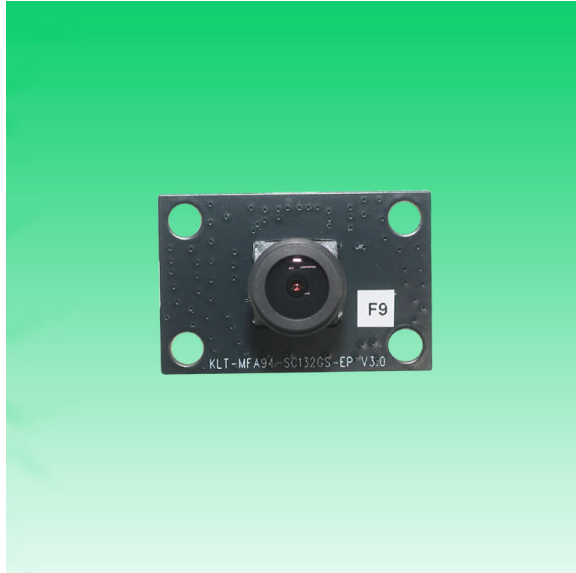
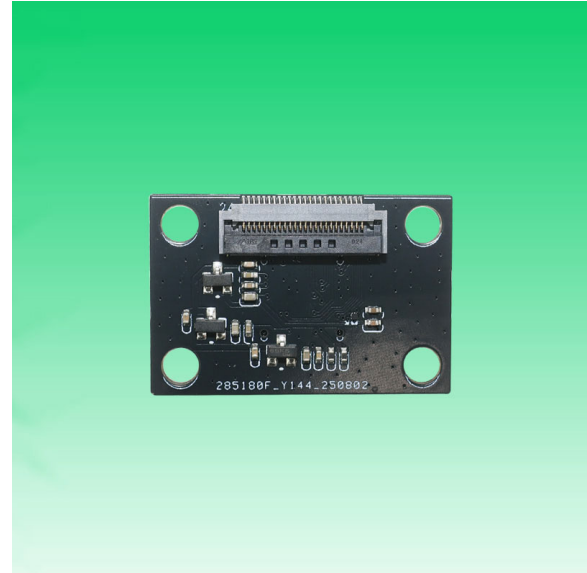


KLT-MFA94-SC132GS-EP V3.0

**8MP Sony 1.3MP SmartSens SC132GS Global Shutter MIPI Interface
Fixed Focus Camera Module**



Front View



Back View

Specifications

Camera Module No.	KLT-MFA94-SC132GS-EP V3.0
Resolution	1.3MP
Image Sensor	SC132GS Global Shutter
Sensor Type	1/4"
Pixel Size	2.7 um x 2.7 um
EFL	2.60 mm
F.NO	2.60
Pixel	1080 x 1280
View Angle	120.0°(DFOV)
Lens Dimensions	9.00 x 9.00 x 15.00 mm
Module Size	30.00 x 20.00 mm
Module Type	Fixed Focus
Interface	MIPI
Auto Focus VCM Driver IC	None
Lens Type	650nm IR Cut
Operating Temperature	-40°C to +85°C
Mating Connector	FH52-24S-0.5SH

