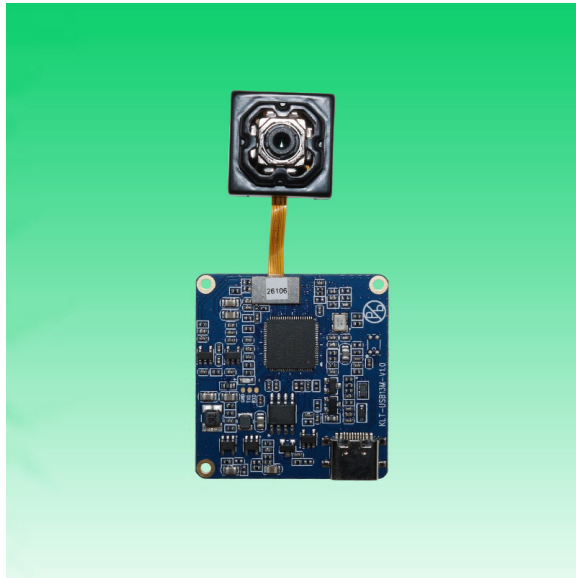
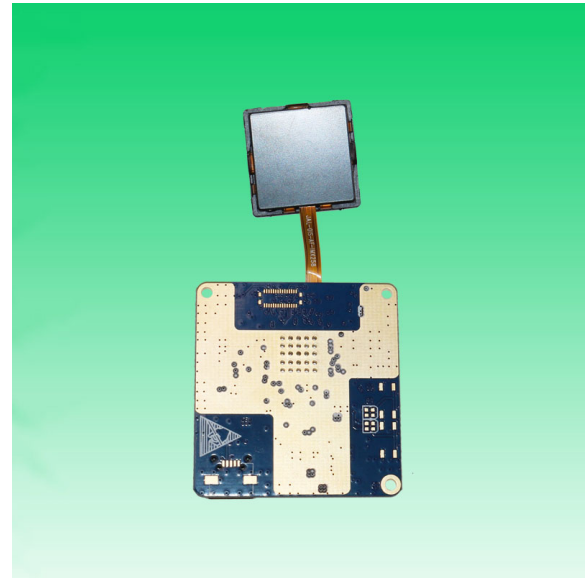


KLT-OIS-USB3A-AF-IMX258 V5.0**13MP Sony IMX258 OIS MGS Auto Focus USB 2.0 Camera Module**

Front View



Back View

KLT-OIS-USB3A-AF-IMX258 V5.0 is an 13MP Auto Focus USB camera module based on 1/3.06" IMX258 image sensor. Micro Gimbal Stabilizer (MGS) enables the camera to take clear and sharp images in moving environment. Auto Focus captures images clearly at different distances. It delivers high-speed, 4K resolution ultra sharp image. The camera has a dedicated, high-performance auto focus function providing best-in-class image and video output. This camera module is ideal solution for drones, automotive, agriculture farming, medical equipment, and traffic monitoring.

Key Features

- 4K resolution (4224 x 3192) Sony IMX258 sensor
- Micro Gimbal Stabilizer (MGS) on optical image stabilization (OIS) platform
- High speed USB 2.0 Plug and Play
- MJPEG output format
- Low power consumption
- Compact size
- UVC compliant to Windows, Linux, OS with UVC driver
- USB OTG (On-The-Go) support



Camera Module No.	KLT-OIS-USB3A-AF-IMX258 V5.0
Resolution	13MP
Image Sensor	IMX258 w/ MGS OIS
Sensor Type	1/3.06"
Pixel Size	1.12 um x 1.12 um
EFL	2.80 mm
F.NO	1.90
Stabilization Method	Optical Image Stabilization (OIS)
Stabilizer Type	Micro Gimbal Stabilizer (MGS)
Stabilizer Axis No.	2 Axis (Pitch and Yaw)
Stabilizer Angle	Max. 3.0°
Stabilizer Power	180 mW
Pixel	4224 x 3192
View Angle	90.3°(DFOV) 74.4°(HFOV) 62.0°(VFOV)
Lens Dimensions	19.0 x 19.0 x 9.90 mm
Module Type	Auto Focus
Auto Focus VCM Driver IC	DW9763
Interface	USB 2.0
Output Format	MJPEG
Auto Control	Saturation, Contrast, Acutance White Balance, Exposure
Audio	None
Input Voltage	DC 5V
Working Current	Max 500mA
System Compatibility	Windows XP (SP2, SP3), Vista, 7, 8, 10, 11 Android, Mac OS, Linux or OS with UVC Driver Raspberry Pi by USB Port
Software for USB Camera	AMCAP, Webcam Viewer, V4L2 Controls Contacam, VLC Player, MotionEye OS iSpy, ZoneMider, Yawcam
Lens Type	650nm IR Cut
Operating Temperature	-20°C to +70°C
USB Cable	USB Cable Type-C



