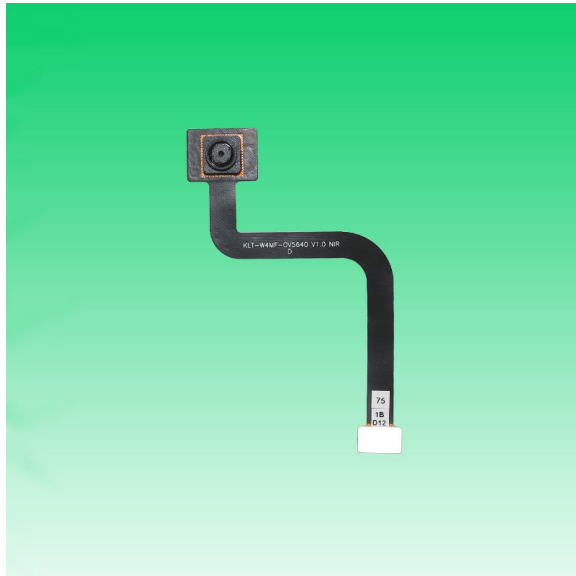## KLT-W4MF-OV5640-1B V1.0 NIR (OCAM5746)
5MP OmniVision OV5640-1B MIPI Interface No IR Fixed Focus Camera Module

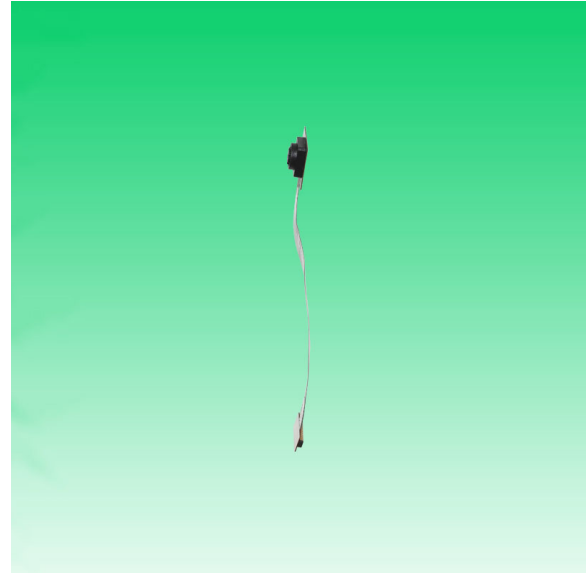Front View

Back View

Specifications

Camera Module No.	KLT-W4MF-OV5640-1B V1.0 NIR
Resolution	5MP
Image Sensor	OV5640-1B
Sensor Type	1/4"
Pixel Size	1.4 um x 1.4 um
EFL	2.34 mm
F.NO	2.40
Pixel	2592 x 1944
View Angle	87.9°(DFOV) 75.3°(HFOV) 59.8°(VFOV)
Lens Dimensions	8.50 x 8.50 x 4.12 mm
Module Size	73.30 x 48.10 mm
Module Type	Fixed Focus
Interface	MIPI
HID Global Part Number	OCAM5746
Lens Type	No IR Filter Lens
Operating Temperature	-30°C to +70°C
Mating Connector	AXK740147G

KLT-W4MF-OV5640-1B V1.0 NIR (OCAM5746)
5MP OmniVision OV5640-1B MIPI Interface No IR Fixed Focus Camera Module
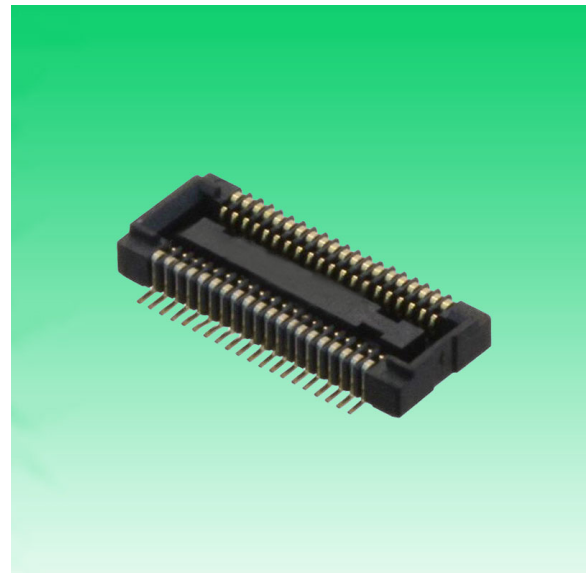

Top View

Side View

Bottom View

Mating Connector

百果园

免费品尝
好吃不贵 三无退货

Product Specification:

Product Name: 360°Rotating Display Stand   Model

Product Size: 7.9 ″ (L&W)*1.4 ″ (H)   Max Lo

Product weight: 1lb   Rotating

Rotating Angle:90°/180°/360°

Power Supply Mode: Micro-usb 5V plug-in/18650 li-ion rech
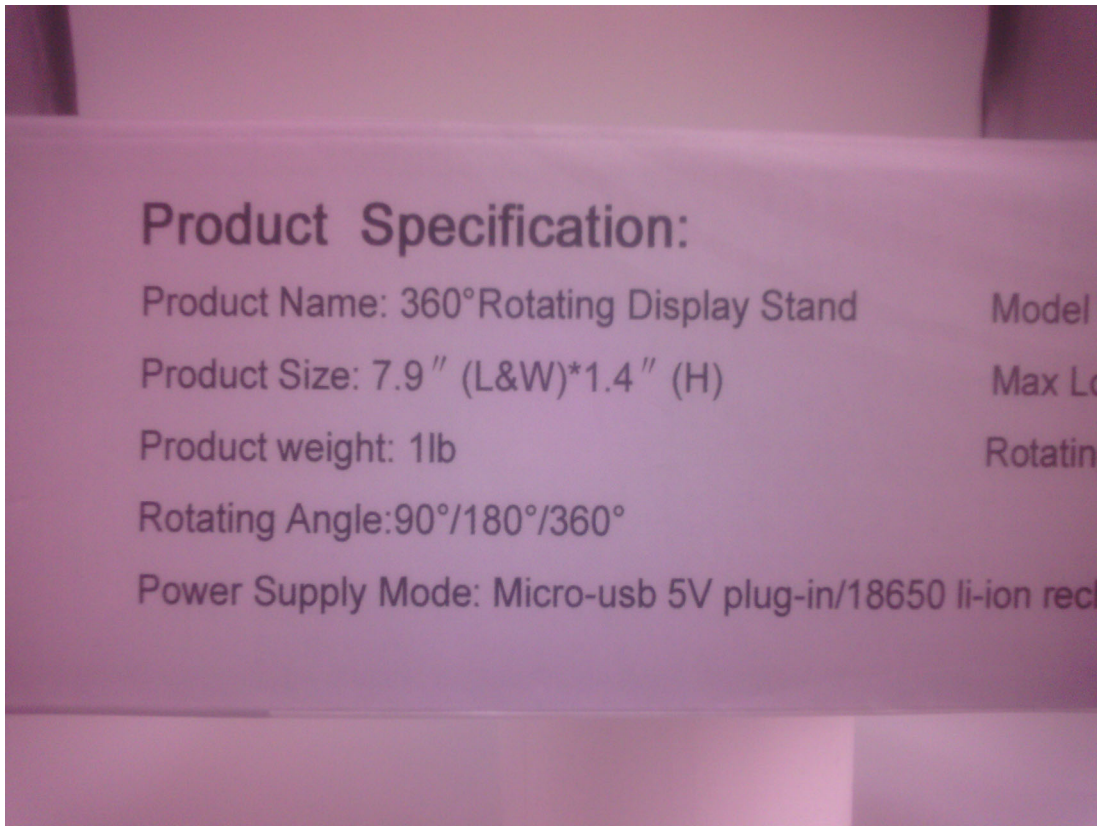
Photographing the industry standard ColorChecker Classic is an important step in attaining consistent, predictable color at capture.

