



**KLT-VSN-AR0144 V1.0 NIR**  
**1MP OnSemi AR0144CS Global Shutter MIPI Interface**  
**No IR Fixed Focus Camera Module**



Front View



Back View

**Specifications**

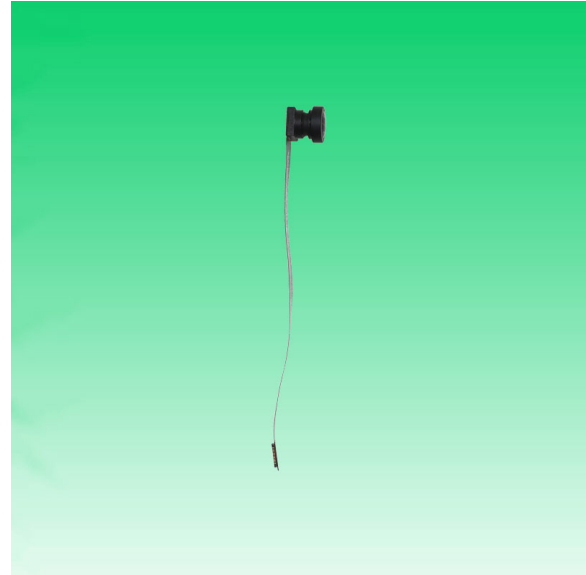
<b>Camera Module No.</b>	<b>KLT-VSN-AR0144 V1.0 NIR</b>
<b>Resolution</b>	1MP
<b>Image Sensor</b>	AR0144CS Global Shutter
<b>Sensor Type</b>	1/4"
<b>Pixel Size</b>	3.0 um x 3.0 um
<b>EFL</b>	1.02 mm
<b>F.NO</b>	2.25
<b>Pixel</b>	1280 x 800
<b>View Angle</b>	161.0°(DFOV) 145.0°(HFOV) 93.0°(VFOV)
<b>Lens Dimensions</b>	8.00 x 8.00 x 10.50 mm
<b>Module Size</b>	100.00 x 8.00 mm
<b>Module Type</b>	Fixed Focus
<b>Interface</b>	MIPI
<b>Auto Focus VCM Driver IC</b>	None
<b>Lens Type</b>	No IR Filter Lens
<b>Operating Temperature</b>	-40°C to +85°C
<b>Mating Connector</b>	AXT524124



**KLT-VSN-AR0144 V1.0 NIR**  
**1MP OnSemi AR0144CS Global Shutter MIPI Interface**  
**No IR Fixed Focus Camera Module**



