

your best camera partner

YDS-KC4-OV5640-1B_FF V2.0 5MP OmniVision OV5640-1B MIPI Interface Fixed Focus Camera Module





Front View Back View

Specifications

Camera Module No.	YDS-KC4-OV5640-1B_FF V2.0	
Resolution	5MP	
Image Sensor	OV5640-1B	
Sensor Type	1/4"	
Pixel Size	1.4 um x 1.4 um	
EFL	3.29 mm	
F.NO	2.80	
Pixel	2592 x 1944	
View Angle	68.7°(DFOV) 58.1°(HFOV) 45.0°(VFOV)	
Lens Dimensions	8.50 x 8.50 x 4.87 mm	
Module Size	21.00 x 8.50 mm	
Module Type	Fixed Focus	
Interface	MIPI	
Auto Focus VCM Driver IC	Embedded	
Lens Model	YDS-LENS-M5101	
Lens Type	650nm IR Cut	
Operating Temperature	-30°C to +70°C	
Mating Connector	24-5804-024-000-829	



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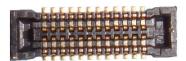




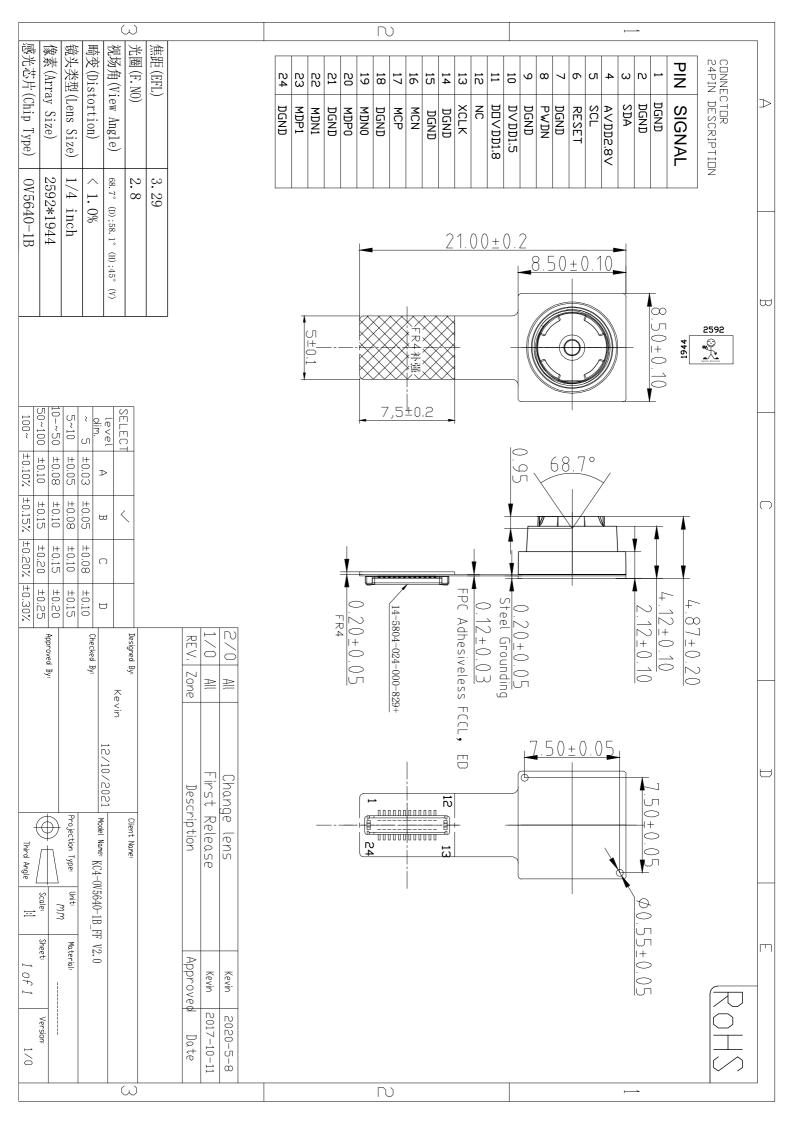
Side View



Bottom View



Mating Connector





OV5640 5-megapixel product brief





available in a lead-free package

1/4-inch, 5-Megapixel SOC Image Sensor Optimized for High-Volume Mobile Markets

The OV5640 delivers a complete 5-megapixel camera solution on a single chip, aimed at offering cost efficiencies that serve the high-volume autofocus (AF) camera phone market. The system-on-a-chip (SOC) sensor features OmniVision's 1.4 micron OmniBSI™ backside illumination architecture to deliver excellent pixel performance and best-in-class low-light sensitivity, while enabling ultra compact camera module designs of 8.5 mm x 8.5 mm with <6 mm z-height. The OV5640 provides the full functionality of a complete camera, including anti-shake technology, AF control, and MIPI while being easier to tune then two-chip solutions, making it an ideal choice in terms of cost, time-to-market and ease of platform integration.

