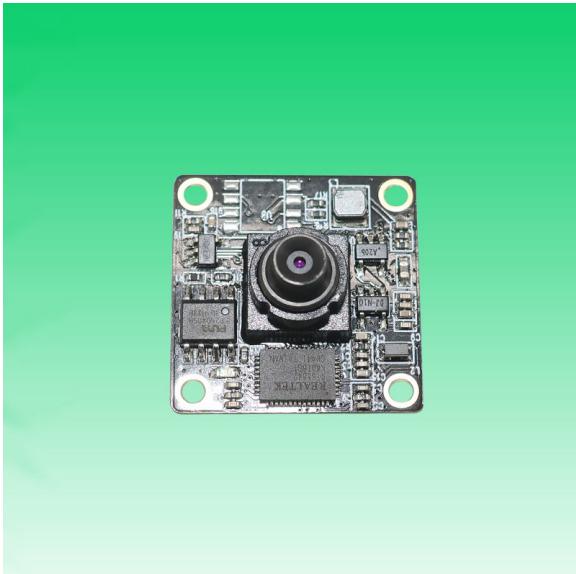


**KLT-USB2A-OV2732 V2.0****2MP OmniVision OV2732 Fixed Focus USB 2.0 Camera Module**

KLT-USB2A-OV2732 V2.0 is a 2MP Fixed Focus USB camera module based on 1/4" OV2732 image sensor. It delivers high-speed, 2K resolution ultra sharp image.

The compact size lens holder enables fitting in small mobile devices. This camera module is ideal solution for face recognition, identity detection, access control.

### Key Features

- 2K resolution (1920 x 1080) OmniVision OV2732 sensor
- High speed USB 2.0 Plug and Play
- MJPG and YUV2 output format
- Low power consumption
- Compact size
- UVC compliant to Windows, Linux, OS with UVC driver
- USB OTG (On-The-Go) support

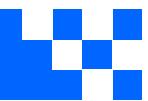
## KLT-USB2A-OV2732 V2.0

## 2MP OmniVision OV2732 Fixed Focus USB 2.0 Camera Module

<b>Camera Module No.</b>	<b>KLT-USB2A-OV2732 V2.0</b>
<b>Resolution</b>	2MP
<b>Image Sensor</b>	OV2732
<b>Sensor Type</b>	1/4"
<b>Pixel Size</b>	2.0 um x 2.0 um
<b>EFL</b>	3.04 mm
<b>F.NO</b>	2.40
<b>Pixel</b>	1920 x 1080
<b>View Angle</b>	115.0°(DFOV) 85.0°(HFOV) 50.0°(VFOV)
<b>Lens Dimensions</b>	9.00 x 9.00 x 9.92 mm
<b>Module Type</b>	Fixed Focus
<b>Interface</b>	USB 2.0
<b>Output Format</b>	MJPEG / YUV2
<b>Auto Control</b>	Saturation, Contrast, Acutance White Balance, Exposure
<b>Audio</b>	None
<b>Input Voltage</b>	DC 5V
<b>Working Current</b>	Max 500mA
<b>PCB Size</b>	22.00 x 22.00 mm
<b>System Compatibility</b>	Windows XP (SP2, SP3), Vista, 7, 8, 10, 11 Android, Mac OS, Linux or OS with UVC Driver Raspberry Pi by USB Port
<b>Software for USB Camera</b>	AMCAP, Webcam Viewer, V4L2 Controls Contacam, VLC Player, MotionEye OS iSpy, ZoneMinder, Yawcam
<b>Lens Type</b>	650nm IR Cut
<b>Operating Temperature</b>	-40°C to +85°C
<b>USB Cable</b>	USB Cable

