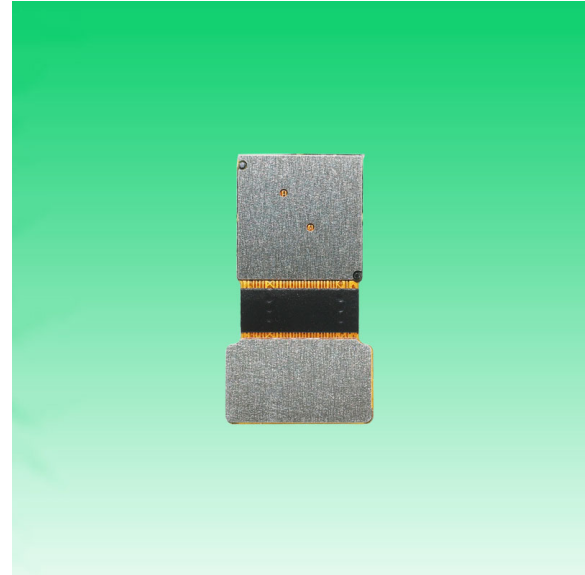**KLT**

KLT-KJ1-OV5640-1B V4.2
5MP OmniVision OV5640-1B MIPI Interface Auto Focus Camera Module

Front View

Back View

Specifications

Camera Module No.	**KLT-KJ1-OV5640-1B V4.2**
Resolution	5MP
Image Sensor	OV5640-1B
Sensor Type	1/4"
Pixel Size	1.4 um x 1.4 um
EFL	3.29 mm
F.NO	2.80
Pixel	2592 x 1944
View Angle	68.7°(DFOV) 58.1°(HFOV) 45.0°(VFOV)
Lens Dimensions	8.50 x 8.50 x 5.07 mm
Module Size	18.20 x 10.00 mm
Module Type	Auto Focus
Interface	MIPI
Auto Focus VCM Driver IC	Embedded
Lens Type	650nm IR Cut
Operating Temperature	-30°C to +70°C
Mating Connector	AXK7L30223G

KLT-KJ1-OV5640-1B V4.2
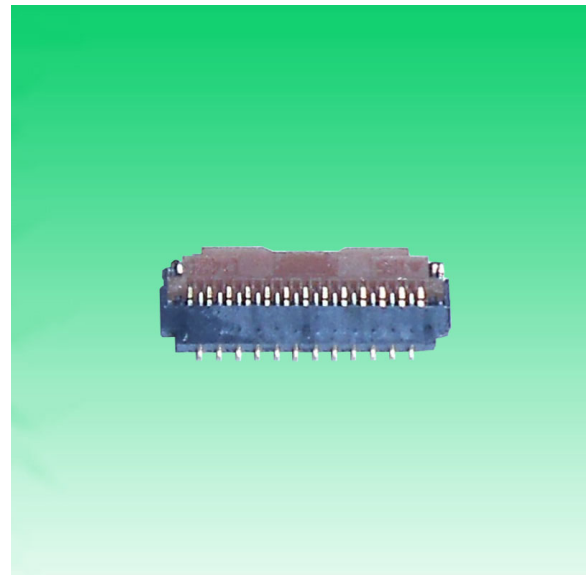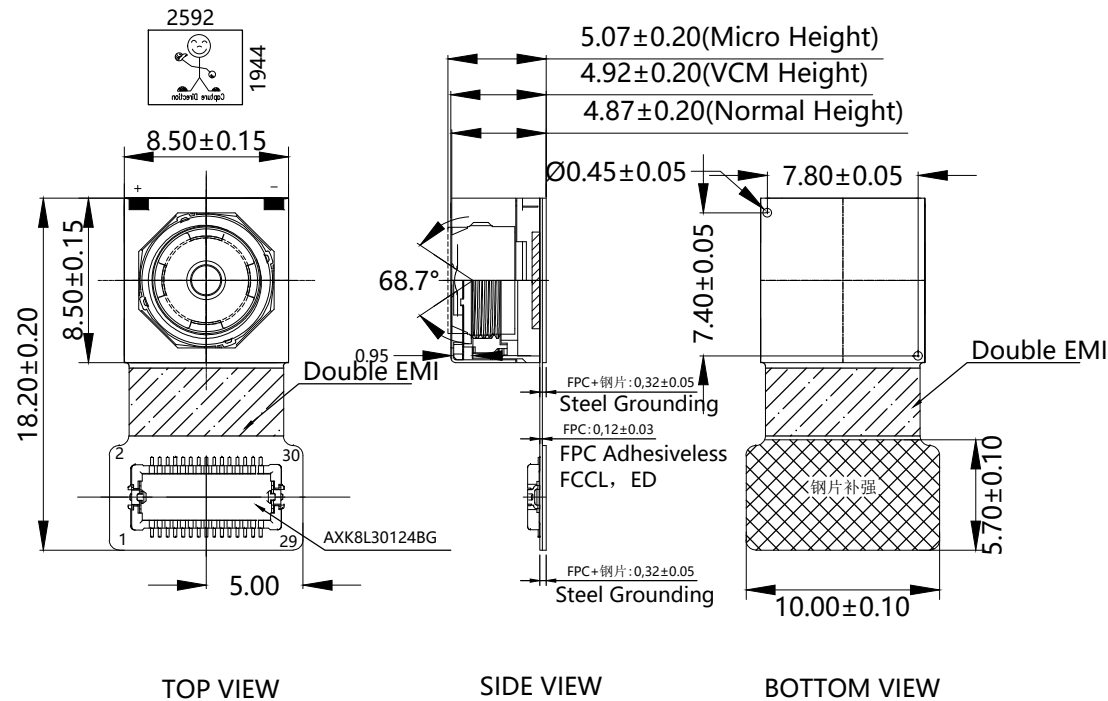### 5MP OmniVision OV5640-1B MIPI Interface Auto Focus Camera Module