The ColorChecker Classic target has long been trusted as an industry standard and is the ideal visual color refer_ photographic workflow. It consists of an array of 24 scientifically prepared color patches that represent natural, primary colors, as well as neutral grays for creating custom neutral white balance.
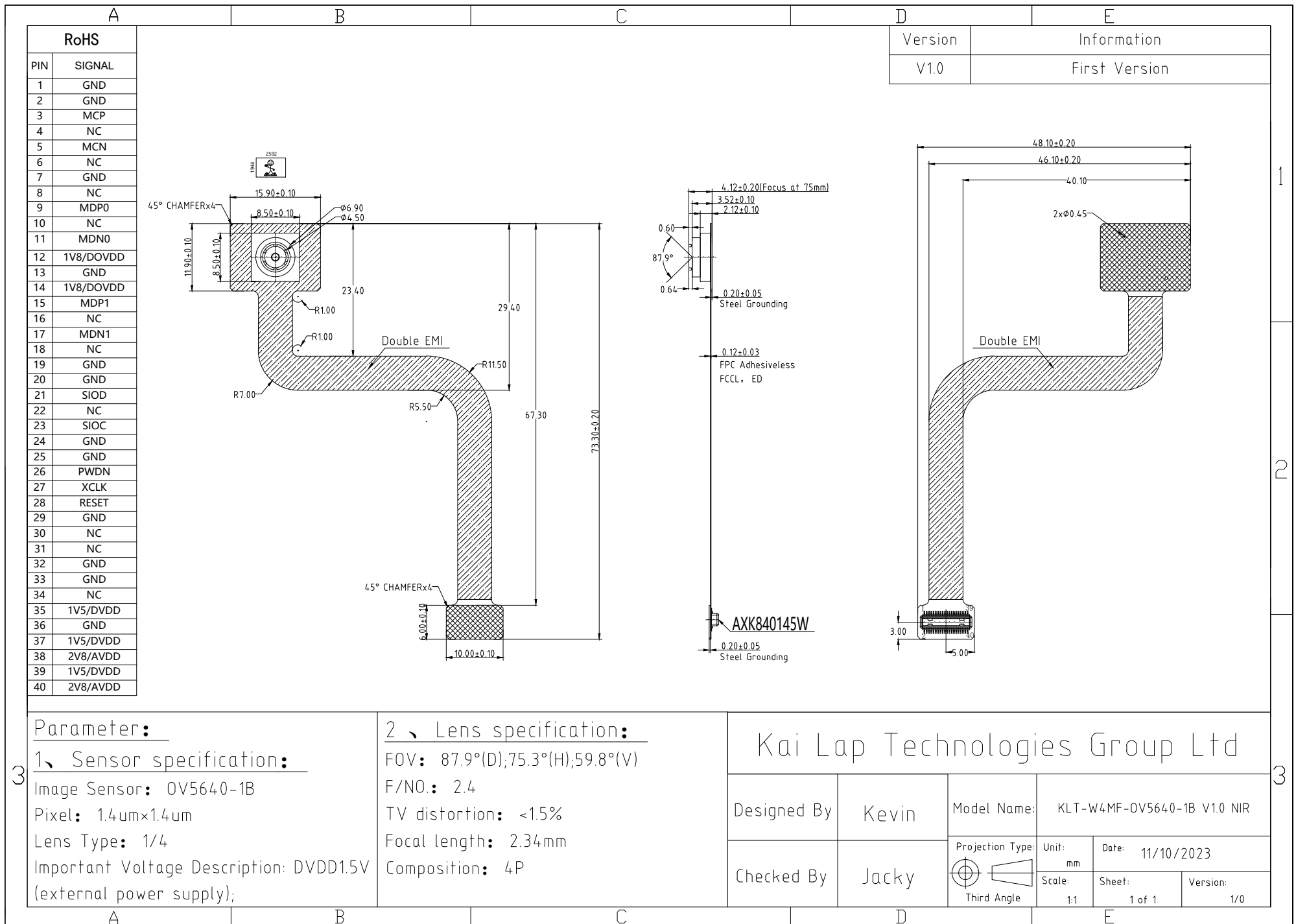
The patches represent the colors you would find in nature, such as sky blue, skin tones and leaf green. Since th_ color of their real world counterparts and reflect light consistently throughout the visible spectrum, the patches colors of natural objects under any lighting condition, and with any color reproduction process. Each square is i_ using a solid tone to produce pure, flat, rich color without dots or mixed tints.

ColorChecker Classic is an essential tool for establishing a color foundation right from capture to get consistent repeatable results from image to image and camera to camera. Quickly and easily create custom camera profil_ Raw workflow when combined with ColorChecker camera profiling software.*

The ColorChecker Classic can be used for a variety of applications, including:

- ■ Digital Photography: Visual color reference, create camera profiles, correct white balance and perform
- ■ Film Photography: Check films, lights, filters and paper
- ■ Graphic Arts: Check any printing or proofing process
- ■ Cinematography: Check cameras, lights and film

Version	Information
V1.0	First Version

RoHS

PIN	SIGNAL
1	GND
2	GND
3	MCP
4	NC
5	MCN
6	NC
7	GND
8	NC
9	MDP0
10	NC
11	MDN0
12	1V8/DOVDD
13	GND
14	1V8/DOVDD
15	MDP1
16	NC
17	MDN1
18	NC
19	GND
20	GND
21	SIOD
22	NC
23	SIOC
24	GND
25	GND
26	PWDN
27	XCLK
28	RESET
29	GND
30	NC
31	NC
32	GND
33	GND
34	NC
35	1V5/DVDD
36	GND
37	1V5/DVDD
38	2V8/AVDD
39	1V5/DVDD
40	2V8/AVDD

45° CHAMFERx4
2592
1944
15.90±0.10
8.50±0.10
Ø6.90
Ø4.50
11.90±0.10
8.50±0.10
R1.00
R1.00
Double EMI
23.40
29.40
R11.50
R7.00
R5.50
67.30
73.30±0.20
45° CHAMFERx4
6.00±0.10
10.00±0.10

4.12±0.20(Focus at 75mm)
3.52±0.10
2.12±0.10
0.60
87.9°
0.64
0.20±0.05
Steel Grounding
0.12±0.03
FPC Adhesiveless
FCCL, ED
AXK840145W
0.20±0.05
Steel Grounding

48.10±0.20
46.10±0.20
40.10
2xØ0.45
Double EMI
3.00
5.00

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: 87.9°(D);75.3°(H);59.8°(V)
F/NO.: 2.4
TV distortion: <1.5%
Focal length: 2.34mm
Composition: 4P

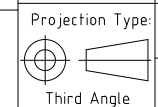**Kai Lap Technologies Group Ltd**

Designed By	Kevin	Model Name:	KLT-W4MF-OV5640-1B V1.0 NIR
Checked By	Jacky	Projection Type: Third Angle	Unit: mm	Date: 11/10/2023

| Scale: 1:1 | Sheet: 1 of 1 | Version: 1/0 |
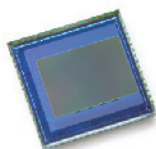
OV5640 5-megapixel product brief