Top View



Side View



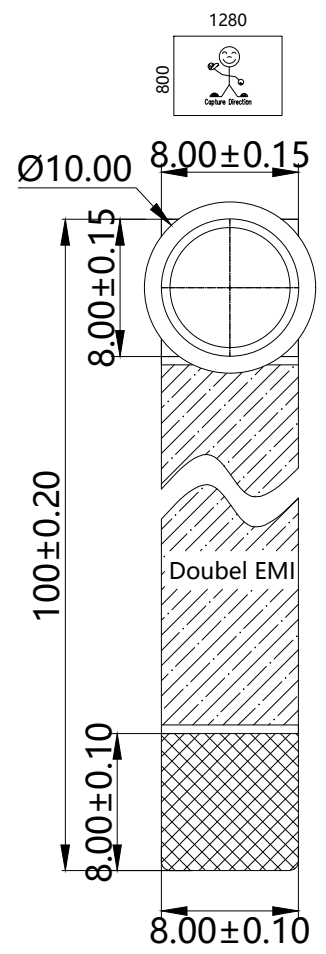
Bottom View



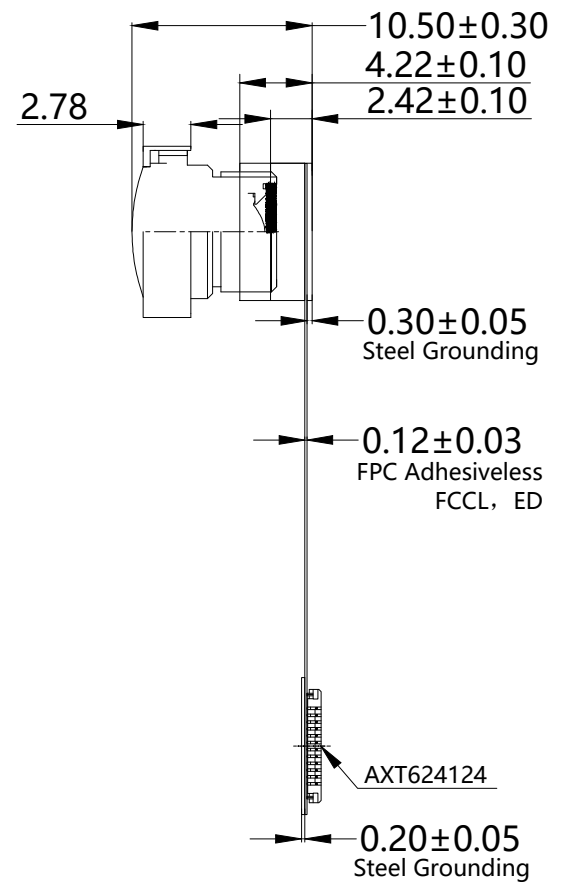
Mating Connector

RoHS	
PIN	SIGNAL
1	SDA
2	SCL
3	DOVDD1.8V
4	MCP
5	MCN
6	DGND
7	MDP1
8	MDN1
9	DGND
10	MDP2
11	MDN2
12	DGND
13	NC
14	SHUTTER
15	AGND
16	TRIGGER
17	SADDR
18	DVDD1.2V
19	XCLK
20	FLASH
21	RESET
22	AVDD 2.8V
23	NC
24	DGND

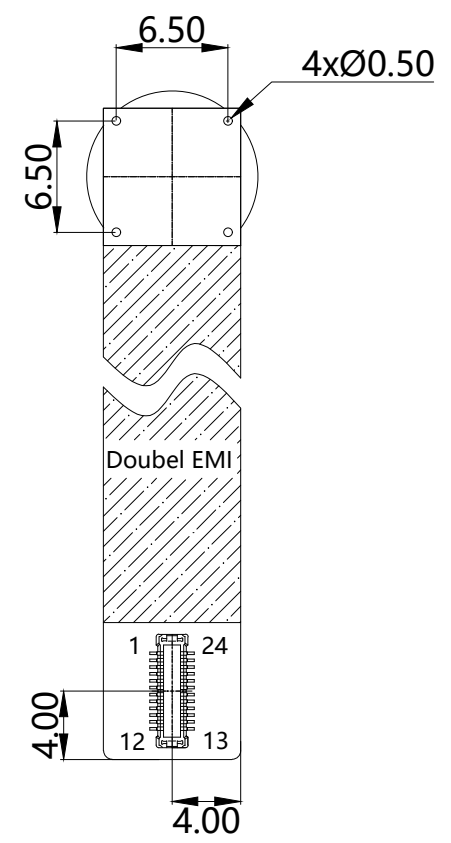
Version	Information	Date
V1.0	First Version	5-20-2023



TOP VIEW



SIDE VIEW



BOTTOM VIEW

NOTE:  
1.Sensor I2C slave address:0x20 If SADDR=0;  
or 0x30 If SADDR=1

Parameters:	
<u>1、 Sensor specification:</u> ImageSensor: AR0144CSSC20SUKA0-CRBR Pixel: 3um*3um Lens Type: 1/4 Important Voltage Description: DVDD1.2V (external power supply);	<u>2、 Lens specification:</u> FOV: 161°(D);145°(H);93°(V); F/NO.: 2.25 TV distortion: <12.5% Focal length: 1.02mm Composition: 2G2P(No IR FILTER)

## Kai Lap Technologies Group Ltd

Designed By	Kevin	Model Name:	KLT-VSN-AR0144 V1.0 NIR		
Checked By	Aouly_Yan	Projection Type:	Unit:	Material:	
		 Third Angle	mm	-----	
		Scale:	Sheet:	Version:	
		1:1	1 of 1	1/0	

## Product Overview

### AR0144CS: CMOS Image Sensor, Digital, Global Shutter, 1.0 MP, 1/4-Inch

For complete documentation, see the [data sheet](#).

The AR0144 is a 1/4-inch 1.0 Mp CMOS digital image sensor with an active-pixel array of 1280H x 800V. It incorporates a new innovative global shutter pixel design optimized for accurate and fast capture of moving scenes. The sensor produces clear, low noise images in both low-light and bright scenes. It includes sophisticated camera functions such as auto exposure control, windowing, row skip mode, column-skip mode, pixel-binning and both video and single frame modes. It is programmable through a simple two-wire serial interface. The AR0144 produces extraordinarily clear, sharp digital pictures, and its ability to capture both continuous video and single frames makes it the perfect choice for a wide range of applications, including scanning and industrial inspection.