Top View

Side View

Bottom View

Mating Connector

PIN	SIGNAL
1	AGND
2	NC
3	NC
4	SDA
5	NC
6	SCL
7	D2
8	PWND
9	D3
10	PCLK
11	MDN0
12	NC
13	MDP0
14	MCLK
15	MCN
16	RESET
17	MCP
18	VSYNC
19	MDN1
20	HSYNC
21	MDP1
22	NC
23	NC
24	NC
25	STROBE
26	AVDD(2.8V)
27	NC
28	DOVDD(2.8V)
29	DGND
30	AFVDD(2.8V)

Version	Information	Date
V4.2	First Version	10-14-2023

2592
1944

8.50±0.15

8.50±0.15

18.20±0.20

2 30

1 29

5.00

AXK8L30124BG

Double EMI

TOP VIEW

5.07±0.20(Micro Height)
4.92±0.20(VCM Height)
4.87±0.20(Normal Height)

68.7°

0.95

FPC+钢片：0,32±0.05
Steel Grounding

FPC:0,12±0.03
FPC Adhesiveless
FCCL，ED

FPC+钢片：0,32±0.05
Steel Grounding

SIDE VIEW

Ø0.45±0.05

7.80±0.05

7.40±0.05

Double EMI

钢片补强

5.70±0.10

10.00±0.10

BOTTOM VIEW

Parameter：
1、Sensor specification：
Image Sensor：OV5640-1B
Pixel：1.4um*1.4um
Lens Type：1/4
Important Voltage Description:
DVDD1.5V (external power supply);

2、Lens specification：
FOV: 68.7°(D);58.1°(H);45°(V)
F/NO.: 2.8
TV distortion：<1.0%
Focal length：3.29mm
Composition：4P+IR FILTER
IR Cut Coating：650nm±10nm@50%

Kai Lap Technologies Group Ltd

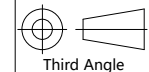| Designed By	Kevin	Model Name:	KLT-KJ1-OV5640-1B V4.2		
Checked By	Jacky	Projection Type: Third Angle	Unit: mm	Material: --------------	
			Scale: 1:1	Sheet: 1 of 1	Version: 1/0

OV5640 5-megapixel product brief

1/4-inch, 5-Megapixel SOC Image Sensor Optimized for High-Volume Mobile Markets

available in
a lead-free
package

The OV5640 delivers a complete 5-megapixel camera solution on a single chip, aimed at offering cost efficiencies that serve the high-volume autofocus (AF) camera phone market. The system-on-a-chip (SOC) sensor features OmniVision's 1.4 micron OmniBSI™ backside illumination architecture to deliver excellent pixel performance and best-in-class low-light sensitivity, while enabling ultra compact camera module designs of 8.5 mm x 8.5 mm with <6 mm z-height. The OV5640 provides the full functionality of a complete camera, including anti-shake technology, AF control, and MIPI while being easier to tune then two-chip solutions, making it an ideal choice in terms of cost, time-to-market and ease of platform integration.