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.

i

applications

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

ordering information

- **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
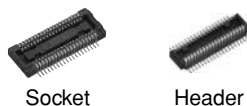- **package dimensions:** 5985 µm x 5835 µm

01.27.2021   PRODUCT SPECIFICATION   proprietary to OmniVision Technologies

Panasonic
ideas for life

NARROW-PITCH CONNECTORS FOR BOARD-TO-BOARD AND BOARD-TO-FPC CONNECTION

NARROW PITCH (0.4mm) CONNECTORS P4 SERIES

TOUGH CONTACT

• Without retention fitting

Socket   Header

• With retention fitting
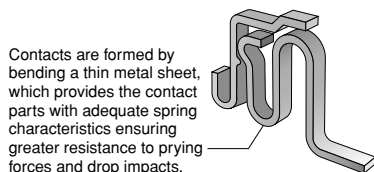
Socket   Header

FEATURES

1. 0.4 mm pitch and support for mated heights of up to 1.5 mm, 2.0 mm, 2.5 mm, 3.0 mm, 3.5 mm, and 4.0 mm.
2. Strong resistance to adverse environments! Utilizes *TOUGH CONTACT* construction for high contact reliability.
1) Contacts are highly resistant to shock caused by dropping and employ our original bellows contact construction.

Contacts are formed by bending a thin metal sheet, which provides the contact parts with adequate spring characteristics ensuring greater resistance to prying forces and drop impacts.

2) V notch construction used for excellent resistance against foreign matters.

● **What is V notch construction?**
By using the edge for the contacting part and increasing contact pressure per unit area, the effectiveness in removing flux and contaminants is increased compared to its predecessor. This is also effective in preventing the trapping of contaminants.
**[Cross section of contacting part]**

Without notch   **With V notch**
Socket side contact cross section
Header side contact cross section
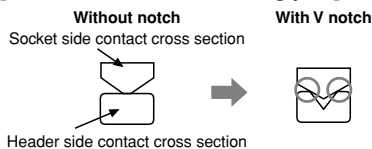
3) Use of Ni barrier construction is standard. Highly effective against solder creeping.

● **What is Ni barrier construction?**
By providing an exposed nickel part on the gold (Au) plated contact, solder creeping is prevented despite the ultra low profile.
[Contact]

Header side contact
Ni barrier
Cu Ni Au
Exposed Ni part
Socket side contact
Cross section of socket side contact
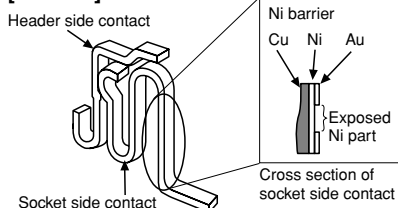
Note: Construction makes solder creeping difficult because header side is formed at the same time.

4) Porosity treatment applied for improved resistance against corrosion.

What is porosity treatment?
This treatment consists of coating the surface with a very thin film to seal pinholes in the gold plating. This porosity treatment technology ensures the same contact reliability for thin gold plating as that of thick gold plating.

Porosity treatment film
Au plating   Pinholes   Surrounding gas
Ni plating
Base material
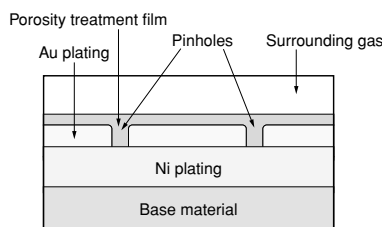
● Improvement in insertion/removal durability
● Improvement in resistance to corrosion
● Improvement in contact reliability for digital signals

3. It is constructed with impact dispersion keys inside the body to disperse shocks when dropped.

Impact dispersion key
Socket
Header
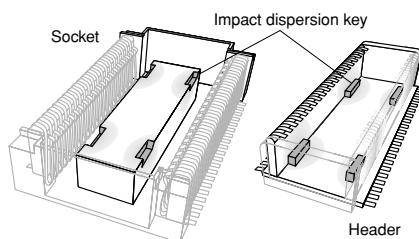
A high level of shock resistance is ensured by dispersing impact over the four locations where the socket indentations and header protrusions are mated together.

Note: The following numbers of contacts are not supported due to suction surface factors.

• Without retention fitting: 18 contacts or less
• With retention fitting: 22 contacts or less
4. Construction makes designing devices easier.
1) The lower connector bottom surface construction prevents contact and shorts between the PCB and metal terminals. This enables freedom in pattern wiring, helping to make PCB's smaller.

<Socket>   <Header>
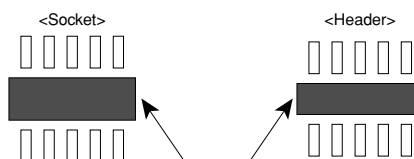
Connector bottom: Create any thru-hole and pattern wiring.

2) Guides are provided to take up any position shift and facilitate insertion.