Wide Compatibility with Windows, Android, Mac OS, Linux, or Raspberry Pi



**KLT-USB2A-OV2732 V2.0****2MP OmniVision OV2732 Fixed Focus USB 2.0 Camera Module**

Top View



Side View



Bottom View



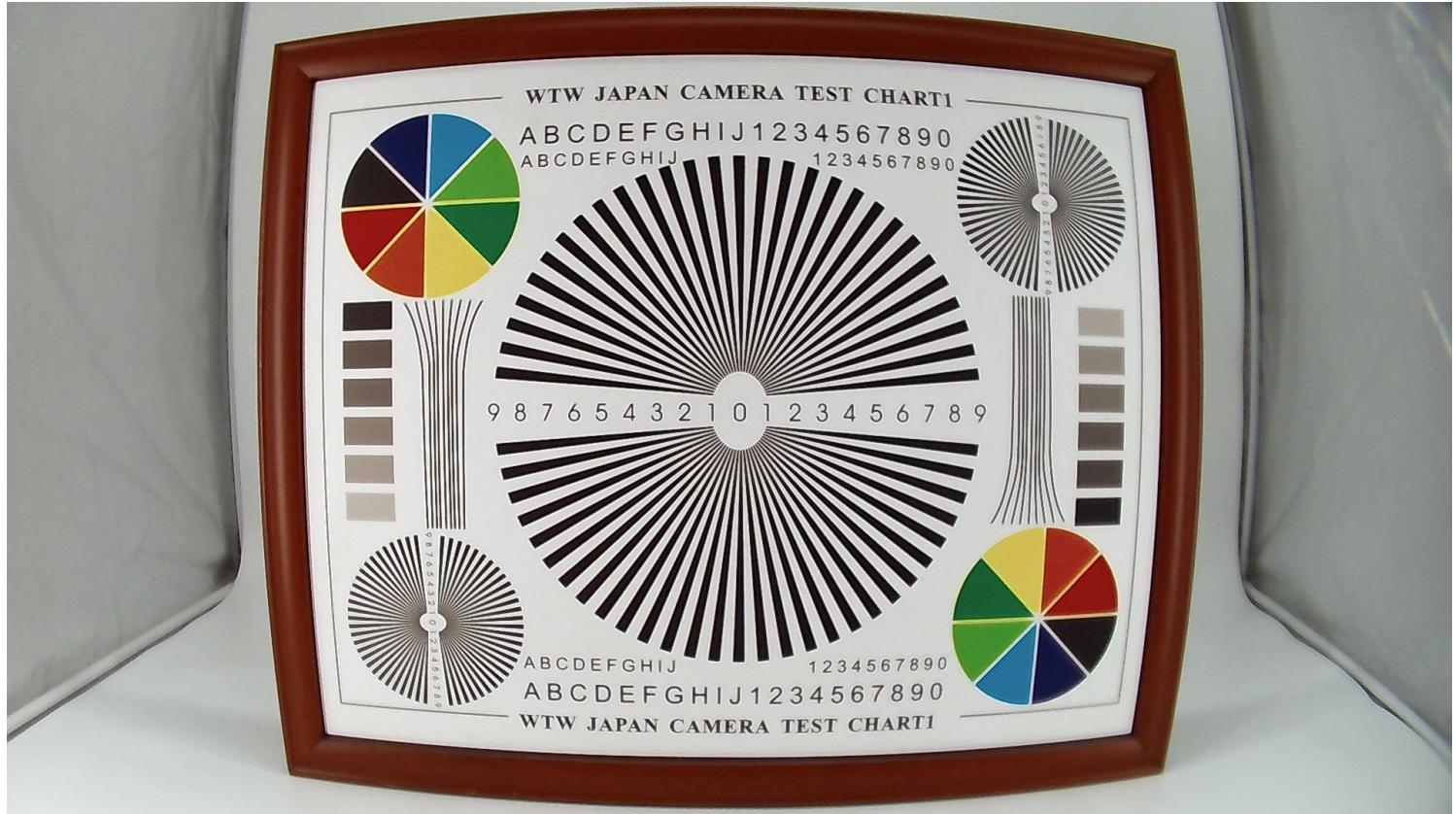
Mating Connector

## KLT-USB2A-OV2732 V2.0

## 2MP OmniVision OV2732 Fixed Focus USB 2.0 Camera Module

FORMAT	RESOLUTION	FRAME RATE
		USB 2.0
MJPG	320 x 240	30 FPS
	640 x 360	30 FPS
	640 x 480 (VGA)	30 FPS
	1280 x 720 (720P)	30 FPS
	1920 x 1080 (1080P)	30 FPS
YUV2	320 x 240	30 FPS
	640 x 360	30 FPS
	640 x 480 (VGA)	30 FPS

