

your best camera partner

YDS-PFA46-GC0328C V1.0

0.3MP GalaxyCore GC0328C DVP Parallel Interface Fixed Focus Camera Module





Front View

Back View

Specifications

Camera Module No.	YDS-PFA46-GC0328C V1.0
Resolution	0.3MP
Image Sensor	GC0328C
Sensor Type	1/6.5"
Pixel Size	3.4 um x 3.4 um
EFL	2.59 mm
F.NO	2.80
Pixel	640 x 480
View Angle	64.0°(DFOV)
Lens Dimensions	6.00 x 6.00 x 3.92 mm
Module Size	20.00 x 12.50 mm
Module Type	Fixed Focus
Interface	DVP Parallel
Auto Focus VCM Driver IC	None
Lens Type	650nm IR Cut
Operating Temperature	-20°C to +70°C
Mating Connector	FH26W-25S-0.3SHW(60)



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Top View

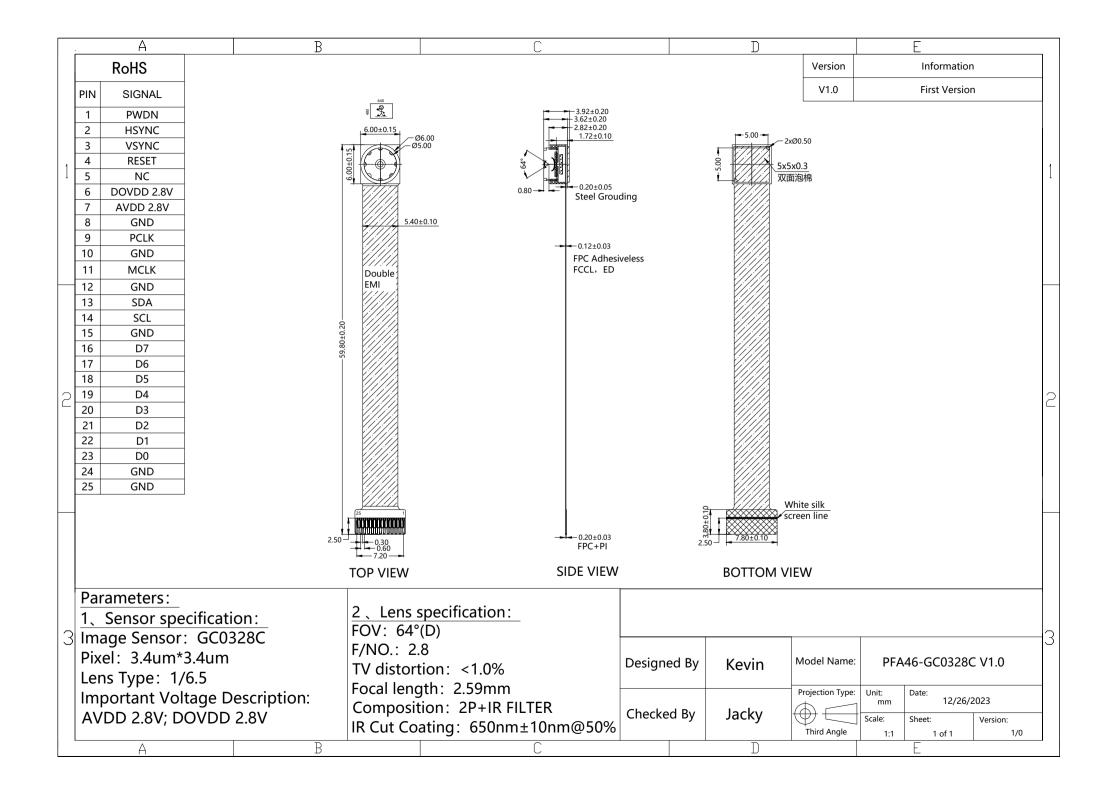
Side View





Bottom View

Mating Connector





GC0328C

1/6.5 " VGA CMOS Image Sensor

Datasheet

V1.1

2018-08-27

GalaxyCore Inc.