**KLT-OIS-USB3A-AF-IMX258 V5.0****13MP Sony IMX258 OIS MGS Auto Focus USB 2.0 Camera Module**

Top View



Side View



Bottom View

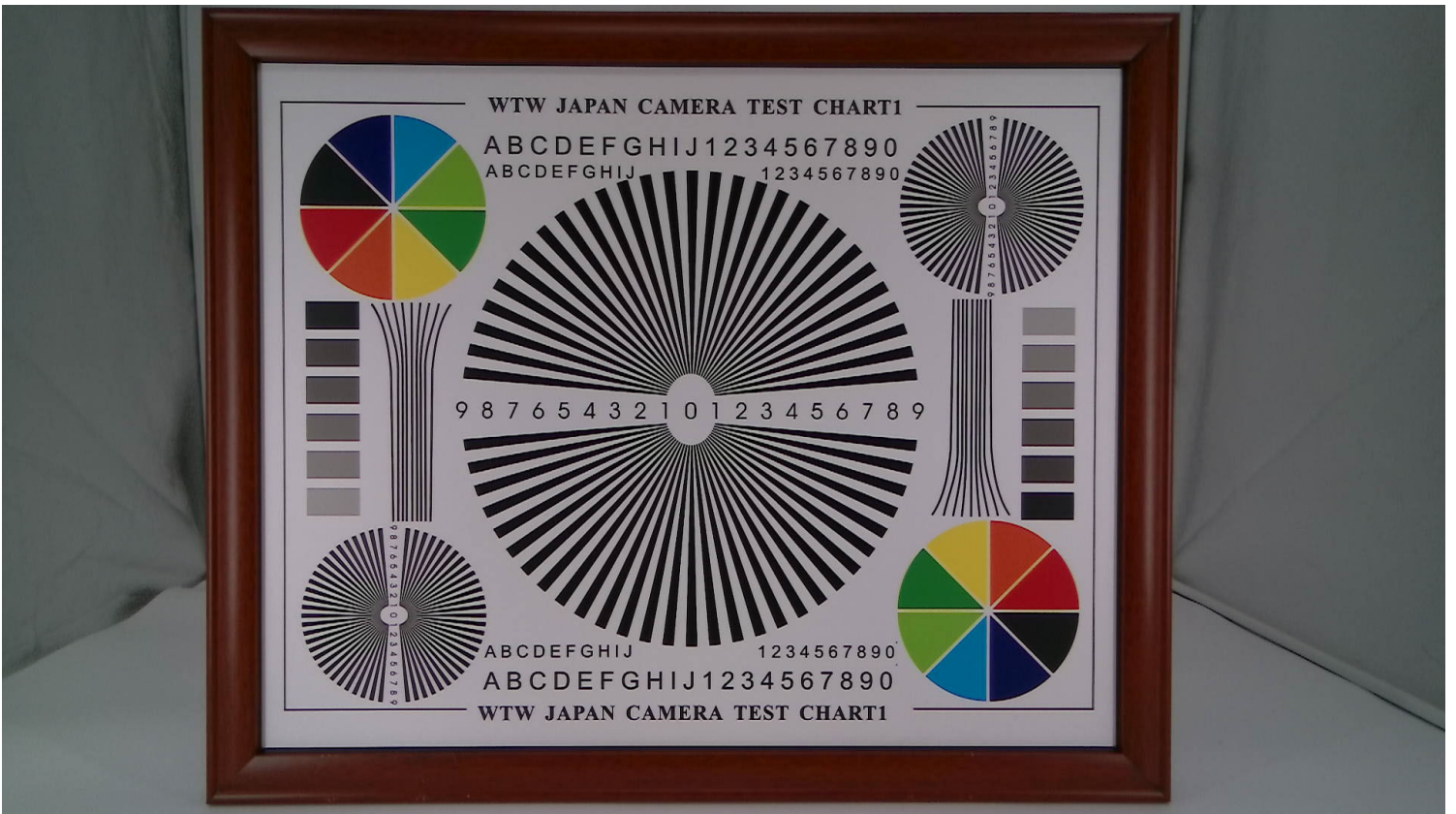
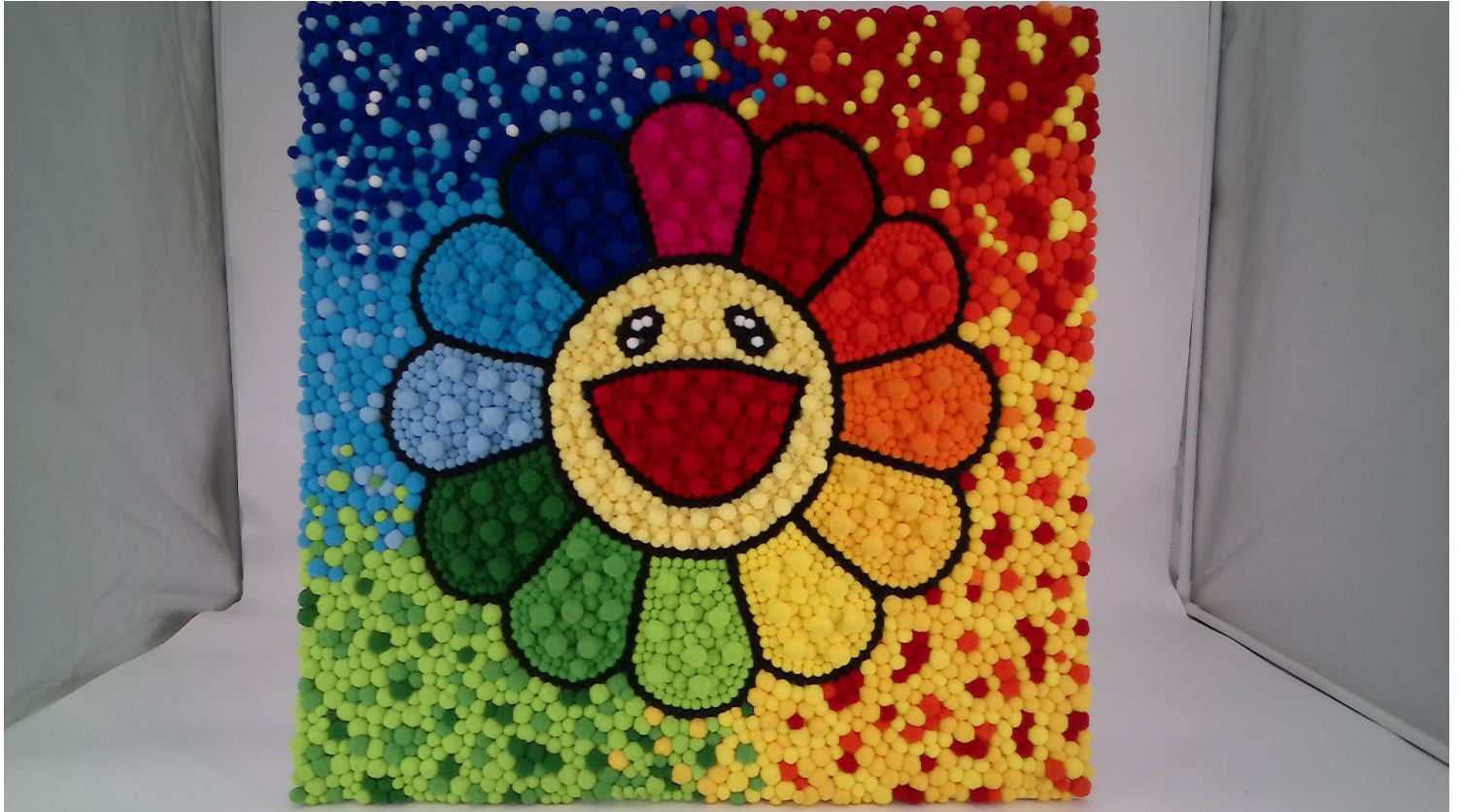