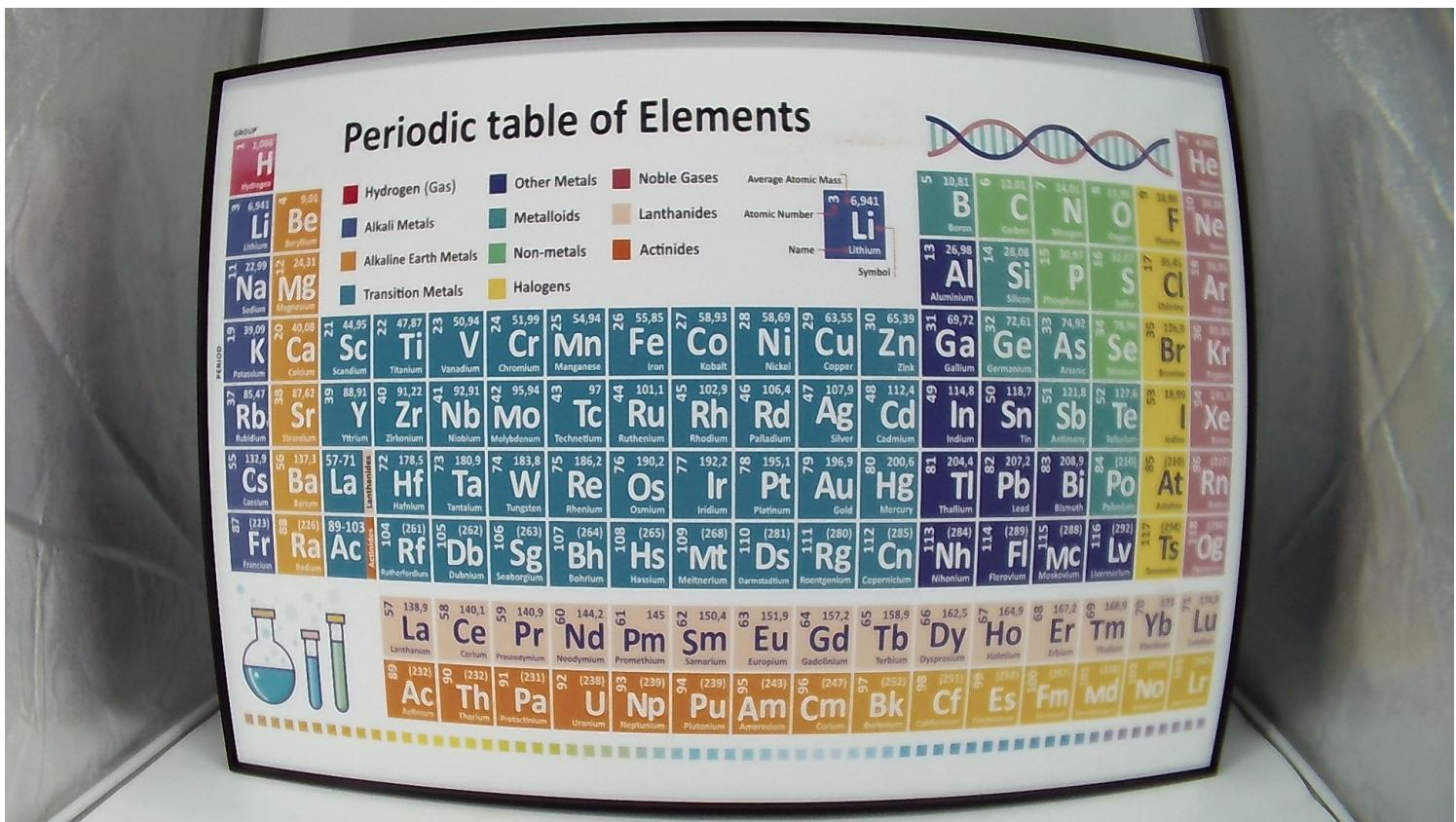




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A

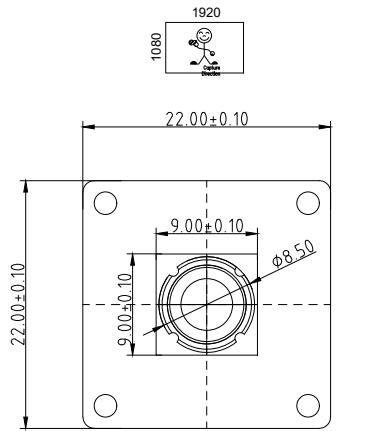
B

C

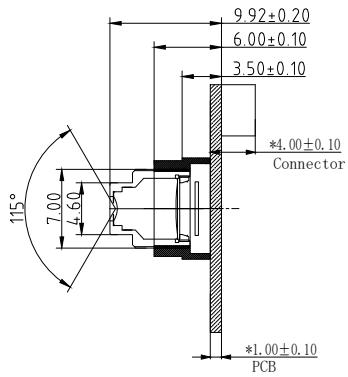
D

E

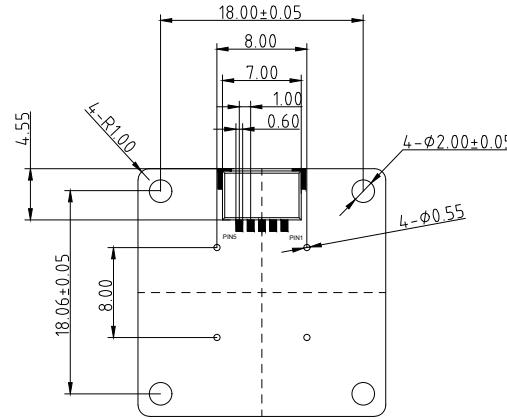
Version	Information
V1.0	First Version
V2.0	Remove encryption IC



TOP VIEW



SIDE VIEW



BOTTOM VIEW

### Connector Pin Assignment

1. VCC5V
2. D+
3. D-
4. GND
5. GND

### Parameters:

#### 1、Sensor specification:

Image Sensor: OV2732

Pixel: 2um×2um

Lens Type: 1/4

Important Voltage Description: Power 5V

### 2、Lens specification:

FOV: 115°(D), 85°(H), 50°(V)

F/NO.: 2.4

TV distortion: &lt;-11.9%

Focal length: 3.04mm

Composition: 4G+IR FILTER

IR Cut Coating: 650nm±10nm@50%

Kai Lap Technologies Group Ltd

Designed By

Kevin

Model Name: KLT-USB2A-OV2732 V2.0

Checked By

Jacky

Projection Type:

Third Angle

Unit:

mm

Date: 10/29/2025

Scale:

1:1

Sheet: 1 of 1

Version: 1/0

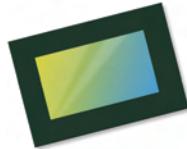
A

B

C

D

E



# OV2732 1080p product brief



available in  
a lead-free  
package

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

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.

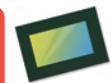
Find out more at [www.ovt.com](http://www.ovt.com).