1. Sensor Overview

1.1 General Description

The GC0328C features 640V x 480H resolution with 1/6.5-inch optical format, and 4-transistorpixel structure for high image quality and low noise variations. It delivers superior image quality by powerful on-chip design of a 10-bit ADC, and embedded image signal processor.

The full scale integration of high-performance and low-power functions makes the GC0328C fit the design, reduce implementation process, and extend the battery life of cell phones, PDAs, and a wide variety of mobile applications.

The product is capable of operating at up to 30 fps at 24MHZ clock in VGA mode, which can be completely controlled by user over image quality and data format.

1.2 Features

- ◆ Standard optical format of 1/6.5 inch
- ◆ Various output formats: YCbCr4:2:2, RGB565, Raw Bayer
- ◆ Support adjusting Voltage of IO
- ♦ Windowing support
- ◆ Horizontal /Vertical mirror
- ◆ Image processing module
- ◆ Package: CSP/wafer



1.3 Application

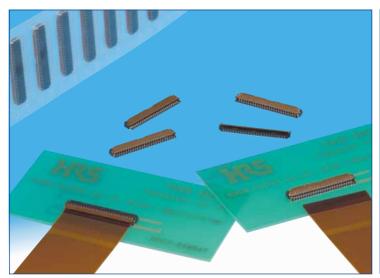
- ◆ Cellular Phone Cameras
- ◆ Notebook and desktop PC cameras
- ◆ PDAs
- **♦** Toys
- ◆ Digital still cameras and camcorders
- ◆ Video telephony and conferencing equipments
- ◆ Security systems
- ◆ Industrial and environmental systems



Parameter	Typical value
Optical Format	1/6.5 inch
Pixel Size	3.4um x 3.4um
Active pixel array	648 x 488
ADC resolution	10 bit ADC
Max Frame rate	30fps@24Mhz,VGA
Power Supply	AVDD28: 2.7 ~ 3.0V
	IOVDD: 1.7 ~ 3.0V
Power Consumption	80mW @30fps VGA
	<50 μA @standby
SNR	41dB
Dark Current	25mV @ 60°C
Sensitivity	1.8V/ (Lux.sec)
Operating temperature:	-20~70°C
Stable Image temperature	0~50℃
Optimal lens chief ray angle(CRA)	27 (linear)
Package type	CSP/Wafer

0.3 mm Pitch, 1.0 mm Height FPC Connector

FH26 Series



Metal fittings do no protrude outside of the connector body

■Features

1. Low-profile 0.3 mm pitch FPC connector

Ultra-thin design, 1.0 mm height, 3.2 mm width all add up to a compact, space saving form factor.

*30% reduction in PCB footprint

*40% reduction in weight

(Compared to our 0.3 mm pitch FH23 Series 51 position connector.)

2. Easy PCB Mounting

The leads are double sided and have a 0.6 mm mounting lead pitch to simplify mounting.

3. Fully molded structure aids PCB layout

The bottom of this connector is enclosed by a fully molded structure that protects the contacts and removes any restrictions from PCB patterning and design.

4. Rotating one-touch ZIF mechanism

The one-touch rotating ZIF mechanism is easier to operate and works with a light force, and a clear tactile click is delivered upon the successful completion of the mating process

5. Easy FPC insertion

The metal FPC insertion guides helps to make this the FPC insertion process easier.

6. FPC. Accepts standard 0.2 mm thick FPC

This connector accepts standard 0.2 mm thick FPC. (The proper FPC stiffener thickness will prevent FPC deformation and ease insertion and mating.)

7. Supports automatic pick-n-place mounting

Offered in tape and reel packaging that is compatible with automatic machine mounting. (5,000 pieces per reel)

8. Halogen-free

If you need a Halogen free connector, please use the FH26W type. All materials and substances used to produce the FH26W Series product complies with Halogen-free standards. * Defined according to IEC61249-2-21

Br: 900ppm max, Cl: 900ppm max, Br+Cl: 1,500ppm max.

