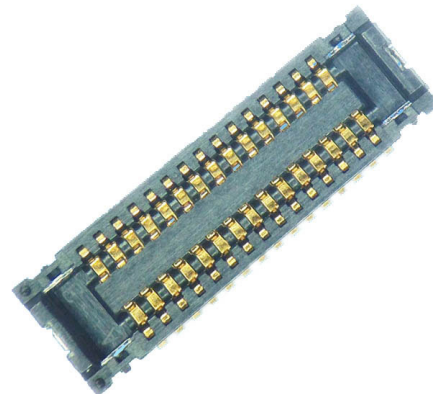
Top View



Side View

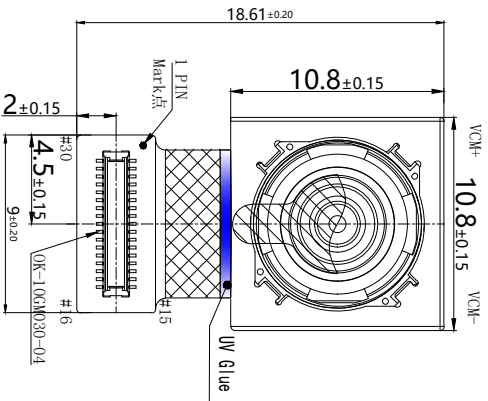
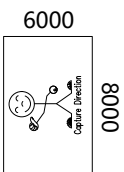


Bottom View

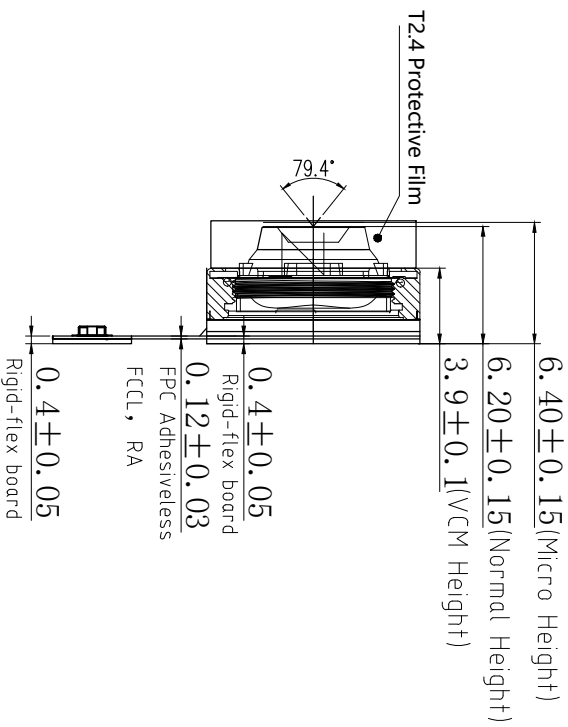


Mating Connector

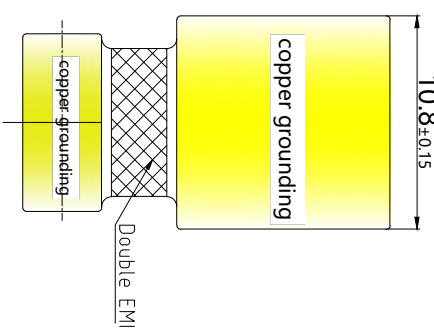
No	Name	
01	AVDD1	2.8V
02	AVDD2	1.8V
03	GND	
04	MCP	
05	MCN	
06	DGND	
07	MDPO	
08	MDNO	
09	DGND	
10	MDP2	
11	MDN2	
12	DOVDD	1.8V
13	DVDD1	1.1V
14	DVDD2	1.1V
15	PVDD	NC
16	PGND	NC
17	AFVDD	2.8V
18	AFGND	
19	MDN1	
20	MDP1	
21	DGND	
22	MDN3	
23	MDP3	
24	DGND	
25	XVS-OUT	NC
26	RESET	
27	SCL	
28	SDA	
29	MCLK	
30	AGND	



TOP VIEW



SIDE VIEW



BOTTOM VIEW

NOTE:
 1.Sensor I2C slave address: 0x20(W),021(R).
 2.Driver IC:DW9767 I2C:0x18(W);0x19(R).