## Applications

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

# OV2732



## 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)

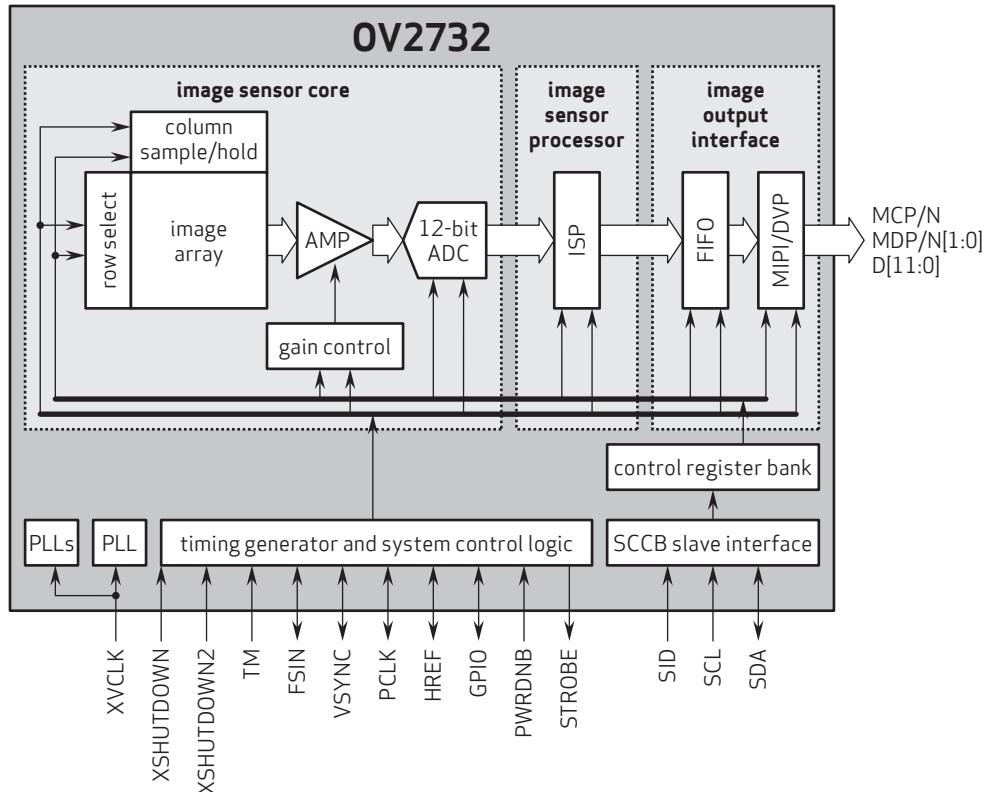
## Ordering Information

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

## Product Specifications

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

## Functional Block Diagram



## Cameras Applications



Automotive Driver Pilot



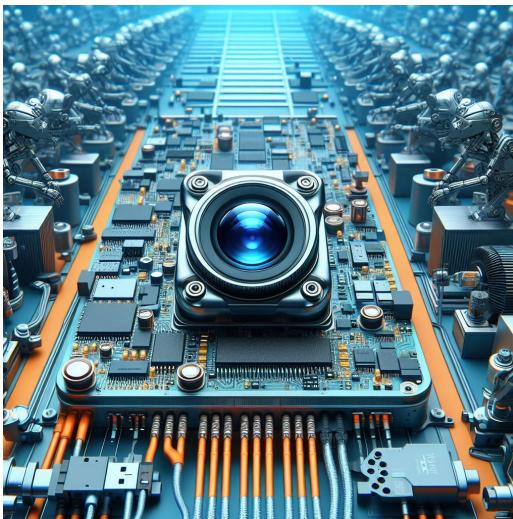
Live Streaming



Video Conference



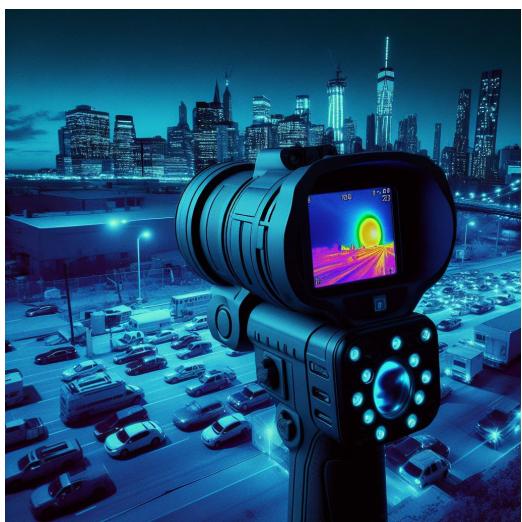
Eye Tracker Biometric Detection



Machine Vision



Agricultural Monitor



Night Vision Security



Drone and Sports Eagle Eyes



Interactive Pet Camera

## Cameras Applications



## Camera Module Pinout Definition Reference Chart

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	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