Mating Connector

**KLT-OIS-USB3A-AF-IMX258 V5.0****13MP Sony IMX258 OIS MGS Auto Focus USB 2.0 Camera Module**

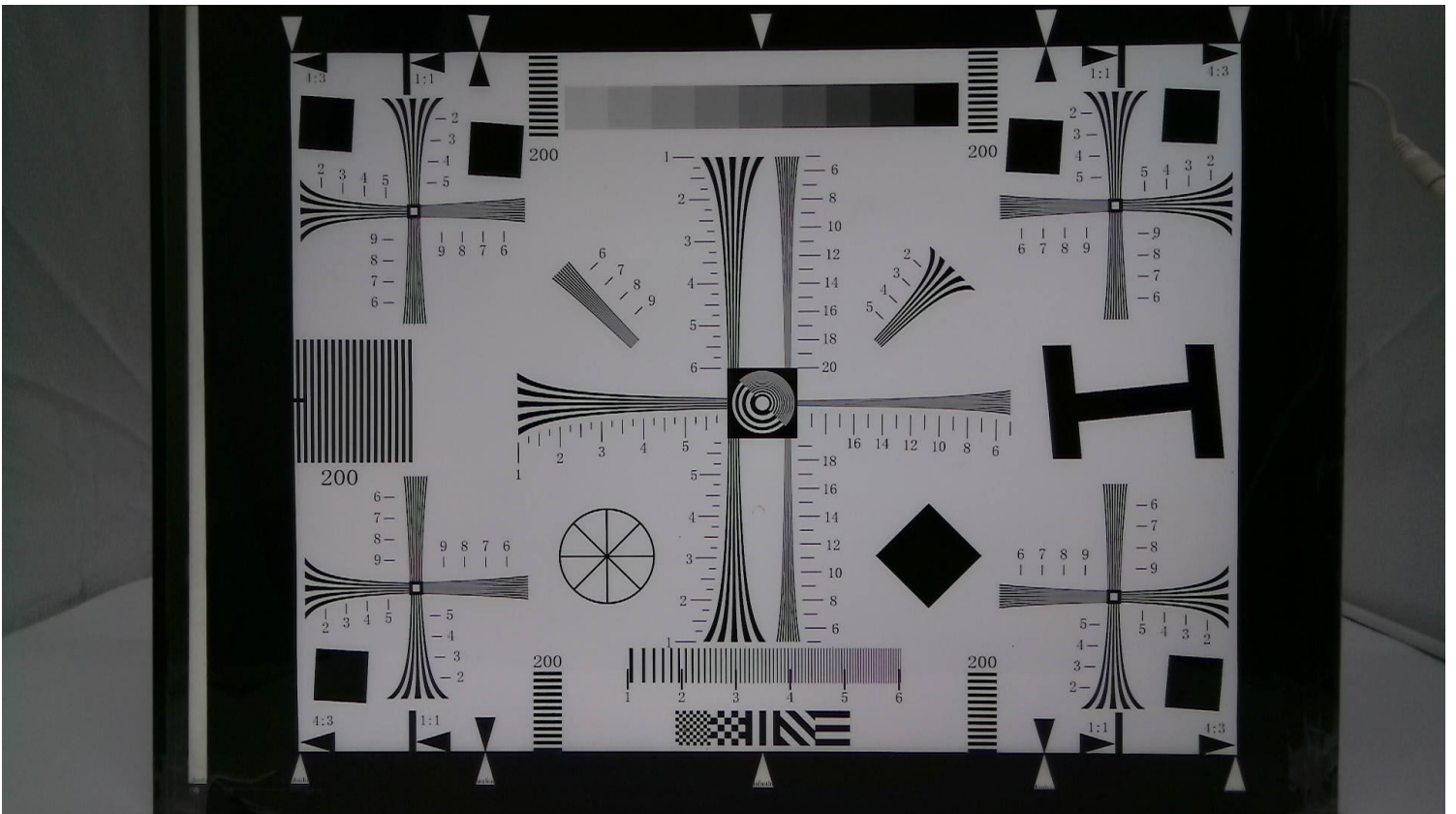
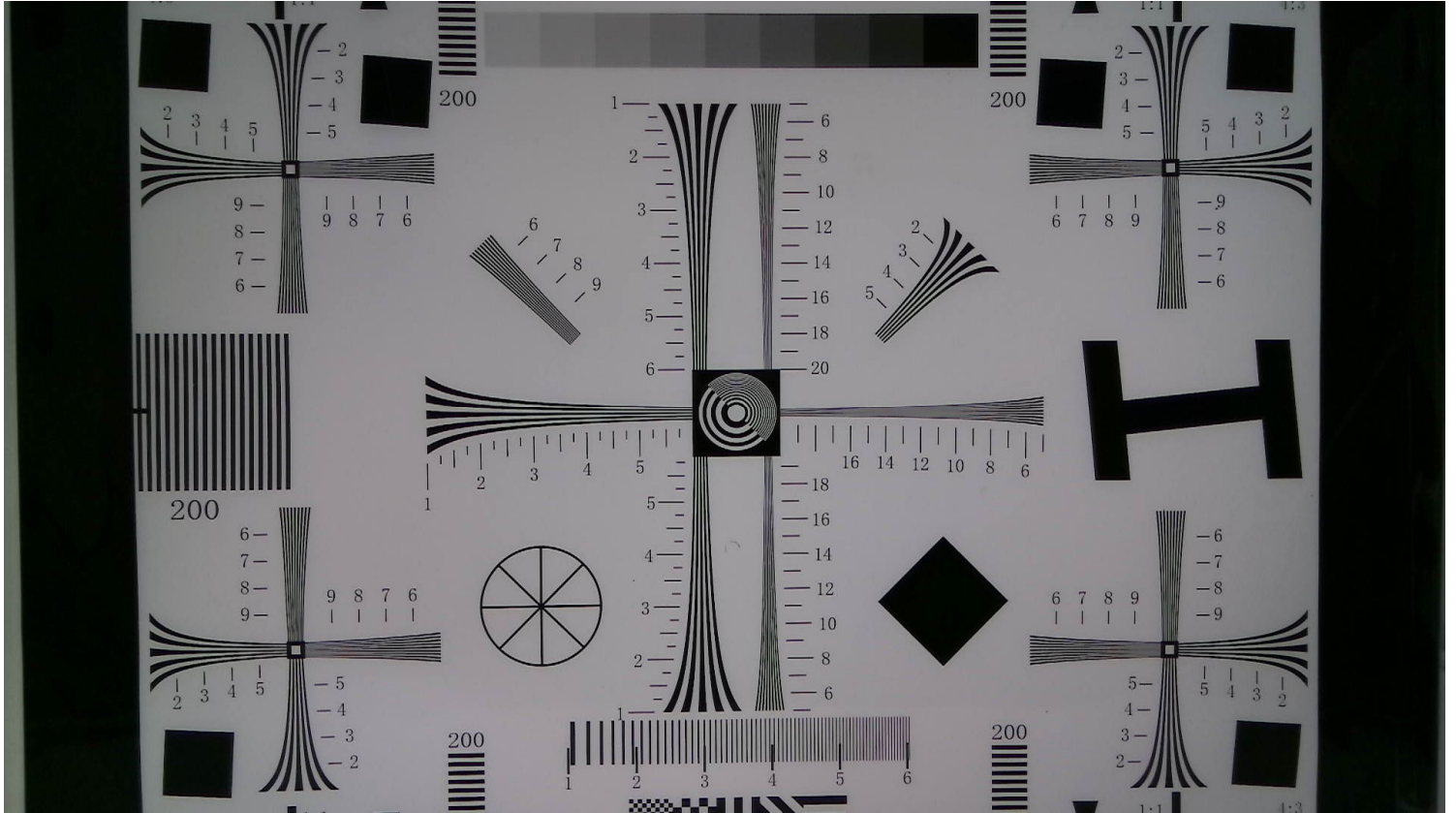
FORMAT	RESOLUTION	FRAME RATE
		USB 2.0
MJPEG	640 x 480 (VGA)	25 FPS
	1280 x 720 (720P)	25 FPS
	1920 x 1080 (1080P)	25 FPS
	2592 x 1944 (5MP)	10 FPS
	3264 x 2448 (8MP)	10 FPS
	3840 x 2160	10 FPS
	4192 x 3104	10 FPS