The OV5640 enables 720p HD video at 60 frames per second (fps) and 1080p HD video at 30 fps with complete user control over formatting and output data transfer. The 720p/60 HD video is captured in full field of view (FOV) with 2 x 2 binning, which doubles the sensitivity and improves the signal-to-noise ratio (SNR). Additionally, a unique post-binning re-sampling filter function removes zigzag artifacts around slant edges and minimizes spatial artifacts to deliver even sharper, crisper

color images. To further improve camera performance and user experience, the OV5640 features an internal anti-shake engine for image stabilization, and it supports Scalado™ tagging for faster image preview and zoom.

The OV5640 offers a digital video port (DVP) parallel interface and a high-speed dual lane MIPI interface, supporting multiple output formats. An integrated JPEG compression engine simplifies data transfer for bandwidth-limited interfaces. The sensor's automatic image control functions include automatic exposure control (AEC), automatic white balance (AWB), automatic band filter (ABF), 50/60 Hz automatic luminance detection, and automatic black level calibration (ABLC). The OV5640 delivers programmable controls for frame rate, AEC/AGC 16-zone size/position/weight control, mirror and flip, cropping, windowing, and panning. It also offers color saturation, hue, gamma, sharpness (edge enhancement), lens correction, defective pixel canceling, and noise canceling to improve image quality.

Find out more at www.ovt.com.

applications

- cellular phones
- toys
- PC multimedia
- digital still cameras

- **OV05640-A71A-1B** (color, lead-free)
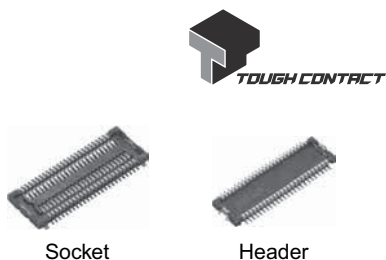 71-pin CSP

features

- 1.4 µm x 1.4 µm pixel with OmniBSI technology for high performance (high sensitivity, low crosstalk, low noise, improved quantum efficiency)
- optical size of 1/4"
- automatic image control functions: automatic exposure control (AEC), automatic white balance (AWB), automatic band filter (ABF), automatic 50/60 Hz luminance detection, and automatic black level calibration (ABLC)
- programmable controls for frame rate, AEC/AGC 16-zone size/position/weight control, mirror and flip, cropping, windowing, and panning
- image quality controls: color saturation, hue, gamma, sharpness (edge enhancement), lens correction, defective pixel canceling, and noise canceling
- support for output formats: RAW RGB, RGB565/555/444, CCIR656, YUV422/420, YCbCr422, and compression
- support for video or snapshot operations
- support for internal and external frame synchronization for frame exposure mode

- support for LED and flash strobe mode
- support for horizontal and vertical sub-sampling, binning
- support for minimizing artifacts on binned image
- support for data compression output
- support for anti-shake
- standard serial SCCB interface
- digital video port (DVP) parallel output interface and dual lane MIPI output interface
- embedded 1.5V regulator for core power
- programmable I/O drive capability, I/O tri-state configurability
- support for black sun cancellation
- support for images sizes: 5 megapixel, and any arbitrary size scaling down from 5 megapixel
- support for auto focus control (AFC) with embedded AF VCM driver
- embedded microcontroller
- suitable for module size of 8.5 x 8.5 x <6mm with both CSP and RW packaging

key specifications (typical)

- **active array size:** 2592 x 1944
- **power supply:**
  core: 1.425 ~ 1.675V (with embedded 1.5V regulator)
  analog: 2.6 ~ 3.0V (2.8V typical)
  I/O: 1.8V / 2.8V
- **power requirements:**
  active: 140 mA
  standby: 20 µA
- **temperature range:**
  operating: -30°C to 70°C junction temperature (see **table 8-2**)
  stable image: 0°C to 50°C junction temperature (see **table 8-2**)
- **output formats:** 8-/10-bit RGB RAW output
- **lens size:** 1/4"
- **lens chief ray angle:** 24° (see **figure 10-2**)

