



your BEST camera module partner

KLT-C8MF-OV2740 V1.0

2MP OmniVision OV2740 MIPI Interface M12 Fixed Focus Camera Module





Front View

Back View

Specifications	y Way Kail an Tach com
Camera Module No.	Www.Kail.apTech.com KLT-C8MF-0V2740 V1.0
Resolution	2MP
Image Sensor	OV2740
Sensor Type	1/6"
Pixel Size	1.4 um x 1.4 um
EFL	1.02 mm
F.NO	2.00
Pixel	1920 x 1080
Wiew Angle il an Tech com	140.0°(DFQV), 117.0°(HFQV), 95.0°(VFQV),
Lens Dimensions	13.10 x 13.10 x 15.63 mm
Module Size	50.00 x 22.00 mm
Module Type	Fixed Focus
Interface	MIPI
Auto Focus VCM Driver IC	None
Lens Model	KLT-LENS-TRC-F4115A6
Lens Type	650nm IR Cut
Operating Temperature	-30°C to +85°C
Mating Connector	FH12-24S-0.5SH





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Top View

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Bottom View

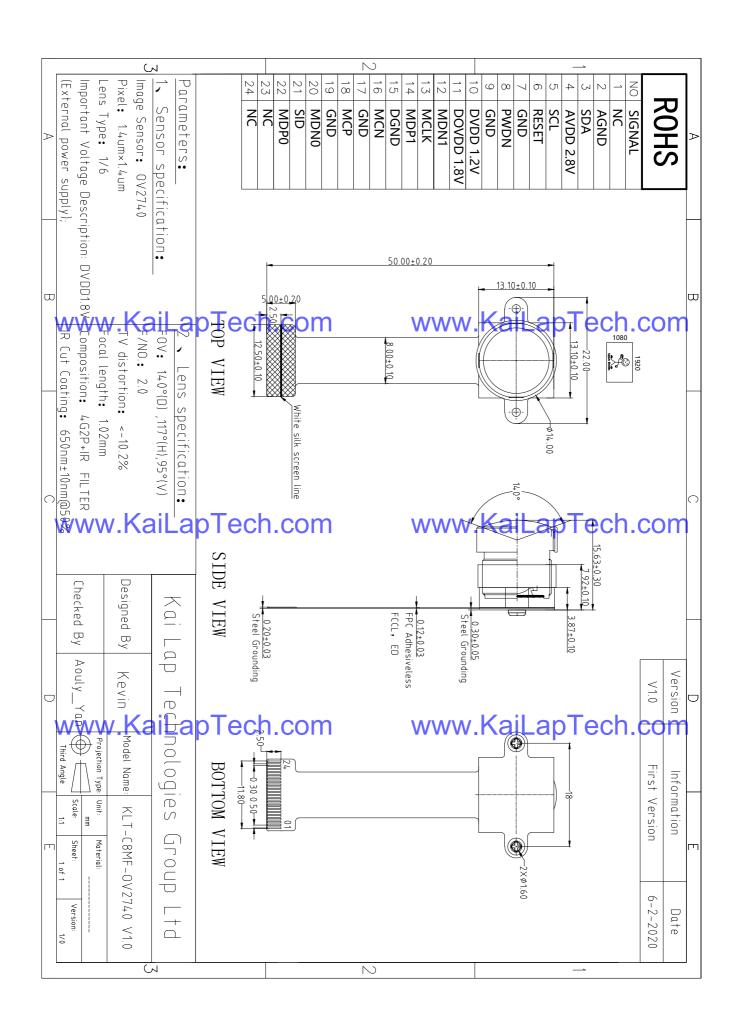


Side View

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Mating Connector

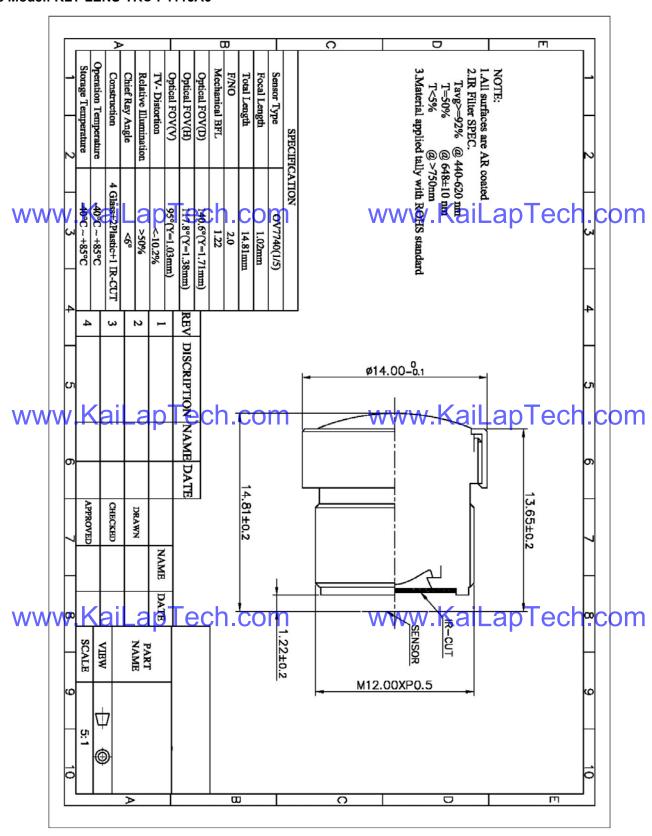






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Lens Model: KLT-LENS-TRC-F4115A6



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 0.18mm +/- 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

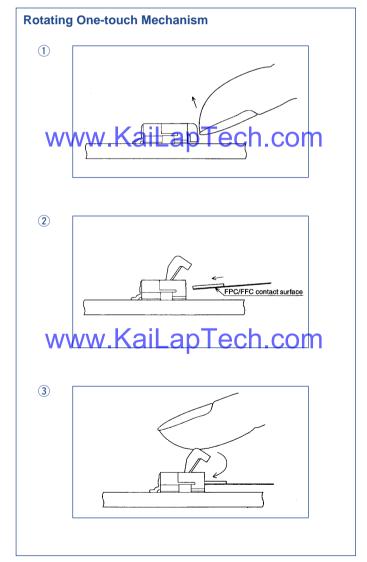
Excess solder cavity absorbs excessive solder and avoids solder bridging.

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.



■Product Specifications

	Current rating: 0.5A DC(Note 1)	Operating Temperature Range:-40 to +70℃ (Note 2)	Storage Temperature Range:-10 to +50℃ (Note 3)
Rating	Voltage rating: 50V AC	Operating Humidity Range:Relative humidity, 90% max.	Storage Humidity Range:Relative humidity, 90% max.
		(Not dewed)	(Not dewed)

		(**************************************	