The OV5640 enables 720p HD video at 60 frames per second (fps) and 1080p HD video at 30 fps with complete user control over formatting and output data transfer. The 720p/60 HD video is captured in full field of view (FOV) with 2 x 2 binning, which doubles the sensitivity and improves the signal-to-noise ratio (SNR). Additionally, a unique post-binning re-sampling filter function removes zigzag artifacts around slant edges and minimizes spatial artifacts to deliver even sharper, crisper

color images. To further improve camera performance and user experience, the OV5640 features an internal anti-shake engine for image stabilization, and it supports Scalado™ tagging for faster image preview and zoom.

The OV5640 offers a digital video port (DVP) parallel interface and a high-speed dual lane MIPI interface, supporting multiple output formats. An integrated JPEG compression engine simplifies data transfer for bandwidth-limited interfaces. The sensor's automatic image control functions include automatic exposure control (AEC), automatic white balance (AWB), automatic band filter (ABF), 50/60 Hz automatic luminance detection, and automatic black level calibration (ABLC). The OV5640 delivers programmable controls for frame rate, AEC/AGC 16-zone size/position/weight control, mirror and flip, cropping, windowing, and panning. It also offers color saturation, hue, gamma, sharpness (edge enhancement), lens correction, defective pixel canceling, and noise canceling to improve image quality.

Find out more at www.ovt.com.



applications

- cellular phones
- toys
- PC multimedia
- digital still cameras

ordering information

OV05640-A71A-1B (color, lead-free)71-pin CSP

features

- 1.4 µm x 1.4 µm pixel with OmniBSI technology for high performance (high sensitivity, low crosstalk, low noise, improved quantum efficiency)
- optical size of 1/4"
- automatic image control functions: automatic exposure control (AEC), automatic white balance (AWB), automatic band filter (ABF), automatic 50/60 Hz luminance detection, and automatic black level calibration (ABLC)
- programmable controls for frame rate, AEC/AGC 16-zone size/position/weight control, mirror and flip, cropping, windowing, and panning
- image quality controls: color saturation, hue, gamma, sharpness (edge enhancement), lens correction, defective pixel canceling, and noise canceling
- support for output formats: RAW RGB, RGB565/555/444, CCIR656, YUV422/420, YCbCr422, and compression
- support for video or snapshot operations
- support for internal and external frame synchronization for frame exposure mode

- support for LED and flash strobe mode
- support for horizontal and vertical sub-sampling, binning
- support for minimizing artifacts on binned image
- support for data compression output
- support for anti-shake
- standard serial SCCB interface
- digital video port (DVP) parallel output interface and dual lane MIPI output interface
- embedded 1.5V regulator for core power
- programmable I/O drive capability, I/O tri-state configurability
- support for black sun cancellation
- support for images sizes: 5 megapixel, and any arbitrary size scaling down from 5 megapixel
- support for auto focus control (AFC) with embedded AF VCM driver
- embedded microcontroller
- suitable for module size of 8.5 x 8.5 x <6mm with both CSP and RW packaging

key specifications (typical)

active array size: 2592 x 1944

power supply:

core: $1.425 \sim 1.675V$ (with embedded 1.5V regulator) analog: $2.6 \sim 3.0V$ (2.8V typical) I/O: 1.8V / 2.8V

power requirements:

active: 140 mA standby: 20 µA

temperature range:

operating: -30°C to 70°C junction temperature (see table 8-2)

stable image: 0°C to 50°C junction temperature (see table 8-2)

output formats: 8-/10-bit RGB RAW output

lens size: 1/4"

lens chief ray angle: 24° (see figure 10-2)

■ input clock frequency: 6~27 MHz

max S/N ratio: 36 dB

■ dynamic range: 68 dB @ 8x gain

maximum image transfer rate:

QSXGA (2592x1944): 15 fps 1080p: 30 fps 1280x960: 45 fps

720p: 60 fps

VGA (640x480): 90 fps

sensitivity: 600 mV/Lux-sec

shutter: rolling shutter / frame exposure

maximum exposure interval: 1964 x t_{ROW}

pixel size: 1.4 μm x 1.4 μm

■ dark current: 8 mV/s @ 60°C junction temperature

• image area: 3673.6 μm x 2738.4 μm

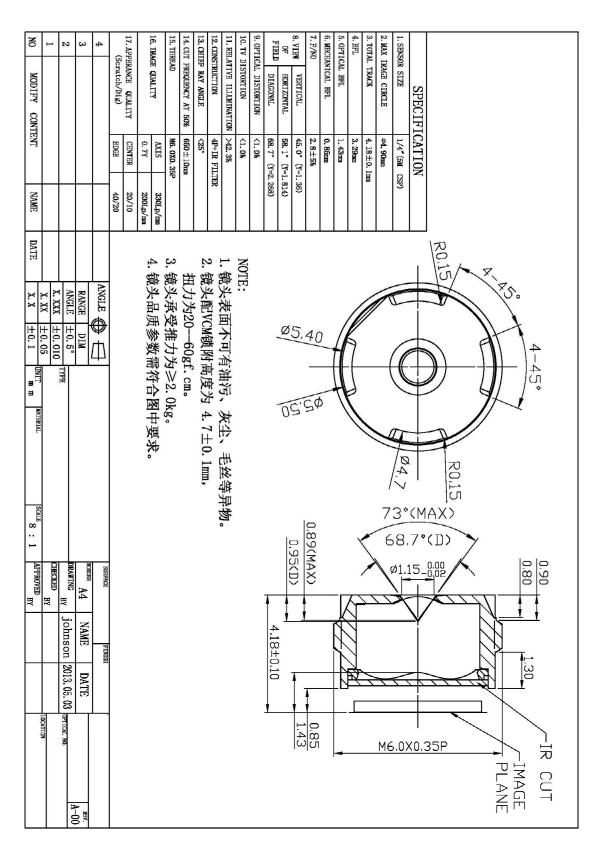
package dimensions: 5985 μm x 5835 μm



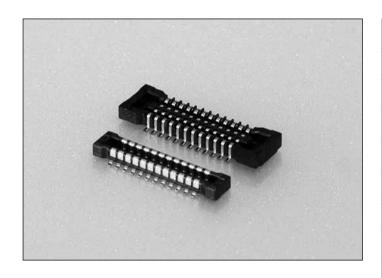


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YDS-LENS-M5101



0.4_{mm}Pitch Series 5804



シリーズ (Series)	5804			
基板間高さ (Stacking Height)	0.9mm			
極間隔 (Pitch)	0.4mm			
極数 (No. of Positions)	10~80			
定格電流 (Rated Current)	DC 0.3A			
定格電圧 (Rated Voltage)	DC 50V			
耐電圧 (D.W.Voltage)	AC 250Vrms/min.			
コンタクト材質 (Contact Material)	銅合金 Copper alloy			
インシュレータ材質 (Insulator Material)	耐熱樹脂 Heat resistance plastic			
使用温度範囲 (Operating Temperature)	-40~85℃			

SERIES 5804

◇概要

5804シリーズは、市場における携帯電話やデジタルAV機器等の小型化、薄型化の要求に基づき開発された0.4mmピッチ、嵌合高さ0.9mmの超低背基板対基板コネクタです。幅寸法は2.4mmと、より一層の省面積化を実現しています。

○Outline

Series 5804 is a 0.4mm pitch and ultra low profile Board to Board connector with 0.9mm in mating height is developed to meet marketing needs for minimum size of cell phones, digital AV equipment, etc. A great deal of space saving is achieved with 2.4mm in width.

◇特長

- (1) スリム・低背でありながらコネクタ裏面に下壁を設け金属の露出がなく、製品の端子ランド対向間にパターン配線が可能であり、高密度実装に最適な構造です。
- (2) 高い接触信頼性を実現するために、接触構造は振動や落下衝撃に強い挟み込み構造を採用するとともに、接触部は飛散したフラックスや付着した 異物を排除する独自の構造を採用しました。
- (3) 嵌合時のロック構造は、独自のロック構造を採用。低背でありながらも優れたクリック感と、抜去時の保持力を強化しています。

