

**KLT-Z6MF-OV9281 V2.0****1MP OmniVision OV9281 Global Shutter MIPI Interface  
M12 Fixed Focus Camera Module**

Front View



Back View

**Specifications**

<b>Camera Module No.</b>	<b>KLT-Z6MF-OV9281 V2.0</b>
<b>Resolution</b>	1MP
<b>Image Sensor</b>	OV9281 Global Shutter
<b>Sensor Type</b>	1/4"
<b>Pixel Size</b>	3.0 um x 3.0 um
<b>EFL</b>	2.33 mm
<b>F.NO</b>	2.50
<b>Pixel</b>	1296 x 816
<b>View Angle</b>	120.0°(DFOV) 99.0°(HFOV) 55.0°(VFOV)
<b>Lens Dimensions</b>	13.10 x 13.10 x 12.82 mm
<b>Module Size</b>	100.00 x 22.00 mm
<b>Module Type</b>	Fixed Focus
<b>Interface</b>	MIPI
<b>Auto Focus VCM Driver IC</b>	None
<b>Lens Type</b>	650nm IR Cut
<b>Operating Temperature</b>	-30°C to +85°C
<b>Mating Connector</b>	FH33-28S-0.5SH(10)



## KLT-Z6MF-OV9281 V2.0

**1MP OmniVision OV9281 Global Shutter MIPI Interface  
M12 Fixed Focus Camera Module**



Top View



Side View



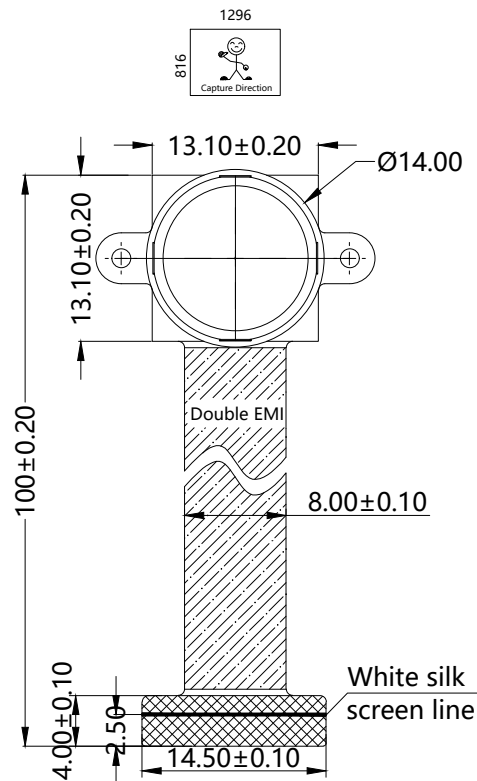
Bottom View



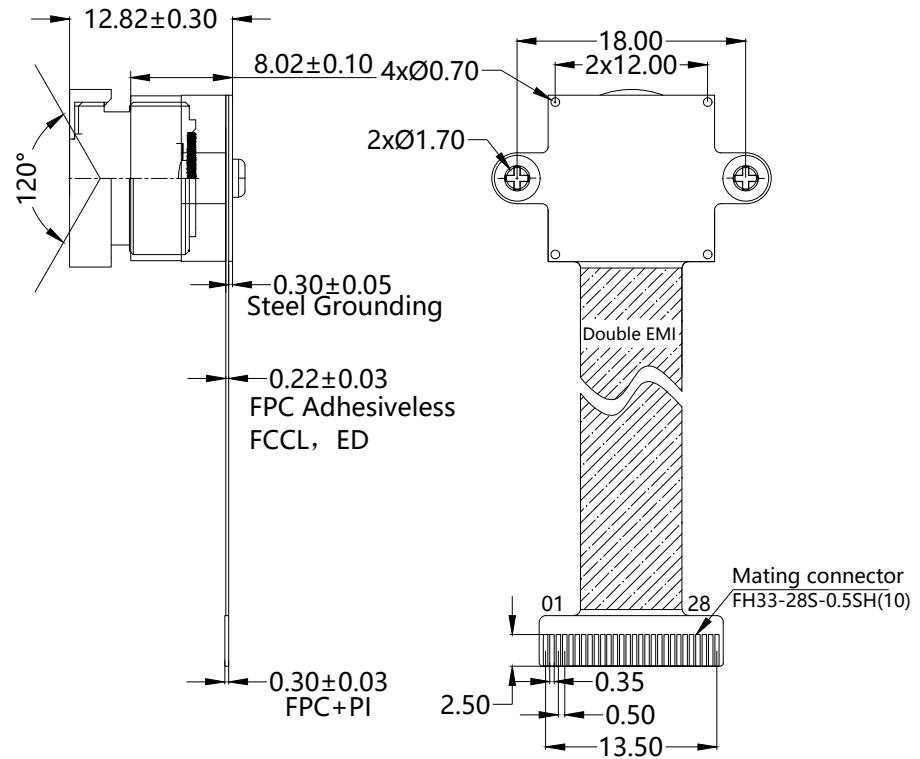
Mating Connector

RoHS	
PIN	SIGNAL
1	DGND
2	NC
3	NC
4	DGND
5	NC
6	NC
7	DGND
8	MCP
9	MCN
10	DGND
11	MDP1
12	MDN1
13	DGND
14	MDP0
15	MDN0
16	DGND
17	RESET
18	FSIN/VSYNC
19	DGND
20	SCL
21	SDA
22	DGND
23	STROBE
24	DVDD 1.2V
25	DOVDD 1.8V
26	AVDD 2.8V
27	NC
28	XCLK

Version	Information	Date
V1.0	First Version	7-12-2022
V2.0	Extend FPC Length	2-14-2023



TOP VIEW



SIDE VIEW

BOTTOM VIEW

NOTE:

- 1.Sensor I2C slave address:0xC0;
- 2.MIPI Impedence control 100Ω±10%;
- 3.FPC layout design requirement: 4 layer;

Parameters:

1、 Sensor specification:

Image Sensor: OV9281

Pixel: 3um\*3um

Lens Type: 1/4

Important Voltage Description:

DVDD1.2V (external power supply);

2、 Lens specification:

FOV: 120°(D);99°(H);55°(V);

F/NO.: 2.5

TV distortion: <7.5%

Focal length: 2.33mm

Composition: 4E+IR FILTER

IR Cut Coating: 650nm±10nm@50%

Kai Lap Technologies Group Ltd

Designed By

Kevin

Model Name:

KLT-Z6MF-OV9281 V2.0

Checked By

Aouly\_Yan

Projection Type:



Third Angle

Unit:

mm

Scale:

1:1

Material:

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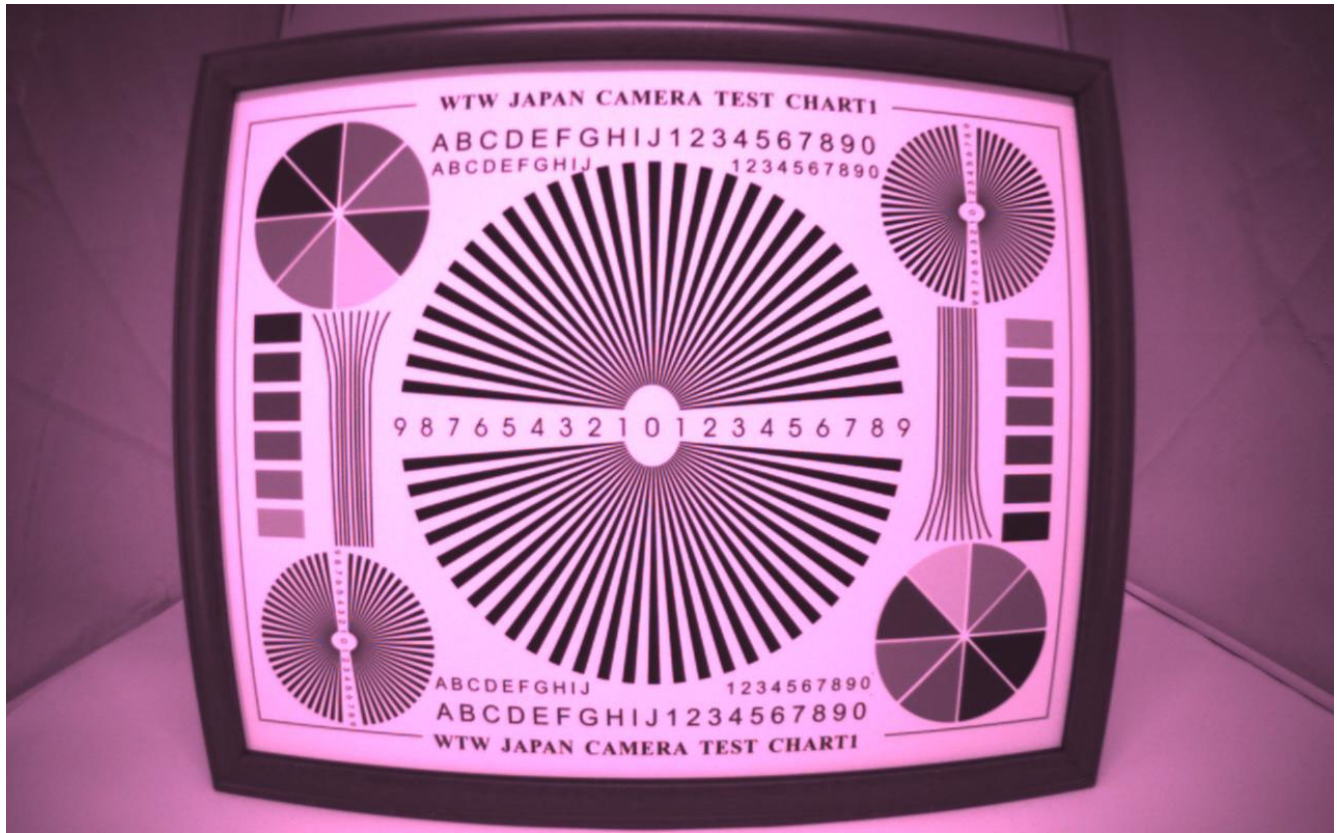
Sheet:

