

YDS-H4MF-OV5670 V1.0

5MP OmniVision OV5670 MIPI Interface Fixed Focus Camera Module



Front View



Back View

Specifications

Camera Module No.	YDS-H4MF-OV5670 V1.0
Resolution	5MP
Image Sensor	OV5670
Sensor Type	1/5"
Pixel Size	1.12 um x 1.12 um
EFL	2.32 mm
F.NO	2.20
Pixel	2592 x 1944
View Angle	76.1°(DFOV) 63.9°(HFOV) 49.8°(VFOV)
Lens Dimensions	6.50 x 6.50 x 3.90 mm
Module Size	18.50 x 12.50 mm
Module Type	Fixed Focus
Interface	MIPI
Auto Focus VCM Driver IC	None
Lens Model	YDS-LENS-SPY853B-2
Lens Type	650nm IR Cut
Operating Temperature	-30°C to +85°C
Mating Connector	FH12-24S-0.5SH



YDS-H4MF-OV5670 V1.0

5MP OmniVision OV5670 MIPI Interface Fixed Focus Camera Module



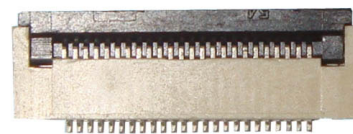
Top View



Side View



Bottom View

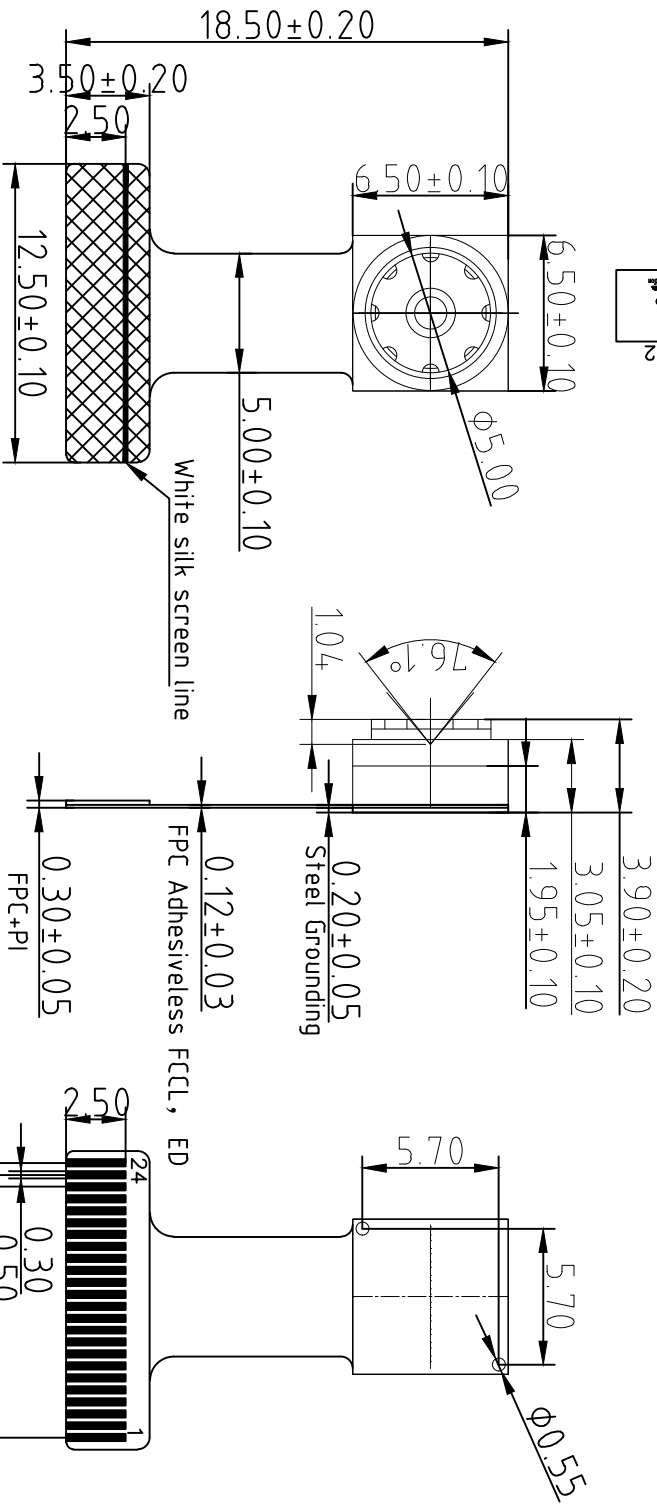
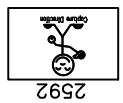


