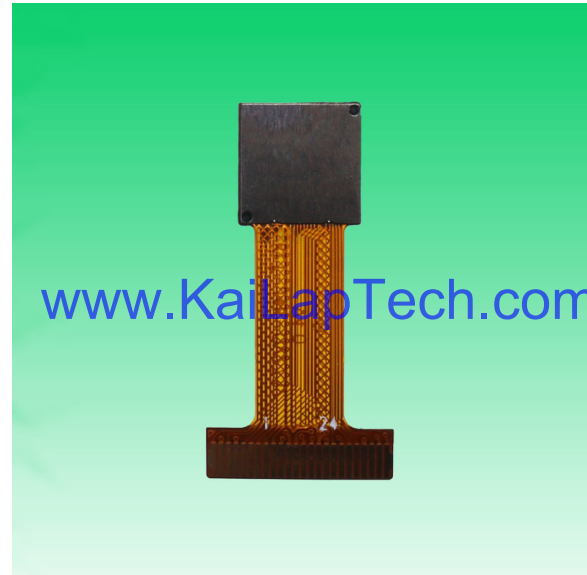


## KLT-J4K-OV2732 V4.0

### 2MP OmniVision OV2732 MIPI and DVP Parallel Interface Fixed Focus Camera Module



Front View



Back View

#### Specifications

Camera Module No.	KLT-J4K-OV2732 V4.0
Resolution	2MP
Image Sensor	OV2732
Sensor Type	1/4"
Pixel Size	2.0 um x 2.0 um
EFL	3.29 mm
F.NO	2.80
Pixel	1920 x 1080
View Angle	68.7°(DFOV) 58.1°(HFOV) 45.0°(VFOV)
Lens Dimensions	8.00 x 8.00 x 4.90 mm
Module Size	25.00 x 12.50 mm
Module Type	Fixed Focus
Interface	MIPI and DVP Parallel
Auto Focus VCM Driver IC	None
Lens Model	KLT-LENS-M5101
Lens Type	650nm IR Cut
Operating Temperature	-40°C to +85°C
Mating Connector	FH12-24S-0.5SH



## KLT-J4K-OV2732 V4.0

**2MP OmniVision OV2732 MIPI and DVP Parallel Interface  
Fixed Focus Camera Module**



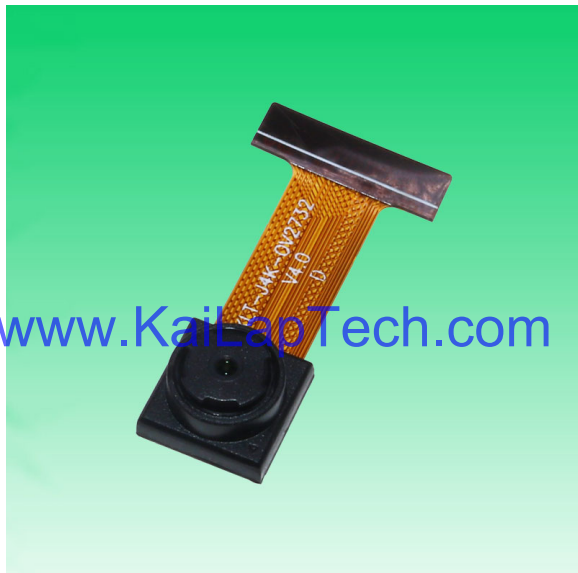
Top View



Side View

[www.KaiLapTech.com](http://www.KaiLapTech.com)

[www.KaiLapTech.com](http://www.KaiLapTech.com)