Applicable FPC	t=0.3±0.05 Gold plated	t =0.18 \pm 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 1 \mu 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 1 \mu s or more Contact resistance: 50m ohms maximum. No damage, cracks, or parts dislocation.	Acceleration of 490 m/s², 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	
A Resistance to Soldering heat No deformation of		Reflow: At the recommended temperature profile	

components affecting performance. 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	UL94V-0
Actuator	Actuator PPS		UL94V-0
Contact	Phosphor bronze	Gold plated	
Metal Fittings	Brass	Tin plated	

■Ordering Infoilmato Tech.com www.KaiLapTech.com

Manual soldering: 350±5°C for 3 seconds

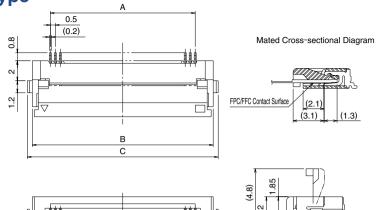
Series Name : FH12	6 Contact alignment: Single	
2 Blank : standard type	6 Eccentric direction:	
A : Top contact type	Blank : standard type	
S: Type with strengthed flip-lock actuator	A : Eccentric type	
F: Type with 0.18mm FPC End Thickness	Contacts Pitch : 0.5mm, 1mm	
3 Standard type : Number of contacts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

◆ Series Configuration

Pitch	Bottom Contact Type	Top Contact Type	Vertical mounting Type
W 0.5mm	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	PPC conductive surface	FPC conductive surface (bottom side)
W	Type with Strengthened Lock Lever FH12S- ** S-0.5SH Number of contacts 30, 40, 45, 50, 53 Type with 0.18mm FPC End Thickness FH12F- ** S-0.5SH Number of contacts 6, 8, 10, 12, 13, 14, 15, 16, 18, 20, 22, 24, 25, 26, 28, 30, 32, 34, 36, 40	WWW.Ka 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 P.16 Number of contacts 10, 12, 13, 15, 16, 17, 18, 20, 22, 24, 26, 30, 32, 33, 34, 36, 40, 45, 49, 50, 60
W 1mm	ww.kaiLaptech.c	om www.Ka	FPC conductive surface (bottom side)
	Standard FH12- ** S-1SH P.18 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		FH12- ** S-1SV P.19 Number of contacts 6, 7, 8, 16, 20, 22, 24