Insertion guide
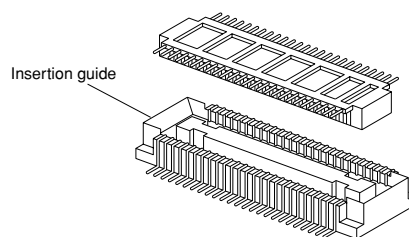
3) The connector has a simple lock mechanism.
Superior mated operation with click feel to indicate that mated is complete.

Header side contact
Simple lock mechanism
Socket side contact
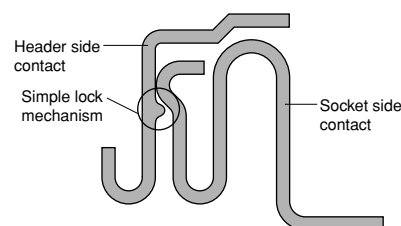
5. Design makes efficient mounting.
Features a terminal flatness of 0.08 mm, construction resistant to creeping flux, and design that facilitates visual inspection of the soldered part.
6. Compliance with RoHS Directive
Environmentally friendly, the connectors comply with Europe's RoHS Directive. Cadmium, lead, mercury, hexavalent chromium, PBB and PBDE are not used.
7. 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"

Ideal for Board-to-FPC connections

Before mating	FPC Reinforcing plate
	Narrow-pitch connectors P4
	PCB
After mating	1.5mm

The simple lock mechanism ensures that the connector clicks into position when it is inserted for reliable single-action insertion on the PCB.

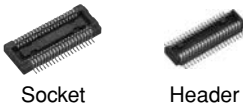This enables the number of pins to be doubled while the size remains the same as that for existing FPC connectors. This, in turn, contributes to making products and equipment more compact.

TABLE OF PRODUCT TYPES

P4 (0.4 mm pitch): Without retention fitting

Socket   Header

☆: Available for sale

Mated height / Number of contacts	1.5mm	2.0mm	2.5mm	3.0mm	3.5mm	4.0mm
14	☆	☆	☆			
16	☆					
20	☆	☆	☆			
22	☆					
24	☆	☆	☆			
26	☆	☆				
28	☆					
30	☆	☆	☆			
34	☆	☆				
36	☆					
40	☆	☆	☆			
44	☆		☆			
50	☆	☆	☆			
54	☆					
60	☆		☆			
64	☆					
70	☆	☆	☆			
80	☆	☆				
90	☆		☆			
100	☆	☆	☆			

P4 (0.4 mm pitch): With retention fitting

Socket   Header

☆: Available for sale

Mated height / Number of contacts	1.5mm	2.0mm	2.5mm	3.0mm	3.5mm	4.0mm
10	☆					
12	☆					
20			☆	☆	☆	
22	☆					
24		☆				
28	☆					
30	☆					
32			☆			
34	☆					☆
40	☆		☆	☆		
44	☆					
46	☆					
50	☆		☆	☆	☆	☆
60	☆		☆	☆	☆	
80	☆	☆	☆	☆	☆	☆
90	☆		☆	☆		
100	☆					

Note: Please contact us regarding numbers of contacts other than those given above.

AXK7, 8

ORDERING INFORMATION

AXK ☐ ☐☐ ☐ ☐ ☐ ☐ ☐

7: Narrow Pitch Connector P4 (0.4 mm pitch) Socket
8: Narrow Pitch Connector P4 (0.4 mm pitch) Header

Number of contacts (2 digits)

Mated height
<Socket>
1: For mated height 1.5 mm
2: For mated height 2.0 mm
3: For mated height 2.5 mm and 3.0 mm
4: For mated height 3.5 mm
5: For mated height 4.0 mm
<Header>
1: For mated height 1.5 mm, 2.0 mm and 2.5 mm
2: For mated height 3.0 mm, 3.5 mm and 4.0 mm

Functions
1: With retention fitting, with positioning bosses
2: With retention fitting, without positioning bosses
3: Without retention fitting, with positioning bosses
4: Without retention fitting, without positioning bosses

Surface treatment (Contact portion / Terminal portion)
<Socket>
5: Ni plating on base, Au plating on surface
7: Ni plating on base, Au plating on surface (for Ni barrier product available)
<Header>
5: Ni plating on base, Au plating on surface

Other specifications
<Header>
Y: V notch type product
W: V notch and post edge horseshoe bend type product   Note*

Packing
G: 3,000 pieces embossed tape and plastic reel × 2*

∗ Only a socket of mated height 3.5 mm and 4.0 mm: 2,000 pieces embossed tape and plastic reel × 2.

Note:
The post edge horseshoe bend indicated by the "W" in the tenth digit of the header part number refers to a construction that makes it difficult for the header post edge to deform when the connector is inserted and removed at an angle.