Bottom View

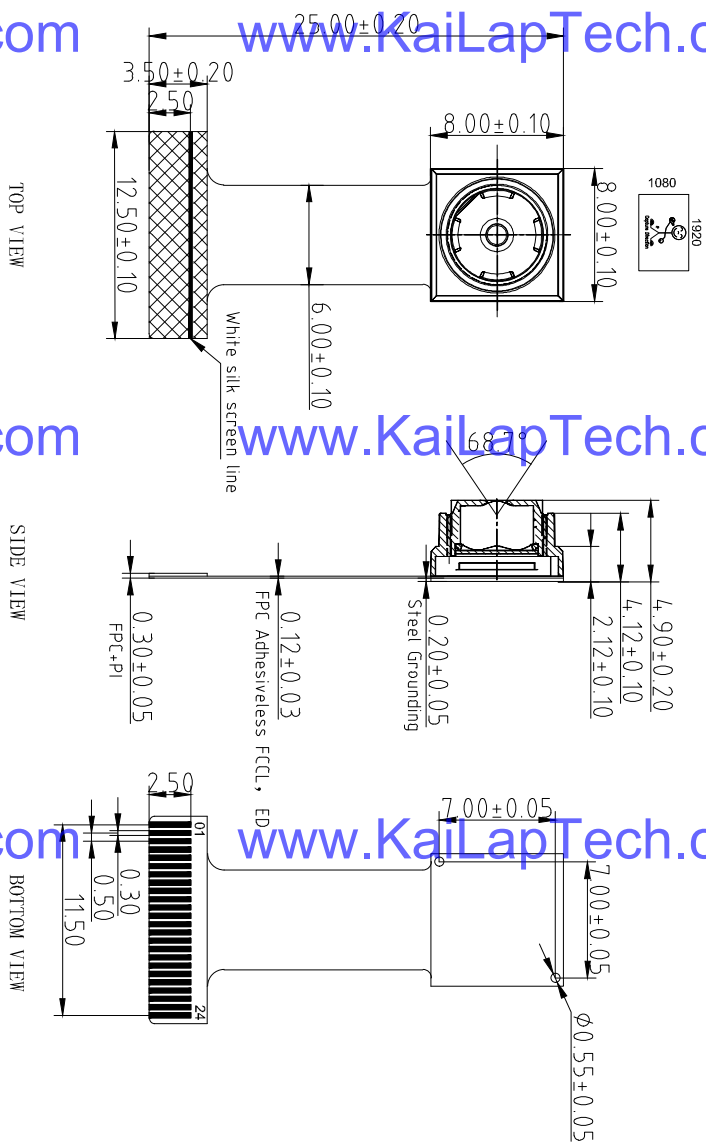


Mating Connector

# ROHS

NO	SIGNAL
1	FSIN
2	AGND
3	SIO_D
4	AVDD2.8
5	SIO_C
6	RESET
7	VSYNC
8	PWDN
9	HREF
10	DVDD1.2
11	DOVDD1.8
12	D9/MDN1
13	MCLK
14	D8/MDP1
15	DGND
16	D7/MCN
17	PCLK
18	D6/MCP
19	D2
20	D5/MDN0
21	D3
22	D4/MDP0
23	D10
24	D11

Version	Information	Date
V1.0	First Version	7-15-2017
V3.0	Change lens and holder,Add PIN FSN	2-15-2020
V4.0	Extend FPC length	1-26-2021



NOTE:  
1. The device slave address: 0x20(w), 0x21(r)

## Parameters:

### 1、Sensor specification:

Image Sensor: 0V2732  
 Pixel: 2umx2um  
 Lens Type: 1/4  
 Important Voltage Description: DVDD1.2V (external power supply);

### 2、Lens specification:

FOV:  $68.7^\circ(D), 58.1^\circ(H), 45^\circ(V)$   
 F/NO: 2.8  
 TV distortion:  $<1.0\%$   
 Focal length: 3.29mm  
 Composition: 4P+IR FILTER  
 IR Cut Coating:  $650nm \pm 10nm @ 50\%$

Kai Lap Technologies Group Ltd

Designed By

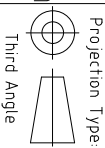
Keyan

Model Name:

KLT-J4K-0V2732 V4.0

Checked By

Aouly Yan



Unit: mm

Scale: 1:1

Sheet: 1 of 1

Version: 1/0

A

B

C

D

E



Lens Model: KLT-LENS-M5101

SPECIFICATION		
1. SENSOR SIZE	1/4" (5M CSP)	
2. MAX IMAGE CIRCLE	24.90mm	
3. TOTAL TRACK	4.18±0.1mm	
4. EFL	3.29mm	
5. OPTICAL BFL	1.43mm	
6. MECHANICAL BFL	0.85mm	
7. F/NO	2.8±5%	
8. VIEW OR FIELD DIAGONAL	VERTICAL	45.0° (V=1.38)
	HORIZONTAL	58.1° (H=1.814)
	DIAGONAL	68.7° (D=2.268)
9. OPTICAL DISTORTION	<1.0%	
10. TV DISTORTION	<1.0%	
11. RELATIVE ILLUMINATION	>42.3%	
12. CONSTRUCTION	4P+IR FILTER	
13. CHIP RAY ANGLE	<25°	
14. CUT FREQUENCY AT 50%	650±10nm	
15. THREAD	M6.0X0.35P	
16. IMAGE QUALITY	AXIS	330Lp/mm
	0.7Y	200Lp/mm
17. APPEARANCE QUALITY (Scratch/Dig)	CENTER	20/10
	EDGE	40/20

