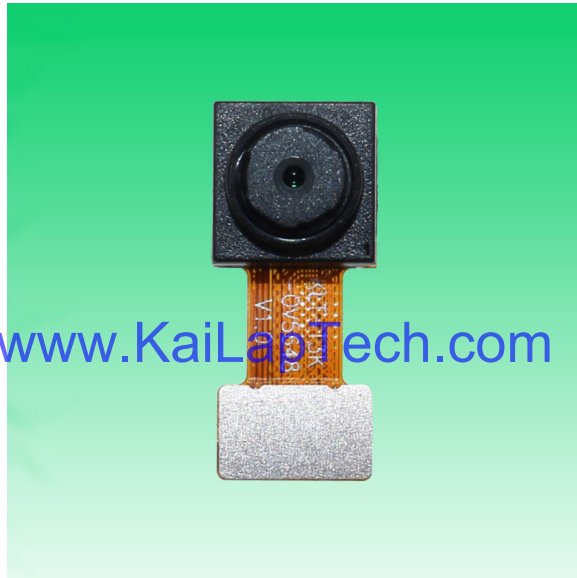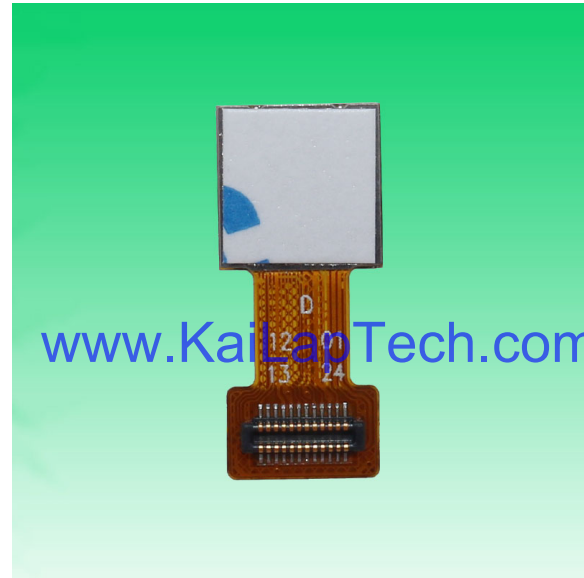## KLT-T3K-OV5648 V1.1
5MP OmniVision OV5648 MIPI Interface Fixed Focus Camera Module

Front View

Back View

Specifications

Camera Module No.	KLT-T3K-OV5648 V1.1
Resolution	5MP
Image Sensor	OV5648
Sensor Type	1/4"
Pixel Size	1.4 um x 1.4 um
EFL	3.20 mm
F.NO	2.80
Pixel	2592 x 1944
View Angle	70.0°(DFOV) 58.6°(HFOV) 45.3°(VFOV)
Lens Dimensions	8.50 x 8.50 x 5.15 mm
Module Size	19.57 x 8.50 mm
Module Type	Fixed Focus
Interface	MIPI
Auto Focus VCM Driver IC	None
Lens Model	KLT-LENS-M5182
Lens Type	650nm IR Cut
Operating Temperature	-30°C to +70°C
Mating Connector	BBR43-24KB533

KLT-T3K-OV5648 V1.1
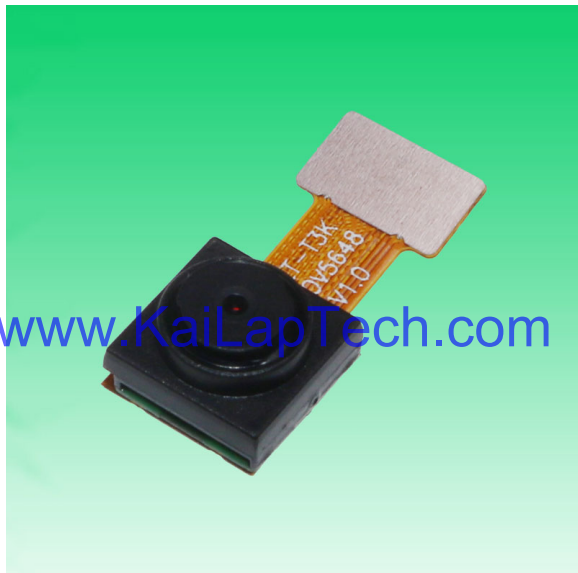### 5MP OmniVision OV5648 MIPI Interface Fixed Focus Camera Module

Top View

Side View

Bottom View

Mating Connector

ROHS

PIN NO	NAME
1	MCLK
2	PWDN
3	GND
4	DATAN0
5	DATAP0
6	CLKN
7	CLKP
8	GND
9	IOVDD(1.8V)
10	AVDD(2.8V)
11	GND
12	RESET
13	SCL
14	SDA
15	GND
16	DATAN1
17	DATAP1
18	AGND
19	NC
20	NC
21	NC
22	DVDD(1.5V)
23	NC
24	NC