#### Features

- Best Global Shutter Efficiency
- Low Dark Current/Hot Pixels
- High Linear Full Well
- Low Operational Power
- Small Form Factor

#### Applications

- Barcode Scanning
- 3D Scanning
- Virtual/Augmented Reality
- Positional Tracking
- Gesture Recognition

#### Benefits

- Improved image quality for fast moving objects
- Total Noise Floor Reduction, SNR Improvement
- High Dynamic Range
- Ideal for battery powered applications
- Ideal for space constrained applications like Handheld Scanners

#### End Products

- Barcode Scanners
- Head Mounted Displays
- Biometric Scanners
- Virtual Reality/Augmented Reality Glasses
- Drones

## Part Electrical Specifications

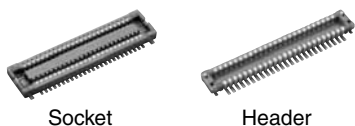
Product	Pricing (\$/Unit)	Compliance	Status	Type	Megapixels	Frame Rate (fps)	Optical Format	Shutter Type	Pixel Size (µm)	Output Interface	Color	Package Type
AR0144CSC00SUD20		Pb-free Halide free	Active	CMOS	1MP	60	1/4 Inch	Global Shutter	3.0 x 3.0	Multi	RGB	
AR0144CSC00SUKA0-CPBR		Pb-free Halide free	Active	CMOS	1MP	60	1/4 Inch	Global Shutter	3.0 x 3.0	Multi	RGB	ODCSP-69
AR0144CSC00SUKA0-CPBR1		Pb-free Halide free	Active									ODCSP-69
AR0144CSC00SUKA0-CPBR2		Pb-free Halide free	Active									ODCSP-69
AR0144CSC00SUKA0-CRBR		Pb-free Halide free	Active	CMOS	1MP	60	1/4 Inch	Global Shutter	3.0 x 3.0	Multi	RGB	ODCSP-69
AR0144CSC00SUKA0-CRBR1		Pb-free Halide free	Active									ODCSP-69
AR0144CSC20SUD20		Pb-free Halide free	Active	CMOS	1MP	60	1/4 Inch	Global Shutter	3.0 x 3.0	Multi	RGB	
AR0144CSC20SUKA0-CPBR		Pb-free Halide free	Active	CMOS	1MP	60	1/4 Inch	Global Shutter	3.0 x 3.0	Multi	RGB	ODCSP-69
AR0144CSC20SUKA0-CRBR		Pb-free Halide free	Active	CMOS	1MP	60	1/4 Inch	Global Shutter	3.0 x 3.0	Multi	RGB	ODCSP-69
AR0144CSSM00SUD20		Pb-free Halide free	Active	CMOS	1MP	60	1/4 Inch	Global Shutter	3.0 x 3.0	Multi	Mono	
AR0144CSSM00SUKA0-CPBR		Pb-free Halide free	Active	CMOS	1MP	60	1/4 Inch	Global Shutter	3.0 x 3.0	Multi	Mono	ODCSP-69
AR0144CSSM00SUKA0-CPBR1		Pb-free Halide free	Active									ODCSP-69
AR0144CSSM00SUKA0-CPBR2		Pb-free Halide free	Active									ODCSP-69
AR0144CSSM00SUKA0-CRBR		Pb-free Halide free	Active	CMOS	1MP	60	1/4 Inch	Global Shutter	3.0 x 3.0	Multi	Mono	ODCSP-69
AR0144CSSM20SUD20		Pb-free Halide free	Active	CMOS	1MP	60	1/4 Inch	Global Shutter	3.0 x 3.0	Multi	Mono	
AR0144CSSM20SUKA0-CPBR		Pb-free Halide free	Active	CMOS	1MP	60	1/4 Inch	Global Shutter	3.0 x 3.0	Multi	Mono	ODCSP-69
AR0144CSSM20SUKA0-CPBR1		Pb-free Halide free	Active	CMOS	1MP	60	1/4 Inch	Global Shutter	3.0 x 3.0	Multi	Mono	ODCSP-69
AR0144CSSM20SUKA0-CRBR		Pb-free Halide free	Active	CMOS	1MP	60	1/4 Inch	Global Shutter	3.0 x 3.0	Multi	Mono	ODCSP-69
AR0144CSSM20SUKA0-CRBR1		Pb-free Halide free	Active	CMOS	1MP	60	1/4 inch	Global Shutter	3.0 x 3.0	Multi	Mono	ODCSP-69
AR0144CSSM28SUD20		Pb-free Halide free	Active	CMOS	1MP	60	1/4 Inch	Global Shutter	3.0 x 3.0	Multi	Mono	
AR0144CSSM28SUKA0-CPBR		Pb-free Halide free	ProductP review									ODCSP-69

For more information please contact your local sales support at [www.onsemi.com](http://www.onsemi.com).