NO	MODIFY CONTENT	NAME	DATE
1			

ANGLE	RANGE	DIM	UNIT	SCALE
⊕	±0.5°		m	8 : 1
∠	±0.010		m	8 : 1
∠	±0.05		m	8 : 1
∠	±0.1		m	8 : 1

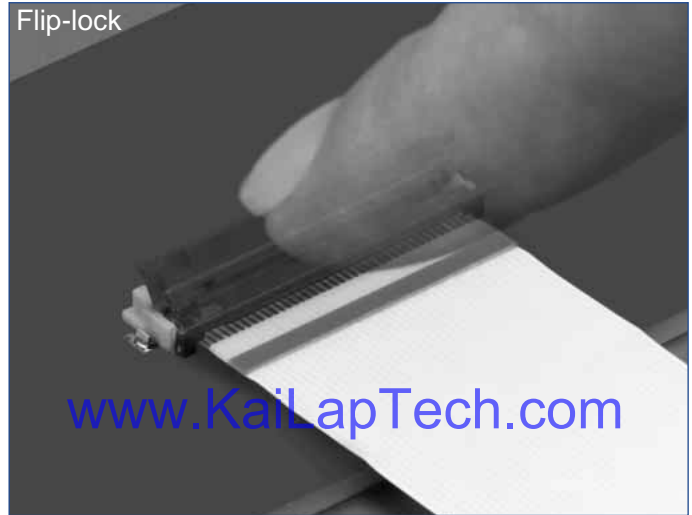
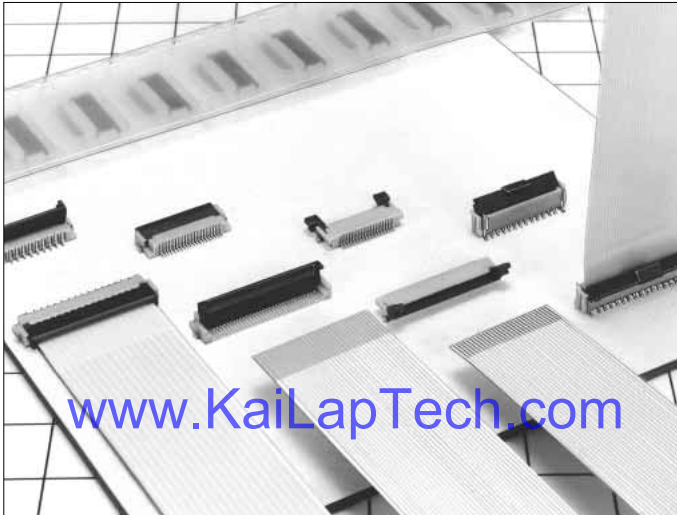
  

NOTE:

1. 镜头表面不可有油污、灰尘、毛丝等异物。
2. 镜头配VCM锁附高度为 4.7±0.1mm, 扭力为20--60gf.cm。
3. 镜头承受推力为≥2.0kg。
4. 镜头品质参数需符合图中要求。

# 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

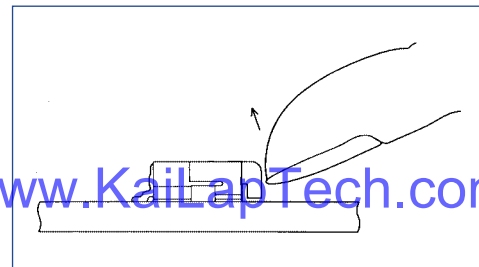
FH12 is offered in Top & Bottom Contact and Vertical Mount and offered in both a 0.5mm contact pitch as well as a 1.0mm contact pitch (bottom contact only).

### ■ Applications

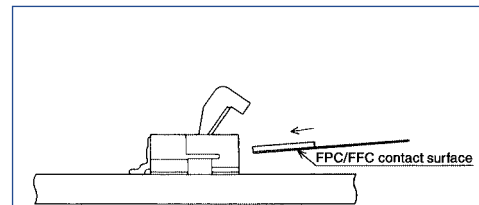
Notebook computers, printers, PDAs, digital cameras and other compact devices for interconnecting the main circuit board with the LCD, HDD or other device.