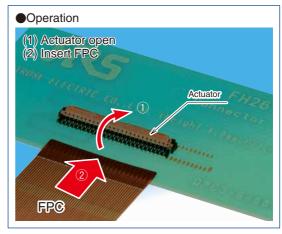
9. Multiple packing options

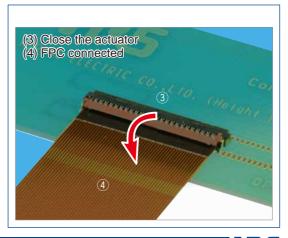
The standard packaging is 5,000 pieces per reel, but it is also offered in a 500 piece reel. (The outer diameter of the reel will be ϕ 180 mm in this case.)

Can be mounted over conductive traces.



No exposed contacts on the bottom of the connector





■Specifications

Rating		2A DC OV AC	Operating temperature range Operating humidity range	-55 °C to +85°C (Note 1) Relative humidity 90% max. (No condensation)	Storage temperature range Storage humidity range	-10°C to +50°C (Note 2) Relative humidity 90% max.
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Thickness: = 0.2 ± 0.03 mm gold plated Recommended FPC :

Item	Specification	Conditions
1. Insulation resistance	50 M ohms min.	100 V DC
2. Withstanding voltage	No flashover or insulation breakdown.	90 V AC /one minute
3. Contact resistance	100 m ohms max. * Including FPC conductor resistance	1 mA
4. Durability (Insertion/ withdrawal)	Contact resistance: 100 m ohms max. No damage, cracks, or parts dislocation.	10 cycles
5. Vibration	No electrical discontinuity of $1\mu s$ or more. Contact resistance: 100 m ohms max. No damage, cracks, or parts dislocation.	Frequency: 10 to 55 Hz, single amplitude of 0.75 mm, 10 cycles, 3 directions.
6. Shock	No electrical discontinuity of 1μ s. min. Contact resistance: 100 m ohms max. No damage, cracks, or parts dislocation.	Acceleration of 981 m/s², 6 ms duration, sine half-wave waveform, 3 cycles in each of the 3 axis
7. Humidity (Steady state)	Contact resistance: 100 m ohms max. Insulation resistance: 50 M ohms min. No affect on appearance or performance.	96 hours at temperature of 40±2°C and humidity of 90% to 95%.
8. Temperature cycle	Contact resistance: 100 m ohms max. Insulation resistance: 50 M ohms min. No damage, cracks, or parts looseness.	Temperature: -55 °C $\rightarrow+15$ °C to $+35$ °C $\rightarrow+85$ °C $\rightarrow+15$ °C to $+35$ °C Time: $30 \rightarrow 2$ to $3 \rightarrow 30 \rightarrow 2$ to 3 (Minutes) 5 cycles
9. Resistance to soldering heat	No deformation of components affecting performance.	Reflow: At the recommended temperature profile Manual soldering: 350°C +/-10°C for 5±1 seconds

Note 1: Includes temperature rise caused by current flow.

Note 2: The term "storage" refers to products stored for long period of time prior to mounting and use. Operating Temperature Range and Humidity range covers non- conducting condition of installed connectors in storage, shipment or during transportation.

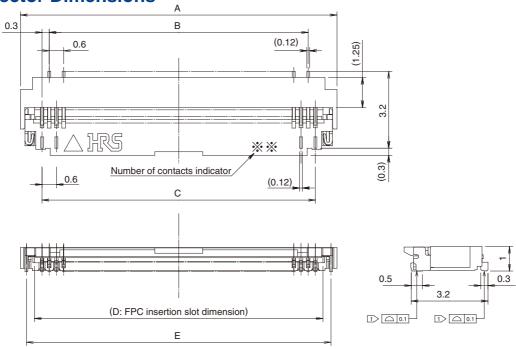
■Materials

Part	Material	Finish	Remarks
	LCP	Color: Black	111.041/.0
Insulator	PA	FH26 series: Deep brown	UL94V-0
		FH26W series: Light brown	UL94HB
Contacts	Dhaanhan kususa	Gold plating	
Metalfittings	Phosphor bronze	Pure tin reflow plating	

■Ordering information

Series name: FH	6 Termination type SHW: SMT horizontal staggered mounting type		
2 Series No.: 26	Specifications		
8 Blank: Standard	(10)Gold plating with nickel barrier, 5,000 pieces / reel		
W: Satisfies halogen-free requirements (Flame retardance UL94HB).	(99)Gold plating with nickel barrier, 500 pieces / reel		
4 Number of positions: 13 to 71			
6 Contact pitch: 0.3mm			

■Connector Dimensions



Notes 1 The coplanarity of each terminal lead within specified dimension is 0.1 mm Max.