1 of 1

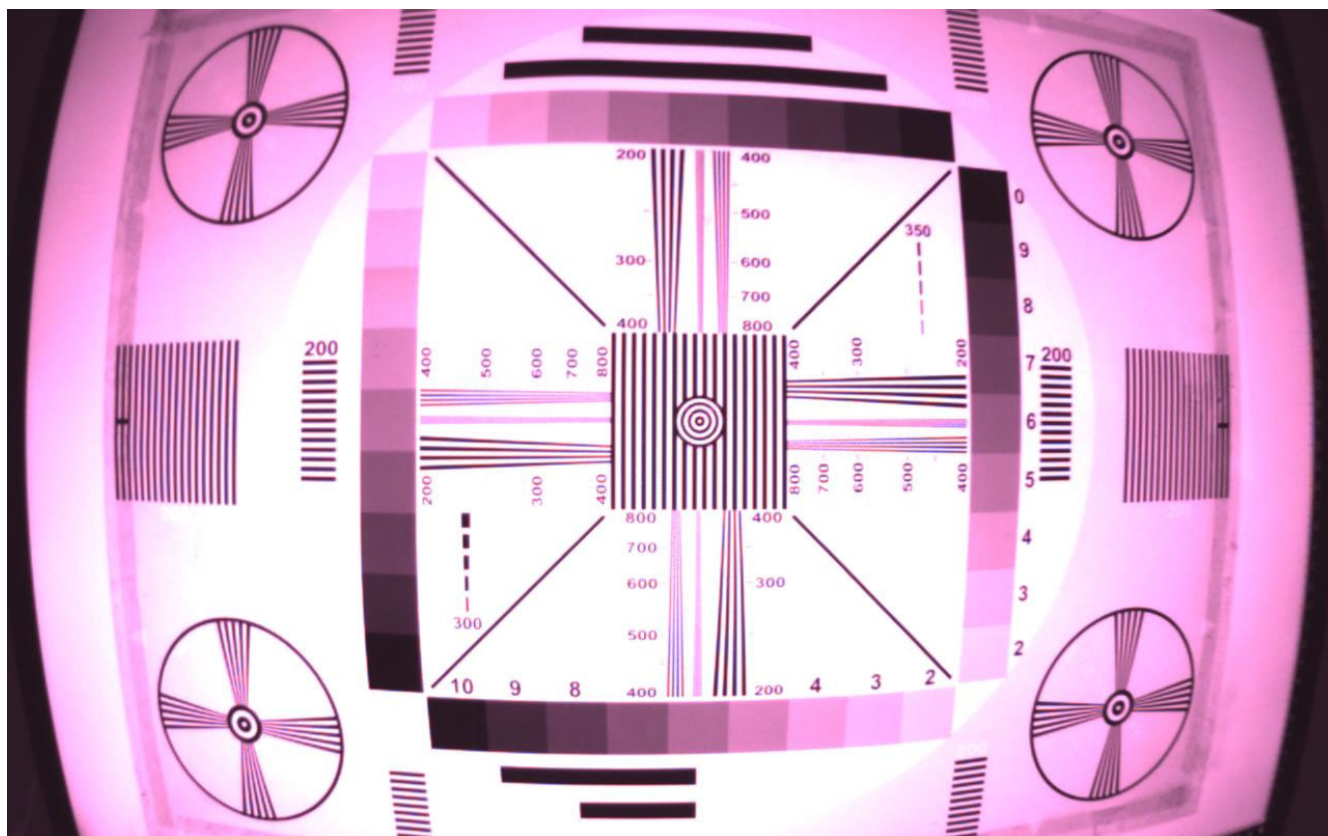
Version:

1/0

**Real Test Images**  
**Z6MF-OV9281 V2.0**

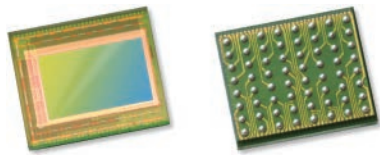


# Real Test Images Z6MF-OV9281 V2.0



**Real Test Images**  
**Z6MF-OV9281 V2.0**





# OV9281-OV9282 1-megapixel product brief



## 1-Megapixel OmniPixel®3-GS Sensors for Computer Vision Applications



available in a lead-free package

OmniVision's OV9281 and OV9282 are high-speed global shutter image sensors that bring 1-megapixel resolution to a wide range of consumer and industrial computer vision applications, including augmented reality (AR), virtual reality (VR), collision avoidance in drones, bar code scanning and factory automation. Built on OmniVision's OmniPixel®3-GS pixel technology, the OV9281 and OV9282 feature a high-speed global shutter pixel with best-in-class near-infrared (NIR) quantum efficiency (QE) to meet high-resolution and low-latency requirements.

Special features of the OV9281 and OV9282 include region of interest (ROI) selection and context switching. This allows some of the camera settings to change dynamically as fast as alternating frames. The sensors are available in both narrow and wide chief ray angle (CRA) settings.

The 1/4-inch OV9281 and OV9282 capture 1280 x 800 resolution images at 120 frames per second (fps) and VGA resolution at 180 fps with 2-lane MIPI and DVP output. The OV9281 and OV9282 also feature support for frame synchronization and dynamic defective pixel correction.

The OV9281 has a chief ray angle (CRA) of 9 degrees and comes in a chip scale package (CSP). The OV9282 features a CRA of 27 degrees and is available in a reconstructed wafer (RW) format. Both sensors are currently available in volume production.

Find out more at [www.ovt.com](http://www.ovt.com).



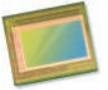
## Applications

- Consumer HMD
- Drones
- Machine Vision
- PCNB

## Product Features

- 3  $\mu\text{m}$  x 3  $\mu\text{m}$  pixel with OmniPixel<sup>3</sup>-GS technology
- automatic black level calibration (ABLC)
- programmable controls for:
  - frame rate
  - mirror and flip
  - cropping
  - windowing
- support output formats: 8/10-bit RAW
- fast mode switching
- supports 2x2 monochrome binning
- two-lane MIPI serial output interface
- DVP parallel output interface
- supports horizontal and vertical 2:1 and 4:1 monochrome subsampling
- support for image sizes:
  - 1280 x 800
  - 1280 x 720
  - 640 x 480
  - 640 x 400
- embedded 256 bits of one-time programmable (OTP) memory for part identification
- two on-chip phase lock loops (PLLs)
- LED PWM
- built-in strobe control