#### Rotating One-touch Mechanism

①



②



③



## Product Specifications

Rating	Current rating: 0.5A DC(Note 1)	Operating Temperature Range: -40 to +70°C (Note 2)	Storage Temperature Range: -10 to +50°C (Note 3)
	Voltage rating: 50V AC	Operating Humidity Range: Relative humidity, 90% max. (Not dewed)	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 1μs 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 1μs or more Contact resistance: 50m ohms maximum. No damage, cracks, or parts dislocation.	Acceleration of 490 m/s <sup>2</sup> , 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°C → 15 to 35°C → 85°C → 15 to 35°C, Time: 30 → 5 max. → 30 → 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	UL94V-0
Actuator	PPS	Color : Dark brown	
Contact	Phosphor bronze	Gold plated	
Metal Fittings	Brass	Tin plated	

## Ordering Information

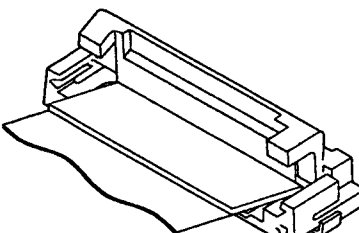
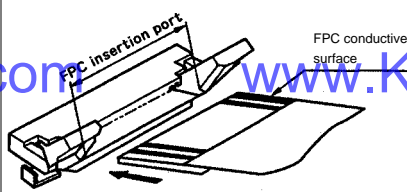
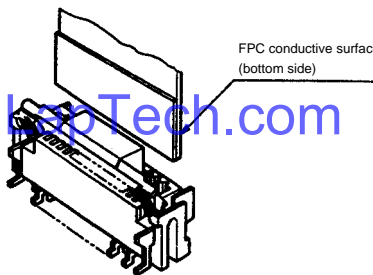
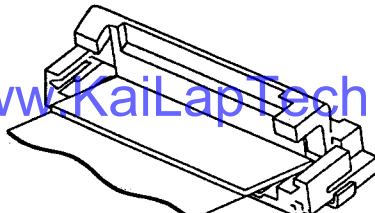
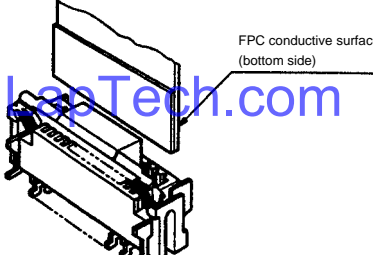
**FH12** **A** - **10** **(4)** - **S** **A** - **0.5** **SH** **(55)**

①      ②      ③      ④      ⑤      ⑥      ⑦      ⑧      ⑨

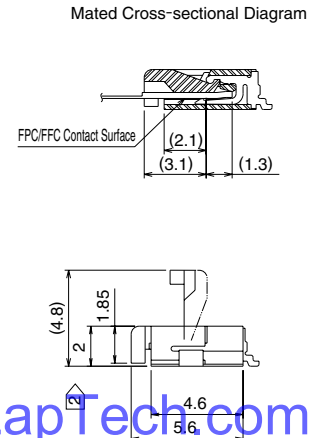
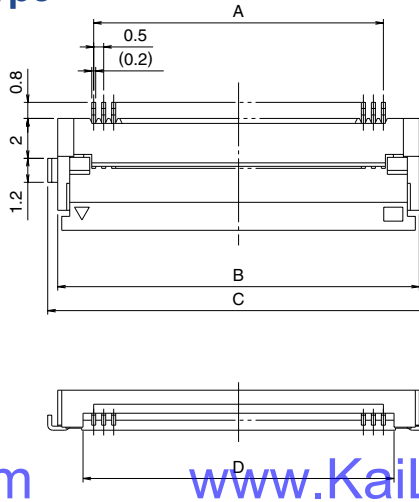
① Series Name : FH12	⑤ Contact alignment: Single
② Blank : standard type A : Top contact type S : Type with strengthened flip-lock actuator F : Type with 0.18mm FPC End Thickness	⑥ Eccentric direction: Blank : standard type A : Eccentric type
③ Standard type : Number of contacts Eccentric type : Number of contacts in 0.5mm housing	⑦ Contacts Pitch : 0.5mm, 1mm
④ Standard type : Blank Eccentric type : Number of contacts	⑧ Contact type SH : SMT horizontal mounting type SV : SMT vertical mounting type
	⑨ Plating specification (55) : Gold plated