Parameter:

1、Sensor specification:

Image Sensor: IMX586-AAHJ5
 Pixel: 0.8um×0.8um
 Lens Type: 1/2
 Important Voltage Description: DVDD1.1V
 (external power supply);

2、Lens specification:

FOV: 79.4°(D);67.2°(H);53.2°(V)
 F/NO: 1.79
 TV distortion: <1.5%
 Focal length: 4.74mm
 Composition: 6P+IR FILTER
 IR Cut Coating: 650nm±10nm@50%

A

B

C

D

E

Version	Information	Date
V1.0	First Version	4-14-2022

Designed By

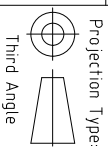
Kevin

Model Name:

MAA12-IMX586 V1.0

Checked By

Aouly_Yan



Unit: mm
 Scale: 1:1

Material: -----
 Sheet: 1 of 1
 Version: 1/0

3

3

2

2

1

1

Diagonal 8.000 mm (Type 1/2.0) 48Mega-Pixel CMOS Image Sensor with Square Pixel for Color Cameras

IMX586-AAJH5-C

General description and application

IMX586 is a diagonal 8.000 mm (Type 1/2.0) 48 Mega-pixel CMOS active pixel type stacked image sensor with a square pixel array. It adopts Sony's back-illuminated and stacked CMOS image sensor to achieve high speed image capturing by column parallel A/D converter circuits and high sensitivity and low noise image (comparing with conventional CMOS image sensor) through the backside illuminated imaging pixel structure. R, G, and B pigment primary color mosaic filter is employed. It operates with five power supply voltages: analog 2.9 V and 1.8V, digital 1.1 V, PLL-PHY 1.1V and 1.8 V for input/output interface and achieves low power consumption.

In addition, this product is designed for use in cellular phone and tablet PC. When using this for another application, Sony Semiconductor Solutions Corporation does not guarantee the quality and reliability of product. Therefore, don't use this for applications other than cellular phone and tablet PC. Consult your Sony Semiconductor Solutions Corporation sales representative if you have any questions.

Functions and Features

- ◆ Back-illuminated and stacked CMOS image sensor
- ◆ Quad Bayer Coding color filter arrangement
- ◆ Phase Detection Auto Focus (PDAF)
- ◆ High Frame Rate 30fps@Full resolution (QBC Re-mosaic) / 30fps@QBC-HDR / 120fps@2x2 Adjacent Pixel Binning (16:9) / 240fps@2x2 Adjacent Pixel Binning V2H2(16:9)
- ◆ High signal to noise ratio(SNR)
- ◆ Dual sensor synchronization operation
- ◆ Built-in 2D Dynamic Defect Pixel Correction
- ◆ Lens Shading Correction (LSC)
- ◆ Built-in temperature sensor
- ◆ Output video format of RAW10/8, COMP8
- ◆ QBC Re-mosaic function
- ◆ QBC HDR function
- ◆ Two PLLs for independent clock generation for pixel control and data output interface
- ◆ CSI-2 serial data output
 - MIPI D-PHY 2lane/4lane, Max. 2.5Gbps/lane, D-PHY spec. ver. 1.2 compliant
 - MIPI C-PHY 1/2/3trio, Max 2.5Gbps/Trio, C-PHY spec ver. 1.0 compliant
- ◆ 2-wire serial communication (Supports I²C "Fast mode" and "Fast-mode Plus")
- ◆ 28K bit of OTP ROM for users

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Application circuits shown, if any, are typical examples illustrating the operation of the devices. Sony Semiconductor Solutions Corporation cannot assume responsibility for any problems arising out of the use of these circuits.

Device Structure

◆ CMOS image sensor	
◆ Image size	: Diagonal 8.000 mm (Type 1/2.0)
◆ Total number of pixels	: 8032 (H) × 6248 (V) approx. 50.18 M pixels
◆ Number of effective pixels	: 8032 (H) × 6088 (V) approx. 48.89 M pixels
◆ Number of active pixels	: 8000 (H) × 6000 (V) approx. 48.00 M pixels
◆ Chip size	: 7.504 mm (H) × 5.659 mm (V)
◆ Unit cell size	: 0.80 μm (H) × 0.80 μm (V)
◆ Substrate material	: Silicon

Absolute Maximum Ratings

Item	Symbol	Ratings	Unit	notes
Supply voltage (analog1)	VANA1	-0.3 to +4.2	V	refer to VSS level
Supply voltage (analog2)	VANA2	-0.3 to +2.52	V	
Supply voltage (digital1, digital2(PLL-PHY))	VDIG1,2	-0.3 to +1.54	V	
Supply voltage (interface)	VIF	-0.3 to +2.52	V	
Input voltage (digital)	VI	-0.3 to +2.52	V	
Output voltage (digital)	VO	-0.3 to +2.52	V	
Guaranteed Operating temperature	TOPR	-20 to +70	°C	
Guaranteed storage temperature	TSTG	-30 to +80	°C	
Guaranteed performance temperature	TSPEC	-20 to +60	°C	