- 2 Packaged on tape and reel only. Check packaging specification.
- 3 Slight variations in color of the plastic compounds do not affect form, fit or function of the connector.
- 4 After reflow, the terminal plating may change color, however this does not represent a quality issue.

All dimensions: mm

	Part Number	CL No.	Number of Contacts	Α	В	C	D	E	
Ī	FH26-13S-0.3SHW(**)	580-0209-3-**	13	5.4	3.0	3.6	4.23	4.9	ĺ
	FH26-15S-0.3SHW(**)	580-0218-4-**	15	6.0	3.6	4.2	4.83	5.5	
	FH26-17S-0.3SHW(**)	580-0217-1-**	17	6.6	4.2	4.8	5.43	6.1	
	FH26-21S-0.3SHW(**)	580-0207-8-**	21	7.8	5.4	6.0	6.63	7.3	
	FH26-23S-0.3SHW(**)	580-0203-7-**	23	8.4	6.0	6.6	7.23	7.9	
	FH26-25S-0.3SHW(**)	580-0208-0-**	25	9.0	6.6	7.2	7.83	8.5	
	FH26-27S-0.3SHW(**)	580-0204-0-**	27	9.6	7.2	7.8	8.43	9.1	
	FH26-29S-0.3SHW(**)	580-0216-9-**	29	10.2	7.8	8.4	9.03	9.7	
	FH26-31S-0.3SHW(**)	580-0214-3-**	31	10.8	8.4	9.0	9.63	10.3	
	FH26-33S-0.3SHW(**)	580-0210-2-**	33	11.4	9.0	9.6	10.23	10.9	
	FH26-35S-0.3SHW(**)	580-0205-2-**	35	12.0	9.6	10.2	10.83	11.5	
	FH26-37S-0.3SHW(**)	580-0224-7-**	37	12.6	10.2	10.8	11.43	12.1	
	FH26-39S-0.3SHW(**)	580-0201-1-**	39	13.2	10.8	11.4	12.03	12.7	
	FH26-41S-0.3SHW(**)	580-0206-5-**	41	13.8	11.4	12.0	12.63	13.3	
	FH26-45S-0.3SHW(**)	580-0211-5-**	45	15.0	12.6	13.2	13.83	14.5	
	FH26-51S-0.3SHW(**)	580-0200-9-**	51	16.8	14.4	15.0	15.63	16.3	
	FH26-55S-0.3SHW(**)	580-0221-9-**	55	18.0	15.6	16.2	16.83	17.5	
	FH26-57S-0.3SHW(**)	580-0212-8-**	57	18.6	16.2	16.8	17.43	18.1	
	FH26-61S-0.3SHW(**)	580-0213-0-**	61	19.8	17.4	18.0	18.63	19.3	
	FH26-71S-0.3SHW(**)	580-0202-4-**	71	22.8	20.4	21.0	21.63	22.3	
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	Part Number	CL No.	Number of Contacts	Α	В	С	D	E	