your BEST camera module partner

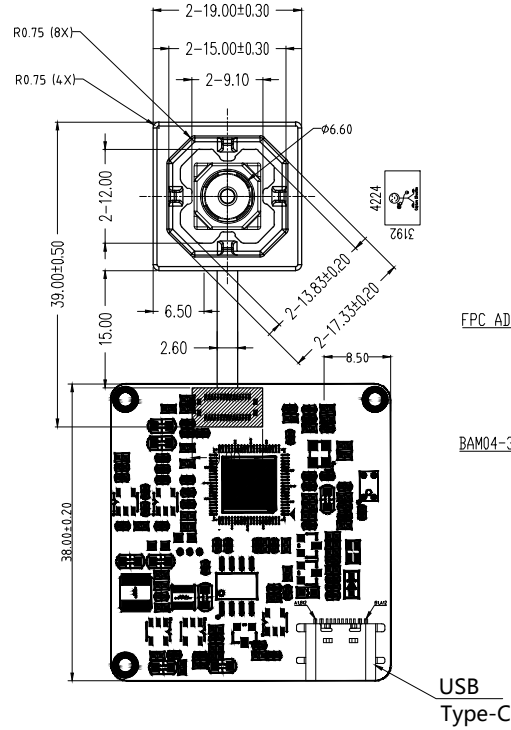


www.KaiLapTech.com sales@KaiLapTech.com Tel: (852) 6908 1256 Fax: (852) 3017 6778

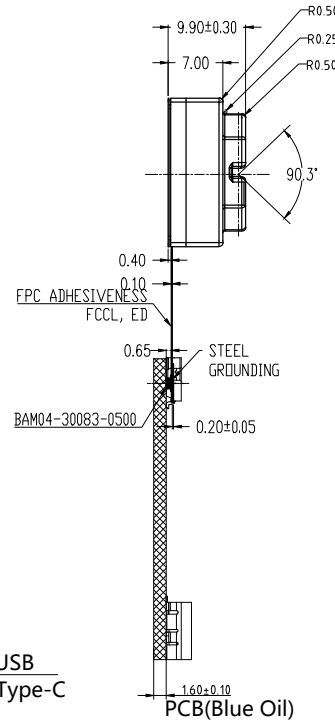
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A1	GND	B12	GND
A4	VBUS	B9	VBUS
A5	CC1	B8	SBU2
A6	DP1	B7	DN2
A7	DN1	B6	DP2
A8	SBU1	B5	CC2
A9	VBUS	B4	VBUS
A12	GND	B1	GND
PIN	SIGNAL NAME	PIN	SIGNAL NAME

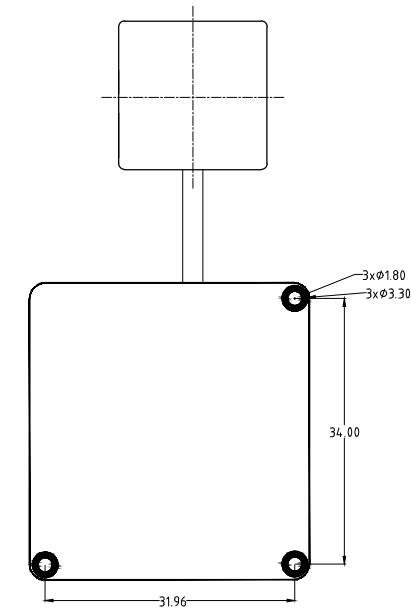
Version	Information	Date
V1.0	First Version	5-8-2020
V2.0	Change lens	5-12-2020
V3.0	Change lens	5-12-2020
V4.0	Change capture direction and connector	6-1-2021
V4.2	Change lens	12-3-2021
V5.0	Change to type C	3-9-2023



TOP VIEW



SIDE VIEW



BOTTOM VIEW

Parameters:

1、 Sensor specification:

Image Sensor: IMX258

Pixel: 1.12um*1.12um

Lens Type: 1/3.06

Important Voltage Description:

DVDD1.2V (external power supply);

2、 Lens specification:

FOV: 90.3°(D);77.4°(H);62°(V)

F/NO.: 1.9

TV distortion: <1.0%

Focal length: 2.8mm

Composition: 5P+IR FILTER

IR Cut Coating: 650nm±10nm@50%

Kai Lap Technologies Group Ltd

Designed By	Kevin	Model Name:	KLT-OIS-USB3A-AF-IMX258 V5.0		
Checked By	Aouly_Yan	Projection Type:	Unit:	Material:	
			mm	-----	
		Scale:	Sheet:	Version:	
		1:1	1 of 1	1/0	

[Product Brief]

Ver.1.0

IMX258

Diagonal 5.867 mm (Type 1/3.06) 13Mega-Pixel CMOS Image Sensor with Square Pixel for Color Cameras

Description

IMX258 is a diagonal 5.867mm (Type 1/3.06) 13 Mega-pixel CMOS active pixel type stacked image sensor with a square pixel array. It adopts Exmor R^{STM} technology to achieve high speed image capturing by column parallel A/D converter circuits and high sensitivity and low noise image (comparing with conventional CMOS image sensor) through the backside illuminated imaging pixel structure. R, G, and B pigment primary color mosaic filter is employed. By introducing spatially multiplexed exposure technology, high dynamic range still pictures and movies are achievable. It

equips an electronic shutter with variable integration time. It operates with three power supply voltages: analog 2.7 V, digital 1.2 V and 1.8 V for input/output interface and achieves low power consumption.

In addition, this product is designed for use in cellular phone and tablet pc. When using this for another application, Sony does not guarantee the quality and reliability of product. Therefore, don't use this for applications other than cellular phone and tablet pc. Consult your Sony sales representative if you have any questions.

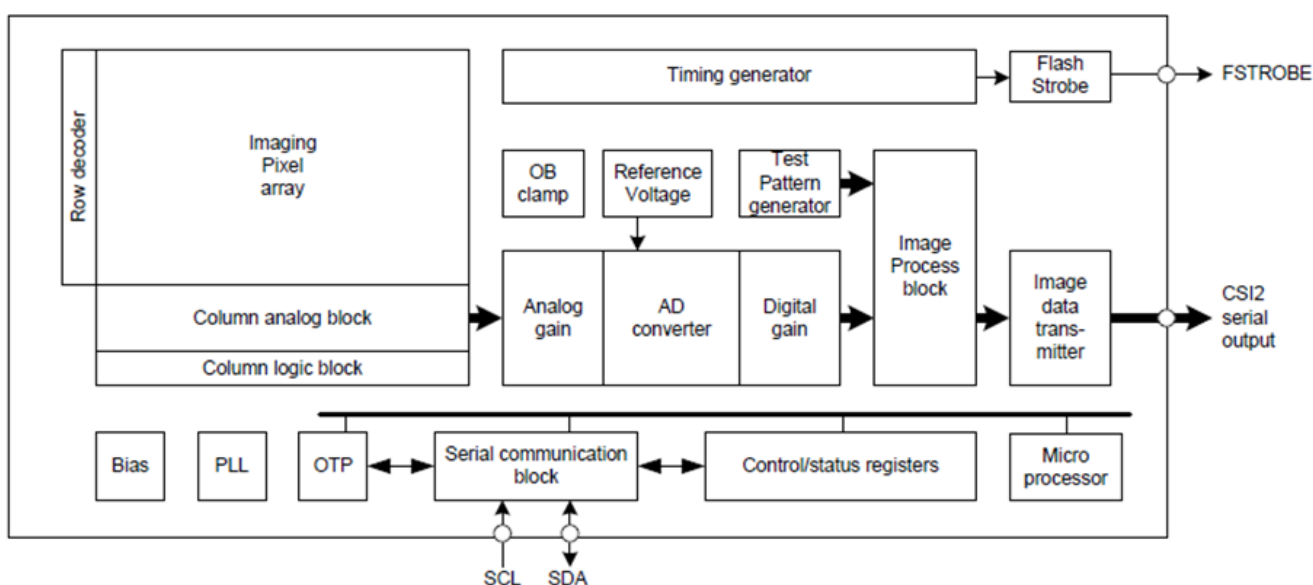
Functions and Features

- ◆ Back-illuminated and stacked CMOS image sensor Exmor R^{STM}
- ◆ Phase Detection pixel data output for Phase Detection Auto Focus
- ◆ High Dynamic Range (HDR) mode with raw data output.
- ◆ High signal to noise ratio (SNR).
- ◆ Full resolution @30fps (Normal / HDR). 4K2K @30fps (Normal / HDR) 1080p @60fps (Normal)
- ◆ Output video format of RAW10/8.
- ◆ Pixel binning readout and V sub-sampling function.
- ◆ Independent flipping and mirroring.
- ◆ CSI-2 serial data output (MIPI 2lane/4lane, Max. 1.3Gbps/lane, D-PHY spec. ver. 1.1 compliant)
- ◆ 2-wire serial communication.
- ◆ Two PLLs for independent clock generation for pixel control and data output interface.
- ◆ Dynamic Defect Pixel Correction.
- ◆ Fast mode transition. (on the fly)
- ◆ Dual sensor synchronization operation.
- ◆ 4K bit of OTP ROM for users.
- ◆ Built-in temperature sensor.

Device Structure

- ◆ CMOS image sensor
- ◆ Image size : Diagonal 5.867 mm (Type 1/3.06)
- ◆ Total number of pixels : 4224 (H) × 3192 (V) approx. 13.48 M pixels
- ◆ Number of effective pixels : 4224 (H) × 3144 (V) approx. 13.28 M pixels
- ◆ Number of active pixels : 4208 (H) × 3120 (V) approx. 13.13 M pixels
- ◆ Chip size : 5.990 mm (H) × 3.908 mm (V)
- ◆ Unit cell size : 1.12 μm (H) × 1.12 μm (V)
- ◆ Substrate material : Silicon

System block diagram



Exmor RS

* Exmor RS is a trademark of Sony Corporation. The Exmor RS is a Sony's CMOS image sensor with high-resolution, high-performance and compact size by replacing a supporting substrate in Exmor R™ which changed fundamental structure of Exmor™ pixel adopted column parallel A/D converter to back-illuminated type, with layered chips formed signal processing circuits.