KLT-MFA94-SC132GS-EP V3.0

**8MP Sony 1.3MP SmartSens SC132GS Global Shutter MIPI Interface
Fixed Focus Camera Module**



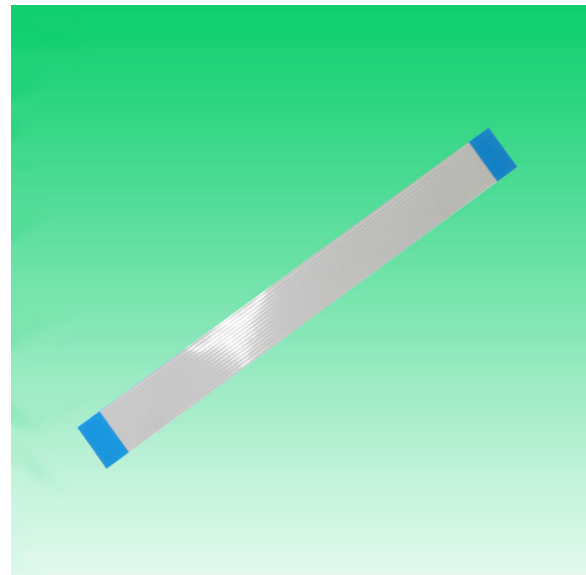
Top View



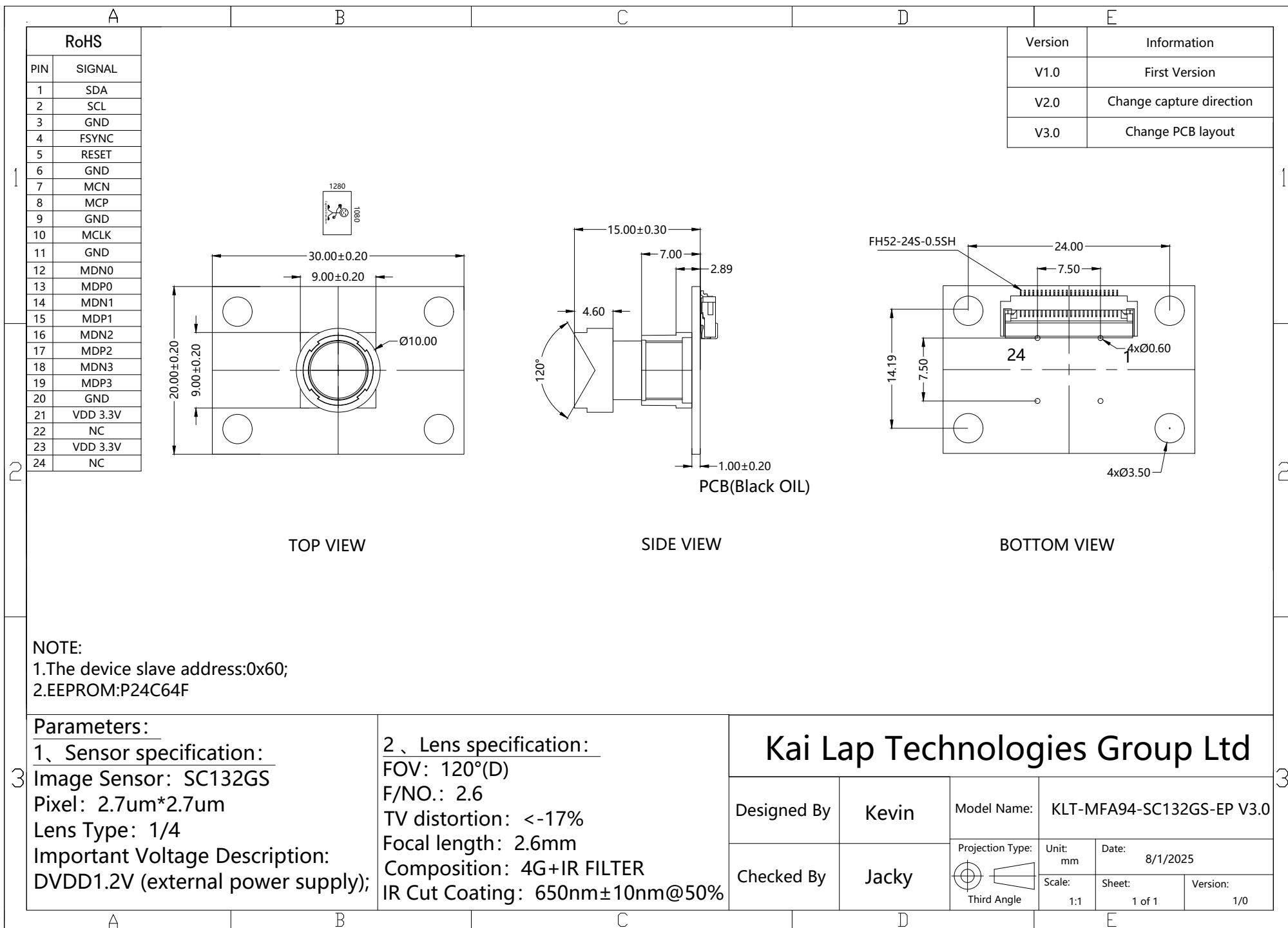
Side View



Bottom View



Mating Connector

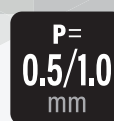