# OV9281-OV9282



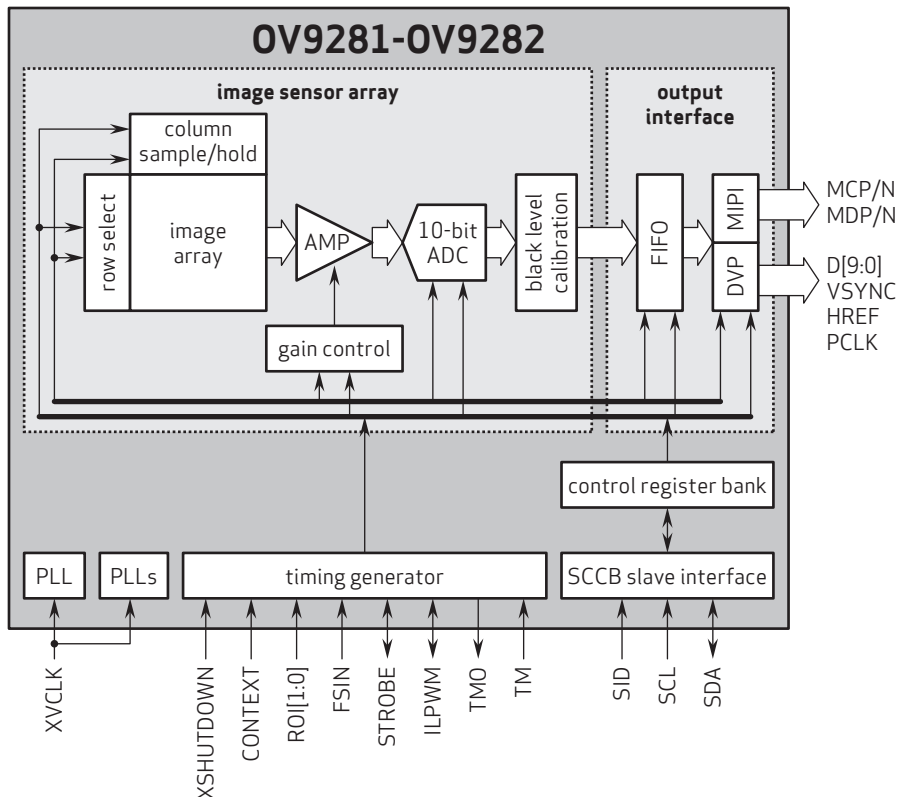
## Ordering Information

- **OV9281-H64A**  
(b&w, lead-free) 64-pin CSP
- **OV9282-GA4A**  
(b&w, lead-free, 200  $\mu\text{m}$  backgrinding, reconstructed wafer with good die)

## Technical Specifications

- **active array size:** 1296 x 816
- **maximum image transfer rate:**  
- 1280 x 800: 120 fps
- **power supply:**
  - analog: 2.8V (nominal)
  - core: 1.2V (nominal)
  - I/O: 1.8V (nominal)
- **power requirements:**
  - active: 156 mW
  - standby: 150  $\mu\text{A}$
  - XSHUTDOWN: 150  $\mu\text{A}$
- **temperature range:**
  - operating: -30°C to +85°C junction temperature
  - stable image: 0°C to +50°C junction temperature
- **output interfaces:** 2-lane MIPI serial output and DVP parallel output
- **output formats:** 8/10-bit RAW
- **lens size:** 1/4"
- **lens chief ray angle:**
  - OV9281: 9° linear
  - OV9282: 26.78° non-linear
- **scan mode:** progressive
- **pixel size:** 3  $\mu\text{m}$  x 3  $\mu\text{m}$
- **image area:** 3896  $\mu\text{m}$  x 2453  $\mu\text{m}$

## Functional Block Diagram



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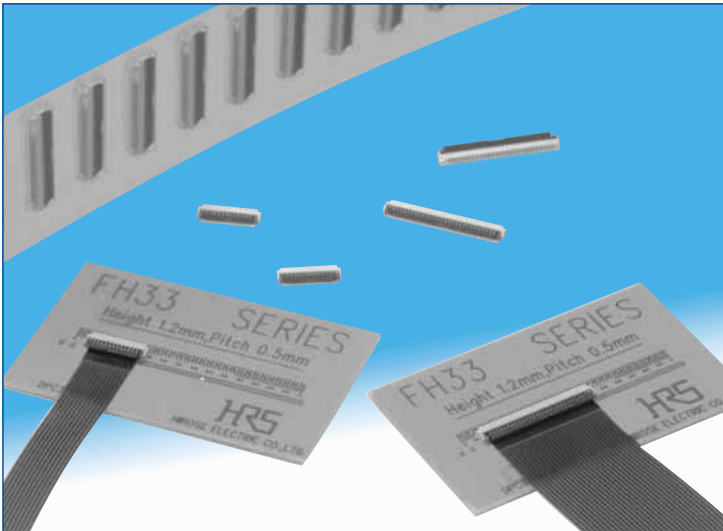
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OmniVision



## FH33 Series



### Features

#### 1. Low-profile, small PCB mounting area

Narrow width of only 2.5 mm reduced the board footprint by approximately 17% to 57%, as compared to several similar FH Series HRS connectors.

#### 2. Various contact pitch (0.4mm, 0.5mm, 1mm pitch) available

In addition to standard 0.5mm pitch, 0.4mm pitch, 1mm pitch also available.

#### 3. Increased FPC/FFC retention force

- In the horizontal direction: Approximately 2.0 times (compared to 0.5mm pitch FH12 series.)
- In the vertical direction: Approximately 1.7 times (compared to 0.5mm pitch FH19 series.)

#### 4. Conductive traces on the PCB can run under the connector

No exposed contacts on the bottom of the connector.

#### 5. One finger operation of the actuator

Proven (in several other Hirose's connectors) Flip-Lock® rotating actuator assures reliable mechanical and electrical connection with FPC/FFC, confirming it with a definite tactile feel.

#### 6. Easy FPC insertion and reliable electrical connection

Proven Flip Lock actuator allows easy insertion of FPC/FFC and provides a tactile sensation when fully closed, confirming complete electrical and mechanical connection.

#### 7. Accepts standard FPC thickness

0.3mm thick standard Flexible Printed Circuit (FPC) and Flexible Flat Cable (FFC) can be used.