Created on: 6/17/2020

## NARROW-PITCH, THIN AND SLIM CONNECTOR FOR BOARD-TO-FPC CONNECTION

## NARROW PITCH (0.4 mm) CONNECTORS F4S SERIES



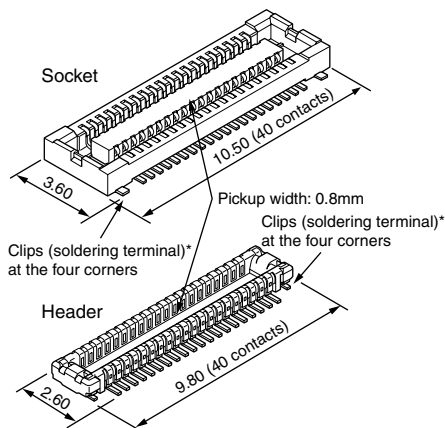
Compliance with RoHS Directive

### FEATURES

**1. Space-saving (3.6 mm widthwise)**  
The required space is smaller than our F4 series (40-contact type):

- Socket — 27% smaller,
- Header — 38% smaller

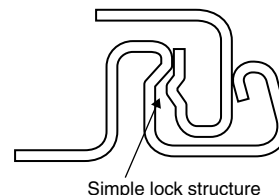
The small size contributes to the miniaturization of target equipment.



\* Clips for preventing the solder joints from being removed

**2. Highly reliable**  
**TOUGH CONTACT** has strong resistance to adverse environments.  
(See Page 6 for details of the structure)  
Note: If extra resistance to shock caused by dropping is required, we recommend using our previous F4 Series.

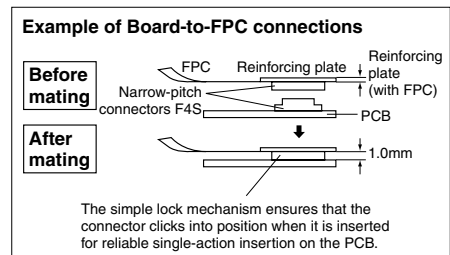
**3. The simple lock structure gives tactile feedback that ensures a superior mating/unmating operation feel.**



**4. Gull-wing type terminals**  
The gull-wing type terminals facilitate automatic mounting inspections.  
**5. Connectors for inspection available**  
Connectors for inspection are available that are ideal for modular unit inspection and inspection in device assembly processes.

### APPLICATIONS

Compact portable devices “Cellular phones, DVC, Digital cameras, etc”



### ORDERING INFORMATION

AXT       **4**

5: Narrow Pitch Connector F4S (0.4 mm pitch) Socket  
6: Narrow Pitch Connector F4S (0.4 mm pitch) Header

Number of contacts (2 digits)

Mated height  
<Socket>

- 1: For mated height 1.0 mm
- 2: For mated height 1.2 mm

<Header>

- 1: For mated height 1.0 mm
- 2: For mated height 1.2 mm

Functions

<Socket, Header>

- 2: Without positioning bosses

Surface treatment (Contact portion / Terminal portion)

<Socket>

- 4: Base: Ni plating Surface: Au plating (for Ni barrier available)

<Header>

- 4: Base: Ni plating Surface: Au plating

Note: Please note that models with a mated height of 1.0 mm (7th digit of part number is “1”) and 1.2 mm (7th digit of part number is “2”) are not compatible.