- **input clock frequency:** 6~27 MHz
- **max S/N ratio:** 36 dB
- **dynamic range:** 68 dB @ 8x gain
- **maximum image transfer rate:**
  QSXGA (2592x1944): 15 fps
  1080p: 30 fps
  1280x960: 45 fps
  720p: 60 fps
  VGA (640x480): 90 fps
- **sensitivity:** 600 mV/Lux-sec
- **shutter:** rolling shutter / frame exposure
- **maximum exposure interval:** 1964 x t_{ROW}
- **pixel size:** 1.4 µm x 1.4 µm
- **dark current:** 8 mV/s @ 60°C junction temperature
- **image area:** 3673.6 µm x 2738.4 µm
- **package dimensions:** 5985 µm x 5835 µm

Panasonic
ideas for life

Socket   Header

Compliance with RoHS Directive

FEATURES

1. The lowest profile class among two-piece connectors in the world (Mated height: 0.9mm)
Achieved both a 0.4 mm pitch and an ultra low profile of 0.9 mm high when mated, contributing to further thickness reduction of products.

2. Strong resistance to adverse environments! Utilizes *TOUGH CONTACT* **construction for high contact reliability.**
(See Page 6 for details of the structure)

3. Improved mating strength between the socket and header
The simple locking structures provided for the soldering terminals and the contact points improve the mating strength and provide tactile feedback when locked.

Socket   Header

Locking structure of the soldering terminals
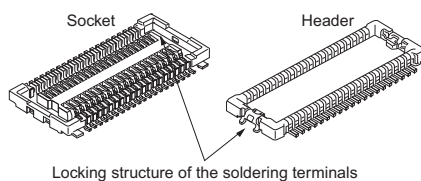
4. Easy to design product circuits
1) An insulating wall provided for the bottom surface of the connector prevents contact between the pattern on the PC board and the metal pins, enabling pattern wiring under the connector, and thus contributing to the reduction in size of PC boards.

<Socket>   <Header>

Pattern wiring under the connector is possible.
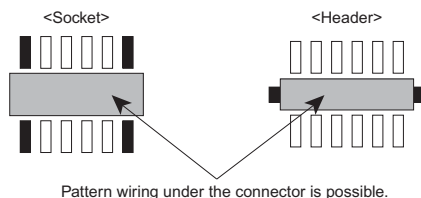
5. Connectors for inspection available
Connectors for inspection are available that are ideal for modular unit inspection and inspection in device assembly processes.

APPLICATIONS

Compact portable devices "Cellular phones, DVD, DSC, etc"

Example of connection between a board and an FPC

Before mating

FPC
F4 connector
Reinforcing plate
PCB

After mating

0.9mm

PRODUCT TYPES ◆ TOUGH CONTACT

Mated height	Number of contacts	Part number				Packing	
		Socket	Socket Products with plating change to soldering terminals (in effect from Dec. '09)	Header	Header Products with plating change to soldering terminals (in effect from Dec. '09)	Inner carton (1 reel)	Outer carton
0.9 mm	10	AXK7L10227G	AXK7L10223G	AXK8L10125BG	AXK8L10124BG	3,000 pieces	6,000 pieces (2 reels)
	12	AXK7L12227G	AXK7L12223G	AXK8L12125BG	AXK8L12124BG		
	14	AXK7L14227G	AXK7L14223G	AXK8L14125BG	AXK8L14124BG		
	16	AXK7L16227G	AXK7L16223G	AXK8L16125BG	AXK8L16124BG		
	20	AXK7L20227G	AXK7L20223G	AXK8L20125BG	AXK8L20124BG		
	22	AXK7L22227G	AXK7L22223G	AXK8L22125BG	AXK8L22124BG		
	24	AXK7L24227G	AXK7L24223G	AXK8L24125BG	AXK8L24124BG		
	26	AXK7L26227G	AXK7L26223G	AXK8L26125BG	AXK8L26124BG		
	28	AXK7L28227G	AXK7L28223G	AXK8L28125BG	AXK8L28124BG		
	30	AXK7L30227G	AXK7L30223G	AXK8L30125BG	AXK8L30124BG		
	32	AXK7L32227G	AXK7L32223G	AXK8L32125BG	AXK8L32124BG		
	34	AXK7L34227G	AXK7L34223G	AXK8L34125BG	AXK8L34124BG		
	36	AXK7L36227G	AXK7L36223G	AXK8L36125BG	AXK8L36124BG		
	38	AXK7L38227G	AXK7L38223G	AXK8L38125BG	AXK8L38124BG		
	40	AXK7L40227G	AXK7L40223G	AXK8L40125BG	AXK8L40124BG		
	44	AXK7L44227G	AXK7L44223G	AXK8L44125BG	AXK8L44124BG		
	48	AXK7L48227G	AXK7L48223G	AXK8L48125BG	AXK8L48124BG		
	50	AXK7L50227G	AXK7L50223G	AXK8L50125BG	AXK8L50124BG		
	54	AXK7L54227G	AXK7L54223G	AXK8L54125BG	AXK8L54124BG		
	60	AXK7L60227G	AXK7L60223G	AXK8L60125BG	AXK8L60124BG		
	66	AXK7L66227G	AXK7L66223G	AXK8L66125BG	AXK8L66124BG		
	70	AXK7L70227G	AXK7L70223G	AXK8L70125BG	AXK8L70124BG		
	80	AXK7L80227G	AXK7L80223G	AXK8L80125BG	AXK8L80124BG		