#### 8. Board placement with automatic equipment

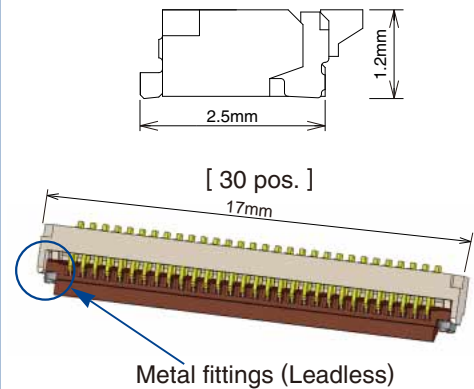
Flat upper surface and tape and reel packaging facilitate vacuum pick-up and placement. Standard reel packaging contains 5000 connectors.

#### 9. Halogen-free\* (FH33J Series)

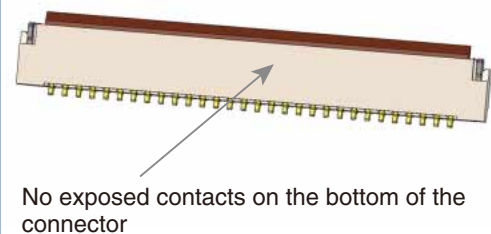
\*As defined by IEC61249-2-21  
Br-900ppm maximum, Cl-900ppm maximum,  
Cl + Br combined-1,500ppm maximum

### Increased FPC retention force

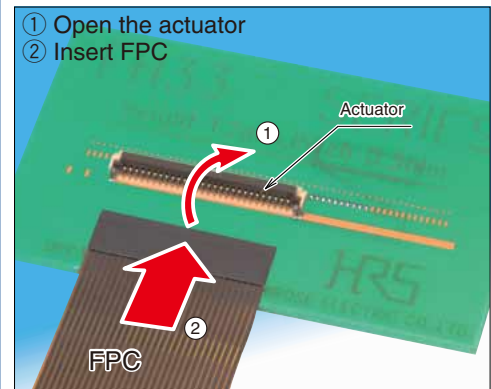
#### ● Small size



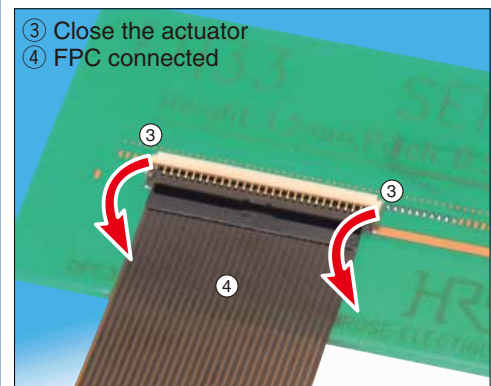
#### ● Can be mounted over conductive traces.



#### ● Simple operation



#### ● Locked condition



## Product Specifications

Ratings	Current rating	0.5 A (0.4mm pitch type 0.4A)	Operating temperature range	-55 °C to +85°C (Note 1)	Storage temperature range	-10°C to +50°C (Note 2)
	Voltage rating	50 V AC (0.4mm pitch type 40V AC)		Operating humidity range		Relative humidity 90% max. (No condensation)

Recommended FPC	Thickness = 0.3 ± 0.05mm gold plated (under 30 pos.), 0.3 ± 0.03mm gold plated (over 31 pos.)
-----------------	---

Item	Specification	Conditions
1. Insulation resistance	500 MΩ min.	100 V DC
2. Withstanding voltage	No flashover or insulation breakdown.	150 V AC /one minute, 120 V AC /one minute(0.4mm pitch type)
3. Contact resistance	50 mΩ max. 100 mΩ max(0.4mm pitch type). * Including FPC conductor resistance	1 mA
4. Durability (insertion/ withdrawal)	Contact resistance: 50 mΩ max. 100 mΩ max(0.4mm pitch type). No damage, cracks, or parts dislocation.	20 cycles
5. Vibration	No electrical discontinuity of 1μs or more. Contact resistance: 50 mΩ max. 100 mΩ max(0.4mm pitch type).	Frequency: 10 to 55 Hz, single amplitude of 0.75 mm, 10 cycles in each of the 3 directions.
6. Shock	No damage, cracks, or parts dislocation.	Acceleration of 981 m/s <sup>2</sup> , 6 ms duration, sine half-wave waveform, 3 cycles in each of the 3 axis
7. Humidity (Steady state)	Contact resistance: 50 mΩ max. 100 mΩ max(0.4mm pitch type).	96 hours at 40°C and humidity of 90% to 95%.
8. Temperature cycle	Insulation resistance: 50 MΩ min. No damage, cracks, or parts dislocation.	Temperature : -55°C→+15°C to +35°C→+85°C→+15°C to +35°C Time : 30 → 2 to 3 → 30 → 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 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	
Insulator	FH33 series	PA	UL94V-0	
		Color:Beige		
	FH33J series	LCP		Color:Deep brown
		PPS		Color:Beige
	FH33M series	LCP		Color:Black
		PA		Color:Beige
	FH33MHJ series	LCP		Color:Deep brown
PPS		Color:Beige		
Contacts	Phosphor bronze	Gold flash plated	---	
Metalfittings		Pure tin reflow plated	---	