FH52 Series

0.5mm/1.0mm Pitch, 2.0mm Height, Bottom Contact, Front Flip, FPC/FFC Connector



TM Flip-Lock Pioneer Hirose



P=0.5/1.0mm

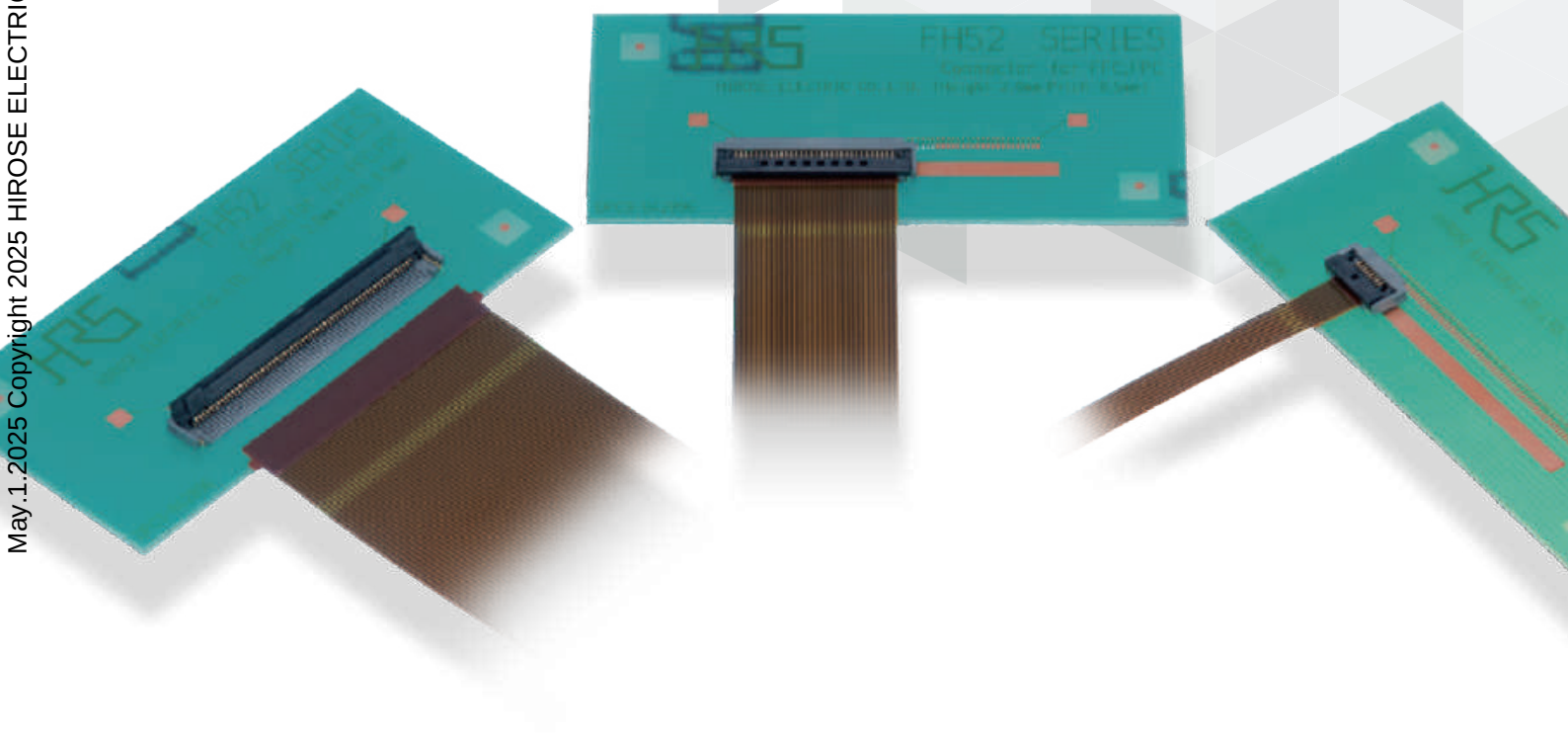


Heat-Resist



Wide Variation

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Product Number Structure