Notes: 1. Regarding ordering units;
During production: Please make orders in 1-reel units.
Samples for mounting confirmation: Available in units of 50 pieces. Please contact us.
Samples: Available. Please contact us.
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 regarding different number of contacts.
4. "B" in the 11th digit of the header part number signifies a fork type soldering terminals to lessen the constraint on amount of solder when mounting, and a construction that makes it difficult when mounting for excess solder to interfere with the socket.
Although compatible with the previous parts, these parts are not compatible with the recommended PC board pattern and recommended metal mask pattern.
5. Since the plating specifications for the metal clips will be changed starting with production in December 2009 onwards, the digit "7" in the 10th place of the part number for sockets will be changed to "3", and "5" for headers will be changed to "4".
Be careful when placing an order.

SPECIFICATIONS

1. Characteristics

Item		Specifications	Conditions
Electrical characteristics	Rated current	0.3A/terminal (Max. 5 A at total terminals)	—
	Rated voltage	60V AC/DC	—
	Breakdown voltage	150V AC for 1 min.	Rated voltage is applied for one minute and check for short circuit or damage with a detection current of 1mA
	Insulation resistance	Min. 1,000MΩ (Initial)	Using 250V DC megger (applied for 1 min.)
	Contact resistance	Max. 90mΩ	Based on the contact resistance measurement method specified by JIS C 5402.
Environmental characteristics	Ambient temperature	−55°C to +85°C	No freezing at low temperatures
	Soldering heat resistance	Max. peak temperature of 260°C (on the surface of the PC board around the connector terminals)	Infrared reflow soldering
		300°C within 5 sec, 350°C within 3 sec.	Soldering iron
	Storage temperature	−55°C to +85°C (Product only) −40°C to +50°C (Emboss packing)	No freezing at low temperatures
	Thermal shock resistance (header and socket mated)	5 cycles, insulation resistance min. 100MΩ, contact resistance max. 90mΩ	Sequence 1. -55_{-3}^{0}°C, 30 min. 2. ~ , Max. 5 min. 3. 85_{-0}^{+3}°C, 30 min. 4. ~ , Max. 5 min.
	Humidity resistance (header and socket mated)	120 hours, insulation resistance min. 100MΩ, contact resistance max. 90mΩ	Temperature 40±2°C, humidity 90 to 95% R.H.
	Saltwater spray resistance (header and socket mated)	24 hours, insulation resistance min. 100MΩ, contact resistance max. 90mΩ	Temperature 35±2°C, saltwater concentration 5±1%
	H_2S resistance (header and socket mated)	48 hours, contact resistance max. 90mΩ	Temperature 40±2°C, gas concentration 3±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 contacts; Socket: 0.03g Header: 0.01g	—

AXK7L, 8L

2. Material and surface treatment

Part name	Material	Surface treatment
Molded portion	LCP resin (UL94V-0)	—
Contact/Post	Copper alloy	Contact portion: Ni plating on base, Au plating on surface Terminal portion: Ni plating on base, Au plating on surface (Except for front edge of terminal) However, the area adjacent to the socket terminal is exposed to Ni on base. Metal clips Note): Ni plating on base, Sn plating on surface (Socket: except for front edge of the terminal)