# AXT5, 6

## PRODUCT TYPES

Mated height	Number of contacts	Part number		Packing	
		Socket	Header	Inner carton	Outer carton
1.0mm	10	AXT510124	AXT610124	3,000 pieces	6,000 pieces
	12	AXT512124	AXT612124		
	14	AXT514124	AXT614124		
	16	AXT516124	AXT616124		
	18	AXT518124	AXT618124		
	20	AXT520124	AXT620124		
	22	AXT522124	AXT622124		
	24	AXT524124	AXT624124		
	26	AXT526124	AXT626124		
	28	AXT528124	AXT628124		
	30	AXT530124	AXT630124		
	32	AXT532124	AXT632124		
	34	AXT534124	AXT634124		
	36	AXT536124	AXT636124		
	38	AXT538124	AXT638124		
	40	AXT540124	AXT640124		
	42	AXT542124	AXT642124		
	44	AXT544124	AXT644124		
	46	AXT546124	AXT646124		
	48	AXT548124	AXT648124		
50	AXT550124	AXT650124			
54	AXT554124	AXT654124			
60	AXT560124	AXT660124			
64	AXT564124	AXT664124			
70	AXT570124	AXT670124			
80	AXT580124	AXT680124			
1.2mm	10	AXT510224	AXT610224		
	30	AXT530224	AXT630224		
	40	AXT540224	AXT640224		
	50	AXT550224	AXT650224		
	80	AXT580224	AXT680224		

- Notes: 1. Order unit: For mass production: in 1-inner-box (1-reel) units  
 Samples for mounting check: in 50-connector units. Please contact our sales office.  
 Samples: Small lot orders are possible. Please contact our sales office.
2. The above part numbers are for connectors without positioning bosses, which are standard. When ordering connectors with positioning bosses, please contact our sales office.
3. Please contact us for connectors having a number of contacts other than those listed above.

# SPECIFICATIONS

## 1. Characteristics

	Item	Specifications	Conditions
Electrical characteristics	Rated current	0.3A/contact (Max. 5 A at total contacts)	
	Rated voltage	60V AC/DC	
	Breakdown voltage	150V AC for 1 min.	No short-circuiting or damage at a detection current of 1 mA when the specified voltage is applied for one minute.
	Insulation resistance	Min. 1,000M $\Omega$ (initial)	Using 250V DC megger (applied for 1 min.)
	Contact resistance	Max. 90m $\Omega$	Based on the contact resistance measurement method specified by JIS C 5402.
Mechanical characteristics	Composite insertion force	Max. 0.981N/contacts $\times$ contacts (initial)	
	Composite removal force	Min. 0.165N/contacts $\times$ contacts	
Environmental characteristics	Contact holding force (Socket contact)	Min. 0.49N/contacts	Measuring the maximum force. As the contact is axially pull out.
	Ambient temperature	-55°C to +85°C	No freezing at low temperatures. No dew condensation.
	Soldering heat resistance	Peak temperature: 260°C or less (on the surface of the PC board around the connector terminals) 300°C within 5 sec. 350°C within 3 sec.	Infrared reflow soldering Soldering iron
	Storage temperature	-55°C to +85°C (product only) -40°C to +50°C (emboss packing)	No freezing at low temperatures. No dew condensation.
	Thermal shock resistance (header and socket mated)	5 cycles, insulation resistance min. 100M $\Omega$ , contact resistance max. 90m $\Omega$	Sequence 1. -55 $\frac{3}{5}$ °C, 30 minutes 2. ~, Max. 5 minutes 3. 85 $\frac{3}{5}$ °C, 30 minutes 4. ~, Max. 5 minutes
	Humidity resistance (header and socket mated)	120 hours, insulation resistance min. 100M $\Omega$ , contact resistance max. 90m $\Omega$	Bath temperature 40 $\pm$ 2°C, humidity 90 to 95% R.H.
	Saltwater spray resistance (header and socket mated)	24 hours, insulation resistance min. 100M $\Omega$ , contact resistance max. 90m $\Omega$	Bath temperature 35 $\pm$ 2°C, saltwater concentration 5 $\pm$ 1%
H <sub>2</sub> S resistance (header and socket mated)	48 hours, contact resistance max. 90m $\Omega$	Bath temperature 40 $\pm$ 2°C, gas concentration 3 $\pm$ 1 ppm, humidity 75 to 80% R.H.	
Lifetime characteristics	Insertion and removal life	50 times	Repeated insertion and removal speed of max. 200 times/hours
Unit weight		20-contact type: Socket: 0.03 g Header: 0.01 g	

## 2. Material and surface treatment

Part name	Material	Surface treatment
Molded portion	LCP resin (UL94V-0)	—
Contact and Post	Copper alloy	Contact portion: Base: Ni plating Surface: Au plating Terminal portion: Base: Ni plating Surface: Au plating (except the terminal tips) The socket terminals close to the portion to be soldered have nickel barriers (exposed nickel portions). Metal clips: Sockets: Base: Ni plating Surface: Pd+Au flash plating (except the terminal tips) Headers: Base: Ni plating Surface: Au plating (except the terminal tips)