Recommended Operating Voltage

Item	Symbol	Ratings	Unit	notes
Supply voltage (analog1)	VANA1	2.9 ± 0.1	V	refer to VSS level
Supply voltage (analog2)	VANA2	1.8 ± 0.1	V	
Supply voltage (digital1, digital2(PLL-PHY))	VDIG1,2	1.1 ± 0.1	V	
Supply voltage (interface)	VIF	1.8 ± 0.1	V	

FEATURES

- Bi-directional current driver for autofocus
- 10-bit resolution DAC (Typ. +/- 100mA)
- Embedded 8Kbyte eFlash memory
- Smart Actuator Control (SAC™) mode
- Supply voltage range (V_{DD}): 2.3V to 3.3V
- I/O voltage range (V_{IN}): 1.8V to V_{DD}
- Fast mode and Fast mode plus I²C interface compatible
- Power On Reset (POR)
- Thermal Shutdown (TSD)
- S/W Memory protection
- Power down mode less than 1uA
- Package: 8-pin WLCSP (0.77mm x 1.70mm x 0.30mm)

APPLICATIONS

- Mobile cameras
- Digital still cameras
- Camcorders
- Web cameras
- Action cameras

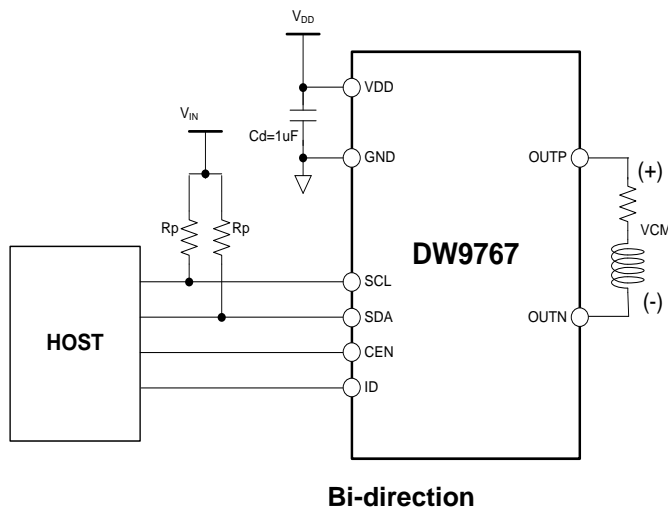
GENERAL DESCRIPTION

The DW9767 is designed for linear control of bi-directional voice coil motors. The DW9767 is a single 10-bit DAC with a typical +/- 100mA output current sinking capability and has an 8Kbyte eFlash memory. This device features Smart Actuator Control (SAC™) mode which can minimize the mechanical vibration and achieve very fast mechanical settling time. The SAC™ is protected by patent and registered trademark of DONGWOON ANATECH.

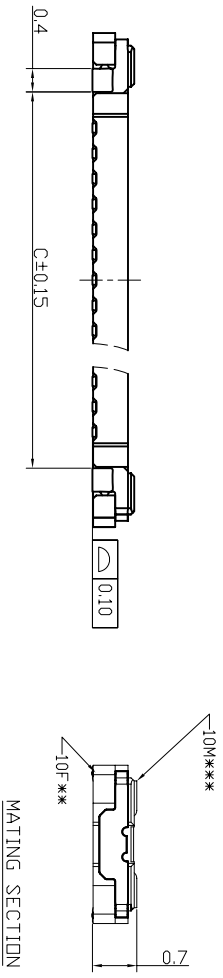
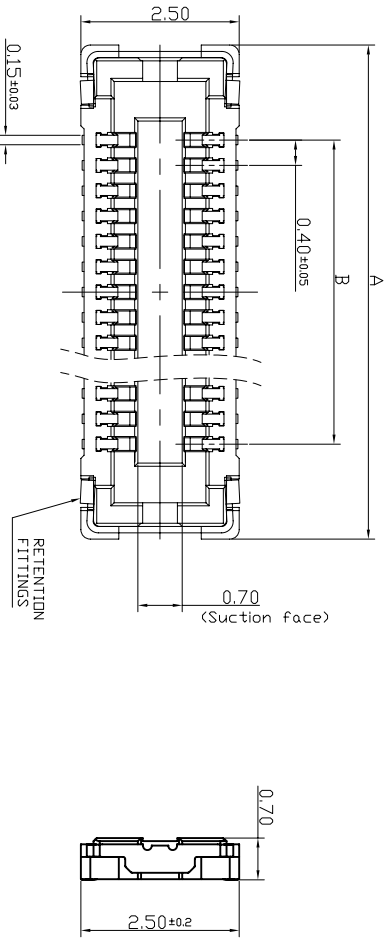
The DW9767 operates from a single 2.3V to 3.3V supply. The internal DAC and eFlash are controlled via an I²C serial interface that operates at clock rate up to 1MHz. The DW9767 offers a power down mode with current consumption less than 1uA. DW9767 has software protection, it is available to guard against inadvertent writes.

