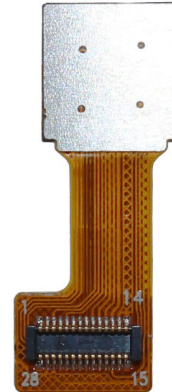


## YDS-C7PA-HM5065 V3.4

### 5MP Himax HM5065 DVP PARALLEL Interface Auto Focus Camera Module



Front View



Back View

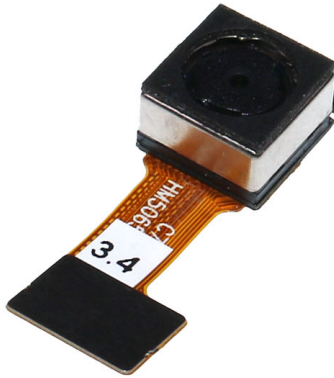
#### Specifications

<b>Camera Module No.</b>	<b>YDS-C7PA-HM5065 V3.4</b>
<b>Resolution</b>	5MP
<b>Image Sensor</b>	HM5065
<b>Sensor Type</b>	1/4"
<b>Pixel Size</b>	1.4 um x 1.4 um
<b>EFL</b>	3.20 mm
<b>F.NO</b>	2.80
<b>Pixel</b>	2592 x 1944
<b>View Angle</b>	70.0°(DFOV) 58.6°(HFOV) 45.3°(VFOV)
<b>Lens Dimensions</b>	8.50 x 8.50 x 5.32 mm
<b>Module Size</b>	24.02 x 8.50 mm
<b>Module Type</b>	Auto Focus
<b>Interface</b>	DVP PARALLEL
<b>Auto Focus VCM Driver IC</b>	Embedded
<b>Lens Model</b>	YDS-LENS-M5182
<b>Lens Type</b>	650nm IR Cut
<b>Operating Temperature</b>	-30°C to +70°C
<b>Mating Connector</b>	GB042-28S-H10



## YDS-C7PA-HM5065 V3.4

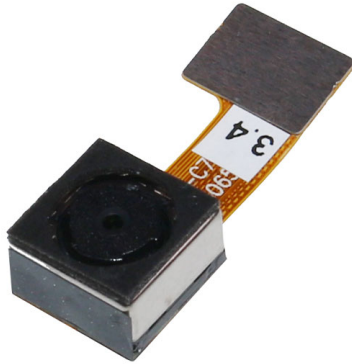
### 5MP Himax HM5065 DVP PARALLEL Interface Auto Focus Camera Module



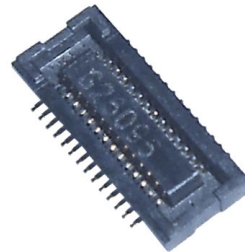
Top View



Side View



Bottom View



Mating Connector





# DATA SHEET

(DOC No. HM5065-DS)



## **HM5065**

5MP CMOS Image Sensor SoC

*Preliminary version 03 June, 2012*

# HM5065

5.0MP CMOS Image Sensor SoC  
1/4" format

## Preliminary Features



Himax Imaging, Inc.

June, 2012

- 5.0 megapixel resolution (2592H x 1944V) with 16 border pixels in 1/4" optical format
- Support up to 15 fps with 5MP (JPEG422), 30 fps with analog binning 2x2, 60 fps with analog binning 4x4
- Integrated Image Processing Pipeline functions
  - Pixel defect correction
  - Binning resampling
  - Luminance and color noise reduction
  - Lens shade correction
  - Hue / Saturation adjustment
  - Brightness / Contrast control
  - Edge enhancement
  - Color interpolation and correction
  - Gamma correction
- Embedded imaging sensor controller for automatic exposure control, automatic white balance control, black level compensation, contrast stretching, 50/60 Hz flicker detection and cancelling, and flash support
- Fully programmable independent H and V scaling with derating (max. 1600x1200 FFOV)
- ITU-R BT.656-4 YUV (YCbCr) 4:2:2, RGB 565, RGB 444, RGB 555, JPEG 422 output formats
- 8-bit parallel video interface, horizontal and vertical syncs, 89 MHz (max) clock
- Fully integrated auto-focus VCM Driver
- MIPI CSI-2 dual lanes interface option
- Two-wire serial control interface
- On-chip PLL with SSCG support, 6 MHz to 27 MHz clock input