Refer to the chart below when determining the product specifications from the product number.
Please select from the product numbers listed in this catalog when placing orders.

1

2

3

4

5

6

7

8

9

FH52

E

–

50

(25)

S

B

–

0.5

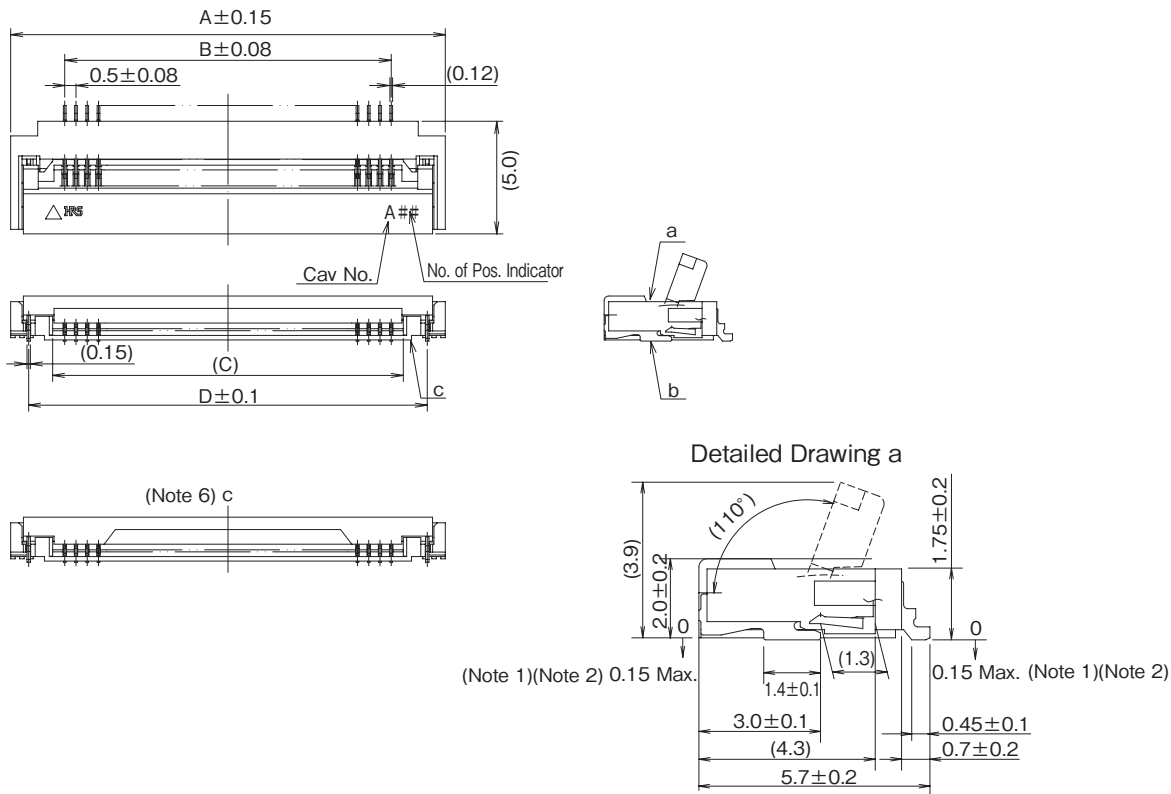
SH

(##)