The DW9767 can be used for auto focus applications in mobile cameras, digital still cameras, camcorders, web cameras and action cameras.

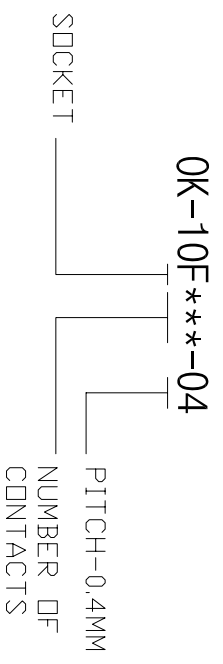
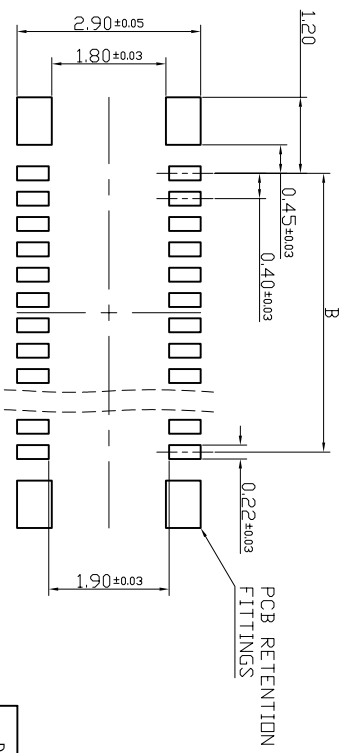
TYPICAL APPLICATION CIRCUIT



REV	ECN NO	DRA	APPD	DATE
A	FIRST RELEASE	George Gao	Huwan Zhou	2013/09/18



- Specifications:
- Material:
 - Molded portion: LCP resin (UL94 V-0)
 - Contact and Post: Copper alloy.
 - Surface treatment:
 - Terminal portion: Base: Ni plating surface; Au plating (except the terminal tips); Exposed nickel portions.
 - Metal clips: Base: Ni plating surface; Au flash plating (except the terminal tips) Or: Base: Ni plating surface; Sn flash plating (except the terminal tips)
 - Characteristics:
 - Rated voltage: 60V AC/DC
 - Rated current: 0.3A/contact (Max. 5A at total contact)
 - Insulation resistance: Min. 1000M Ω (initial)
 - Breakdown voltage: 150V AC for 1 min.
 - Saltwater spray resistance (header and socket mated): 24 hours, insulation resistance min. 100M Ω , contact resistance max. 90m Ω
 - Contact resistance: Max. 90m Ω
 - Ambient temperature: -55 $^{\circ}$ C~+85 $^{\circ}$ C
 - Storage temperature: -55 $^{\circ}$ C~+85 $^{\circ}$ C (product only); -40 $^{\circ}$ C~+50 $^{\circ}$ C (emboss packing)
 - Composite insertion force: Max. 0.981N/contacts X contacts (initial)
 - Composite removal force: Min. 0.165N/contacts X contacts
 - Post holding force: Min. 0.49N/contacts
 - Insertion and removal life: 50 times



OK-10F***-04

TABLE:

40	10.60	7.60
32	9.00	6.00
30	8.60	5.60
26	7.80	4.80
24	7.40	4.40
10	4.60	1.60

DIMENTION IN mm		TOLERANCE UNLESS OTHERWISE SPECIFIED	
. ±0.20	. ±2°	. ±0.10	. 0 ±1°
.00 ±0.05	.00 ±0.5°	.000 ±0.03	.000 ±0.3°

APPR:	TITLE:	0.4MM BTB (MATING HEIGHT 0.7H)	
CHKD:	DWG NO.:	OK-10F***-04	
DRAW:	PROJ:	Q'TY	SIZE
George Gao	2013/09/18	--	A4
OCN TECHNOLOGY		SHEET	SCALE
OCN 奇科技		1/1	1:1
REV		A	