感光芯片(Chip Type)	OV5648
像素(Array Size)	2592*1944
镜头类型(Lens Size)	1/4 inch
畸变(Distortion)	< 1%
视场角(View Angle)	70°
光圈(F.NO)	2.8
焦距(EFL)	3.2

TOP VIEW

SIDEVIEW

BOTTOM VIEW

19.57±0.20
8.50±0.10
5.00±0.10
8.00±0.10
8.50±0.10
φ7.00
Lable
54
2592
1944

8.00
8.00
0.10
双面背胶T=0.1 (3M胶)

Steel Grounding
FPC Adhesiveless
FCCL，ED
Steel Grounding
0.12±0.03
0.20±0.05
0.20±0.05
5.15±0.20
4.92±0.20
4.32±0.10
2.87±0.10
0.86
70°

注展：BBR13-24K6417
5.00
12 13 24 01

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Kai Lap Technologies Group Ltd

REV.	1/0		
Zone	All		First Release
			Description
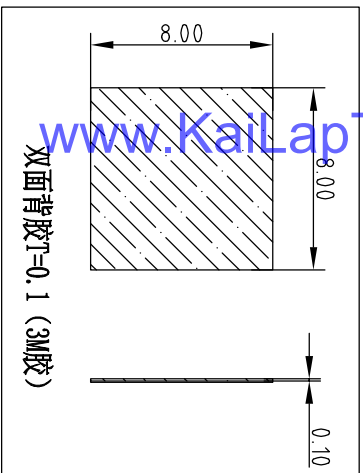
Designed By: Kevin 10-23-2019
Checked By: Feng Liu 10-23-2019
Approved By: Aouly_Yan 10-23-2019

Client Name:
Model Name: KLT-T3K-OV5648 V1.1
Projection Type: Third Angle
Unit: mm
Scale: 1:1
Material: ----------
Sheet: 1 of 1
Version: 1/0

kevin   Approved
Date   2017-10-25

产品变更   详细变更事项
(1)
(2)
(3)

产品变更
(1)
(2)
(3)

Lens Model: KLT-LENS-M5182

SPECIFICATION

NO		SPECIFICATION	
1. SENSOR SIZE		1/4" (5M COB)	
2. MAX IMAGE CIRCLE		Ø4.85mm	
3. TOTAL TRACK		4.0±0.1mm	
4. EFL		3.2mm	
5. OPTICAL BFL		1.32mm	
6. MECHANICAL BFL		0.96mm	
7. F/NO		2.8±5%	
8. VIEW OF FIELD	VERTICAL	45.3° (Y=1.36)	
	HORIZONTAL	58.6° (Y=1.81)	
	DIAGONAL	70.0° (Y=2.26)	
9. OPTICAL DISTORTION		<1.0%	
10. TV DISTORTION		<1.0%	
11. RELATIVE ILLUMINATION		≥42.2%	
12. CONSTRUCTION		4P	
13. CHIEF RAY ANGLE		<25°	
14. CUT FREQUENCY AT 50%	AXIS	330Lp/mm	
	0.7Y	200Lp/mm	
15. THREAD		M6.0X0.35P	
16. IMAGE QUALITY	CENTER	20/10	
	EDGE	40/20	
17. APPEARANCE QUALITY (Scratch/Dig)			

NO	MODIFY CONTENT	NAME	DATE
1	花瓣外径由5.5从/-0.05改为5.50(-0/-0.15)	tomin	2016-12-05
2			
3			
4			

ANGLE	DIM	
RANGE	X.X	±0.1
ANGLE	X.XX	±0.05
±0.5°	X.XXX	±0.010

UNIT: m m

MATERIAL:

SCALE 10 : 1

BORDER: A4

SURFACE FINISH

DRAWING BY: tomin   DATE: 2016-12-05

CHECKED BY

APPROVED BY

REV A-01

NOTE:
1. 镜头表面不可有油污、灰尘、毛丝等异物。
2. 镜头配VCM锁附高度为 4.2±0.1mm。
   扭力为20~120gf.cm.
3. 镜头承受推力为≥2.0kg。
4. 镜头组品质参数需符合图中要求。

73°(MAX)
70°(D)
Ø1.1 +0.00/-0.02
0.8(MAX)
0.86(D)
0.80
4.0±0.1
1.32
3.05±0.05
0.3
0.95
0.30
IMAGE PLANE
Ø5.50 +0.00/-0.05
M6.0X0.35P

3-75°
3-45°
Ø4.8
Ø4.70

0.10 TYP.

0.77
(0.92)