Mating Connector

ROHS

PIN SIGNAL

1	NC
2	AGND
3	SIO_D
4	AVDD 2.8V
5	SIO_C
6	RESET
7	DGND
8	PWDN
9	DGND
10	DVDD 1.2V
11	DOVDD 1.8V
12	MDP1
13	XCLK
14	MDN1
15	DGND
16	MCP
17	DGND
18	MCN
19	DGND
20	MDP0
21	DGND
22	MDN0
23	DGND
24	DGND



TOP VIEW

SIDE VIEW

BOTTOM VIEW

NOTE:

1. The device slave address: 0x6C

Parameters:

1、Sensor specification:

Image Sensor: OV5670
 Pixel: 1.12umx1.12um
 Lens Type: 1/5
 Important Voltage Description: DVDD1.2V
 (external power supply);

2、Lens specification:

FOV: 76.1°
 F/NO.: 2.2
 TV distortion: $<1.5\%$
 Focal length: 2.32mm
 Composition: 3P+IR FILTER
 IR Cut Coating: $650nm \pm 10nm @ 50\%$

Designed By Kevin

Model Name: H4MF-OV5670 V1.0

Checked By Aouly-yan

Projection Type:	Unit: mm	Material:
Third Angle	Scale: 1:1	Sheet: 1 of 1
		Version: 1/0

3

2

1

3

2

1

3

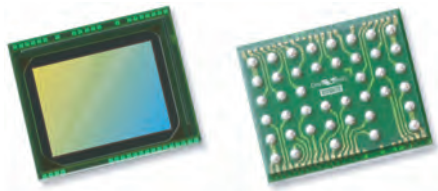
A

B

C

D

E



OV5670 5-megapixel product brief



5-Megapixel PureCel® Image Sensor Brings Improved Image Quality to Rear- and Front-Facing Cameras in Mobile Devices



available in a lead-free package

The OV5670 is a 5-megapixel PureCel image sensor that leverages a 1.12-micron pixel to deliver exceptional still images and high-definition (HD) video to front- and rear-facing cameras in smartphones and tablets.

The OV5670 PureCel image sensor can capture full resolution 5-megapixel (2592x1944) images at 30 frames per second (fps), quad HD video at 30 fps, cropped 1080p HD at 60 fps, or 720p HD at 60 fps. When recording 720p HD video with binning, the sensor achieves sensitivity and signal-to-noise ratio that is comparable to the industry's popular 1.75-micron pixel. Additionally, the sensor's 1.12-micron pixel achieves similar full-well capacity (FWC) as the previous generation's 1.4-micron pixel.