REV	ECN NO	DRA	APPD	DATE
A	FIRST RELEASE	George Gao	Hunan Zhou	2013.09.12

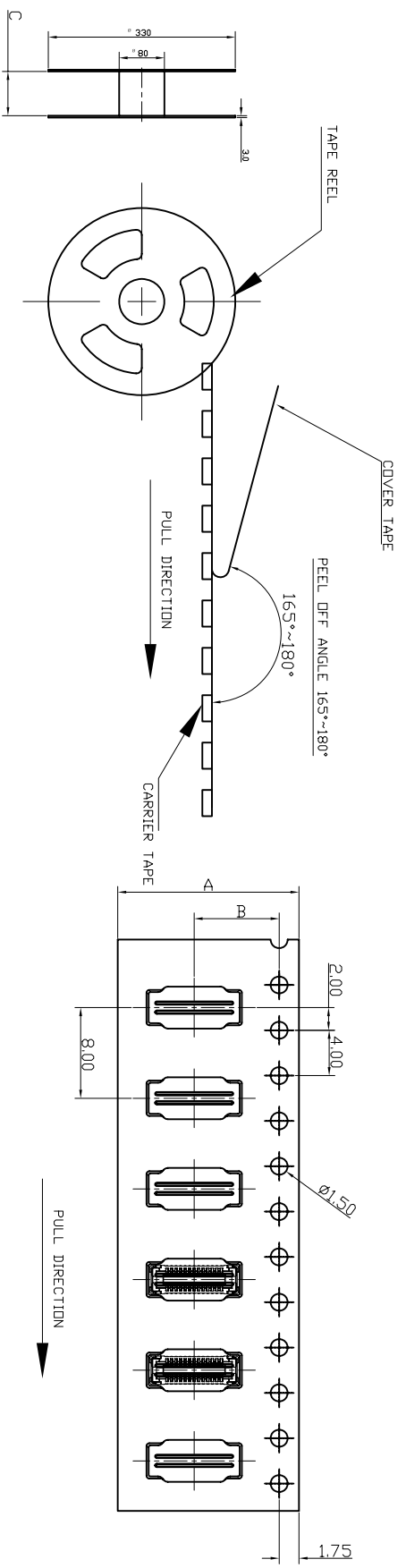


TABLE:

40	24.00	11.50	25.4	5000
32				
30				
26	16.00	7.50	17.4	
24				
10				

NUMBER OF CONTACTS	A	B	C	QTY/REEL
--------------------	---	---	---	----------

DIMENSION IN mm		TOLERANCE UNLESS OTHERWISE SPECIFIED	
±0.20	±2°	±0.10	±1°
±0.10	±0.5°	±0.05	±0.3°
±0.05	±0.3°	±0.03	±0.3°

OCN 芯奇科技
OCN TECHNOLOGY

TITLE: 0.4MM BTB (MATING HEIGHT 0.7H)
 DWG NO.: OK-10F***-04

APPR: _____
 CHKD: _____
 DRA: George Gao
 2013.09.18

PROU: _____
 SIZE: A4
 SHEET: 1/1
 SCALE: 1:1
 REV: A

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							
FREQ		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

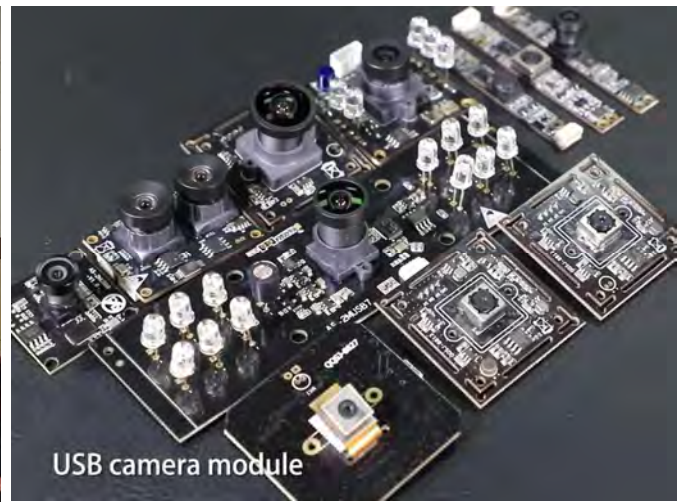
your best camera partner

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

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Professional Service



Promised Delivery



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