## Ordering information

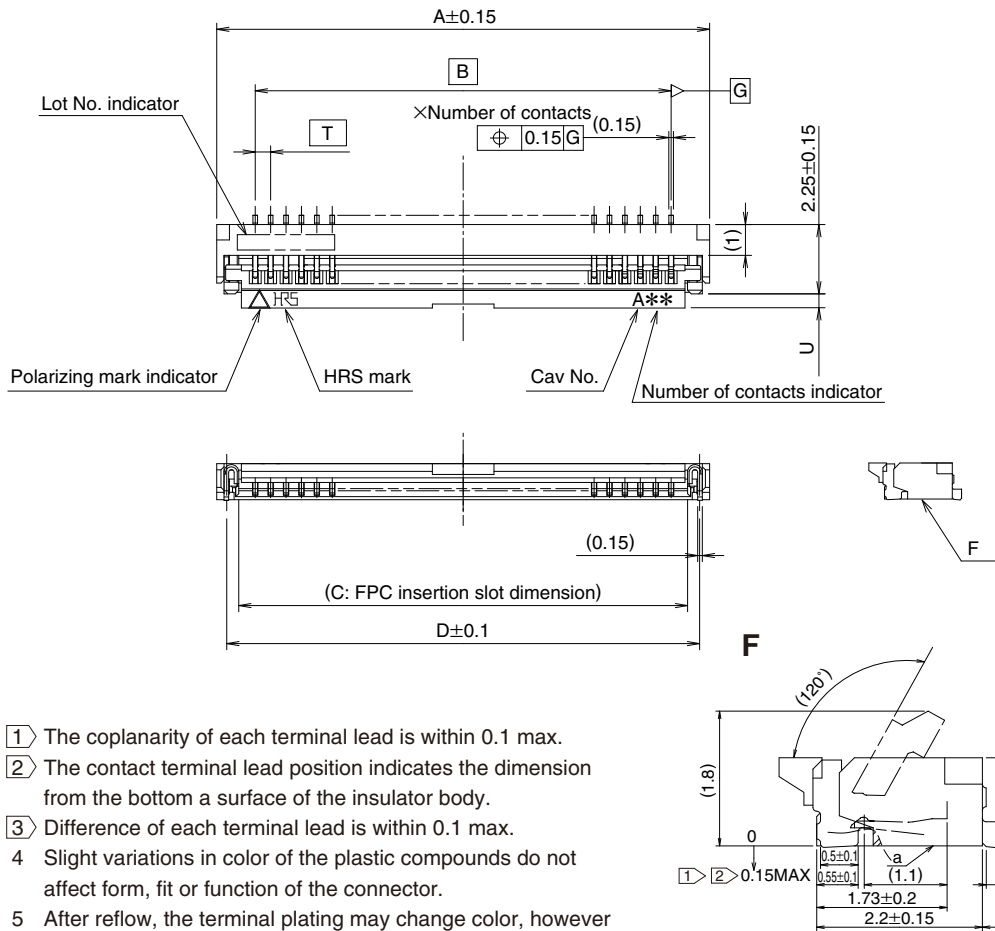
**FH 33 M H J - 12 (6) S B - 1 SH (10)**

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

① Series name:FH	④ Blank:Width 3.0mm(standard) H:Width 3.5mm(long actuator type)	⑦ Standard type:Blank Eccentric type:Number of contacts	⑩ Contact pitch: 0.4mm,0.5mm,1mm
② Series No:33	⑤ Blank:Standard J:Halogen-free Flame retardance UL94V-0	⑧ Contact alignment:S: single ⑨ Eccentric direction: Blank:standard type B:Eccentric type	⑪ SH:SMT horizontal mounting ⑫ Plating specifications: Blank:Gold plated (10)...Gold plating with nickel barrier 5,000pieces/reel (99)...Gold plating with nickel barrier 500pieces/reel
③ Blank:0.5mm pitch,1mm pitch M:0.4mm pitch			

## Connector Dimensions

### ●0.4mm pitch, 0.5mm pitch type

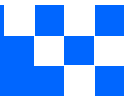


- Notes
- ① The coplanarity of each terminal lead is within 0.1 max.
  - ② The contact terminal lead position indicates the dimension from the bottom a surface of the insulator body.
  - ③ Difference of each terminal lead is within 0.1 max.
  - 4 Slight variations in color of the plastic compounds do not affect form, fit or function of the connector.
  - 5 After reflow, the terminal plating may change color, however this does not represent a quality issue.

Unit: mm

Part Number	CL No.	Number of Contacts	A	B	C	D	T	U
FH33-6S-0.5SH (**)	580-1301-1-**-	6	5	2.5	3.57	4.35	0.5	0.45
FH33-9S-0.5SH (**)	580-1303-7-**-	9	6.5	4	5.07	5.85	0.5	0.45
FH33-10S-0.5SH (**)	580-1304-0-**-	10	7	4.5	5.57	6.35	0.5	0.45
FH33-12S-0.5SH (**)	580-1302-4-**-	12	8	5.5	6.57	7.35	0.5	0.45
FH33-14S-0.5SH (**)	580-1305-2-**-	14	9	6.5	7.57	8.35	0.5	0.45
FH33-19S-0.5SH (**)	580-1307-8-**-	19	11.5	9	10.07	10.85	0.5	0.45
FH33-20S-0.5SH (**)	580-1317-1-**-	20	12	9.5	10.57	11.35	0.5	0.45
FH33-26S-0.5SH (**)	580-1306-5-**-	26	15	12.5	13.57	14.35	0.5	0.45
FH33-28S-0.5SH (**)	580-1300-9-**-	28	16	13.5	14.57	15.35	0.5	0.45
FH33-30S-0.5SH (**)	580-1312-8-**-	30	17	14.5	15.57	16.35	0.5	0.45
FH33-32S-0.5SH (**)	580-1310-2-**-	32	18	15.5	16.57	17.35	0.5	0.45
FH33-36S-0.5SH (**)	580-1311-5-**-	36	20	17.5	18.57	19.35	0.5	0.45
FH33-40S-0.5SH (**)	580-1308-0-**-	40	22	19.5	20.57	21.35	0.5	0.45
FH33-45S-0.5SH (**)	580-1316-9-**-	45	24.5	22	23.07	23.85	0.5	0.45
FH33M-16S-0.4SH (**)	580-1319-7-**-	16	8.3	6	6.87	7.65	0.4	0.45
FH33J-4S-0.5SH (**)	580-1329-0-**-	4	4	1.5	2.57	3.35	0.5	0.45
FH33J-10S-0.5SH (**)	580-1324-7-**-	10	7	4.5	5.57	6.35	0.5	0.45
FH33J-12S-0.5SH (**)	580-1328-8-**-	12	8	5.5	6.57	7.35	0.5	0.45
FH33J-16S-0.5SH (**)	580-1331-2-**-	16	10	7.5	8.57	9.35	0.5	0.45
FH33J-18S-0.5SH (**)	580-1334-0-**-	18	11	8.5	9.57	10.35	0.5	0.45
FH33J-19S-0.5SH (**)	580-1332-5-**-	19	11.5	9	10.07	10.85	0.5	0.45
FH33J-40S-0.5SH (**)	580-1330-0-**-	40	22	19.5	20.57	21.35	0.5	0.45
FH33MHJ-65S-0.4SH (**)	580-1325-0-**-	65	27.9	25.6	26.47	27.25	0.4	0.95

