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YDS-G4K-OV8858 V2.3 8MP OmniVision OV8858 MIPI Interface LED Auto Focus Camera Module



Front View



Back View

Specifications

Camera Module No.	YDS-G4K-OV8858 V2.3
Resolution	8MP
Image Sensor	OV8858-R2A
Sensor Type	1/4"
Pixel Size	1.12 um x 1.12 um
EFL	2.96 mm
F.NO	2.00
Pixel	3264 x 2448
View Angle	75.0°(DFOV) 62.8°(HFOV) 49.3°(VFOV)
Lens Dimensions	8.50 x 8.50 x 4.90 mm
Module Size	28.70 x 26.15 mm
Module Type	Auto Focus with LED
Interface	MIPI
Auto Focus VCM Driver IC	DW9714P
Lens Model	YDS-LENS-9570A3
Lens Type	650nm IR Cut
Operating Temperature	-30°C to +85°C
Mating Connector	FH12-30S-0.5SH

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Top View

Side View



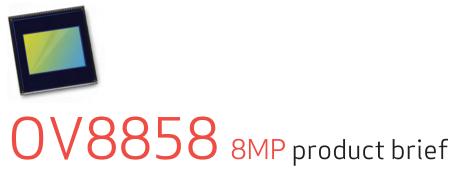


Bottom View

Mating Connector

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Parameters: 3 1. Sensor specification: Image Sensor: 0V8858-R2A Pixel: 1.2um×1.2um Lens Type: 1/4 Important Voltage Description: DVDD1.2V (external power supply); A B	14 SID(GND) 15 DGND 16 MDP1 17 MDN1 18 DGND 20 MDP0 21 DGND 23 MCP 24 DGND 25 LED1+ 26 LED2+ 28 LED2- 30 DGND	A 1 DGND 2 MCLK 3 DGND 4 AVDD2.8V 5 AGND 6 DVDD1.2V 7 DOVDD1.8V 8 DGND 9 AFVDD2.8V 10 SDA 11 SCL 12 RESET 13 PWDN
2 Lens specification:R2AFOV: 75°(D);62.8°(H);49.3°(V);F/N0: 2.0F/N0: 2.0TV distortion: <1.0%Focal length: 2.96mmiption: DVDD1.2VIR Cut Coating: 650nm±10nm@50%BIC:0X6C	TOP VIEW	
Designed By	FPC Adhesiveless FCCL, RA FCCL, RA FCCL, PI FPC+PI SIDE VIEW	C L C L C L C L C L C L C L C L
		D Version V1.0 V2.0 Ght) Peel-off Handler
Model Name: Projection Type: Third Angle Unit: Third Angle Scale: 1 of 1 Versi	BOTTOM VIEW	Information First Version Update layout Change lens and vcm ler 8.00
8858 V2.3	N	Date 6-23-2016 7-27-2022 650







package

Cost-Effective 1/4-Inch 8-Megapixel Image Sensor with Video-in-Video Support for Mainstream Mobile Devices

OmniVision's OV8858 is a 1/4-inch 8-megapixel PureCel[®] image sensor for the rapidly growing mainstream smartphone and tablet market. The compact and costeffective OV8858 sensor delivers dramatically reduced power consumption and best-in-class performance, making it a highly competitive solution for the nextgeneration of mobile devices.

Compared to OmniVision's previous-generation 1/4-inch 8-megapixel sensor, the OV8858 delivers a number of performance enhancements, including dramatically improved full-well capacity (FWC) and sensitivity for enhanced high- and low-light performance. It also offers a significant reduction in power consumption and form factor.

The sensor also features OmniVision's Video-in-Video (ViV^{*}) technology, which stitches together images from the front- and rear-cameras, applies enhancements such as independent lens correction and color compensation, and sends the combined image to the host ISP. In ViV mode, users can capture a portrait scene perfectly alongside their own face, record video while narrating for

high quality video blogging, or utilize the feature for video conferencing. This is made possible by a special input MIPI receiver on the OV8858 that can accept image data from a wide range of OmniVision image sensors designed for front-facing applications of 2-megapixel and below, thus saving a camera port on the host ISP.

The OV8858 supports an active array of 3264 x 2448 pixels (8-megapixel) operating at 30 frames per second (fps) for zero shutter lag, enabling high-speed photography. The sensor is capable of recording 1080p high definition (HD) video at 60 fps, or 720p HD video at 90 fps, each with additional pixels for electronic image stabilization (EIS). The OV8858, when paired with OmniVision's latest 2-megapixel sensors, can provide full resolution ViV snapshot images at 15 fps and preview ViV video at 30 fps.