3.74 TYP

3.06

ALL OF PLACES

0.08

0.40 TYP.

DIM C
DIM B
DIM A

REV.	EC#	DESCRIPTION		DATE	DRAWN	CHECKED	APPROVED
A	TJECR10018-02	NEW RELEASE PER NPR10009		11/05/10	RAIN	SteveM eng	Jeff
B	TJECR13014	X1,AX1		05/13/13	RAIN		

ITEM		NAME		PART #		SERIES
1		HOUSING		1-BBR43-1XXX33		BBR
2		CONTACT		1-BBR43-100X30		

	NAME	DATE
DRAWN	RAIN	04/15/10
DESIGN	RAIN	04/15/10
CHECKED	RAIN	04/15/10
APPROVED	DICK.LEE	04/24/10
HARDWARE		04/24/10

TOLERANCES UNLESS OTHERWISE SPECIFIED
GENERAL X. ±0.38
.X ±0.25
.XX ±0.13
.XXX ±0.05
ANGLES
X° ±3.0°
.X° ±2.0°
.XX° ±1.0°

SCALE 20:1
SHEET 1 OF 2
UNIT mm

Q'TY XX
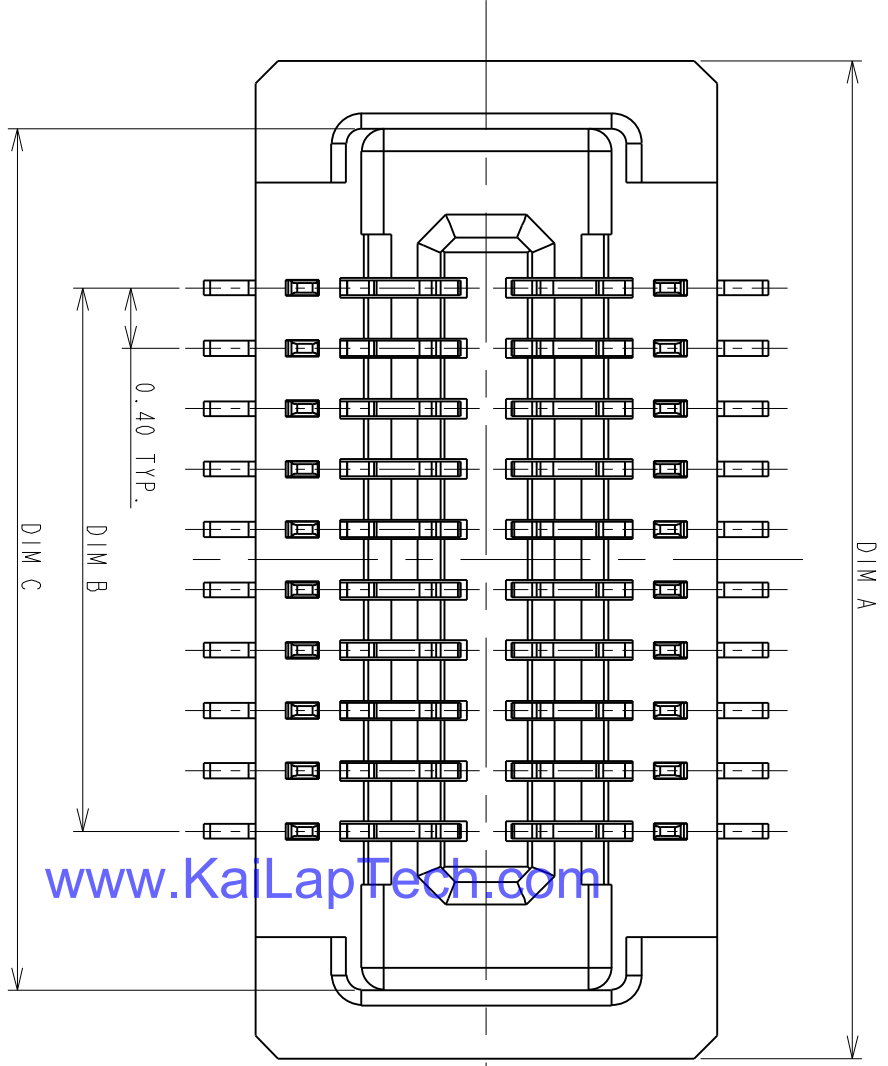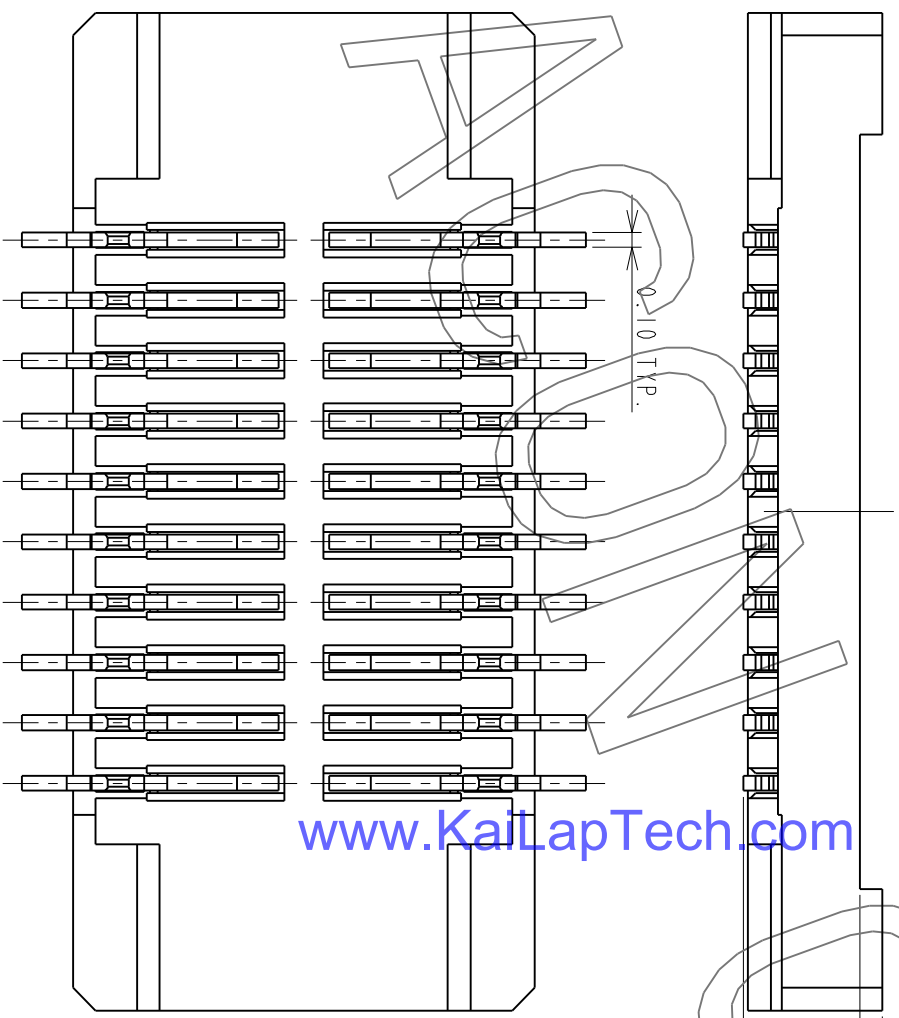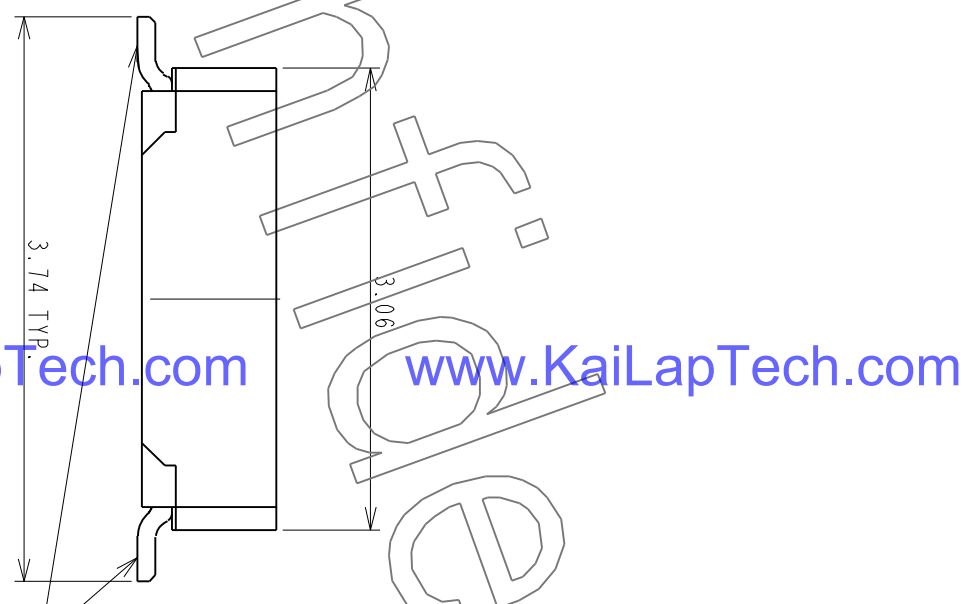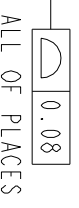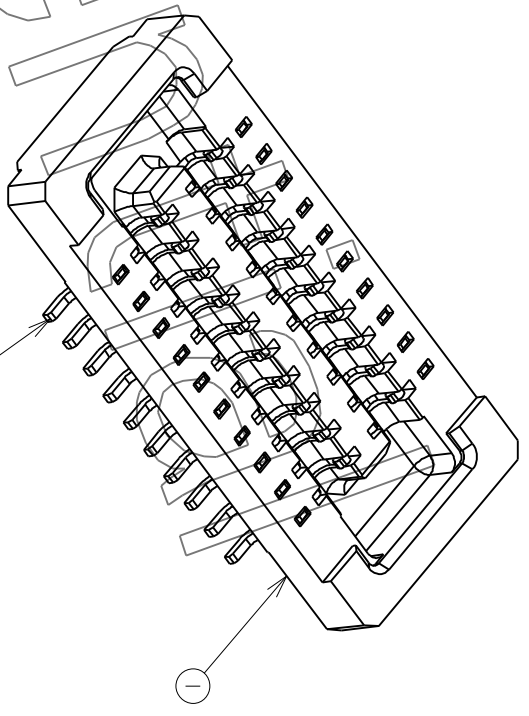
MATERIAL / FINISH
COPPER ALLOY/PLATING GOLD
HIGH TEMP RESIN/UL 94 V-0