Micro Gimbal Stabilizer (MGS) OIS Camera Modules

Micro Gimbal Stabilizer (MGS) is the patented mechanical optical image stabilizer (OIS) for camera modules. The MGS technology is tilting the image sensor and lens together, enabling anti-shaking performance for moving devices to take a sharp and clear image, even in the low light environment.



Features

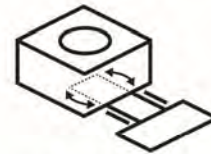
2-Axis Compensation
Small, Light Weight
18.80x18.80x15.80mm



Smallest Gimbal



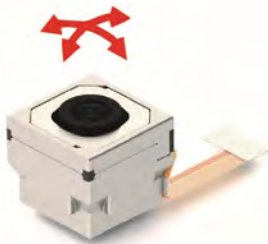
Multi-Axis Compensation



Embedded Moving FPC



One-stop Solution



Stabilizer



Max. View Angle



Integrated Design



Patents

Applications



5G Smart Helmet



Sport Camera



Drones



Robots

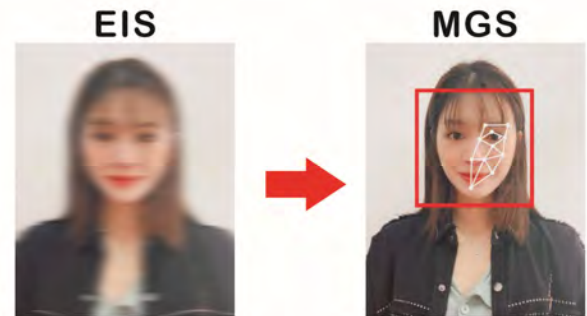
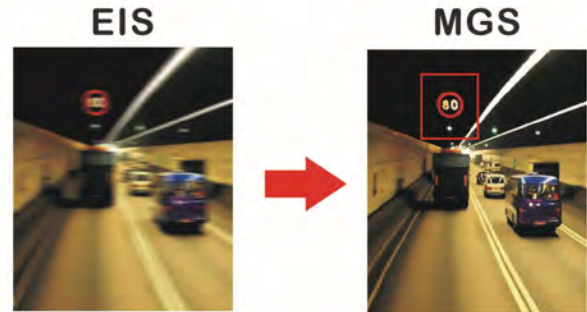
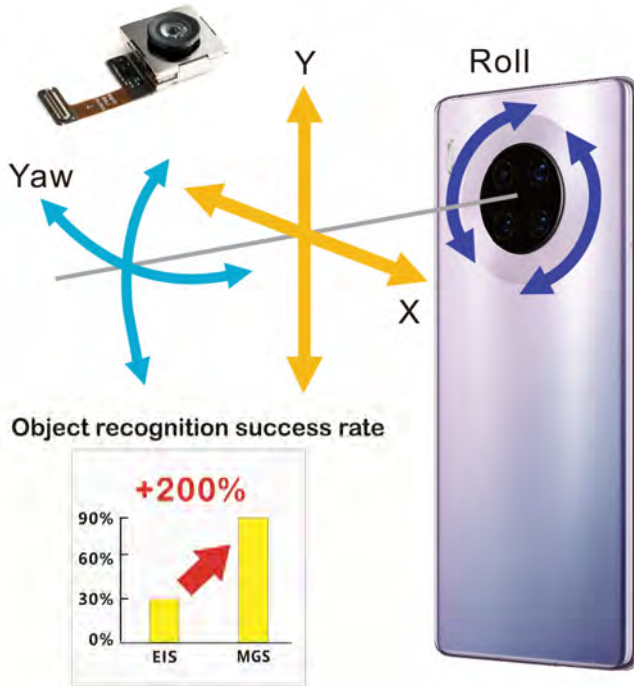


Wearable Cameras



Micro Gimbal Stabilizer (MGS) for Mobile Phones

Micro Gimbal Stabilizer (MGS) is fitting in the compact size, enabling the smartphones and tablet PC to take clear images in the moving environment.



MGS camera significantly reduces blurry in low light environment, and supports dynamic face and object recognition with 2 times faster rate.

1. General Description

The DW9763 is a single 10-bit DAC with 100mA output current sinking capability and embedded 8KByte eFlash memory. Designed for linear control of voice coil motors, the DW9763 is capable of operating voltage up to 3.3V.

The SAC (Smart Actuator Control) mode is applied to minimize the mechanical vibration. The SAC mode highly improves the actuator's settling time and tolerance coverage compared with conventional LSC (Linear Slope Control) mode. The DAC and eFlash are controlled via an I2C compatible serial interface.

The DW9763 incorporates with a POR (Power On Reset) circuit, power down mode. POR circuit gets to operate when VDD (supply power) turns on. The output current keeps 0mA until valid register value takes place. During the power down mode, it consumes current max.1uA.

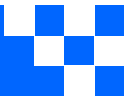
The DW9763 is designed for auto focus and optical zoom for mobile camera, digital still camera, camcorders and other nano actuator applications.

■ Features

- 10 bit resolution current sinking of 100mA for VCM
- SAC (Smart Actuator Control) mode
- Supply voltage range (VDD) : 2.3V to 3.3V
- Fast mode I2C interface compatible (1.8V interface available)
- Power down mode
- Power on reset (POR)
- Embedded 8KByte eFlash memory
- Package : 8 pin WLCSP
- Package Size : 0.77mm X 1.75mm X 0.3mm