The OV8858 fits into an 8.5 x 8.5 mm camera module with a build height of approximately 4 mm.

Find out more at www.ovt.com.





Applications

- Cellular Phones
- Tablets

Product Features

- 1.12 µm x 1.12 µm pixel
- optical size of 1/4"
- 32.9 ° CRA for ~4 mm Z-height
- programmable controls for: - frame rate - mirror and flip - cropping windowing
- supports images sizes:
 -8MP (4:3 3264x2448)
 -8MP (16:9 3264x1836)
 -EIS 1080p (2112x1188)
 -1080p (1920x1080)
 -EIS 720p (1408x792), and more
- 8MP at 30 fps (720 Mbps/4-lane or 10-8 DPCM 1.104 Gbps/2-lane)
- two on-chip phase lock loops (PLLs)
- two-wire serial bus control (SCCB)
- built-in temperature sensor

 frame exposure mode for still image (with mechanical shutter)

PC Multimedia

- 4k bits of embedded one-time programmable (OTP) memory for customer use
- supports Video-in-Video (ViV*) mode using an on-chip 1-lane MIPI receiver and a secondary sensor
- special ViV features include: ViV video at up to 30 fps
 ViV snapshot at up to 15 fps
 arbitrary positions and shapes for ViV window separate AWB compensation for secondary sensor, and more
- image quality control:
 defect pixel correction - automatic black level calibration
 - lens shading correction
 - alternate row HDR
- suitable for module size of 8.5 x 8.5 x -4 mm

- OV08858-G04A
- (color, chip probing, 200 µm backgrinding, reconstructed wafer with good die)

Product Specifications

- active array size: 3264 × 2448
- power supply:
 analog: 2.6 to 3.0V (2.8V nominal)
 core: 1.14 to 1.26V (1.2V nominal)
- I/O: 1.7 to 3.0V (1.8V or 2.8V nominal)
- power requirements:
 active: 153 mW
 standby: 160 µW
 - XSHUTDOWN: 0.3 µW
- temperature range:
 operating: -30°C to +85°C junction temperature - stable image: 0°C to +60°C junction temperature
- output formats: up to 4-lane MIPI serial output

lens size: 1/4"

- output formats: 10-bit RAW RGB data lens chief ray angle: 32.9° non-linear
- @ 60°C junction temperature image area: 3678.3 μm x 2767.68 μm

■ input clock frequency: 6 - 27 MHz

■ dynamic range: 64.4 dB @ 8x gain

maximum image transfer rate:
 - 3264 x 2448: 30 fps

- 3264 x 1836: 30 fps -2112 x 1184 60 fps

- 1920 x 1080: 60 fps -1408 x 792: 90 fps

scan mode: progressive

■ dark current: 17 e-/sec

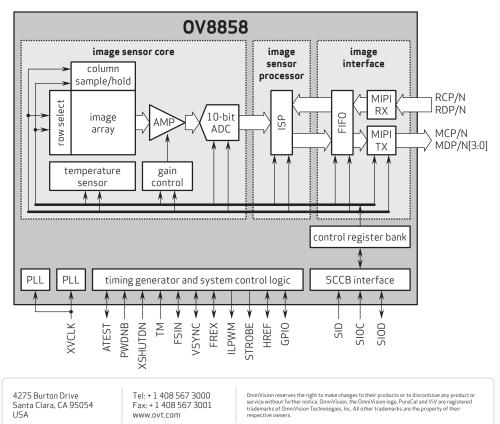
■ sensitivity: 486 mV/Lux-sec

pixel size: 1.12 μm x 1.12 μm

max S/N ratio: 35.8 dB

die dimensions: - COB: 5040 μm x 4590 μm - RW: 5090 μm x 4640 μm

Functional Block Diagram





Version 1.6, September, 2017

OV8858

DONGWOON ANATECH

DW9714P

Upgraded Conventional AF Driver IC

FEATURES

120mA output driver with 10-bit resolution DAC Smart Actuator Control (SACTM) modes Supply voltage (V_{DD}): 2.3V to 4.3V I/O voltage (V_{IN}): 1.8V to V_{DD} Fast mode and Fast mode plus I²C interface compatible Power On Reset (POR) Power Down (PD) mode current consumption less than 1uA Package: 6-pin WLCSP (0.77mm x 1.14mm x 0.30mm)

APPLICATIONS

Mobile camera Digital still camera Camcorder Web camera Action camera

GENERAL DESCRIPTION

The DW9714P designed for linear control of Voice Coil Motors (VCM). This device is compatible with DW9714. The DW9714P has a single 10-bit DAC with 120mA output current sink capability. This device features SAC^{TM} mode which can minimize the mechanical vibration and achieve very fast mechanical settling time. The SAC^{TM} is protected by patent and registered trademark of DONGWOON ANATECH.