TITLE
P0.4*H1.0mm BOARD TO BOARD
CONN RECEPTACLE
WITHOUT HOLD DOWN

DWG NO. C-BBR43-04-01

CUSTOMER DRAWING

ACON ADVANCED-CONNECTEK INC.

SIZE A3
REV. B
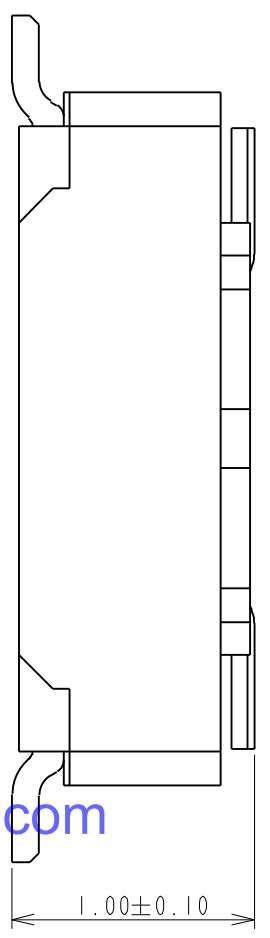
PRODUCT NUMBERING CODE:

BBR43 - XX K X 5 X X
   1   2 3 4 5 6 7

1.PRODUCTION CODE:
  BBR43:BOARD TO BOARD 0.4 PITCH RECEPTACLE

2.POSITIONS:
  XX: POSITIONS(SEE TABLE A)

3.INSULATOR COLOR:
  K: BLACK

4.CONTACT PLATING:
  1:GOLD 1u" MIN
  2:GOLD 5u" MIN
  3:GOLD 10u" MIN
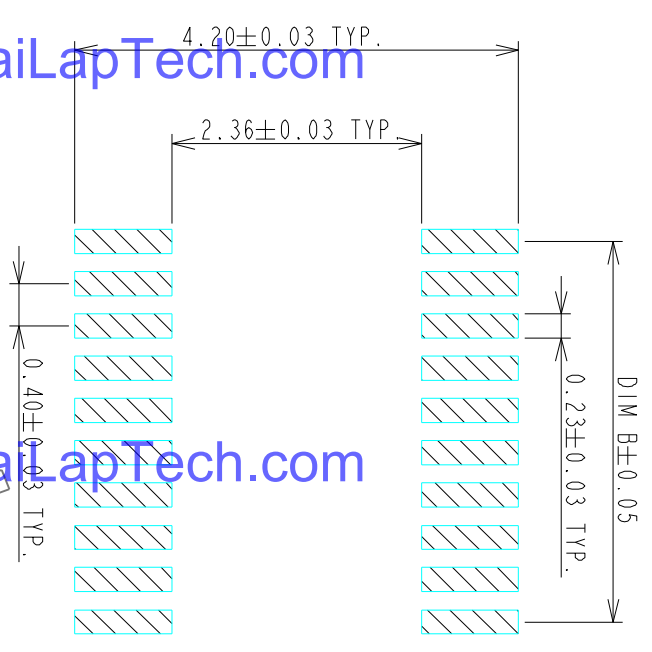 B:GOLD 4u" MIN FOR SPOT PLATING
  ALL OVER Ni 50-100u"

5.TYPE OF HEIGHT:
  5: H=0.77mm

6.TYPE OF HOLD DOWN:
  3: WITHOUT HOLD DOWN

7.OTHER
  2: WITH POST,FINISHED PRODUCTS
  3: WITHOUT POST,FINISHED PRODUCTS

NOTES:
1.0: RATING:
  1.1: VOLTAGE:60V AC/DC
  1.2: CURRENT:0.5 AMPS
  1.3: OPERATION TEMPERATURE:-40°C TO 85°C
2.0: ELECTRICAL CHARACTERISTIC:
  2.1: CONTACT RESISTANCE: 50 mΩ MAX INITIAL
  2.2: INSULATION RESISTANCE: 1000 MΩ MIN INITIAL
  2.3: DIELECTRIC WITHSTANDING VOLTAGE:250V AC FOR ONE MINUTE
3.0 TOLERANCES UNLESS OTHERWISE SPECIFIED
  GENERAL:
    DIMENSION >10.00   ±0.13
    DIMENSION 5.00~10.00   ±0.10
    DIMENSION <5.00   ±0.05