■ Applications

- Mobile camera
- Digital still camera
- Camcorder
- Web camera
- Nano actuator



Cameras Applications



Automotive Driver Pilot



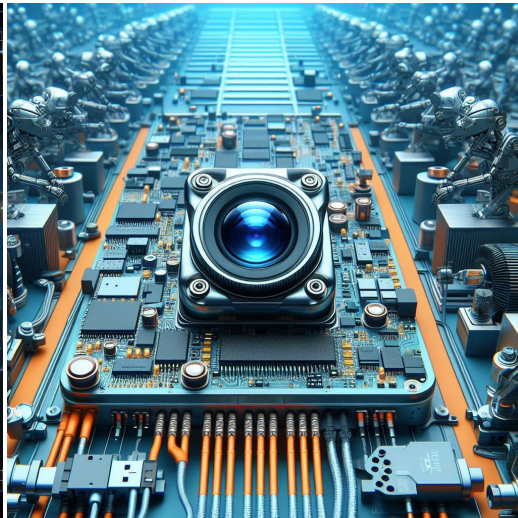
Live Streaming



Video Conference



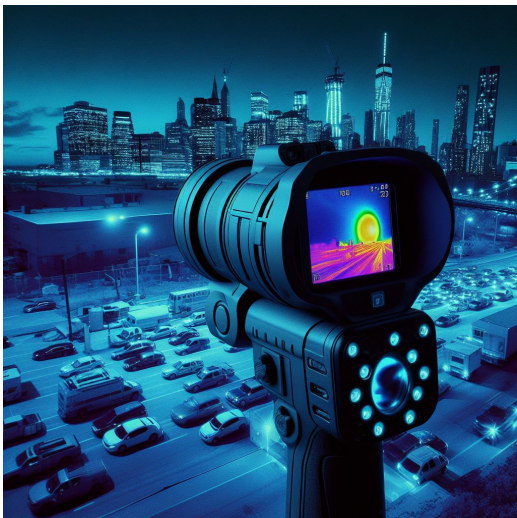
Eye Tracker Biometric Detection



Machine Vision



Agricultural Monitor



Night Vision Security



Drone and Sports Eagle Eyes

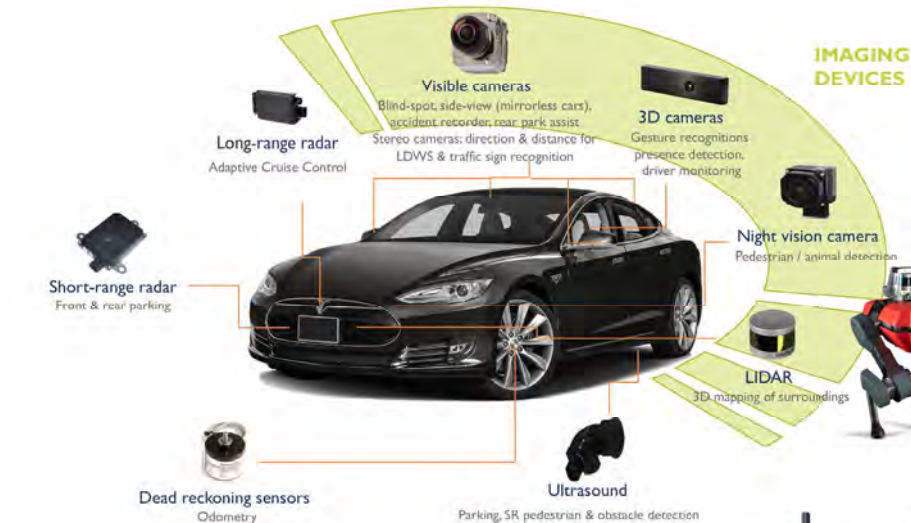


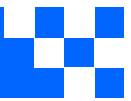
Interactive Pet Camera



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Cameras Applications





Camera Module Pinout Definition Reference Chart

OmniVision	Sony	Samsung	On-Semi	Aptina	Himax	GalaxyCore	PixArt	SmartSens	Sensors
Pin Signal									
Description									
DGND	GND								
AGND									
PCLK	DCK								
XCLR	PWDN	XSHUTDOWN	STANDBY						
MCLK	XVCLK	XCLK	INCK						
RESET	RST								
NC	NULL								
SDA	SIO_D	SIOD							
SCL	SIO_C	SIOC							
VSYNC	XVS	FSYNC							
HREF	XHS								
DOVDD									
AFVDD									
AVDD									
DVDD									
STROBE	FSTROBE								
FSIN									
SID									
ILPWM									
FREX									
GPIO									
SLASEL									
AFEN									
MIPI Interface									
MDN0	DN0	MD0N	DATA_N	DMO1N					
MDP0	DP0	MD0P	DATA_P	DMO1P					
MDN1	DN1	MD1N	DATA2_N	DMO2N					
MDP1	DP1	MD1P	DATA2_P	DMO2P					
MDN2	DN2	MD2N	DATA3_N	DMO3N					
MDP2	DP2	MD2P	DATA3_P	DMO3P					
MDN3	DN3	MD3N	DATA4_N	DMO4N					
MDP3	DP3	MD3P	DATA4_P	DMO4P					
MCN	CLKN	CLK_N	DCKN						
MCP	CLKP	MCP	CLK_P	DCKN					
DVP Parallel Interface									
D0	DO0	Y0							
D1	DO1	Y1							
D2	DO2	Y2							
D3	DO3	Y3							
D4	DO4	Y4							
D5	DO5	Y5							
D6	DO6	Y6							
D7	DO7	Y7							
D8	DO8	Y8							
D9	DO9	Y9							
D10	DO10	Y10							
D11	DO11	Y11							



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



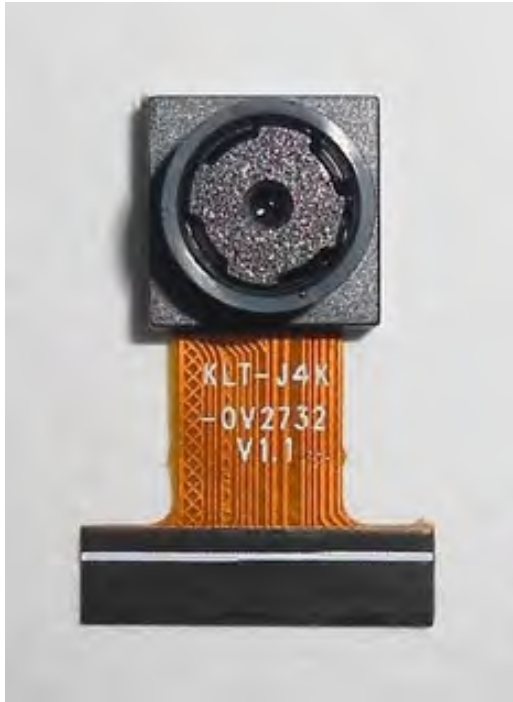


Inspection Item		Inspection Method	Standard of Inspection		
Category	Item				
Appearance	FPC/ PCB	Color	The Naked Eye	Major Difference is Not Allowed.	
		Be Torn/Chopped	The Naked Eye	Copper Crack Exposure is Not Allowed.	
		Marking	The Naked Eye	Clear, Recognizable (Within 30cm Distance)	
	Holder	Scratches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