■0.5mm Pitch Bottom Contact Type





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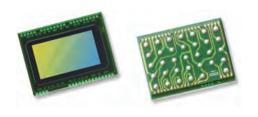
								Unit:mm	
	Part Number	CL No.	Number of Contacts	Α	В	С	D	RoHS	
	FH12- 6S-0.5SH(55)	586-0582-5-55	6	2.5	6.1	7.1	3.57		
	FH12- 8S-0.5SH(55)	586-0744-5-55	8	3.5	7.1	8.1	4.57		
	FH12-10S-0.5SH(55)	586-0522-3-55	10	4.5	8.1	9.1	5.57		
	FH12-11S-0.5SH(55)	586-0600-5-55	11	5	8.6	9.6	6.07		
	FH12-12S-0.5SH(55)	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		
WW	FH12 (15S-0.5SH(55)	586-0523-6-55	n 15	\\/ \\\\	106	a i 11.63 I	8.07	ch.c	om
	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	120	
	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	<u>14.</u> 57		
Note 2	VAH12-30S-0.5SH(55)	586-0525-1-55	11 30	\\ 4\5\\	V 18/1	116.6	O15.5 7	cn.c	om
	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



OV2740 1080p product brief





World's Most Power-Efficient 1080p/60 High Definition Image Sensor for Front-Facing Camera Applications

Ornni Vision's 0 V 2740 Byre Cel™its an pitra-low power, wstaggered high dynamic jange (HDR) to minimize motion full high-definition (FHD) image sensor for front-facing artifacts to capture crisp, clear video in difficult lighting camera applications in smartphones, tablets, notebooks and Ultrabooks. By consuming under 90 mW when recording 1080p HD video at 60 frames per second (fps), the OV2740 is the lowest power 1080p/60 image sensor currently on the market.

Built on a 1.4-micron pixel, the OV2740 PureCel image sensor boasts a signal-to-noise ratio of less than 50 lux, with improvements in full-well capacity (FWC) and sensitivity. The sensor records best-in-class 1080p HD video at 60 fps and 720p HD video at 90 fps, and uses

conditions.

The OV2740 is the only 1080p HD image sensor to feature light-sensing mode (LSM) and ultra-low power mode (ULPM), enabling advanced features such as motion detection or gesture control. Additionally, the sensor is stereo ready with frame synchronization to support a host of depth perception applications. The OV2740 fits into a compact 5.5 x 5.5 x 3 mm module.

Find out more at www.ovt.com.





Applications

- Smartphones
- Ultrabooks and Notebooks
- Tablets

- Digital Still Cameras (DSC)
- Digital Video Camcorders (DVC)
- PC Multimedia

Product Features

- 1.4 µm x 1.4 µm pixel
- optical size of 1/6"
- programmable controls for frame rate, mirror and flip, cropping, and windowing
- supports output formats: 10-bit RAW RGB
- supports images sizes: 1030p(1920x1080) V20p(1280xV20) VGA (640x480)

 - QVGA (320×240) - QQVGÀ (160x120)
- supports 2x2 binning
- standard serial SCCB interface

- up to 2-lane MIPI serial output interface (supports maximum speed up to 1000 Mbps/lane)
- embedded 4 kilobits of one-time programmable (OTP) memory for customer use
- add staggered HDR raw data output
- interleave row high dynamic range (iHDP) utput COM

 programmable I/O drive capability
- power saving (PSV) mode
- support for LENC color shading

OV2740



■ 0V02740-H34A-Z (color, lead-free, 34-pin CSP5)