**FH12 Series 0.5mm and 1mm Pitch Connectors For FPC/FPC**

**Series Configuration**

Pitch	Bottom Contact Type	Top Contact Type	Vertical mounting Type
0.5mm	 <p><b>FH12- ** S-0.5SH</b> <b>P.12</b></p> <p>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</p>	 <p>FPC insertion port FPC conductive surface</p>	 <p>FPC conductive surface (bottom side)</p>
	<p>Type with Strengthened Lock Lever</p>		
	<p><b>FH12S- ** S-0.5SH</b> <b>P.13</b></p> <p>Number of contacts 30, 40, 45, 50, 53</p> <p>Type with 0.18mm FPC End Thickness</p>		
	<p><b>FH12F- ** S-0.5SH</b> <b>P.14</b></p> <p>Number of contacts 6, 8, 10, 12, 13, 14, 15, 16, 18, 20, 22, 24, 25, 26, 28, 30, 32, 34, 36, 40</p>	<p><b>FH12A- ** S-0.5SH</b> <b>P.15</b></p> <p>Number of contacts 10, 12, 15, 16, 18, 20, 22, 24, 26, 28, 29, 30, 32, 33, 34, 36, 40, 42, 45, 50</p>	<p><b>FH12- ** S-0.5SV</b> <b>P.16</b></p> <p>Number of contacts 10, 12, 13, 15, 16, 17, 18, 20, 22, 24, 26, 30, 32, 33, 34, 36, 40, 45, 49, 50, 60</p>
1mm			 <p>FPC conductive surface (bottom side)</p>
	<p>Standard <b>FH12- ** S-1SH</b> <b>P.18</b></p> <p>Eccentric <b>FH12- ** (***) SA-1SH</b></p> <p>Standard</p> <p>Number of contacts 5, 6, 7, 8, 9, 11, 12, 16, 17, 22, 26</p> <p>Eccentric</p> <p>Number of contacts 4, 6, 8, 10, 11, 14, 19, 24</p>		<p><b>FH12- ** S-1SV</b> <b>P.19</b></p> <p>Number of contacts 6, 7, 8, 16, 20, 22, 24</p>

## 0.5mm Pitch Bottom Contact Type



[www.KaiLapTech.com](http://www.KaiLapTech.com)

[www.KaiLapTech.com](http://www.KaiLapTech.com)

Unit:mm

Part Number	CL No.	Number of Contacts	A	B	C	D	RoHS
FH12- 6S-0.5SH(55)	586-0582-5-55	6	2.5	6.1	7.1	3.57	YES
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	
FH12-24S-0.5SH(55)	586-0521-0-55	24	11.5	15.1	16.1	12.57	
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 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

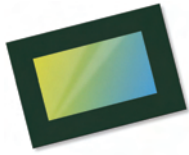
[www.KaiLapTech.com](http://www.KaiLapTech.com)

[www.KaiLapTech.com](http://www.KaiLapTech.com)

[www.KaiLapTech.com](http://www.KaiLapTech.com)

[www.KaiLapTech.com](http://www.KaiLapTech.com)





# OV2732 1080p product brief



## Low-Power 1080p High Definition PureCel® Sensor for Security Applications



available in a lead free package

OmniVision's OV2732 is a compact and power-efficient PureCel® image sensor designed for IoT-based residential and commercial monitoring systems. The OV2732 captures quality images and videos with staggered high dynamic range (HDR), ensuring excellent scene reproduction in all lighting environments. The sensor features frame sync for use in multi-camera or 360-degree camera systems and supports ultra-low power mode (ULPM) and an ambient light sensor (ALS), making it particularly well-suited for battery-powered security applications.

Built on OmniVision's PureCel® technology, the 1/4-inch OV2732 captures 1080p high definition (HD) video at 60 frames per second (fps), 720p HD video at 90 fps, and VGA resolution video at 120 fps. The OV2732 delivers crisp images and video, even in challenging low-light conditions.