Note: The following change will apply to production from December 2009 onwards.
Socket: Ni plating on base, Pd + Au flash plating on surface (Expect for front edge of terminal)
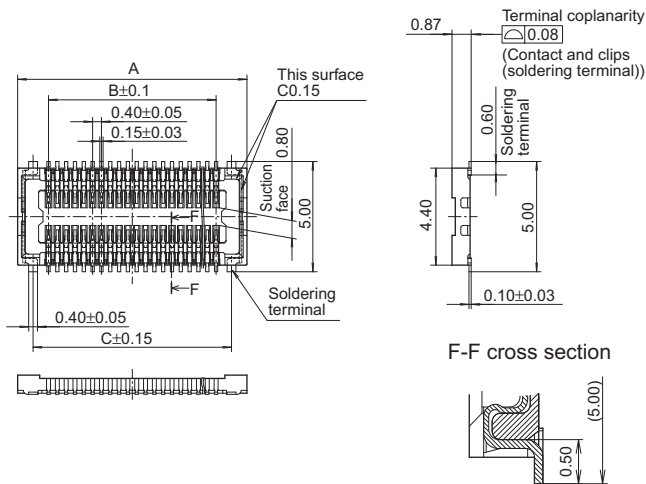Header: Ni plating on base, Au plating on surface (Expect for front edge of terminal)

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 0.9 mm)

CAD Data

F-F cross section

General tolerance: ±0.2

Dimension table (mm)

Number of contacts/ Dimensions	A	B	C
10	4.4	1.6	3.0
12	4.8	2.0	3.4
14	5.2	2.4	3.8
16	5.6	2.8	4.2
20	6.4	3.6	5.0
22	6.8	4.0	5.4
24	7.2	4.4	5.8
26	7.6	4.8	6.2
28	8.0	5.2	6.6
30	8.4	5.6	7.0
32	8.8	6.0	7.4
34	9.2	6.4	7.8
36	9.6	6.8	8.2
38	10.0	7.2	8.6
40	10.4	7.6	9.0
44	11.2	8.4	9.8
48	12.0	9.2	10.6
50	12.4	9.6	11.0
54	13.2	10.4	11.8
60	14.4	11.6	13.0
66	15.6	12.8	14.2
70	16.4	13.6	15.0
80	18.4	15.6	17.0

• Header (Mated height: 0.9 mm)

CAD Data
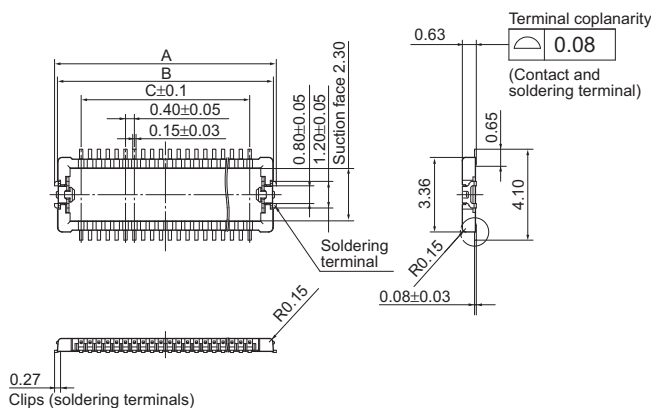
General tolerance: ±0.2

Dimension table (mm)

Number of contacts/ Dimensions	A	B	C
10	4.0	3.74	1.6
12	4.4	4.14	2.0
14	4.8	4.54	2.4
16	5.2	4.94	2.8
20	6.0	5.74	3.6
22	6.4	6.14	4.0
24	6.8	6.54	4.4
26	7.2	6.94	4.8
28	7.6	7.34	5.2
30	8.0	7.74	5.6
32	8.4	8.14	6.0
34	8.8	8.54	6.4
36	9.2	8.94	6.8
38	9.6	9.34	7.2
40	10.0	9.74	7.6
44	10.8	10.54	8.4
48	11.6	11.34	9.2
50	12.0	11.74	9.6
54	12.8	12.54	10.4
60	14.0	13.74	11.6
66	15.2	14.94	12.8
70	16.0	15.74	13.6
80	18.0	17.74	15.6

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

KLT

Cameras Applications

Visible cameras
Blind-spot, side-view (mirrorless cars), accident recorder, rear park assist
Stereo cameras: direction & distance for LDWS & traffic sign recognition