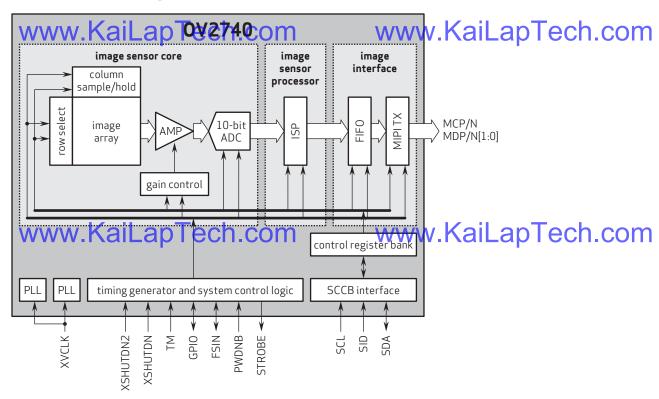
Product Specifications

- active array size: 1920 x 1080
- power supply:
- core: 1.2\
- analog: 2.8V I/O: 1.8V
- power requirements:V Call and a citive: 86.7 mW standby: 250 µA

- XSHUTDN: 0.15 μA
- temperature range:
- operating: -30°C to +85°C junction temperature
- stable image: 0°C to +60°C junction temperature
- output formats: 10-bit RAW RGB data

- lens size: 1/6"
- lens chief ray angle: 33° non-linear
- input clock frequency: 6 27 MHz
- maximum image transfer rate 0 1000p: 50 fps -720p: 90 fps
- scan mode: progressive
- pixel size: 1.4 µm x 1.4 µm
- image area: 2728.8 µm x 1549.8 µm
- package dimensions: CSP5: 3855 µm x 2919 µm

Functional Block Diagram



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Camera Module Pinout Definition Reference Chart

	ina 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
MREAVXHX aiLap Lech.com	DVP HREF OUTPUTW. Kallap ech.com
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
APPAW.KaiLap Lech.com	CEN chip enable active high on CM driver Q . CON
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 CCII.COIII	www.KaiLapTech.con
D0 DO0 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 DO6 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





Cameras Applications

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Camera Reliability Test

Reliability Inspection Item Category Item		Tanting Mathad	A coopton of Critoria	
		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
www.	KaiLapTe Thermal Shock	High 60°C 0.5 Hours Low -20°C 0.5 Hours	www.KaiLap	Tech.com No Abnormal Situation
	Thermal Check	Cycling in 24 Hours	Tomporatare Griamoor	Tre Albridania Gradulari
	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
	l/oil on To	50Hz Z-Axis 2mm 30min	Vibration Table	Electrically Functional
WWW.	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
WWW.	USB Connector C On/Off 250 Times		W Plug and Unplugap	Electrically Functional













Camera Inspection Standard

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Inspection Item Category Item		n Item		Standard of Inspection	
		Item	Inspection Method		
		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	
	Haldan	Gap	The Naked Eye	Meet the Height Standard	
Appearance	Holder	Screw	The Naked Eye	Make Sure Screws Are Presented (If Any)	
WW	w.KaiL	ap Temp.con	↑ The Naked Fye //\	The Inside Crack Exposure is Not Allowed	
		Scratch	The Naked Eye	No Effect On Resolution Standard	
	Lens	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	
	ww.KaiL	Bright Pixel	Black Board	Not Allowed In the Image Center	
14040		Dark Pixel	White board	Not Allowed In the Image Center	
VVVV		ap recn.com	The Naked Eye	Not Allowed ap Lech.com	
		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	
WW	w.KaiL	ap Resolution con	Chart WW\	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	nsion	Width	The Naked Eye	Follows Approval Data Sheet	
2		Length	The Naked Eye	Follows Approval Data Sheet	
		Overall	The Naked Eye	Follows Approval Data Sheet	





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KLT Package Solutions

KLT Camera Module



Tray with Grid and Space



Complete with Lens Protection Film



Place Cameras on the Tray







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Camera Modules Package Solution

Full Tray of Cameras



Put Tray into Anti-Static Bag



Cover Tray with Lid



Vacuum the Anti-Static Bag







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Camera Modules Package Solution

Sealed Vacuum Bag with Labels 1. Model and Description 2. Quantity 3. Shipping Date 4. Caution







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Large Order Package Solution

Place Foam Sheets Between Trays

Foam Sheets are Slightly Larger than Trays





www.KaiLapTech.com

Place Foam Sheets and Trays into Box

www.KaiLapTech.com

Foam Sheets are Tightly Fitting Box









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Small Order Package Solution

Place Foam Sheets and Trays into Small Box

Foam Sheets are Nicely Fitting the Small Box



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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





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







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Connectors Large Order Package Solution

Connectors in a 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. 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 of workmanship during the Warranty Reriod, 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 subsequential events.

















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KLT Strength

Powerful Factory





Professional Service







Promised Delivery