PRODUCT TYPES

1. Without retention fitting ⬗ *TOUGH CONTACT*

Mated height	Number of contacts	Part number			Packing	
		Socket	Header			
		TOUGH CONTACT	*TOUGH CONTACT*	*TOUGH CONTACT* and Post edge horseshoe bend type (Recommendation)	Inner carton	Outer carton
1.5 mm	14	AXK714147G	AXK814145YG	AXK814145WG	3,000 pieces	6,000 pieces
	16	AXK716147G	AXK816145YG	AXK816145WG		
	20	AXK720147G	AXK820145YG	AXK820145WG		
	22	AXK722147G	AXK822145YG	AXK822145WG		
	24	AXK724147G	AXK824145YG	AXK824145WG		
	26	AXK726147G	AXK826145YG	AXK826145WG		
	28	AXK728147G	AXK828145YG	AXK828145WG		
	30	AXK730147G	AXK830145YG	AXK830145WG		
	34	AXK734147G	AXK834145YG	AXK834145WG		
	36	AXK736147G	AXK836145YG	AXK836145WG		
	40	AXK740147G	AXK840145YG	AXK840145WG		
	44	AXK744147G	AXK844145YG	AXK844145WG		
	50	AXK750147G	AXK850145YG	AXK850145WG		
	54	AXK754147G	AXK854145YG	AXK854145WG		
	60	AXK760147G	AXK860145YG	AXK860145WG		
	64	AXK764147G	AXK864145YG	AXK864145WG		
	70	AXK770147G	AXK870145YG	AXK870145WG		
	80	AXK780147G	AXK880145YG	AXK880145WG		
	90	AXK790147G	AXK890145YG	AXK890145WG		
	100	AXK700147G	AXK800145YG	AXK800145WG		
2.0 mm	14	AXK714247G	AXK814145YG	AXK814145WG	3,000 pieces	6,000 pieces
	20	AXK720247G	AXK820145YG	AXK820145WG		
	24	AXK724247G	AXK824145YG	AXK824145WG		
	26	AXK726247G	AXK826145YG	AXK826145WG		
	30	AXK730247G	AXK830145YG	AXK830145WG		
	34	AXK734247G	AXK834145YG	AXK834145WG		
	40	AXK740247G	AXK840145YG	AXK840145WG		
	50	AXK750247G	AXK850145YG	AXK850145WG		
	70	AXK770247G	AXK870145YG	AXK870145WG		
	80	AXK780247G	AXK880145YG	AXK880145WG		
	100	AXK700247G	AXK800145YG	AXK800145WG		
2.5 mm	14	AXK714347G	AXK814145YG	AXK814145WG	3,000 pieces	6,000 pieces
	20	AXK720347G	AXK820145YG	AXK820145WG		
	24	AXK724347G	AXK824145YG	AXK824145WG		
	30	AXK730347G	AXK830145YG	AXK830145WG		
	40	AXK740347G	AXK840145YG	AXK840145WG		
	44	AXK744347G	AXK844145YG	AXK844145WG		
	50	AXK750347G	AXK850145YG	AXK850145WG		
	60	AXK760347G	AXK860145YG	AXK860145WG		
	70	AXK770347G	AXK870145YG	AXK870145WG		
	90	AXK790347G	AXK890145YG	AXK890145WG		
	100	AXK700347G	AXK800145YG	AXK800145WG		

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 consult us. (See "Regarding sample orders to confirm proper mounting" on page 13.)
Samples: Small lot orders are possible.
2. The standard type comes without positioning bosses. Connectors with positioning bosses are available on-demand production. For this type of connector, 8th digit of the part number changes from 4 to 3. e.g. Mated height 1.5 mm and 20 contacts for socket without retention fitting: AXK720137G
3. The 10th digit "Y" in the header part number indicates the connector has V notch. (For details, please refer to page 36.)
"W" indicates a product with V notch and post edge horseshoe bend. ("Post edge horseshoe bend" refers to a construction that makes it difficult for the header post edge to deform when the connector is inserted and removed at an angle.)
"Products with V notch" and "products with V notch and post edge horseshoe bend" are mating compatible.
4. Connectors of different mated height (3.0 mm, 3.5 mm and 4.0 mm) and different number of contacts are available on-demand production only. Please contact us for more details.

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.	Detection current: 1mA
	Insulation resistance	Min. 1,000MΩ (initial)	Using 250V DC megger (applied for 1 min.)
	Contact resistance	Max. 70mΩ	Measured based on the HP4338B measurement method of JIS C 5402
Mechanical characteristics	Composite insertion force	Max. 0.981N {100gf}/contacts × contacts (initial)	
	Composite removal force	Min. 0.0588N {6gf}/contacts × contacts (Mated height 1.5 mm, without removal and retention fitting) Min. 0.118N {12gf}/contacts × contacts (Mated height 1.5 mm, except without removal and retention fitting)	
	Post holding force	Min. 0.981N {100gf}/contacts	Measures the maximum load in the post axial direction until removal
Environmental characteristics	Ambient temperature	−55°C to +85°C	No freezing at low temperatures
	Soldering heat resistance	Max. peak temperature of 245°C	Infrared reflow soldering
		300°C within 5 sec. 350°C within 3 sec.	Soldering iron
	Thermal shock resistance (header and socket mated)	5 cycles, insulation resistance min. 100MΩ, contact resistance max. 70mΩ	Sequence 1. -55_{-3}^{0}°C, 30 minutes 2. ~, Max. 5 minutes 3. 85_{0}^{+3}°C, 30 minutes 4. ~, Max. 5 minutes
	Humidity resistance (header and socket mated)	120 hours, insulation resistance min. 100MΩ, contact resistance max. 70mΩ	Bath 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. 70mΩ	Bath temperature 35±2°C, saltwater concentration 5±1%
	H_2S resistance (header and socket mated)	48 hours, contact resistance max. 70mΩ	Bath 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		Mated height 1.5mm, 20 contacts; Socket: 0.04g Header: 0.02g	