The DW9714P operates from a single 2.3V to 4.3V supply. The internal DAC is controlled via an I^2C serial interface that operates at clock rate up to 1MHz. The I^2C address for the DW9714P is 0x18. The DW9714P offers PD mode with current consumption less than 1uA.

The DW9714P can be used for auto focus applications in mobile cameras, digital still cameras, camcorders, web cameras and action cameras.

TYPICAL APPLICATION CIRCUIT

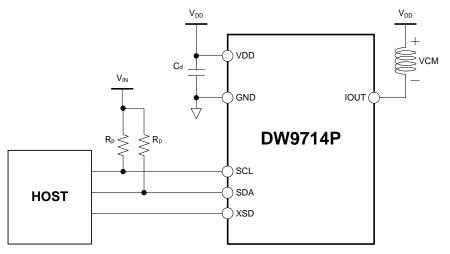


Figure 1. Typical application circuit

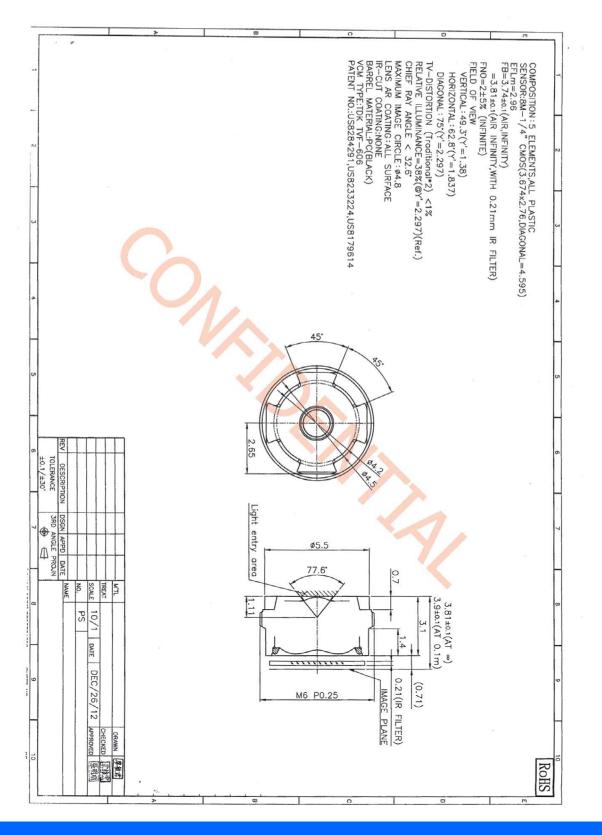
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YDS-LENS-9570A3

DS

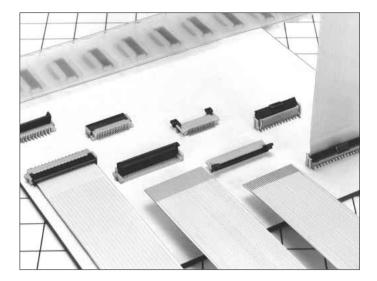


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The product information in this catalog is for reference only. Please request the Engineering Drawing for the most current and accurate design information. All non-RoHS products have been discontinued, or will be discontinued soon. Please check the products status on the Hirose website RoHS search at www.hirose-connectors.com, or contact your Hirose sales representative.

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 0.18 mm +/- 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

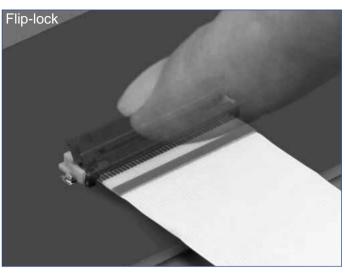
Excess solder cavity absorbs excessive solder and avoids solder bridging.

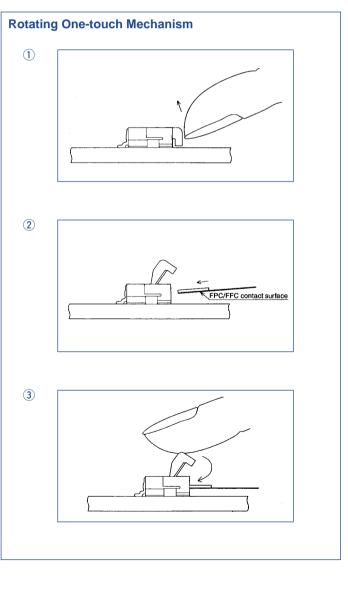
6. Three different assembly types

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.