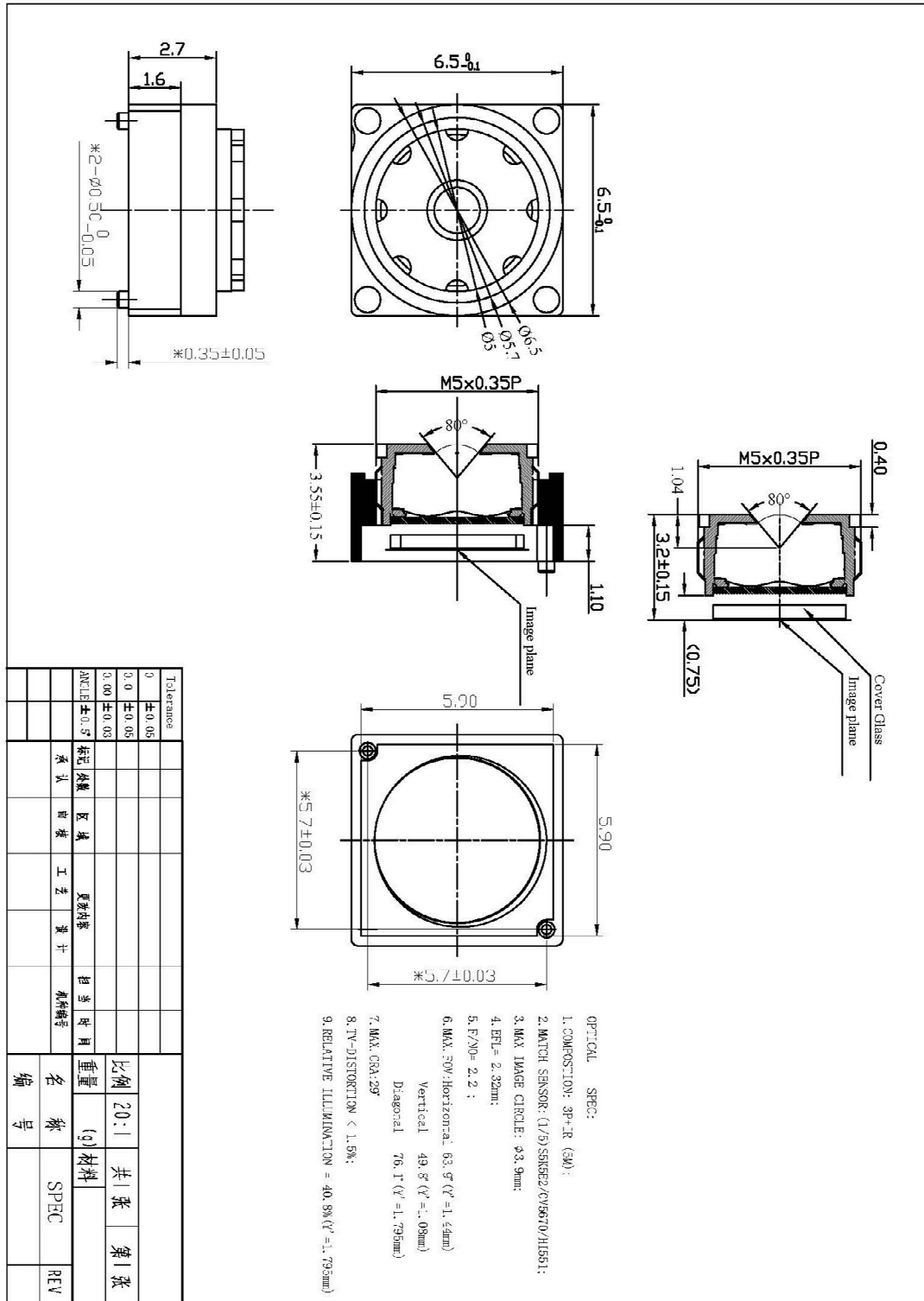
When recording full resolution video, the OV5670 uses approximately 35 percent less power compared to OmniVision's previous generation 5-megapixel sensor. The sensor's ultra low power mode further reduces power consumption, thus minimizing battery drain.

The OV5670 fits into a compact 6 x 6 x 3.5 mm camera module, and is available in a cost-effective chip scale package (CSP).

Find out more at www.ovt.com.