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



## Applications

- Internet of Things (IoT)
- High-end Video Conferencing
- Security
- Lifestyle Camera
- Home Monitoring

## Product Features

- programmable controls:
  - gain
  - exposure
  - frame rate
  - image size
  - horizontal mirror
  - vertical flip
  - cropping
  - windowing
- automatic image control functions:
  - black level calibration (BLC)
- serial camera control bus (SCCB)
- defective pixel correction (DPC)
- digital video port (DVP) parallel output interface
- support for two lane MIPI interface (up to 800 Mbps)
- support for image sizes:
  - 1080p @ 60 fps
  - 720p @ 90 fps
  - VGA @ 120 fps
  - QVGA @ 240 fps, and more
- support for light sensing mode (LSM)
- support for staggered 2 frame HDR
- support for black sun cancellation
- on-chip phase lock loop (PLL)

# OV2732



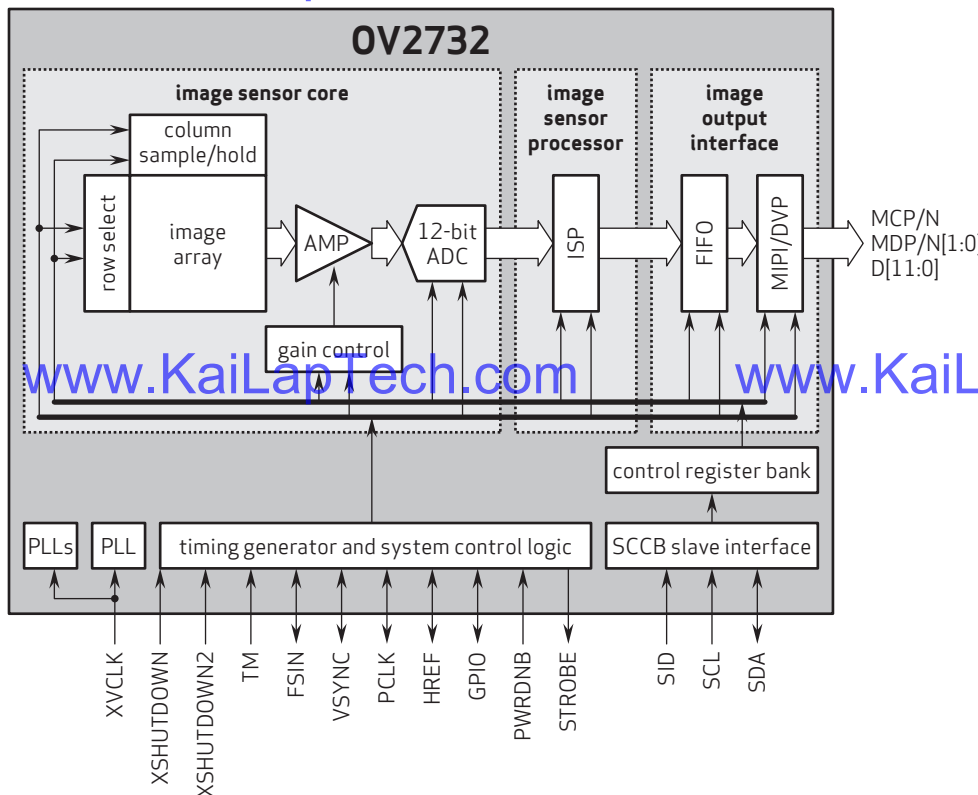
## Ordering Information

- OV2732-H57A  
(color, lead-free, 57-pin CSP4)

## Product Specifications

- active array size: 1920 x 1080
- power supply:
  - core: 1.2V
  - analog: 2.8V
  - I/O: 1.8V
- power requirements:
  - active: 110 mW
- temperature range:
  - operating: -40°C to +85°C junction temperature
  - stable image: 0°C to +60°C junction temperature
- output interfaces:
  - two-lane MIPI / DVP parallel
- output formats: 10/12-bit RAW RGB
- lens size: 1/4"
- lens chief ray angle: 12° linear
- input clock frequency: 6 - 27 MHz
- scan mode: progressive
- maximum image transfer rate:
  - 1080p: 60 fps
  - 720p: 90 fps
  - VGA: 120 fps
  - QVGA: 240 fps
- shutter: rolling shutter
- maximum exposure interval: 1184 x trow
- pixel size: 2 μm x 2 μm
- image area: 3868 μm x 2190 μm
- package dimensions: 5174 μm x 3680 μm

## Functional Block Diagram



4275 Burton Drive  
Santa Clara, CA 95054  
USA

Tel: + 1 408 567 3000  
Fax: + 1 408 567 3001  
www.ovt.com

OmniVision reserves the right to make changes to their products or to discontinue any product or service without further notice. OmniVision, the OmniVision logo and OmniPixel are registered trademarks of OmniVision Technologies, Inc. OmniBSI-2 is a trademark of OmniVision Technologies, Inc. All other trademarks are the property of their respective owners.