1 Series Name	FH52	5 Contact Arrangement	Single (pole piece array)
2 Connector Type	Blank : Standard Type E : Long Solder Tabs Type K : Long Solder Tabs, 125℃ Heat Resistant Type T : Long Solder Tabs, 2-Point Contact Type	6 Alternating Direction	No Symbol : Standard Type (All Contacts Loaded) A : Alternating Contact Type (Alternating on the Polarity Side) B : Alternating Contact Type (Alternating on Opposite the Polarity Side)
		7 Contact Pitch	0.5mm, 1mm
3 No. of Pos.	Standard Type : No. of Pos. Alternating Contact Type : Mold Size	8 Termination Type	SH : SMT Horizontal Mounting Type
4 No. of Pos.	Standard Type : No Symbol Alternating Contact Type : No. of Pos.	9 Specification	Blank : Standard, Partially Gold Plated, 3,000pcs per reel (99) : Partially Gold Plated, 500pcs per reel

Connector Dimensional Drawing

FH52 (Standard Type) 0.5mm Pitch Product



Note 1 : The coplanarity of the contact and solder tab lead is 0.1 Max.

Note 2 : The contact lead position indicates the dimension from b, the bottom surface of the insulator body.

Note 3 : Packaged in tape and reel only. Check the "Packaging Specification" for details.

Note 4 : Sink mark reliefs may be added due to improvements.

Note 5 : Sight variations in color of the plastic compounds do not affect form, fit or function.
After reflow, the contact plating may change color, however this does not represent a quality issue.

Note 6 : The actuator design of the 60pos. type are shown in the figure.

Unit : mm

Part No.	HRS No.	No. of Pos.	A	B	C	D	Purchase Unit (##) : (00)	Purchase Unit (##) : (99)
FH52-6S-0.5SH(##)	CL0580-3304-0-##	6	7.3	2.5	3.57	5.7	3,000pcs per reel	500pcs per reel
FH52-8S-0.5SH(##)	CL0580-3305-3-##	8	8.3	3.5	4.57	6.7		
FH52-10S-0.5SH(##)	CL0580-3306-6-##	10	9.3	4.5	5.57	7.7		
FH52-11S-0.5SH(##)	CL0580-3320-7-##	11	9.8	5.0	6.07	8.2		
FH52-12S-0.5SH(##)	CL0580-3307-9-##	12	10.3	5.5	6.57	8.7		
FH52-15S-0.5SH(##)	CL0580-3302-5-##	15	11.8	7.0	8.07	10.2		
FH52-18S-0.5SH(##)	CL0580-3321-0-##	18	13.3	8.5	9.57	11.7		
FH52-20S-0.5SH(##)	CL0580-3309-4-##	20	14.3	9.5	10.57	12.7		
FH52-22S-0.5SH(##)	CL0580-3317-2-##	22	15.3	10.5	11.57	13.7		
FH52-24S-0.5SH(##)	CL0580-3318-5-##	24	16.3	11.5	12.57	14.7		
FH52-25S-0.5SH(##)	CL0580-3316-0-##	25	16.8	12.0	13.07	15.2		
FH52-26S-0.5SH(##)	CL0580-3319-8-##	26	17.3	12.5	13.57	15.7		
FH52-28S-0.5SH(##)	CL0580-3324-8-##	28	18.3	13.5	14.57	16.7		
FH52-30S-0.5SH(##)	CL0580-3310-3-##	30	19.3	14.5	15.57	17.7		
FH52-32S-0.5SH(##)	CL0580-3325-0-##	32	20.3	15.5	16.57	18.7		
FH52-40S-0.5SH(##)	CL0580-3300-0-##	40	24.3	19.5	20.57	22.7		
FH52-42S-0.5SH(##)	CL0580-3329-1-##	42	25.3	20.5	21.57	23.7		
FH52-45S-0.5SH(##)	CL0580-3311-6-##	45	26.8	22.0	23.07	25.2		
FH52-50S-0.5SH(##)	CL0580-3303-8-##	50	29.3	24.5	25.57	27.7		
FH52-60S-0.5SH(##)	CL0580-3301-2-##	60	34.3	29.5	30.57	32.7		