⚠ 4.0 ALL COPLANARITY IS 0.08mm MAX.BEFORE REFLOW
ALL COPLANARITY IS 0.10mm MAX.AFTER REFLOW

RECOMMENDED P.C.BOARD PATTERN DIMENSION (WITHOUT HOLD DOWN)

4.20±0.03 TYP.
2.36±0.03 TYP
0.40±0.03 TYP.
0.23±0.03 TYP.
DIM B±0.05

1.00±0.10

TABLE A:

POSITIONS	DIM A	DIM B	DIM C
10	4.61	1.60	3.71
14	5.41	2.40	4.51
16	5.81	2.80	4.91
20	6.21	3.20	5.31
22	6.61	3.60	5.71
24	7.01	4.00	6.11
26	7.41	4.40	6.51
30	7.81	4.80	6.91
32	8.61	5.60	7.71
34	9.01	6.00	8.11
40	9.41	6.40	8.51
44	10.61	7.60	9.71
48	11.41	8.4	10.51
50	12.21	9.20	11.31
54	12.61	9.60	11.71
60	13.41	10.40	12.51
70	14.61	11.60	13.71
80	16.61	13.60	15.71
	18.61	15.60	17.71

OV5648 5-megapixel product brief

Cost-Efficient 5-Megapixel Camera Solution for Mainstream Mobile Devices

lead free

available in a lead-free package

The OV5648 is a cost-efficient, high-performance 5-megapixel CameraChip™ sensor for smartphones and tablets. Utilizing OmniVision's latest 1.4-micron OmniBSI+™ pixel architecture, the OV5648 combines a reduced die size with improved quality photography and high-definition (HD) video, making it ideally suited for mainstream mobile applications.

OmniVision's powerful new OmniBSI+ pixel architecture offers significant performance improvements over our original OmniBSI™ architecture, including a 60 percent increase in full-well capacity and a significant improvement in low-light sensitivity. With OmniBSI+, the 1/4-inch OV5648 is capable of capturing high quality still images as well as 720p HD video at 60 frames per second (fps) and 1080p HD video at 30 fps.

The sensor supports a two-lane MIPI interface, and provides full-frame, windowed or binned 10-bit images in RAW RGB format with complete user control over

formatting and output transfer. It offers defective pixel canceling and all required automatic image control functions, including automatic exposure control, automatic gain control, automatic white balance, and automatic black level calibration.

A secondary image sensor may be connected to the OV5648 enabling a Video-in-Video (ViV) feature in which the secondary image is overlaid to the OV5648 output video. The combined video is streamed out over the MIPI interface. A bypass mode allows a secondary sensor to utilize the OV5648 MIPI interfaced baseband.

The OV5648 can fit into a 6 x 6 mm fixed focus camera module with a z-height of less than 4.5 mm.

Find out more at www.ovt.com.

OmniVision

Applications

- Cellular and Picture Phones
- PC Multimedia
- Toys
- Digital Still Cameras

OV5648

Product Features

- 1.4 μm x 1.4 μm pixel with OmniBSI+™ technology for high performance (high sensitivity, low crosstalk, low noise)

- optical size of 1/4"

- automatic image control functions:
  - automatic exposure control (AEC)
  - automatic gain control (AGC)
  - automatic white balance (AWB)
  - 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

- defective pixel canceling

- support for output formats: 8-/10-bit raw RGB data

- support for video or snapshot operations

- support for LED and flash strobe mode

- support for internal and external frame synchronization for frame exposure mode

- support for horizontal and vertical sub-sampling

- standard serial SCCB interface

- MIPI interface (two lanes)

- Video-in-Video (ViV) and bypass support for secondary sensor

- 32 bytes of embedded one-time programmable (OTP) memory

- on-chip phase lock loop (PLL)

- embedded 1.5V regulator for core power

- programmable I/O drive capability, I/O tri-state configurability

- support for black sun cancellation
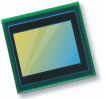
Product Specifications

- active array size: 2592 x 1944

- power supply:
  - core: 1.5V ±5% (with embedded 1.5V regulator)
  - analog: 2.6 - 3.0V (2.8V typical)
  - I/O: 1.7 - 3.0V

- power requirements:
  - active: 219 mW
  - standby: 36 μW

- temperature range:
  - operating: -30°C to 70°C junction temperature
  - stable image: 0°C to 50°C junction temperature