### Key Parameter

Sensor Parameters	Value
Active Pixel Array	2608 x 1960
Optical Format	1/4"
Pixel Size	1.4μ
Image Area Diagonal	4567μm diagonal
Color Filter Array	Bayer RGB
Scan Mode	Progressive
Shutter	Electronic Rolling Shutter
ADC Resolution	10-bit
S/N Ratio (maximum)	35.6dB
Dynamic Range	68dB
Sensitivity (@ 530nm)	520 mV / Lux-sec
CRA (maximum)	25.8° non-linear

Device Parameters	Value	
Power Supply	Analog	2.8V
	Digital	1.8V (typical) or 2.6V
Serial Register	SDA, SCL	
Output Lane	MIPI-CSI2, Parallel (ITU)	
Input Reference Clock	6 to 27MHz	
Maximum Readout		15fps@full (JPEG422)
		15fps@1080p (Crop)
		30fps@720p (Crop)
		60fps@VGA
Maximum Readout	MIPI	357MHz per lane
	YUV	89MHz
Data Output Format	YUV (YCbCr422), JPEG422 RGB565 / 555 / 444, RAW	
Power	Full Frame	255mW (1.8V Vdd, JPEG)
Consumption	PWDN	<10μW

### Order Information

Part Number	CFA	Package Type
HM5065-AGA	Bayer (Color)	Bare Die (RW)
HM5065-APA	Bayer (Color)	PLCC-28
HM5065-APB	Bayer (Color)	PLCC-32
HM5065-APC	Bayer (Color)	PLCC-28
HM5065-APD	Bayer (Color)	PLCC-32

### Preliminary HM5065 Datasheet – Himax Imaging Proprietary and Confidential

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## YDS-LENS-M5182

SPECIFICATION	
1. SENSOR SIZE	1/4" (3M COB)
2. MAX IMAGE CIRCLE	$\phi 4.85\text{mm}$
3. TOTAL TRACK	4.0±0.1mm
4. EFL	3.2mm
5. OPTICAL EFL	1.32mm
6. MECHANICAL EFL	0.98mm
7. F/NO	2.8=5f
8. VIEW OR FIELD DIAGONAL	45.3° (Y=1.36) 58.6° (Y=1.81) 70.0° (Y=2.26)
9. OPTICAL DISTORTION	<1.0%
10. TV DISTORTION	<1.0%
11. RELATIVE ILLUMINATION	>42.2%
12. CONSTRUCTION	4P
13. CHIEF RAY ANGLE	<25°
14. CUT FREQUENCY AT 50%	\
15. THREAD	M6.0X0.35P
16. IMAGE QUALITY	AXIS 330lp/mm
	0.7Y 200lp/mm
17. APPEARANCE QUALITY (Scratch/Dirt)	CENTER 20/1C EDGE 40/20

NO	MODIFY CONTENT	NAME	DATE	ANGLE	RANGE	DIM	UNIT	SCALE	APPROVED BY	REMARK
1	增加规格书5.35G/A.35H/95.59 (V.010)	tonlin	2016-12-05	X.XX	±0.05	mm	mm	10:1		

**NOTE:**

- 镜头表面不可有油污、灰尘、毛丝等异物。
- 镜头配VCM锁附高度为 4.2±0.1mm, 扭力为20--120gf.cm。
- 镜头承受推力为≥2.0kg。
- 镜头组品质参数需符合图中要求。

# GB042 series

## 0.4mm pitch PCB to PCB Connector

### GB042 series | Receptacle & Embossed Tape Assembly



#### Features

- GB042 series Connector is 0.4 mm pitch, low profile PCB to PCB SMT type connector.
- Improved contact reliability with plug and receptacle contacting at 2 point simultaneously.
- Stable unmating mechanism preventing receptacle contact from being deformed.