3D cameras
Gesture recognitions presence detection, driver monitoring

Long-range radar
Adaptive Cruise Control

Short-range radar
Front & rear parking

Night vision camera
Pedestrian / animal detection

LIDAR
3D mapping of surroundings

Dead reckoning sensors
Odometry

Ultrasound
Parking, SR pedestrian & obstacle detection

IMAGING DEVICES

Day

Night

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
FREX	frame exposure / mechanical shutter
GPIO	general purpose inputs
SLASEL	I2C slave address select
AFEN	CEN chip enable active high on VCM driver IC
MIPI Interface	
MDN0 DN0 MD0N DATA_N DMO1N	MIPI 1st data lane negative output
MDP0 DP0 MD0P DATA_P DMO1P	MIPI 1st data lane positive output
MDN1 DN1 MD1N DATA2_N DMO2N	MIPI 2nd data lane negative output
MDP1 DP1 MD1P DATA2_P DMO2P	MIPI 2nd data lane positive output
MDN2 DN2 MD2N DATA3_N DMO3N	MIPI 3rd data lane negative output
MDP2 DP2 MD2P DATA3_P DMO3P	MIPI 3rd data lane positive output
MDN3 DN3 MD3N DATA4_N DMO4N	MIPI 4th data lane negative output
MDP3 DP3 MD3P DATA4_P DMO4P	MIPI 4th data lane positive output
MCN CLKN CLK_N DCKN	MIPI clock negative output
MCP CLKP MCP CLK_P DCKN	MIPI clock positive output
DVP Parallel Interface	
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

CMOS CAMERA MODULES

Camera Inspection Standard

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
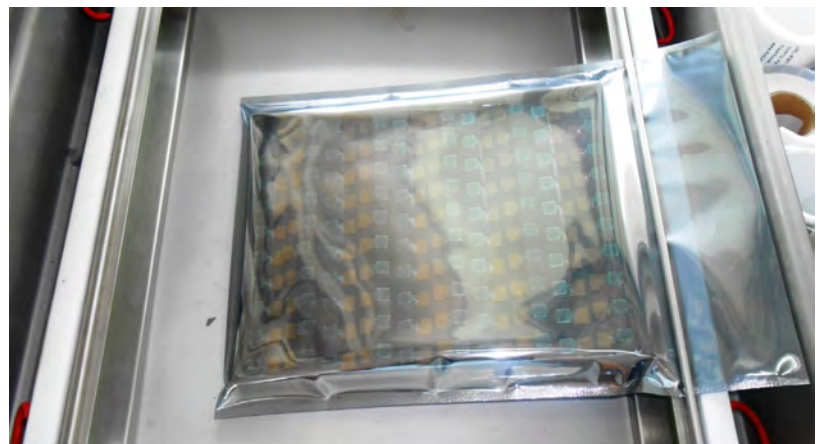
Full Tray of Cameras

Cover Tray with Lid

Put Tray into Anti-Static Bag

Vacuum the Anti-Static Bag

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

Camera Modules Package Solution

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

KLT-J4K-OV2732 V1.1
OV2732, MIPI & Parallel
Fixed Focus, 67.4 Degree
www.KaiLapTech.com

100
PIECES

Shipping Date
10 August 2017

CAUTION
STATIC SENSITIVE
DEVICES
NOT TO BE HANDLED
BY UNAUTHORISED
PERSONNEL

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

CMOS CAMERA MODULES

KLT

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

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.

USB camera module
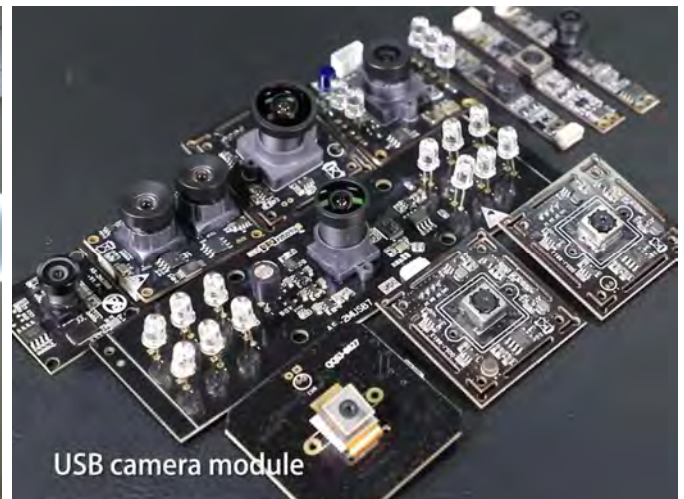
Limited Warranty

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 subsequential events.

KLT Strength

Powerful Factory

Professional Service

Promised Delivery