Cameras Applications



Automotive Driver Pilot



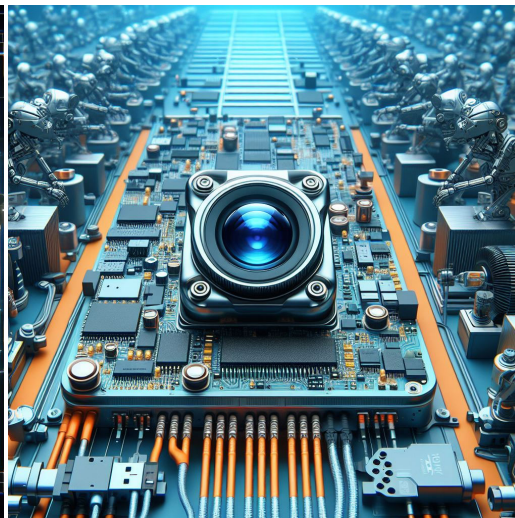
Live Streaming



Video Conference



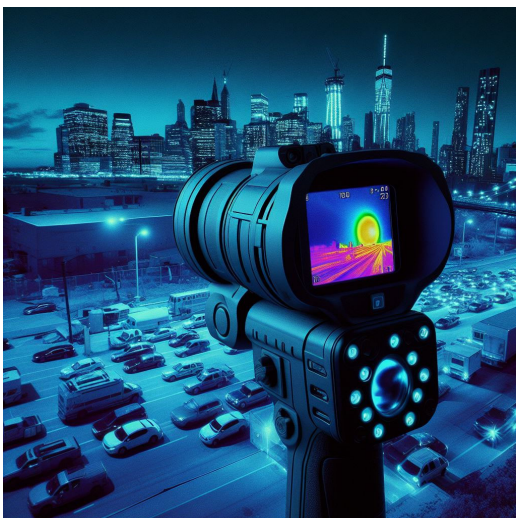
Eye Tracker Biometric Detection



Machine Vision



Agricultural Monitor



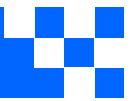
Night Vision Security



Drone and Sports Eagle Eyes



Interactive Pet Camera



Cameras Applications

your BEST camera module partner



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
MIPI Interface	
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 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