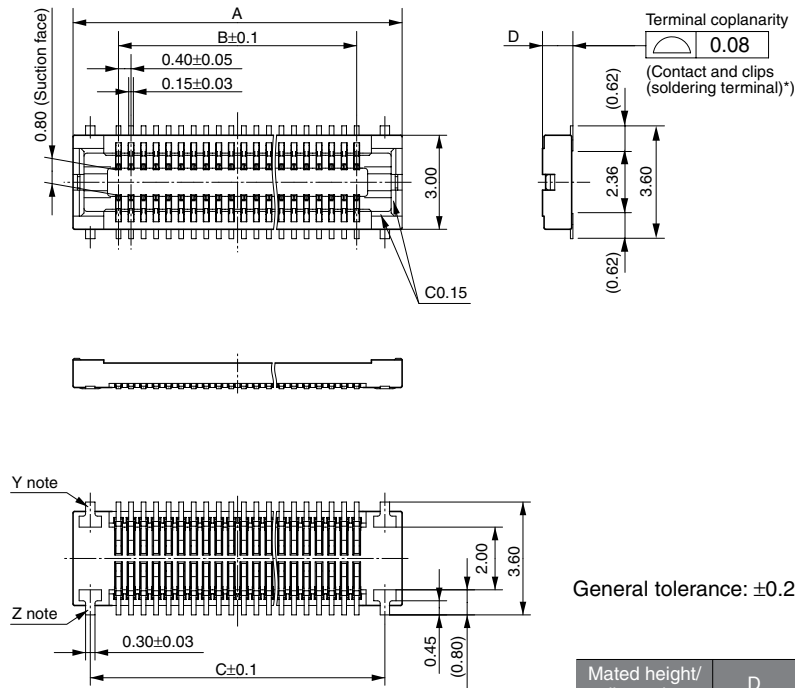


# AXT5, 6

**DIMENSIONS** (Unit: mm) The CAD data of the products with a **CAD Data** mark can be downloaded from: <http://panasonic-electric-works.net/ac>

## Socket (Mated height: 1.0 mm and 1.2 mm)

**CAD Data**



General tolerance: ±0.2

Mated height/ dimension	D
1.0mm	0.97
1.2mm	1.17

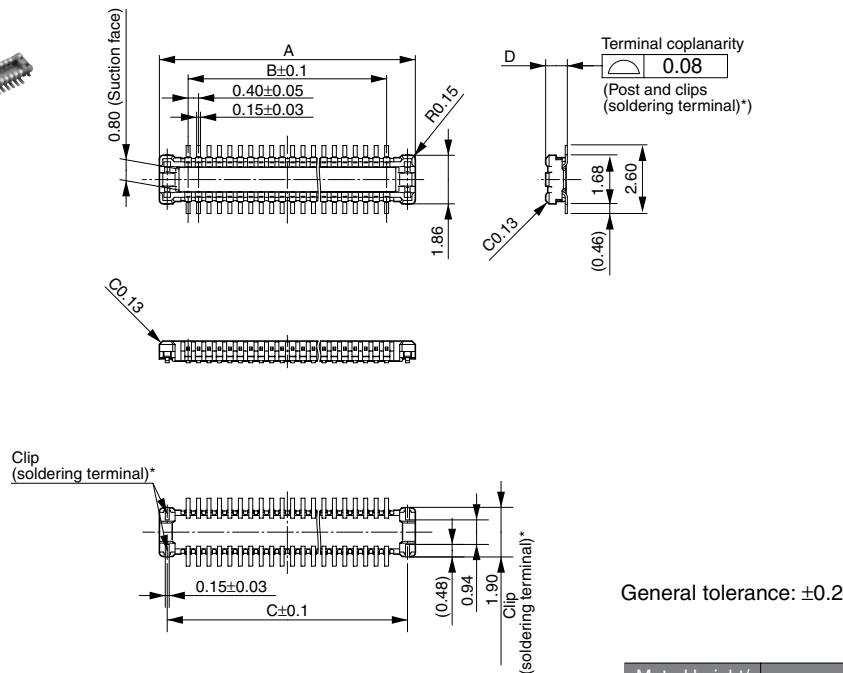
Note: Since the clip (soldering terminal)\* has a single-piece construction, sections Y and Z are electrically connected.