OmniVision



## 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							
FREQ		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							



your **BEST** camera module partner

## Cameras Applications



[www.KaiLapTech.com](http://www.KaiLapTech.com)



[www.KaiLapTech.com](http://www.KaiLapTech.com)



[www.KaiLapTech.com](http://www.KaiLapTech.com)

[www.KaiLapTech.com](http://www.KaiLapTech.com)



[www.KaiLapTech.com](http://www.KaiLapTech.com)



[www.KaiLapTech.com](http://www.KaiLapTech.com)





## 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
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



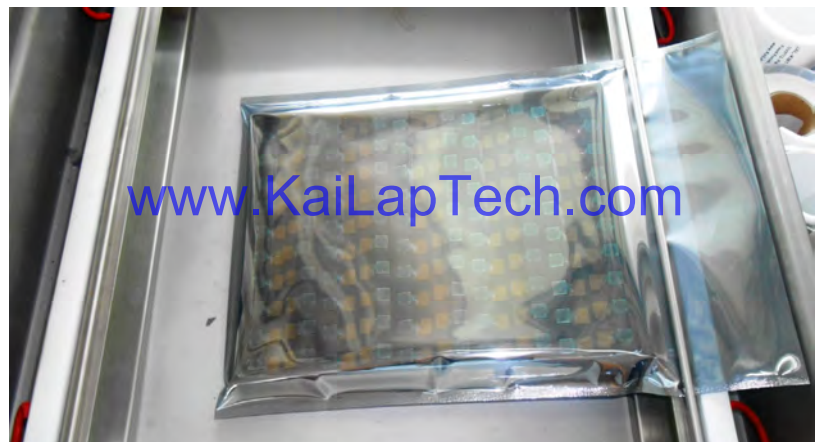
Cover Tray with Lid



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**





# CMOS CAMERA MODULES



*your BEST camera module partner*

## Large Order Package Solution

Place Foam Sheets Between Trays

Foam Sheets are Slightly Larger than Trays



[www.KaiLapTech.com](http://www.KaiLapTech.com)

[www.KaiLapTech.com](http://www.KaiLapTech.com)

Place Foam Sheets and Trays into Box

Foam Sheets are Tightly Fitting Box



[www.KaiLapTech.com](http://www.KaiLapTech.com) [sales@KaiLapTech.com](mailto:sales@KaiLapTech.com) Tel: (852) 6908 1256 Fax: (852) 3017 6778

All rights reserved @ Kai Lap Technologies Group Ltd. Specifications subject to change without notice.



# CMOS CAMERA MODULES



*your BEST camera module partner*

## Small Order Package Solution

Place Foam Sheets and Trays into Small Box



[www.KaiLapTech.com](http://www.KaiLapTech.com)

[www.KaiLapTech.com](http://www.KaiLapTech.com)

Package in Small Box for Shipment

Foam Sheets are Nicely Fitting the Small Box



[www.KaiLapTech.com](http://www.KaiLapTech.com)

[www.KaiLapTech.com](http://www.KaiLapTech.com)

Place Small Boxes into Larger Box



[www.KaiLapTech.com](http://www.KaiLapTech.com)



[www.KaiLapTech.com](http://www.KaiLapTech.com)



## 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



## 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.

[www.KaiLapTech.com](http://www.KaiLapTech.com)

[www.KaiLapTech.com](http://www.KaiLapTech.com)



## 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.





# CMOS CAMERA MODULES



*your BEST camera module partner*

## KLT Strength

### Powerful Factory



[www.KaiLapTech.com](http://www.KaiLapTech.com)

[www.KaiLapTech.com](http://www.KaiLapTech.com)

### Professional Service



[www.KaiLapTech.com](http://www.KaiLapTech.com)

[www.KaiLapTech.com](http://www.KaiLapTech.com)

### Promised Delivery



[www.KaiLapTech.com](http://www.KaiLapTech.com)

[www.KaiLapTech.com](http://www.KaiLapTech.com)

[www.KaiLapTech.com](http://www.KaiLapTech.com)   [sales@KaiLapTech.com](mailto:sales@KaiLapTech.com)   Tel: (852) 6908 1256   Fax: (852) 3017 6778

All rights reserved @ Kai Lap Technologies Group Ltd. Specifications subject to change without notice.