- output formats: 8-/10-bit RGB RAW output

- lens size: 1/4"

- lens chief ray angle: 29.1°

- input clock frequency: 6 - 27 MHz

- max S/N ratio: 36 dB

- dynamic range: 72 dB @ 8x gain

- maximum image transfer rate:
  - QSXGA (2592x1944): 15 fps
  - 1080p: 30 fps
  - 960p: 45 fps
  - 720p: 60 fps
  - VGA (640x480): 90 fps

- sensitivity: 690 mV/lux-sec

- shutter: rolling shutter

- pixel size: 1.4 μm x 1.4 μm

- dark current: 0.7 mV/s @ 50°C junction temperature

- image area: 3673.6 μm x 2738.4 μm

- package/die dimensions:
  - CSP3: 5010 μm x 4810 μm
  - COB: 5000 μm x 4800 μm

Functional Block Diagram
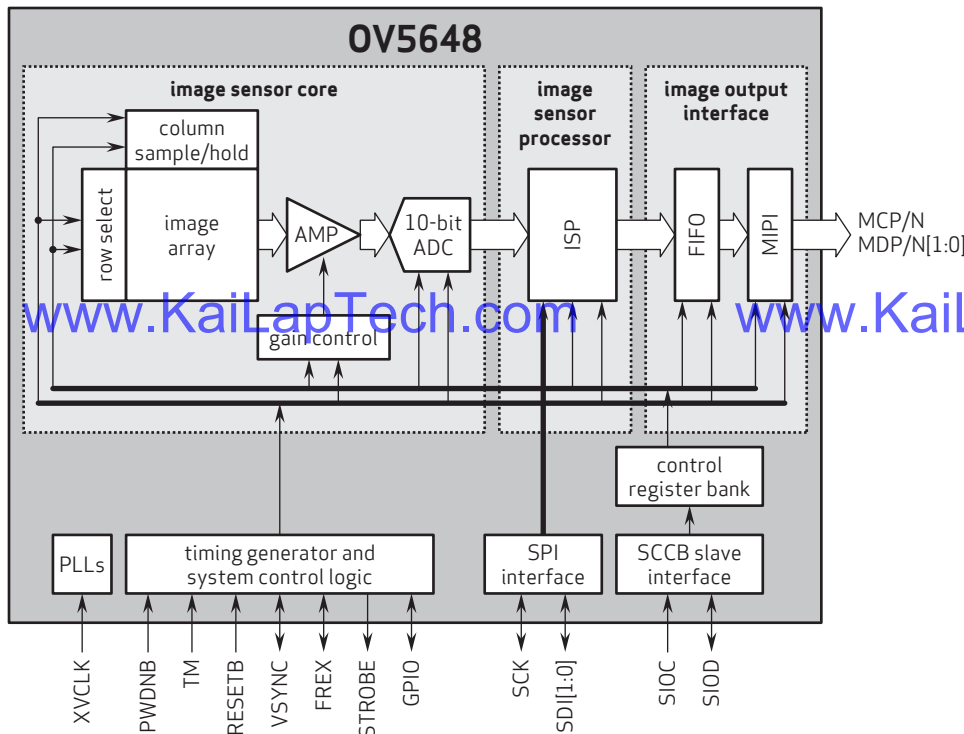
Version 1.3, March, 2014
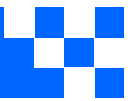
Camera Module Pinout Definition Reference Chart

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

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KLT

your BEST camera module partner

Cameras Applications

Long-range radar
Adaptive Cruise Control

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

IMAGING DEVICES

Short-range radar
Front & rear parking

Night vision camera
Pedestrian / animal detection

Dead reckoning sensors
Odometry

LIDAR
3D mapping of surroundings

Ultrasound
Parking, SR pedestrian & obstacle detection

Day

Night

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

KLT

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

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KLT Package Solutions

KLT Camera Module
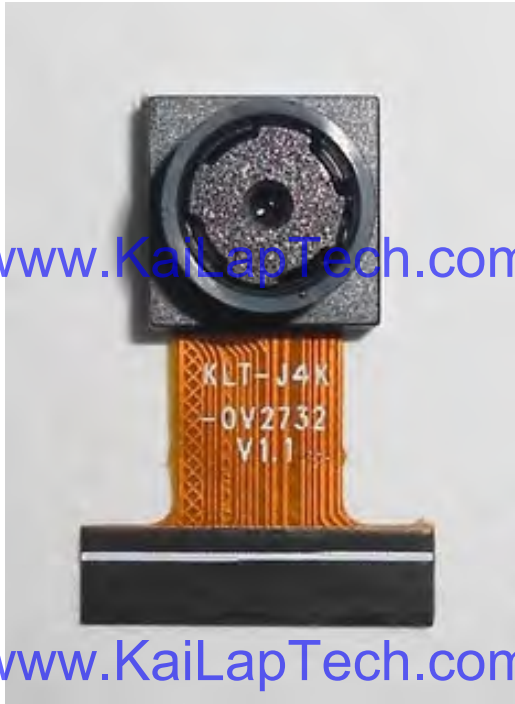
Complete with Lens Protection Film