## Dimension table (mm)

Number of contacts/ dimension	A	B	C
10	4.5	1.6	3.4
12	4.9	2.0	3.8
14	5.3	2.4	4.2
16	5.7	2.8	4.6
18	6.1	3.2	5.0
20	6.5	3.6	5.4
22	6.9	4.0	5.8
24	7.3	4.4	6.2
26	7.7	4.8	6.6
28	8.1	5.2	7.0
30	8.5	5.6	7.4
32	8.9	6.0	7.8
34	9.3	6.4	8.2
36	9.7	6.8	8.6
38	10.1	7.2	9.0
40	10.5	7.6	9.4
42	10.9	8.0	9.8
44	11.3	8.4	10.2
46	11.7	8.8	10.6
48	12.1	9.2	11.0
50	12.5	9.6	11.4
54	13.3	10.4	12.2
60	14.5	11.6	13.4
64	15.3	12.4	14.2
70	16.5	13.6	15.4
80	18.5	15.6	17.4

## Header (Mated height: 1.0 mm and 1.2 mm)

**CAD Data**



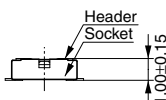
General tolerance: ±0.2

Mated height/ dimension	D
1.0mm	0.83
1.2mm	1.01

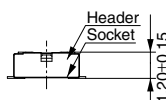
## Dimension table (mm)

Number of contacts/ dimension	A	B	C
10	3.8	1.6	3.2
12	4.2	2.0	3.6
14	4.6	2.4	4.0
16	5.0	2.8	4.4
18	5.4	3.2	4.8
20	5.8	3.6	5.2
22	6.2	4.0	5.6
24	6.6	4.4	6.0
26	7.0	4.8	6.4
28	7.4	5.2	6.8
30	7.8	5.6	7.2
32	8.2	6.0	7.6
34	8.6	6.4	8.0
36	9.0	6.8	8.4
38	9.4	7.2	8.8
40	9.8	7.6	9.2
42	10.2	8.0	9.6
44	10.6	8.4	10.0
46	11.0	8.8	10.4
48	11.4	9.2	10.8
50	11.8	9.6	11.2
54	12.6	10.4	12.0
60	13.8	11.6	13.2
64	14.6	12.4	14.0
70	15.8	13.6	15.2
80	17.8	15.6	17.2