#### Applications

- Mobile phone
- Compact portable devices, etc

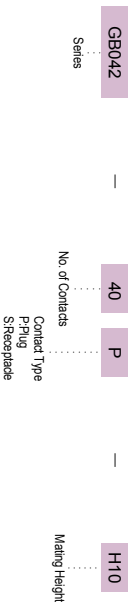
#### Materials & Finishes

Parts	Materials / Finishes
Insulator	UL94V-0
Contact	Plug Copper Alloy
	Recept. Copper Alloy
	AU Plating
	AU Plating

#### Specifications

No. of Contacts	10-80
Stacking Height	1.0mm
Contact Spacing	0.4mm
Current Rating	AC, DC 0.3A/pin
Voltage Rating	AC, DC 50V
Dielectric Withstanding Voltage	AC 250V (r.m.s for one minute)
Insulation Resistance	1000MΩ
Contact Resistance	70mΩ
Operating Temp.	-25°C ~ +85°C

#### Ordering Information

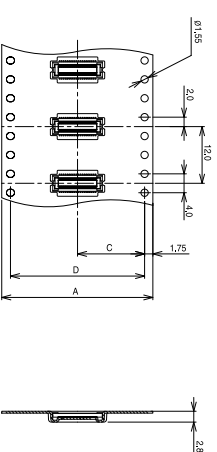
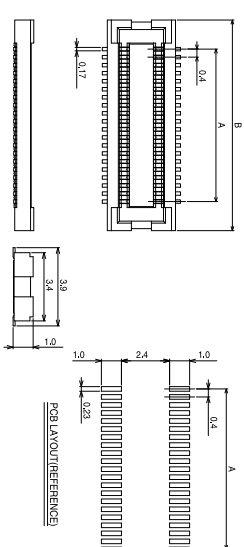
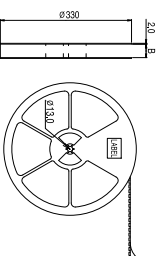


#### Receptacle



#### Embossed Tape Assembly

#### Bobbin



No. of Pin	Part Number	Receptacle		Embossed Tape Assembly			
		A	B	A	B	C	D
10	GB042-10S-**-H10-E3000	1.6	4.5				
20	GB042-20S-**-H10-E3000	3.6	6.5	16.0	18.0	7.5	-
24	GB042-24S-**-H10-E3000	4.4	7.3				
28	GB042-28S-**-H10-E3000	5.2	8.1				
30	GB042-30S-**-H10-E3000	5.6	8.5				
34	GB042-34S-**-H10-E3000	6.4	9.3				
40	GB042-40S-**-H10-E3000	7.6	10.5	24.0	26.0	11.5	-
44	GB042-44S-**-H10-E3000	8.4	11.3				
50	GB042-50S-**-H10-E3000	9.6	12.5				
54	GB042-54S-**-H10-E3000	10.4	13.3				
60	GB042-60S-**-H10-E3000	11.6	14.5				
64	GB042-64S-**-H10-E3000	12.4	15.3	32.0	34.0	14.2	28.4
70	GB042-70S-**-H10-E3000	13.6	16.5				



# 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							
<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 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

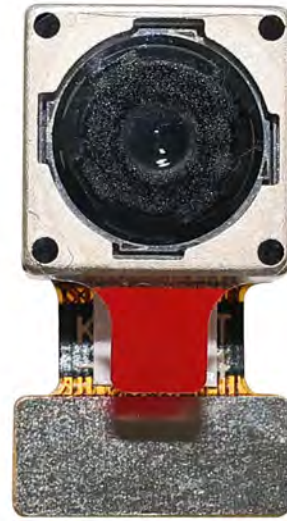
Inspection Item		Inspection Method	Standard of Inspection		
Category	Item				
Appearance	FPC/ PCB	Color	The Naked Eye	Major Difference is Not Allowed.	
		Be Torn/Chopped	The Naked Eye	Copper Crack Exposure is Not Allowed.	
		Marking	The Naked Eye	Clear, Recognizable (Within 30cm Distance)	
	Holder	Scratches	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