Part Number	CL No.	Number of Contacts	Α	В	С	D	E
FH26W-13S-0.3SHW(**)	580-2401-1-**	13	5.4	3	3.6	4.23	4.9
FH26W-15S-0.3SHW(**)	580-2402-4-**	15	6.0	3.6	4.2	4.83	5.5
FH26W-17S-0.3SHW(**)	580-2403-7-**	17	6.6	4.2	4.8	5.43	6.1
FH26W-19S-0.3SHW(**)	580-2437-9-**	19	7.2	4.8	5.4	6.03	6.7
FH26W-21S-0.3SHW(**)	580-2404-0-**	21	7.8	5.4	6.0	6.63	7.3
FH26W-23S-0.3SHW(**)	580-2405-2-**	23	8.4	6.0	6.6	7.23	7.9
FH26W-25S-0.3SHW(**)	580-2406-5-**	25	9.0	6.6	7.2	7.83	8.5
FH26W-27S-0.3SHW(**)	580-2400-9-**	27	9.6	7.2	7.8	8.43	9.1
FH26W-29S-0.3SHW(**)	580-2407-8-**	29	10.2	7.8	8.4	9.03	9.7
FH26W-31S-0.3SHW(**)	580-2408-0-**	31	10.8	8.4	9.0	9.63	10.3
FH26W-33S-0.3SHW(**)	580-2409-3-**	33	11.4	9.0	9.6	10.23	10.9
FH26W-35S-0.3SHW(**)	580-2410-2-**	35	12.0	9.6	10.2	10.83	11.5
FH26W-37S-0.3SHW(**)	580-2411-5-**	37	12.6	10.2	10.8	11.43	12.1
FH26W-39S-0.3SHW(**)	580-2412-8-**	39	13.2	10.8	11.4	12.03	12.7
FH26W-41S-0.3SHW(**)	580-2413-0-**	41	13.8	11.4	12.0	12.63	13.3
FH26W-45S-0.3SHW(**)	580-2414-3-**	45	15.0	12.6	13.2	13.83	14.5
FH26W-51S-0.3SHW(**)	580-2415-6-**	51	16.8	14.4	15.0	15.63	16.3
FH26W-57S-0.3SHW(**)	580-2417-1-**	57	18.6	16.2	16.8	17.43	18.1
FH26W-61S-0.3SHW(**)	580-2418-4-**	61	19.8	17.4	18.0	18.63	19.3
FH26W-71S-0.3SHW(**)	580-2419-7-**	71	22.8	20.4	21.0	21.63	22.3

 $Note 1: Embossed \ tape \ reel \ packaging (5,000 pieces/reel, \ 500 pieces/reel). \ Order \ by \ number \ of \ reels.$



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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



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Camera Module Pinout Definition Reference Chart

OmniVision Sony Samsung On-Semi Ap	otina 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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Camera Reliability Test

Reliability Inspection Item		Tanking Makhad	Aggentance Critoria	
Cat	egory	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	High 60°C 24 Hours	Temperature Chamber	No Abnormal Situation
Environmental	Temperature	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
	Drop Test	Without Package 60cm	10 Times on Wood Floor	Electrically Functional
	(Free Falling)	With Package 60cm	10 Times on Wood Floor	Electrically Functional
	Vibration Test	50Hz X-Axis 2mm 30min	Vibration Table	Electrically Functional
Physical		50Hz Y-Axis 2mm 30min	Vibration Table	Electrically Functional
Tilysical		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
	ESD Test	Contact Discharge 2 KV	ESD Testing Machine	Electrically Functional
	ESD Test	Air Discharge 4 KV	ESD Testing Machine	Electrically Functional
Electrical	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	Lancar Cara Madhad	Ota a land of languages
Cate	gory	Item	Inspection Method	Standard of Inspection
		Color	The Naked Eye	Major Difference is Not Allowed.
	FPC/ PCB	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	Holdel	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
		Vertical Line	The Naked Eye	Not Allowed
		Horizontal Line	The Naked Eye	Not Allowed
Function	Image	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
Dilliel	131011	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



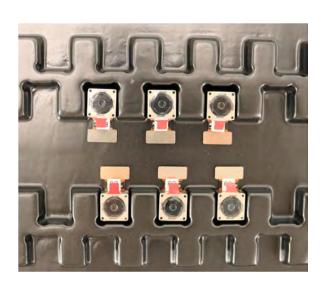
Tray with Grid and Space



Complete with Lens Protection Film



Place Cameras on the Tray

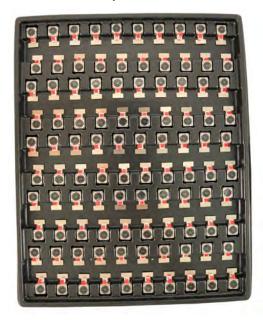




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YDSCAM Package Solutions

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





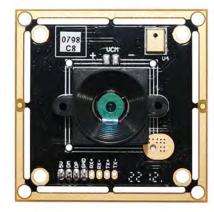
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YDSCAM Package Solutions

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