2. Material and surface treatment

Part name	Material	Surface treatment
Molded portion	Heat-resistant resin (UL94V-0), Black	—
Contact and 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 thick of terminal) However, upper terminal of Ni barrier production: Exposed over Ni The area adjacent to the terminal of the sockets on models with Ni barrier is exposed to Ni on base.
Retention fitting portion	Copper alloy	Ni plating on base, Sn plating on surface (Except for front terminal)

AXK7, 8

DIMENSIONS (mm)

1. Without Retention Fitting

Socket (Mated height: 1.5 mm, 2.0 mm, and 2.5 mm)

Max. 18 contacts
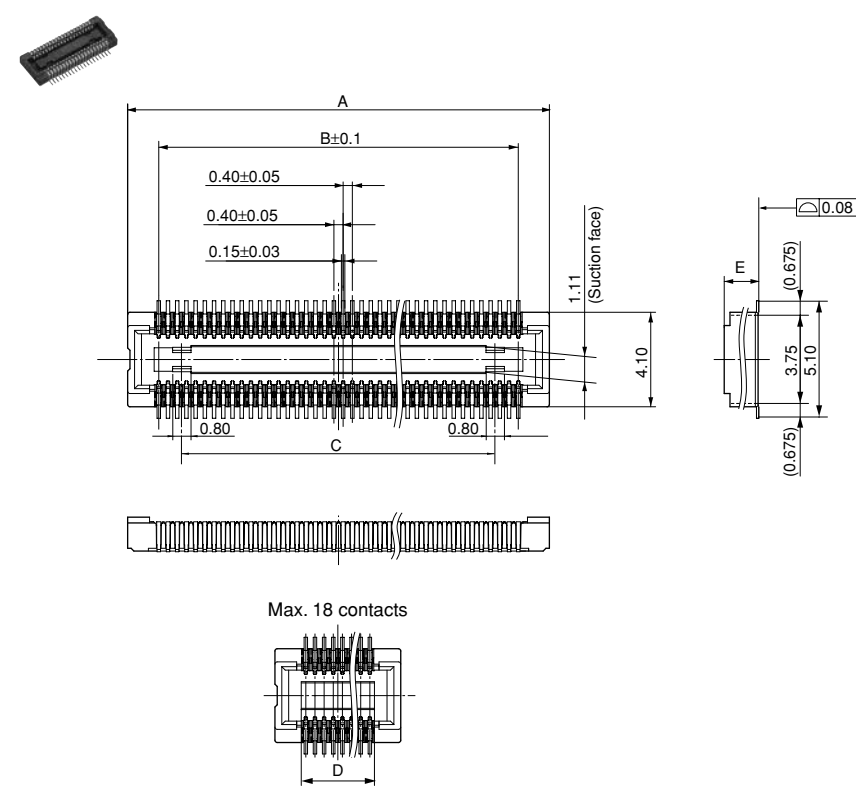
General tolerance: ±0.2

Dimension table (mm)

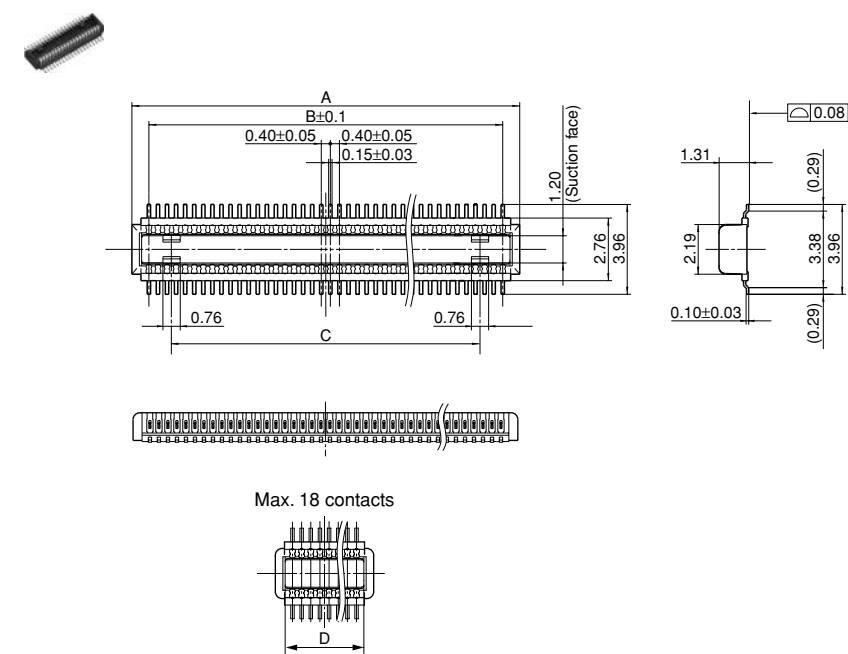| Number of contacts/dimension	A	B	C	D
14	5.1	2.4	—	2.8
16	5.5	2.8	—	3.2
20	6.3	3.6	1.6	—
22	6.7	4.0	2.0	—
24	7.1	4.4	2.4	—
26	7.5	4.8	2.8	—
28	7.9	5.2	3.2	—
30	8.3	5.6	3.6	—
34	9.1	6.4	4.4	—
36	9.5	6.8	4.8	—
40	10.3	7.6	5.6	—
44	11.1	8.4	6.4	—
50	12.3	9.6	7.6	—
54	13.1	10.4	8.4	—
60	14.3	11.6	9.6	—
64	15.1	12.4	10.4	—
70	16.3	13.6	11.6	—
80	18.3	15.6	13.6	—
90	20.3	17.6	15.6	—
100	22.3	19.6	17.6	—