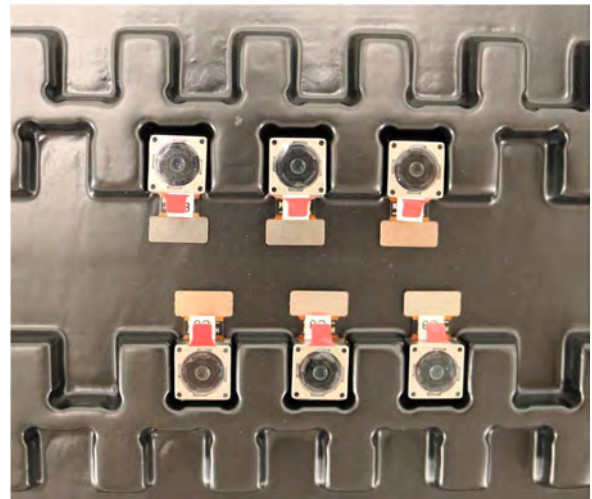
Complete with Lens Protection Film



Tray with Grid and Space

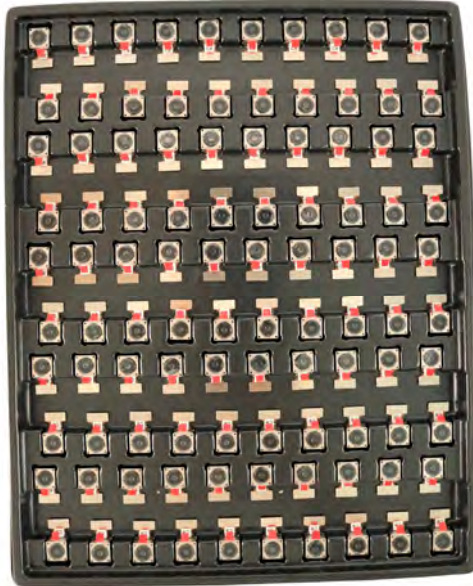


Place Cameras on the Tray

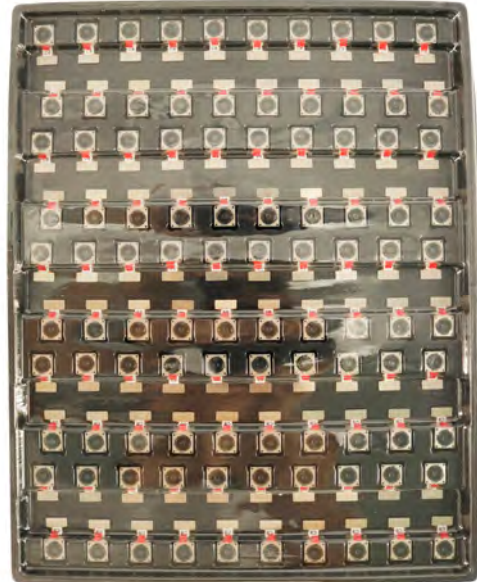


## YDSCAM Package Solutions

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

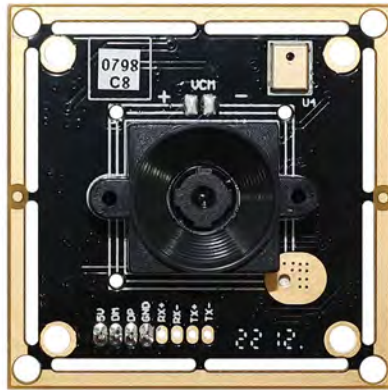




## YDSCAM Package Solutions

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

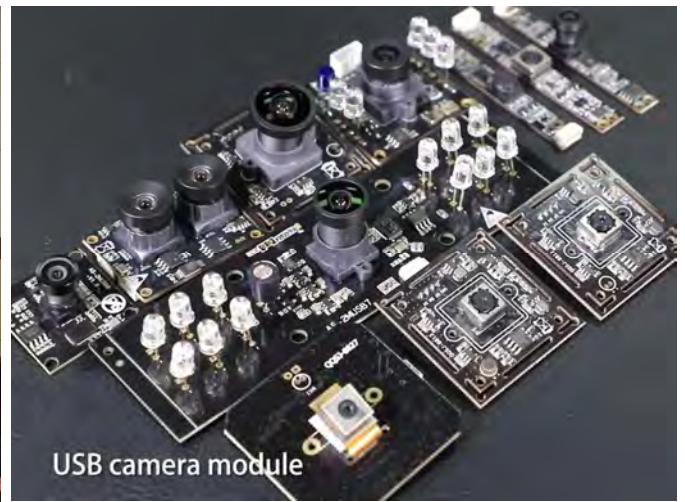
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## Company YDSCAM

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

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## YDS Strength

### Powerful Factory



### Professional Service



### Promised Delivery



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