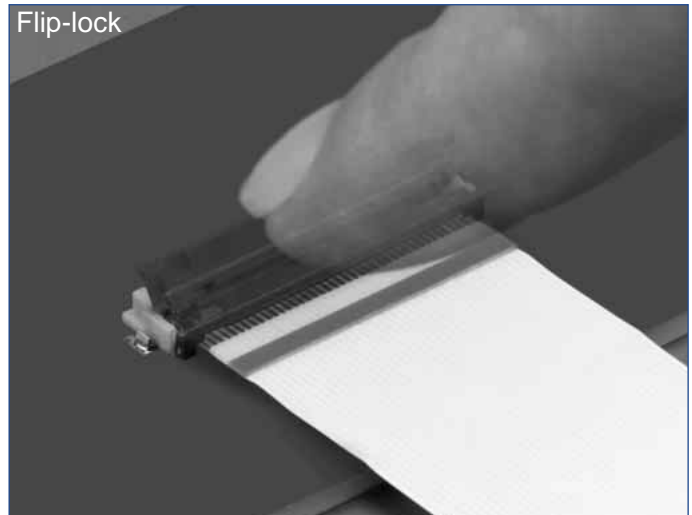
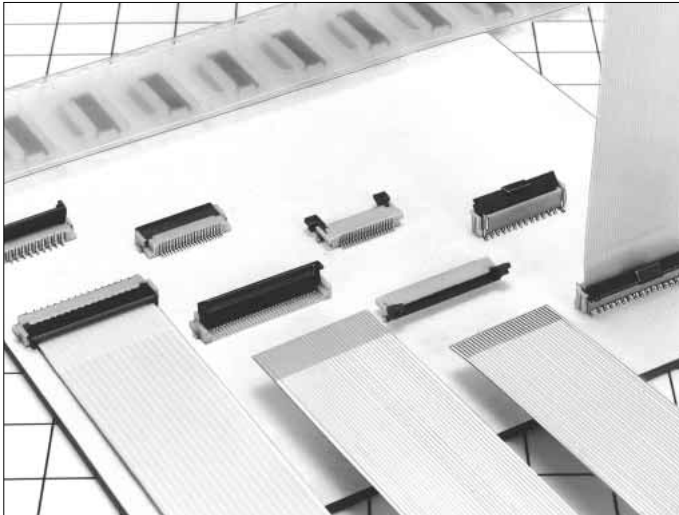


YDS-LENS-SPY853B-2



0.5mm and 1mm Pitch Connectors For FPC/FFC

FH12 Series



■ Features

1. Ease of Use and Space Savings

Only one finger or 6.9N (Newtons) of force is required to lock Hirose's rotational actuator (flip-lock) as compared to using 2 fingers and 39.2N to close a FFC/FPC connector from our competition.

The Flip-Lock design also allows customers to place 2 or more connectors side by side as there is no need to waste additional board space for a side latch.

2. Strengthened Flip-lock Actuator

The standard Flip-Lock requires only 2.0mm height above the board. A strengthened lock lever is available which only requires an additional 0.4mm.

3. Supports Thin FPC (0.18mm)

Hirose does not require double-sided FPC to have any additional strengthening plate or stiffener and can therefore support a thickness of as little as 0.18mm +/- 0.05.

4. Hirose Ensures Reliability

Hirose's patented half tuning fork contacts maintain the required normal force without relying on the connector housing. With our competitor's conventional products the housing walls support the contact force, which does not provide for long-term reliability.

5. Prevention of Solder Bridge

Excess solder cavity absorbs excessive solder and avoids solder bridging.

6. Three different assembly types

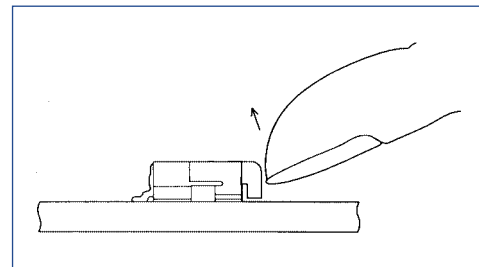
FH12 is offered in Top & Bottom Contact and Vertical Mount and offered in both a 0.5mm contact pitch as well as a 1.0mm contact pitch (bottom contact only).