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



*your BEST camera module partner*

## Cameras Applications



Automotive Driver Pilot



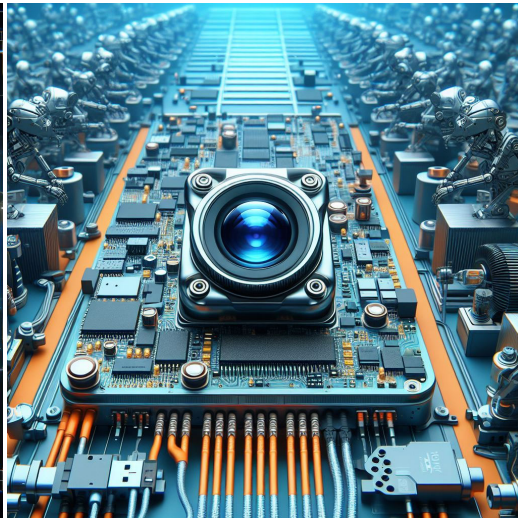
Live Streaming



Video Conference



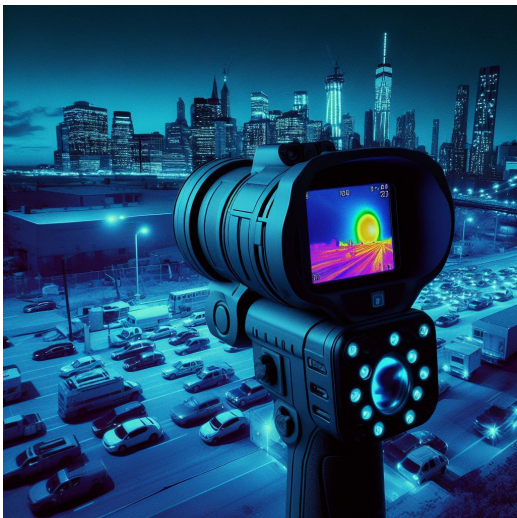
Eye Tracker Biometric Detection



Machine Vision



Agricultural Monitor



Night Vision Security



Drone and Sports Eagle Eyes



Interactive Pet Camera

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## Cameras Applications



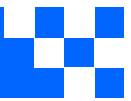
### IMAGING DEVICES





## Camera Module Pinout Definition Reference Chart

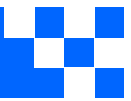
OmniVision	Sony	Samsung	On-Semi	Aptina	Himax	GalaxyCore	PixArt	SmartSens	Sensors	
Pin Signal										
Description										
DGND	GND									ground for digital circuit
AGND										ground for analog circuit
PCLK	DCK									DVP PCLK output
XCLR	PWDN	XSHUTDOWN	STANDBY							power down active high with 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
<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



## 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





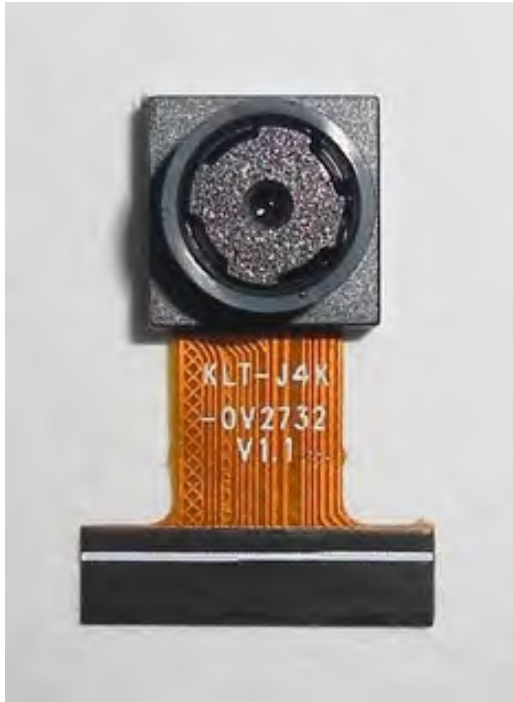
Inspection Item		Inspection Method	Standard of Inspection		
Category	Item				
Appearance	FPC/ PCB	Color	The Naked Eye	Major Difference is Not Allowed.	
		Be Torn/Chopped	The Naked Eye	Copper Crack Exposure is Not Allowed.	
		Marking	The Naked Eye	Clear, Recognizable (Within 30cm Distance)	
	Holder	Scratches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