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■Product Specifications

Rating	Current rating: 0.5A DC(Note 1) Voltage rating: 50V AC	Operating Humidity Range:Relative hum		Storage Temperature Range:-10 to +50°C (Note 3) 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 1μ s 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 1μ s 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: $-40^{\circ}C \rightarrow 15$ to $35^{\circ}C \rightarrow 85^{\circ}C \rightarrow 15$ to $35^{\circ}C$, Time: $30 \rightarrow 5$ max. $\rightarrow 30 \rightarrow 5$ 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	
Actuator	PPS	Color : Dark brown	UL94V-0
Contact	Phosphor bronze	Gold plated	
Metal Fittings	Brass	Tin plated	

Ordering Information

$\frac{\mathsf{FH12}}{\bullet} \quad \frac{\mathsf{A}}{\circ} = \frac{10}{\circ} \quad \frac{(4)}{\circ} = \frac{\mathsf{S}}{\circ} \quad \frac{\mathsf{A}}{\circ} = \frac{\mathsf{0.5}}{\circ} \quad \frac{\mathsf{SH}}{\circ} \quad \frac{(55)}{\circ}$

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

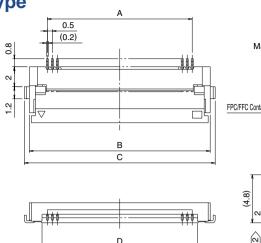
The product information in this catalog is for reference only. Please request the Engineering Drawing for the most current and accurate design information. All non-Roll Argenting to the product of the content of the

Series Configuration

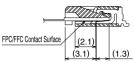
Pitch	Bottom Contact Type	Top Contact Type	Vertical mounting Type
0.5mm	FH12- ** S-0.5SH P.12 Number of contacts 6, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 22, 24, 25, 26, 28, 30, 32, 33, 34, 35, 36, 40, 45, 50, 53 Type with Strengthened Lock Lever FH12S- ** S-0.5SH P.13 Number of contacts 30, 40, 45, 50, 53 Type with 0.18mm FPC End Thickness FH12F- ** S-0.5SH P.14 Number of contacts 6, 8, 10, 12, 13, 14, 15, 16, 18, 20, 22, 24, 25,	FH12A- ** S-0.5SH P.15 Number of contacts 10, 12, 15, 16, 18, 20, 22, 24, 26, 28, 29, 30, 32, 33, 34, 36, 40, 42, 45, 50	FH12- ** S-0.5SV Number of contacts 10, 12, 13, 15, 16, 17, 18, 20, 22, 24, 26, 30, 32, 33, 34, 36, 40, 45,
1mm	26, 28, 30, 32, 34, 36, 40 Standard FH12- ** S-1SH P18 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		49, 50, 60

■0.5mm Pitch Bottom Contact Type





Mated Cross-sectional Diagram







Unit:mm

	Part Number	CL No.	Number of Contacts	А	В	С	D	RoHS
	FH12- 6S-0.5SH(55)	586-0582-5-55	6	2.5	6.1	7.1	3.57	
	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	YES
	FH12-24S-0.5SH(55)	586-0521-0-55	24	11.5	15.1	16.1	12.57	1123
	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 $\boxed{2}$: 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



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Camera Module Pinout Definition Reference Chart