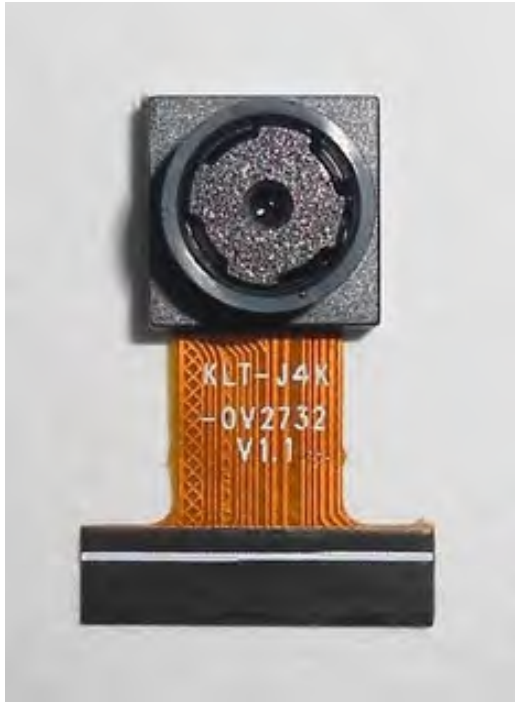
Reliability Inspection Item			Testing Method	Acceptance Criteria
Category		Item		
Environmental	Storage Temperature	High 60°C 96 Hours	Temperature Chamber	No Abnormal Situation
		Low -20°C 96 Hours	Temperature Chamber	No Abnormal Situation
	Operation Temperature	High 60°C 24 Hours	Temperature Chamber	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	Major Difference is Not Allowed.
		Be Torn/Chopped	Copper Crack Exposure is Not Allowed.
		Marking	Clear, Recognizable (Within 30cm Distance)
	Holder	Scratches	The Inside Crack Exposure is Not Allowed
		Gap	Meet the Height Standard
		Screw	Make Sure Screws Are Presented (If Any)
		Damage	The Inside Crack Exposure is Not Allowed
	Lens	Scratch	No Effect On Resolution Standard
		Contamination	No Effect On Resolution Standard
		Oil Film	No Effect On Resolution Standard
		Cover Tape	No Issue On Appearance.
Function	Image	No Communication	Test Board
		Bright Pixel	Black Board
		Dark Pixel	White board
		Blurry	The Naked Eye
		No Image	The Naked Eye
		Vertical Line	The Naked Eye
		Horizontal Line	The Naked Eye
		Light Leakage	The Naked Eye
		Blinking Image	The Naked Eye
		Bruise	Inspection Jig
		Resolution	Chart
		Color	The Naked Eye
		Noise	The Naked Eye
		Corner Dark	The Naked Eye
		Color Resolution	The Naked Eye
Dimension		Height	The Naked Eye
		Width	The Naked Eye
		Length	The Naked Eye
		Overall	The Naked Eye