## • Socket and Header are mated



Mated height: 1.0 mm



Mated height: 1.2 mm



*your BEST camera module partner*

## Cameras Applications



Automotive Driver Pilot



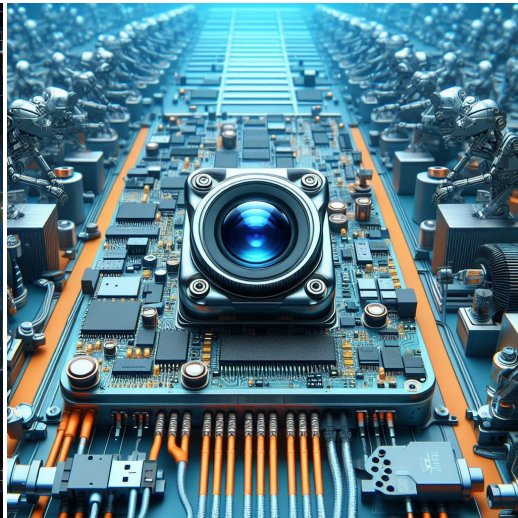
Live Streaming



Video Conference



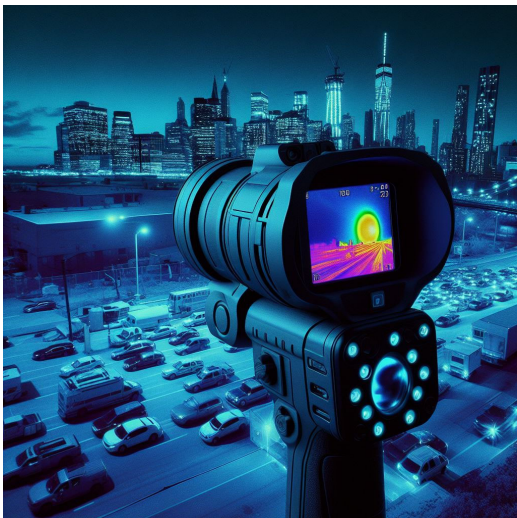
Eye Tracker Biometric Detection



Machine Vision



Agricultural Monitor



Night Vision Security



Drone and Sports Eagle Eyes



Interactive Pet Camera

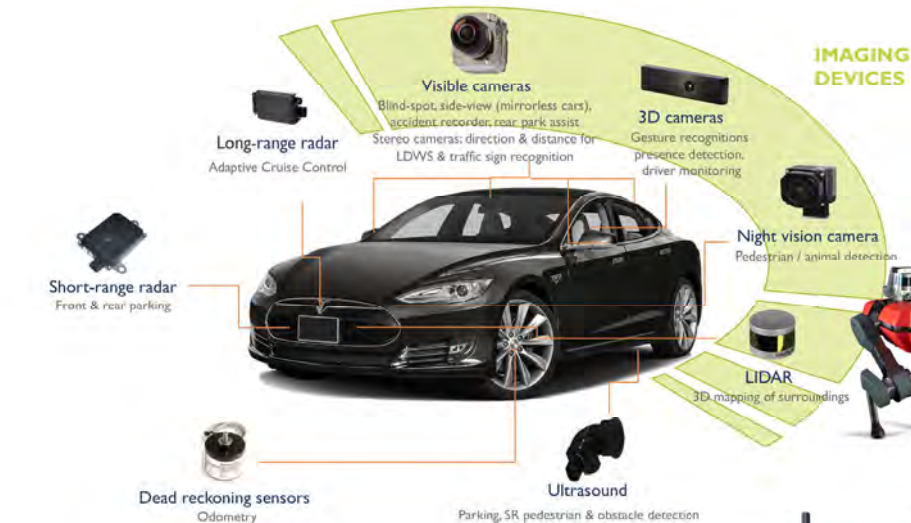
[www.KaiLapTech.com](http://www.KaiLapTech.com) [sales@KaiLapTech.com](mailto:sales@KaiLapTech.com) Tel: (852) 6908 1256 Fax: (852) 3017 6778

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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									
<b>MIPI Interface</b>									
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					
<b>DVP Parallel Interface</b>									
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



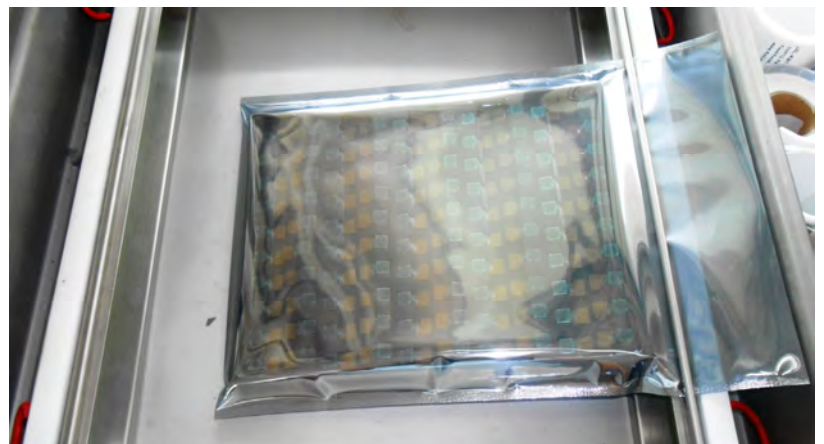
Cover Tray with Lid



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





*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





## 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





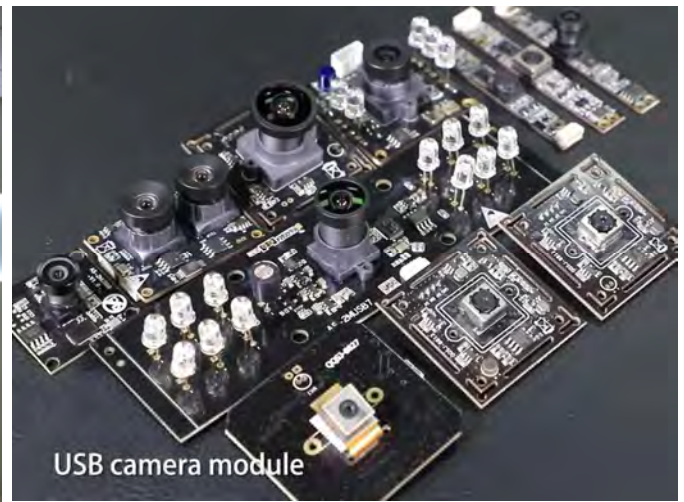
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## Company Kai Lap Technologies (KLT)

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](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



### Professional Service



### Promised Delivery



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