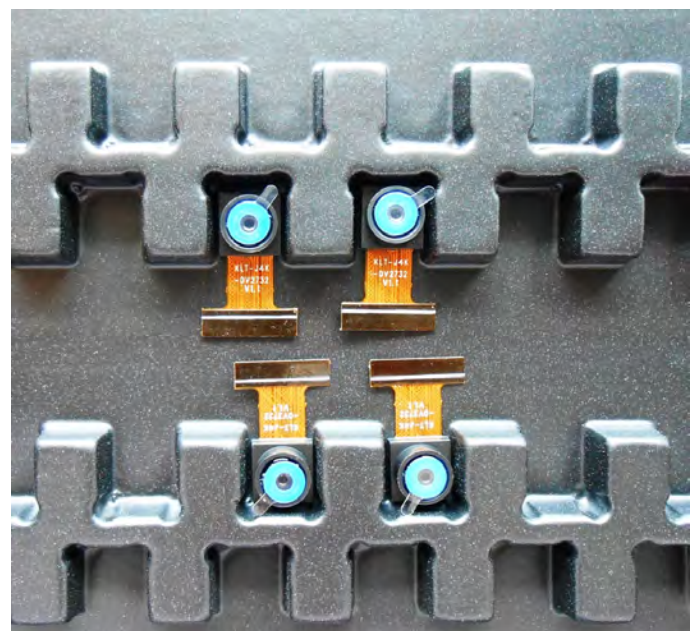
Complete with Lens Protection Film

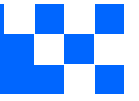


Tray with Grid and Space



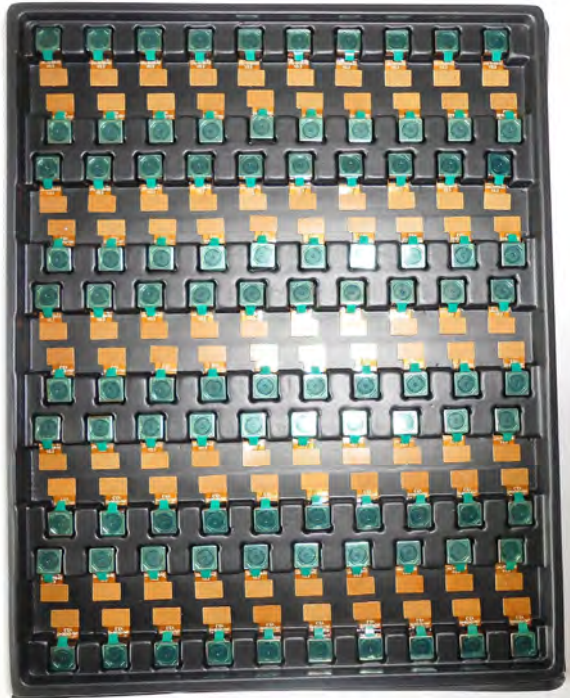
Place Cameras on the Tray





Camera Modules Package Solution

Full Tray of Cameras



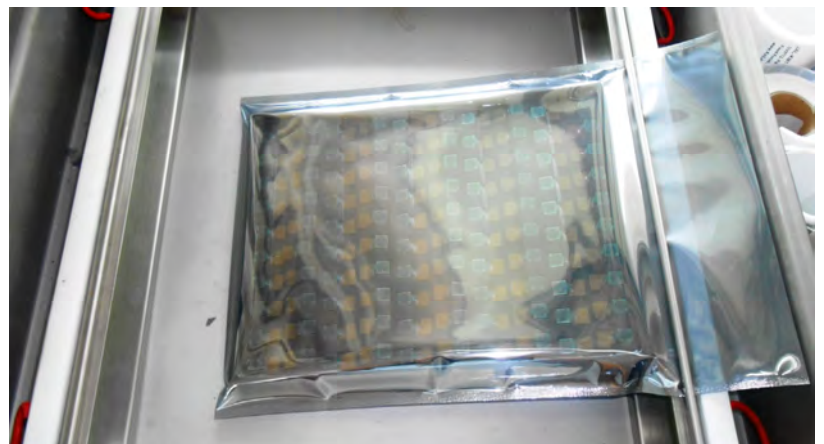
Cover Tray with Lid



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





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



Label Connectors in the Wheel



The Wheel is Perfectly Fitting the Box



Connectors Box Ready for Shipment





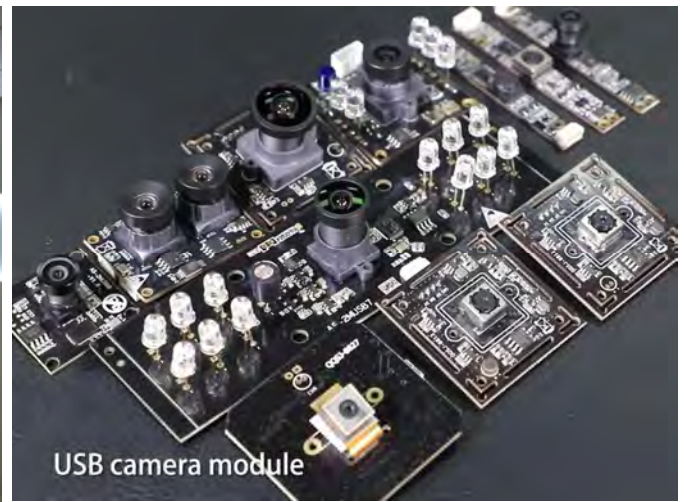
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Company Kai Lap Technologies (KLT)

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. 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



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KLT Strength

Powerful Factory



Professional Service



Promised Delivery



www.KaiLapTech.com sales@KaiLapTech.com Tel: (852) 6908 1256 Fax: (852) 3017 6778

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