KLT Package Solutions

KLT Camera Module



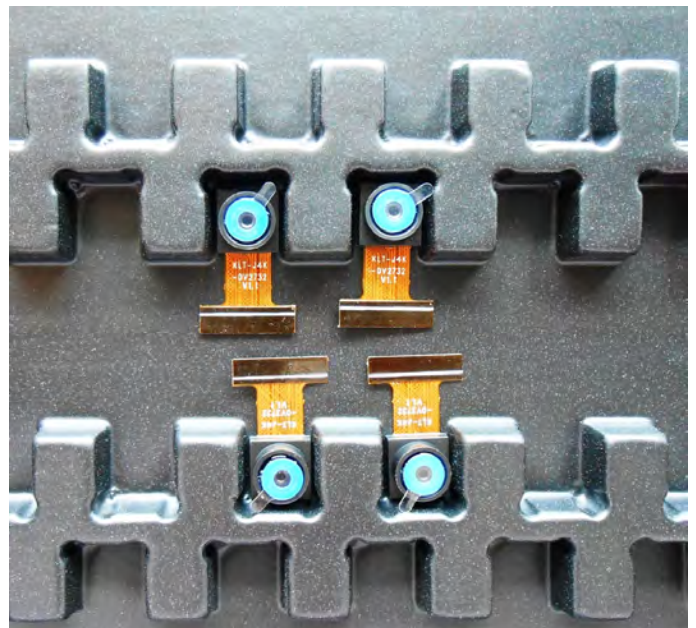
Complete with Lens Protection Film



Tray with Grid and Space

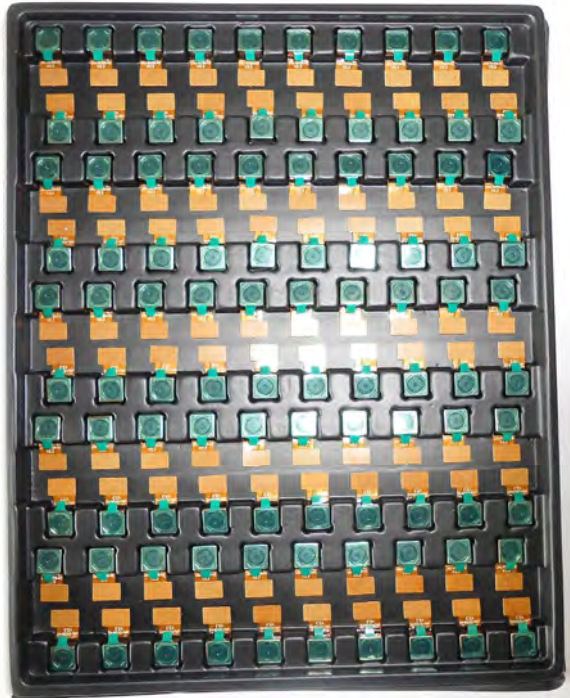


Place Cameras on the Tray



Camera Modules Package Solution

Full Tray of Cameras



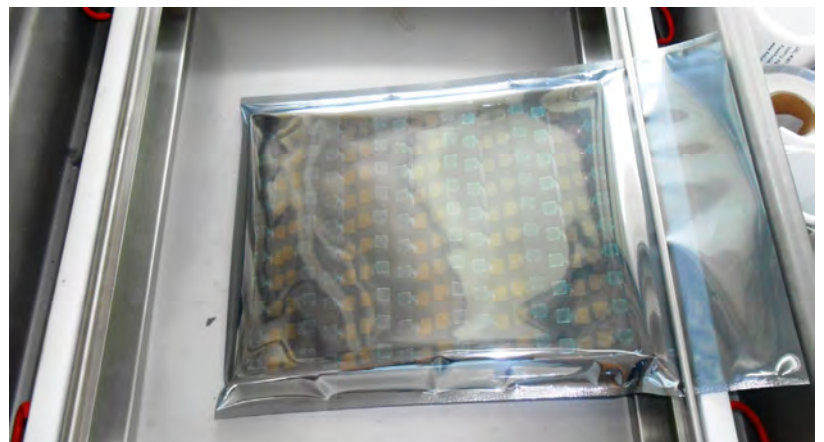
Cover Tray with Lid



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



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



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

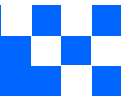


Connectors Box Ready for Shipment





CMOS CAMERA MODULES



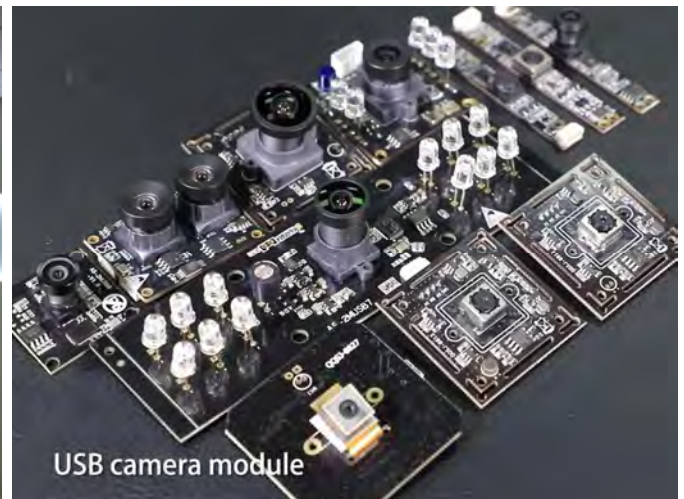
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Company Kai Lap Technologies (KLT)

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. 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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CMOS CAMERA MODULES



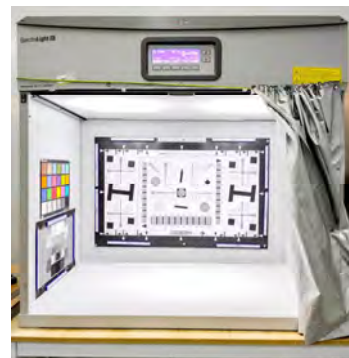
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KLT Strength

Powerful Factory



Professional Service



Promised Delivery



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