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
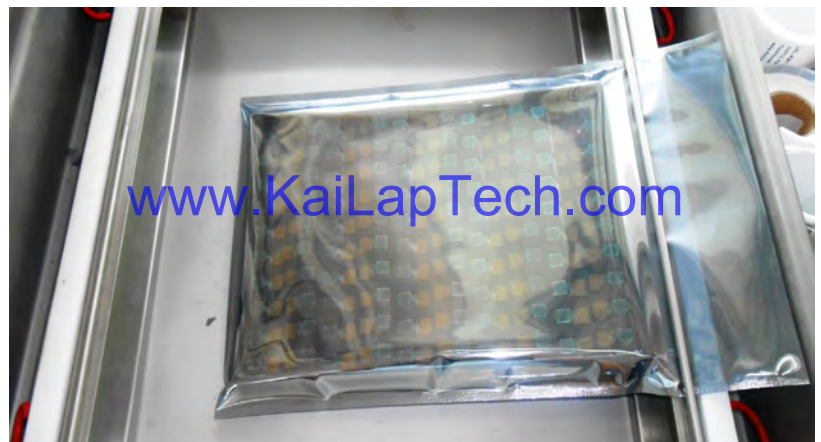
Camera Modules Package Solution

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

Large Order Package Solution

Place Foam Sheets Between Trays

Foam Sheets are Slightly Larger than Trays

www.KaiLapTech.com

www.KaiLapTech.com

Place Foam Sheets and Trays into Box

Foam Sheets are Tightly Fitting Box
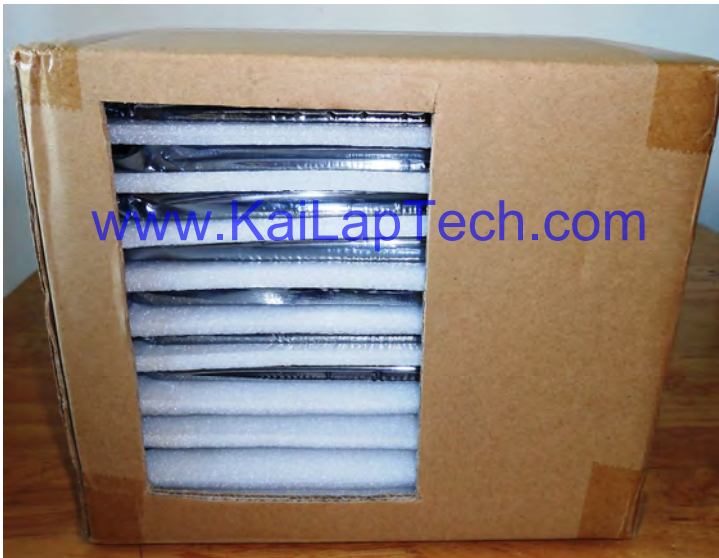
CMOS CAMERA MODULES

your BEST camera module partner

Small Order Package Solution

Place Foam Sheets and Trays into Small Box

www.KaiLapTech.com

www.KaiLapTech.com

Foam Sheets are Nicely Fitting the Small Box

www.KaiLapTech.com

www.KaiLapTech.com

Package in Small Box for Shipment

www.KaiLapTech.com

Place Small Boxes into Larger Box

www.KaiLapTech.com

100 PIECES

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

Please deliver to:
Kai Lap Technologies Group Ltd.
Kai Lap Technologies Group Ltd.
64-66A Sha Tsui Road, Tsuen Wan
HONG KONG
Attn: Sharon Chan
Phone: + 852 6908 1256
KLT Camera Modules
www.KaiLapTech.com

PKG:
1 of 1
10 August 2017
MADE IN CHINA
KLT Camera Modules
www.KaiLapTech.com

fragile
HANDLE WITH CARE

Sample Order Package Solution

Place Sample into Small Anti-Static Bag

Place Connectors into Small Ant-Static Bag

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Sample Labels on the Small Bag
1. Camera Module or Connector Model 2. Shipping Date and Quantity 3. Caution

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www.KaiLapTech.com

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

Shipping Date
10 August 2017

CAUTION
STATIC SENSITIVE
DEVICES
NOT TO BE HANDLED
BY UNAUTHORISED
PERSONNEL

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

10
PIECES

CAUTION
STATIC SENSITIVE
DEVICES
NOT TO BE HANDLED
BY UNAUTHORISED
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.

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

KLT Strength

Powerful Factory

Professional Service

Promised Delivery