■ Applications

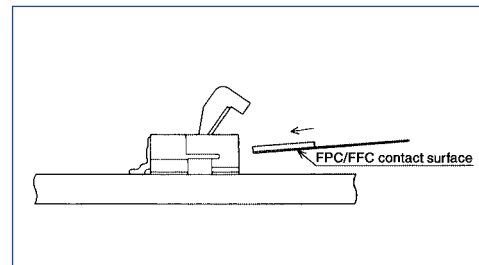
Notebook computers, printers, PDAs, digital cameras and other compact devices for interconnecting the main circuit board with the LCD, HDD or other device.

Rotating One-touch Mechanism

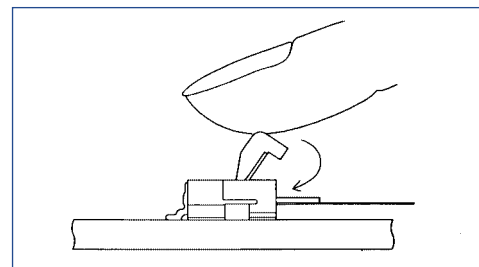
①



②



③



Product Specifications

Rating	Current rating: 0.5A DC(Note 1)	Operating Temperature Range: -40 to +70°C (Note 2)	Storage Temperature Range: -10 to +50°C (Note 3)
	Voltage rating: 50V AC	Operating Humidity Range: Relative humidity, 90% max. (Not dewed)	Storage Humidity Range: Relative humidity, 90% max. (Not dewed)

Applicable FPC	t=0.3±0.05 Gold plated	t=0.18 ± 0.05 for FH12F-*S-0.5SH
----------------	------------------------	----------------------------------

Item	Specification	Conditions
1. Insulation resistance	500M ohms minimum	100V DC
2. Withstanding voltage	No flashover or insulation breakdown.	150V AC/1 minute
3. Contact resistance	50m ohms maximum	1mA
4. Durability (Insertion/withdrawal)	Contact resistance: 50m ohms maximum No damage, cracks, or parts dislocation.	20 cycles
5. Vibration	No electrical discontinuity of 1μs or more Contact resistance: 50m ohms maximum. No damage, cracks, or parts dislocation.	Frequency: 10 to 55 Hz, single amplitude of 0.75 mm, 2 hours in each of the 3 directions.
6. Shock	No electrical discontinuity of 1μs or more Contact resistance: 50m ohms maximum. No damage, cracks, or parts dislocation.	Acceleration of 490 m/s ² , 11 ms duration, sine half-wave waveform, 3 cycles in each of the 3 axis.
7. Humidity(Steady state)	Contact resistance: 50m ohms maximum. Insulation resistance: 50M ohms minimum. No damage, cracks, or parts dislocation.	96 hours at 40°C and humidity of 90% to 95%
8. Temperature Cycle	Contact resistance: 50m ohms maximum. Insulation resistance: 50M ohms minimum. No damage, cracks, or parts dislocation.	Temperature: -40°C → 15 to 35°C → 85°C → 15 to 35°C, Time: 30 → 5 max. → 30 → 5 max.(minutes) 5 cycles
9. Resistance to Soldering heat	No deformation of components affecting performance.	Reflow: At the recommended temperature profile Manual soldering: 350±5°C for 3 seconds

Note 1: When passing the current through all of the contacts, use 70% of the current rating.

Note 2: Includes temperature rise caused by current flow.

Note 3: The term "storage" refers to products stored for long period of time prior to mounting and use. Operating Temperature Range and Humidity range covers nonconducting condition of installed connectors in storage, shipment or during transportation.