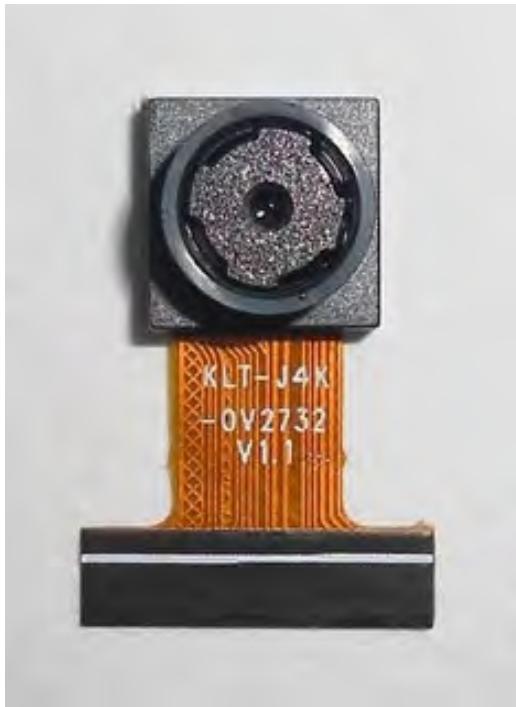


# CMOS CAMERA MODULES

your *BEST* camera module partner

## KLT Package Solutions

KLT Camera Module



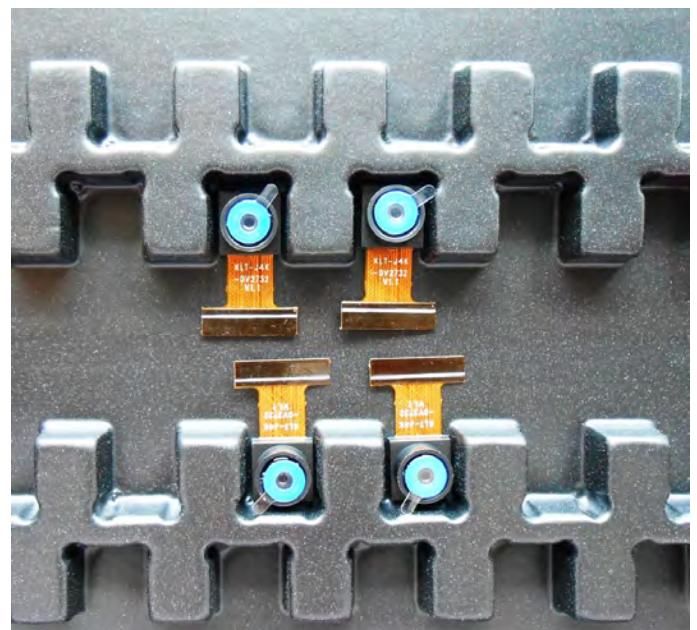
Complete with Lens Protection Film



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





# CMOS CAMERA MODULES

your *BEST* camera module partner



## 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



Place Foam Sheets and Trays into Box



Foam Sheets are Tightly Fitting Box





# CMOS CAMERA MODULES

*your BEST camera module partner*

## 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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# CMOS CAMERA MODULES

your *BEST* camera module partner

## 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

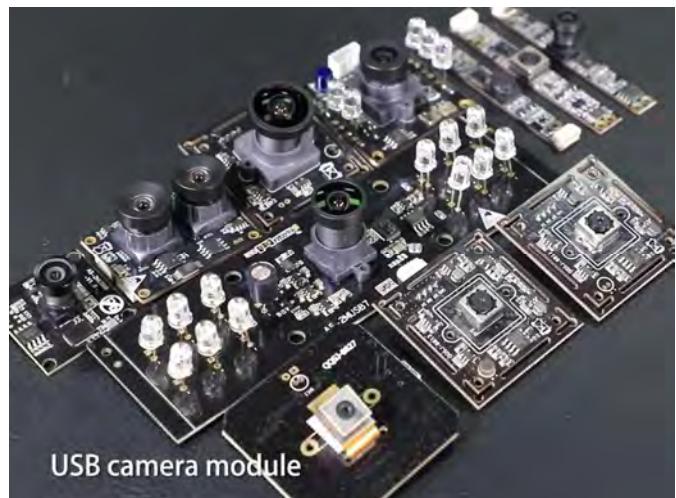


**Company Kai Lap Technologies (KLT)**

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.



## KLT Strength

## Powerful Factory



## Professional Service



## Promised Delivery