Mated height/dimension	E
1.5mm	1.50
2.0mm	1.92
2.5mm	2.42

Header (Mated height: 1.5 mm, 2.0 mm, and 2.5 mm "products with V notch")

Max. 18 contacts

General tolerance: ±0.2

Dimension table (mm)

Number of contacts/dimension	A	B	C	D
14	3.9	2.4	—	3.04
16	4.3	2.8	—	3.44
20	5.1	3.6	1.6	—
22	5.5	4.0	2.0	—
24	5.9	4.4	2.4	—
26	6.3	4.8	2.8	—
28	6.7	5.2	3.2	—
30	7.1	5.6	3.6	—
34	7.9	6.4	4.4	—
36	8.3	6.8	4.8	—
40	9.1	7.6	5.6	—
44	9.9	8.4	6.4	—
50	11.1	9.6	7.6	—
54	11.9	10.4	8.4	—
60	13.1	11.6	9.6	—
64	13.9	12.4	10.4	—
70	15.1	13.6	11.6	—
80	17.1	15.6	13.6	—
90	19.1	17.6	15.6	—
100	21.1	19.6	17.6	—

Note: "Products with V notch" and "products with V notch and post edge horseshoe bend" are mating compatible.

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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KLT

Cameras Applications

IMAGING DEVICES

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

Night vision camera
Pedestrian / animal detection

Short-range radar
Front & rear parking

LIDAR
3D mapping of surroundings

Dead reckoning sensors
Odometry

Ultrasound
Parking, SR pedestrian & obstacle detection

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
	Storage Temperature — Low -20°C 96 Hours	Temperature Chamber	No Abnormal Situation
	Operation Temperature — High 60°C 24 Hours	Temperature Chamber	No Abnormal Situation
	Operation Temperature — 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
	Drop Test (Free Falling) — With Package 60cm	10 Times on Wood Floor	Electrically Functional
	Vibration Test — 50Hz X-Axis 2mm 30min	Vibration Table	Electrically Functional
	Vibration Test — 50Hz Y-Axis 2mm 30min	Vibration Table	Electrically Functional
	Vibration Test — 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
	ESD Test — 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

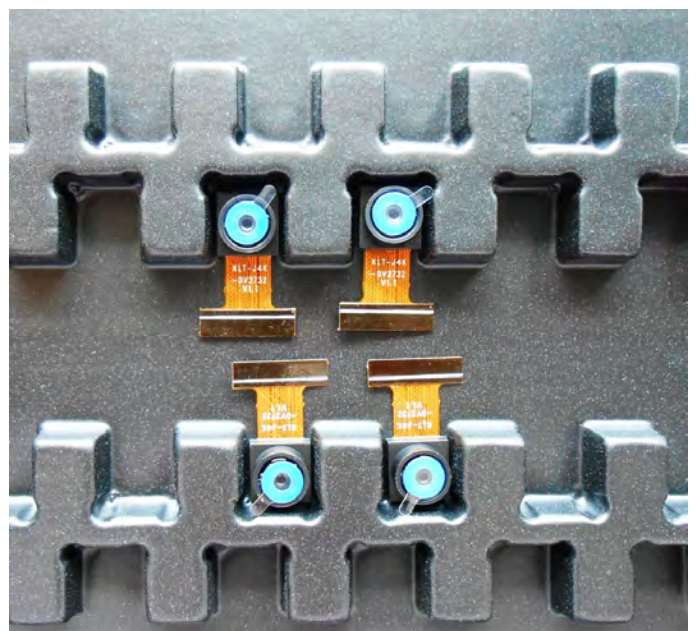## KLT Package Solutions

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

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

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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

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

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

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

Shipping Date
10 August 2017

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PERSONNEL

FH12-24S-0.5SH
Mating Connector for
KLT-J4K-OV2732 V1.0
www.KaiLapTech.com

10
PIECES

CAUTION
STATIC SENSITIVE
DEVICES
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PERSONNEL

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.

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KLT Strength

Powerful Factory

Professional Service

Promised Delivery