Material

Part	Material	Finish	Remarks
Insulator	Polyamide, LCP(60 pos.)	Color : Beige	UL94V-0
Actuator	PPS	Color : Dark brown	
Contact	Phosphor bronze	Gold plated	
Metal Fittings	Brass	Tin plated	

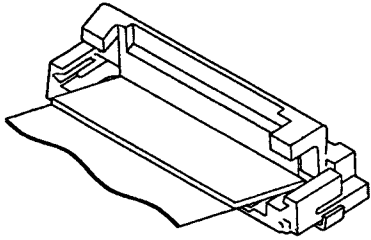
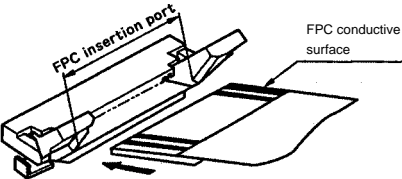
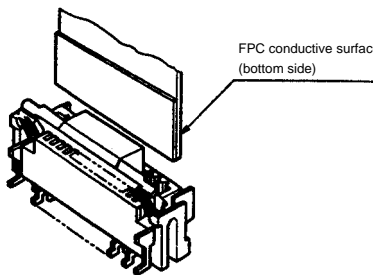
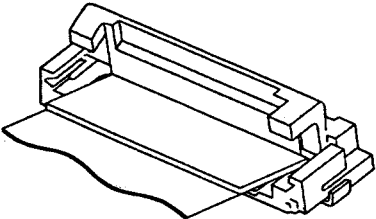
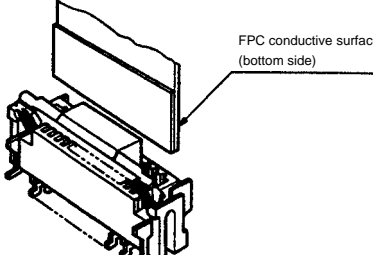
Ordering Information

FH12 **A** - **10** (**4**) - **S** **A** - **0.5** **SH** (**55**)
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

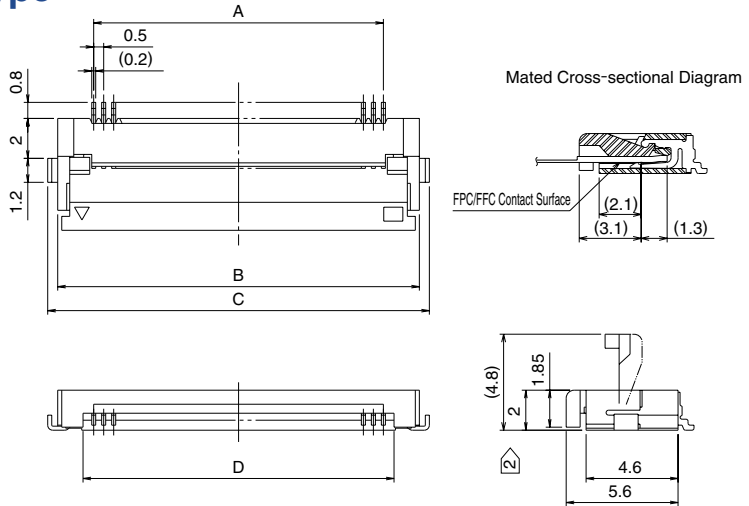
① Series Name : FH12	⑤ Contact alignment: Single
② Blank : standard type A : Top contact type S : Type with strengthened flip-lock actuator F : Type with 0.18mm FPC End Thickness	⑥ Eccentric direction: Blank : standard type A : Eccentric type
③ Standard type : Number of contacts Eccentric type : Number of contacts in 0.5mm housing	⑦ Contacts Pitch : 0.5mm, 1mm
④ Standard type : Blank Eccentric type : Number of contacts	⑧ Contact type SH : SMT horizontal mounting type SV : SMT vertical mounting type
	⑨ Plating specification (55) : Gold plated