## KLT Package Solutions

KLT Camera Module



Complete with Lens Protection Film



Tray with Grid and Space



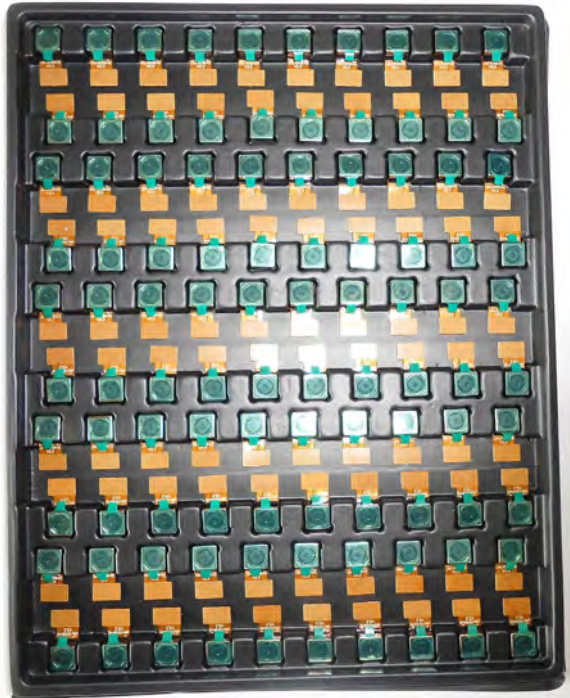
Place Cameras on the Tray





## Camera Modules Package Solution

Full Tray of Cameras



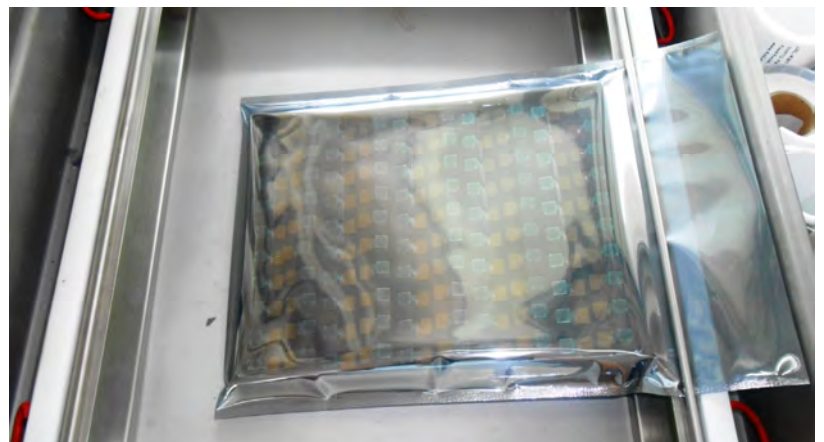
Cover Tray with Lid



Put Tray into Anti-Static Bag



Vacuum the Anti-Static Bag





## Camera Modules Package Solution

Sealed Vacuum Bag with Labels

1. Model and Description 2. Quantity 3. Shipping Date 4. Caution





## Large Order Package Solution

Place Foam Sheets Between Trays



Foam Sheets are Slightly Larger than Trays



Place Foam Sheets and Trays into Box



Foam Sheets are Tightly Fitting Box





## Small Order Package Solution

Place Foam Sheets and Trays into Small Box



Foam Sheets are Nicely Fitting the Small Box



Package in Small Box for Shipment



Place Small Boxes into Larger Box





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## Carbon Box Package Solution

Seal the Carbon Box

Final Package Labelled Box



### Carbon Box Ready for Shipment

1. Delivery Address and Phone No.
2. Box No. and Ship Date
3. Fragile Caution



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## Sample Order Package Solution

Place Sample into Small Anti-Static Bag



Place Connectors into Small Ant-Static Bag



### Sample Labels on the Small Bag

1. Camera Module or Connector Model
2. Shipping Date and Quantity
3. Caution





## Connectors Large Order Package Solution

Connectors in a Wheel



Label Connectors in the Wheel



The Wheel is Perfectly Fitting the Box



Connectors Box Ready for Shipment







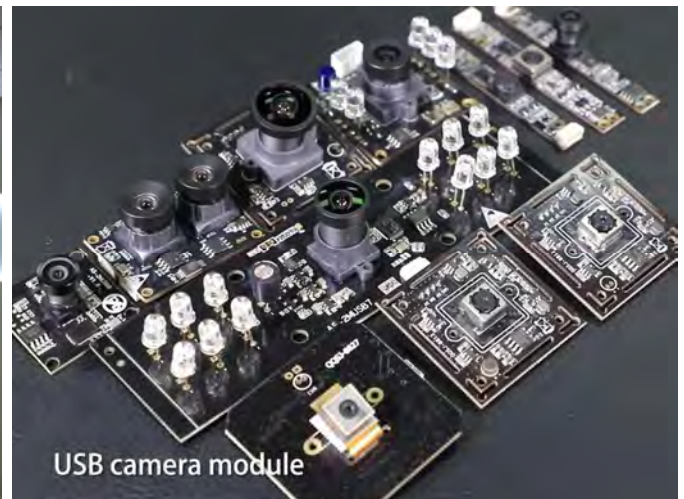
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## Company Kai Lap Technologies (KLT)

Kai Lap Technologies Group Limited. (KLT) was established in 2009, a next-generation technology driven manufacturer specialized in research, design, and produce of audio and video products. KLT is occupying 20,000 square feet automated plants with 100 employees of annual throughput 30,000,000 units cameras.

KLT 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. KLT 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

KLT provides the following limited warranty if you purchased the Product(s) directly from KLT company or from KLT's website, [www.KaiLapTech.com](http://www.KaiLapTech.com). Product(s) purchased from other sellers or sources are not covered by this Limited Warranty. KLT 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, KLT 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 KLT is solely limited to repair and/or replacement on the terms set forth above. KLT is not reliable or responsible for any subsequent events.





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## KLT Strength

### Powerful Factory



### Professional Service



### Promised Delivery



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