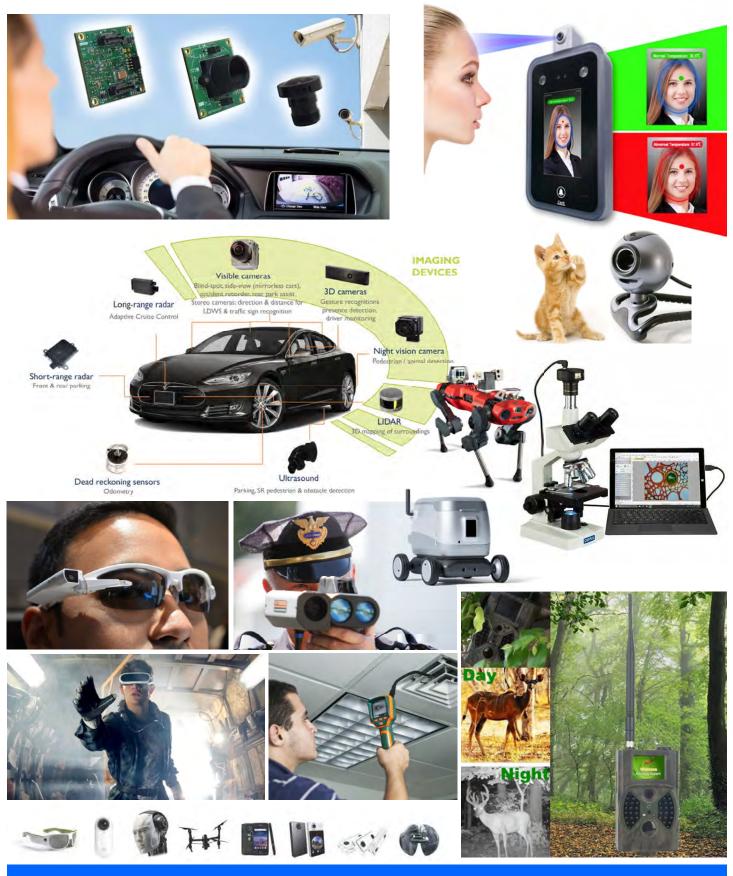
OmniVision Sony Samsung On-Semi Ap	tina Himax GalaxyCore PixArt SmartSens Sensors
Pin Signal	Description
DGND GND	ground for digital circuit
AGND	ground for analog circuit
PCLK DCK	DVP PCLK output
XCLR PWDN XSHUTDOWN STANDBY	power down active high with internal pull-down resistor
MCLK XVCLK XCLK INCK	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	
MDN0 DN0 MD0N DATA_N DM01N	MIPI 1st data lane negative output
MDP0 DP0 MD0P DATA P DM01P	MIPI 1st data lane positive output
MDN1 DN1 MD1N DATA2 N DMO2N	MIPI 2nd data lane negative output
MDP1 DP1 MD1P DATA2 P DM02P	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	DV/P data output port 0
D1 D01 Y1	DVP data output port 0
D1 D01 Y1 D2 D02 Y2	DVP data output port 1 DVP data output port 2
D3 D03 Y3	
	DVP data output port 3
D4 D04 Y4 D5 D05 Y5	DVP data output port 4
	DVP data output port 5
D6 D06 Y6	DVP data output port 6
D7 D07 Y7	DVP data output port 7
D8 D08 Y8	DVP data output port 8
D9 D09 Y9	DVP data output port 9
D10 D010 Y10	DVP data output port 10
D11 D011 Y11	DVP data output port 11

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Cameras Applications

8

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Camera Reliability Test

Reliability Inspection Item			Testing Mathed	Acceptance Criteria	
Category		Item	Testing Method		
	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	
Environmentai	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	
		50Hz X-Axis 2mm 30min	Vibration Table	Electrically Functional	
Physical	Vibration Test	50Hz Y-Axis 2mm 30min	Vibration Table	Electrically Functional	
Filysical		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	
		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	



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Camera Inspection Standard

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Inspection		ı Item	Increation Mathed	Standard of Inspection
Categ	gory	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	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
Dimen	sion	Width	The Naked Eye	Follows Approval Data Sheet
Dimen	1910[1	Length	The Naked Eye	Follows Approval Data Sheet
		Overall	The Naked Eye	Follows Approval Data Sheet

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YDS Camera Module



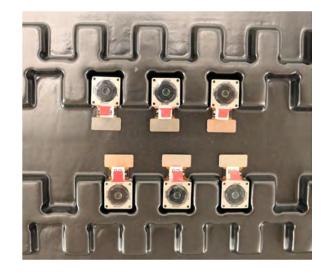
Tray with Grid and Space

Complete with Lens Protection Film



Place Cameras on the Tray





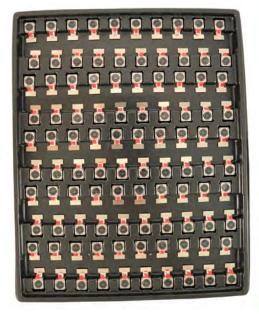
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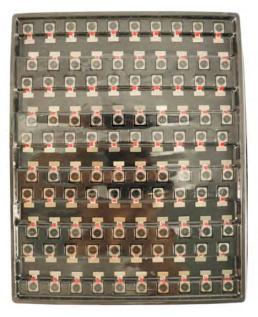
Full Tray of Cameras

DS



Place Tray into Anti-Static Bag

Cover Tray with Lid



Vacuum the Anti-Static Bag



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Sealed Vacuum Anti-Static Bag with Labels

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



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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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USB Camera Module







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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Complete with Lens Protection Film



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Place Camera Sample into Anti-Static Bag





Label the Sample Bags

Place Connectors into Anti-Static Bag



Place Connectors into Reel



Place Samples into the Carbon Box





Place Connectors into the Carbon Box



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YDS

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 <u>www.YDSCAM.com</u>. 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

Y

Powerful Factory



Professional Service



Promised Delivery



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