FH12 Series 0.5mm and 1mm Pitch Connectors For FPC/FPC

Series Configuration

Pitch	Bottom Contact Type	Top Contact Type	Vertical mounting Type
0.5mm	 <p>FH12- ** S-0.5SH P.12 Number of contacts 6, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 22, 24, 25, 26, 28, 30, 32, 33, 34, 35, 36, 40, 45, 50, 53</p>		
	<p>Type with Strengthened Lock Lever</p>		
	<p>FH12S- ** S-0.5SH P.13 Number of contacts 30, 40, 45, 50, 53</p>		
	<p>Type with 0.18mm FPC End Thickness</p>		
	<p>FH12F- ** S-0.5SH P.14 Number of contacts 6, 8, 10, 12, 13, 14, 15, 16, 18, 20, 22, 24, 25, 26, 28, 30, 32, 34, 36, 40</p>		
1mm	 <p>Standard FH12- ** S-1SH P.18 Eccentric FH12- ** (***) SA-1SH Standard Number of contacts 5, 6, 7, 8, 9, 11, 12, 16, 17, 22, 26 Eccentric Number of contacts 4, 6, 8, 10, 11, 14, 19, 24</p>		 <p>FH12- ** S-1SV P.19 Number of contacts 6, 7, 8, 16, 20, 22, 24</p>

0.5mm Pitch Bottom Contact Type



Unit:mm

Part Number	CL No.	Number of Contacts	A	B	C	D	RoHS
FH12- 6S-0.5SH(55)	586-0582-5-55	6	2.5	6.1	7.1	3.57	YES
FH12- 8S-0.5SH(55)	586-0744-5-55	8	3.5	7.1	8.1	4.57	
FH12-10S-0.5SH(55)	586-0522-3-55	10	4.5	8.1	9.1	5.57	
FH12-11S-0.5SH(55)	586-0600-5-55	11	5	8.6	9.6	6.07	
FH12-12S-0.5SH(55)	586-0704-0-55	12	5.5	9.1	10.1	6.57	
FH12-13S-0.5SH(55)	586-0549-0-55	13	6	9.6	10.6	7.07	
FH12-14S-0.5SH(55)	586-0533-0-55	14	6.5	10.1	11.1	7.57	
FH12-15S-0.5SH(55)	586-0523-6-55	15	7	10.6	11.6	8.07	
FH12-16S-0.5SH(55)	586-0531-4-55	16	7.5	11.1	12.1	8.57	
FH12-17S-0.5SH(55)	586-0606-1-55	17	8	11.6	12.6	9.07	
FH12-18S-0.5SH(55)	586-0530-1-55	18	8.5	12.1	13.1	9.57	
FH12-19S-0.5SH(55)	586-0534-2-55	19	9	12.6	13.6	10.07	
FH12-20S-0.5SH(55)	586-0524-9-55	20	9.5	13.1	14.1	10.57	
FH12-22S-0.5SH(55)	586-0532-7-55	22	10.5	14.1	15.1	11.57	
FH12-24S-0.5SH(55)	586-0521-0-55	24	11.5	15.1	16.1	12.57	
FH12-25S-0.5SH(55)	586-0692-3-55	25	12	15.6	16.6	13.07	
FH12-26S-0.5SH(55)	586-0576-2-55	26	12.5	16.1	17.1	13.57	
FH12-28S-0.5SH(55)	586-0612-4-55	28	13.5	17.1	18.1	14.57	
Note ② FH12-30S-0.5SH(55)	586-0525-1-55	30	14.5	18.1	19.1	15.57	
FH12-32S-0.5SH(55)	586-0681-7-55	32	15.5	19.1	20.1	16.57	
FH12-33S-0.5SH(55)	586-0520-8-55	33	16	19.6	20.6	17.07	
FH12-34S-0.5SH(55)	586-0617-8-55	34	16.5	20.1	21.1	17.57	
FH12-35S-0.5SH(55)	586-0740-4-55	35	17.0	20.6	21.6	18.07	
FH12-36S-0.5SH(55)	586-0526-4-55	36	17.5	21.1	22.1	18.57	
Note ② FH12-40S-0.5SH(55)	586-0527-7-55	40	19.5	23.1	24.1	20.57	
Note ② FH12-45S-0.5SH(55)	586-0528-0-55	45	22	25.6	26.6	23.07	
Note ② FH12-50S-0.5SH(55)	586-0529-2-55	50	24.5	28.1	29.1	25.57	
Note ② FH12-53S-0.5SH(55)	586-0595-7-55	53	26	29.6	30.6	27.07	