♦Features

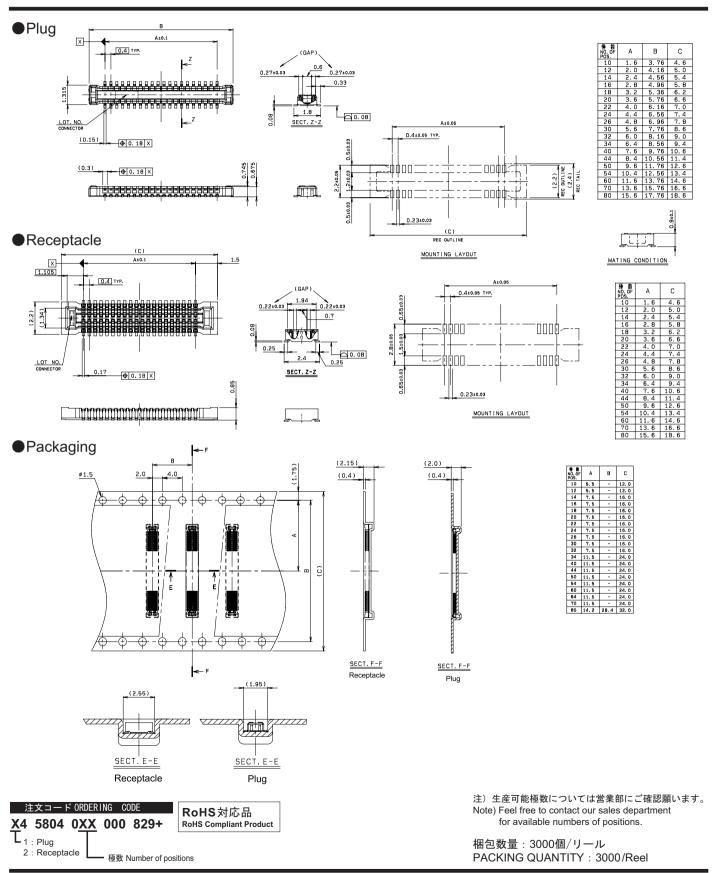
- (1) Pattern can be laid out between connector leads, which is suitable for high density package, because no metal is exposed on the bottom of the connector besides its slim and low profile.
- (2) The pinching structure, highly resistant to vibration and drop shock, is adopted in contacts and the original structure excluding splashed flux or foreign matters attached is adopted on contacting points in order to obtain high contacting reliability.
- (3) Original locking structure is adopted for mating lock mechanism that realizes the firm clicking response and enhances the retention force when connectors unmated even with their low profile.

0.4mm Pitch

SERIES

5804

プラグ/リセ ST SMT Plug/Receptacle Vertical SMT





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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	3				
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 D00 Y0	DVP data output port 0				
D1 D01 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 D06 Y6	DVP data output port 6				
D7 D07 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 D011 Y11	DVP data output port 11				
ווו ווטס ווס	DVI data output port 11				



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Cameras Applications





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Camera Reliability Test

Reliability Inspection Item		Tanking Makhad	A Critaria		
Category		Item	Testing Method	Acceptance Criteria	
	Storage	High 60°C 96 Hours	Temperature Chamber	No Abnormal Situation	
	Temperature	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	
Environmental	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	
Titysical		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

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Inspection Item		ı Item		
Category		Item	Inspection Method	Standard of Inspection
	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)
		Scratches	The Naked Eye	The Inside Crack Exposure is Not Allowed
	Holder	Gap	The Naked Eye	Meet the Height Standard
Appearance		Screw	The Naked Eye	Make Sure Screws Are Presented (If Any)
		Damage	The Naked Eye	The Inside Crack Exposure is Not Allowed
		Scratch	The Naked Eye	No Effect On Resolution Standard
	Long	Contamination	The Naked Eye	No Effect On Resolution Standard
	Lens	Oil Film	The Naked Eye	No Effect On Resolution Standard
		Cover Tape	The Naked Eye	No Issue On Appearance.
		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
	Image	Vertical Line	The Naked Eye	Not Allowed
		Horizontal Line	The Naked Eye	Not Allowed
Function		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
		Height	The Naked Eye	Follows Approval Data Sheet
Dimer	neion	Width	The Naked Eye	Follows Approval Data Sheet
Dimension		Length	The Naked Eye	Follows Approval Data Sheet
		Overall	The Naked Eye	Follows Approval Data Sheet



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YDSCAM Package Solutions

YDS Camera Module



Tray with Grid and Space



Complete with Lens Protection Film



Place Cameras on the Tray





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YDSCAM Package Solutions

Full Tray of Cameras



Place Tray into Anti-Static Bag



Cover Tray with Lid



Vacuum the Anti-Static Bag





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YDSCAM Package Solutions

Sealed Vacuum Anti-Static Bag with Labels

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





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YDSCAM Package Solutions

Place Foam Sheets Between Tray Bags



Place Foam Sheets and Trays into Box



Seal the Carbon Box



Foam Sheets are Larger Than Trays



Foam Sheets are Tightly Fitting in Box



Label the Carbon Shipping Box





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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







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YDSCAM Package Solutions

Place Camera Sample into Anti-Static Bag





Label the Sample Bags



Place Samples into the Carbon Box



Place Connectors into Anti-Static Bag





Place Connectors into Reel



Place Connectors into the Carbon Box





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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. 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 subsequential events.















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YDS Strength

Powerful Factory





Professional Service







Promised Delivery