Note 1 : Embossed tape reel packaging (2,000 pieces/reel).
 Order by number of reels.

Note ② : If there is no problem with the connector height, we recommend the type with the strengthened Flip-lock actuator (FH12S-*S-0.5SH).
 Standard type connector height: 2 mm
 Connector height of type with strengthened Flip-lock actuator: 2.4 mm



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							

www.YDSCAM.com sales@ydscam.com Phone (WeChat, QQ): (+86) 177 2732 6718

All rights reserved @ YingDeShun Co. Ltd. Specifications subject to change without notice.

Cameras Applications



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

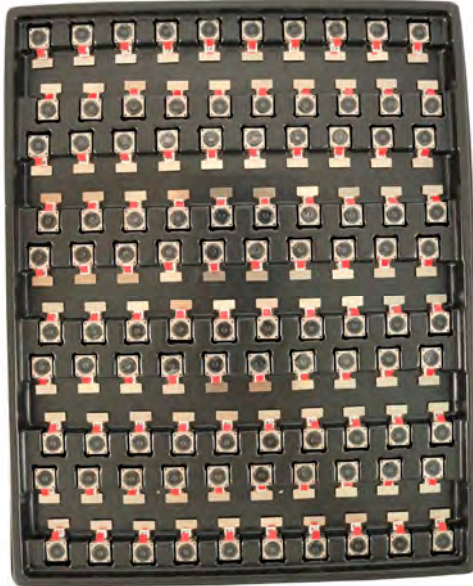


Place Cameras on the Tray



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

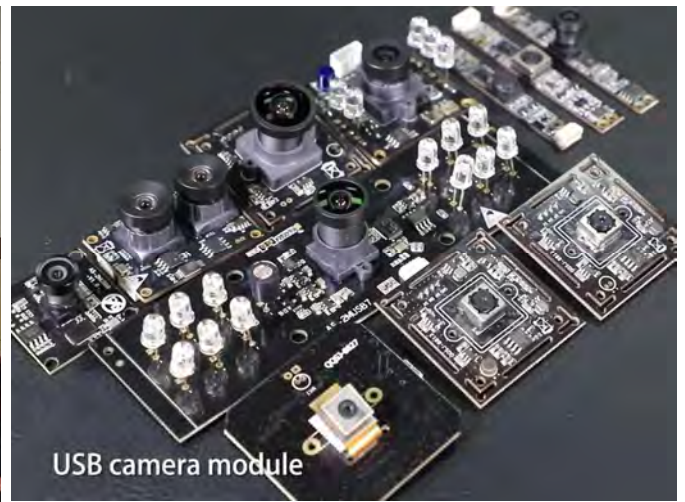
your best camera partner

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.



www.YDSCAM.com sales@ydscam.com Phone (WeChat, QQ): (+86) 177 2732 6718

All rights reserved @ YingDeShun Co. Ltd. Specifications subject to change without notice.



YDS CAMERA MODULE

your best camera partner

YDS Strength

Powerful Factory



Professional Service



Promised Delivery



www.YDSCAM.com sales@ydscam.com Phone (WeChat, QQ): (+86) 177 2732 6718

All rights reserved @ YingDeShun Co. Ltd. Specifications subject to change without notice.