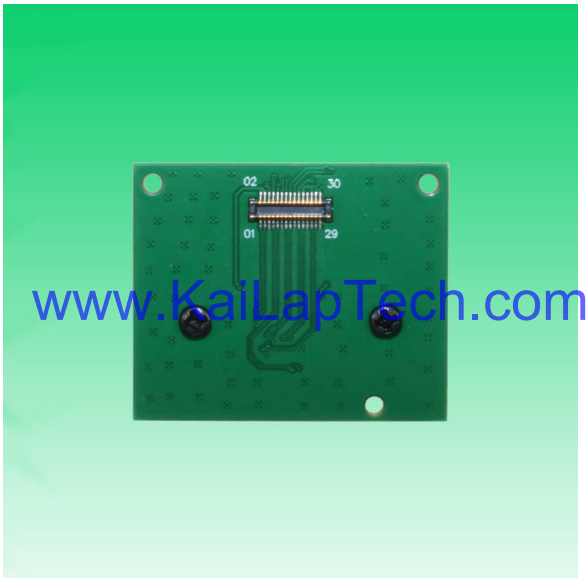
KLT-TSE-OV13850 V1.0

13MP OmniVision OV13850 MIPI Interface M12 Fixed Focus Camera Module

Front View



Back View

Specifications

Camera Module No.	KLT-TSE-OV13850 V1.0
Resolution	13MP
Image Sensor	OV13850
Sensor Type	1/3.06"
Pixel Size	1.12 um x 1.12 um
EFL	12.50 mm
F.NO	2.35
Pixel	4224 x 3136
View Angle	25.6°(DFOV), 20.4°(HFOV), 15.4°(VFOV)
Lens Dimensions	13.50 x 13.50 x 24.80 mm
Module Size	30.00 x 24.50 mm
Module Type	Fixed Focus
Interface	MIPI
Auto Focus VCM Driver IC	None
Lens Model	KLT-LENS-TRC-2040A2
Lens Type	650nm IR Cut
Operating Temperature	-30°C to +85°C
Mating Connector	AXT530124

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

KLT-TSE-OV13850 V1.0

13MP OmniVision OV13850 MIPI Interface M12 Fixed Focus Camera Module

Top View

Side View

Bottom View

Mating Connector

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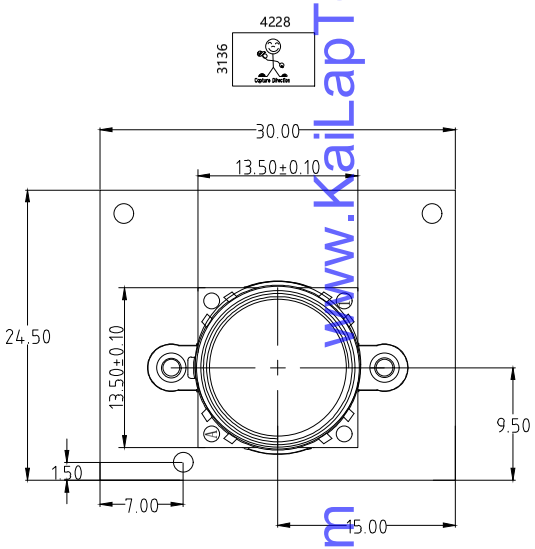
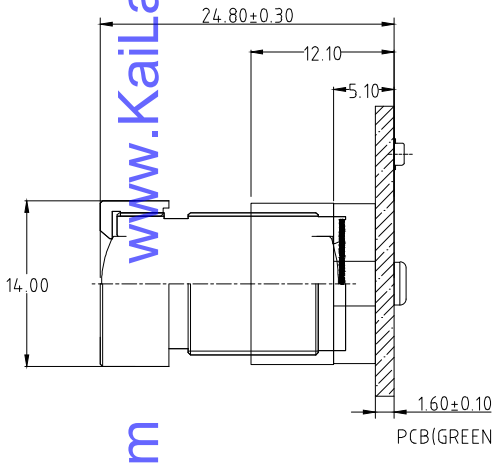
RoHS	
PIN	SIGNAL
1	MDN3
2	AVDD 2.8V
3	MDP3
4	AVDD 2.8V
5	GND
6	DOVDD 1.8V
7	MDN2
8	DVDD 1.2V
9	MDP2
10	GND
11	GND
12	SDA
13	MDN1
14	SCL
15	MDP1
16	PWDN
17	GND
18	RESET
19	MDN0
20	MCLK
21	MDP0
22	GND
23	GND
24	NC
25	MCN
26	SID(GND)
27	MCP
28	GND
29	GND
30	GND

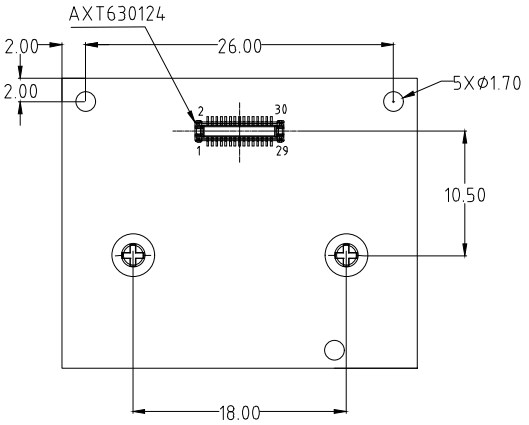
Version	Information	Date
V1.0	First Version	9-11-2021



TOP VIEW



SIDE VIEW



BOTTOM VIEW

NOTE:

1.The device slave address:0x20

Parameter:

1、Sensor specification:

Image Sensor: OV13850-R2A

Pixel: 1.12um×1.12um

Lens Type: 1/3.06

Important Voltage Description: DVDD1.2V (external power supply);

2、Lens specification:

FOV: 25.6°(D);20.4°(H);15.4°(V)

F/NO.: 2.35

TV distortion: <-0.7%

Focal length: 12.5mm

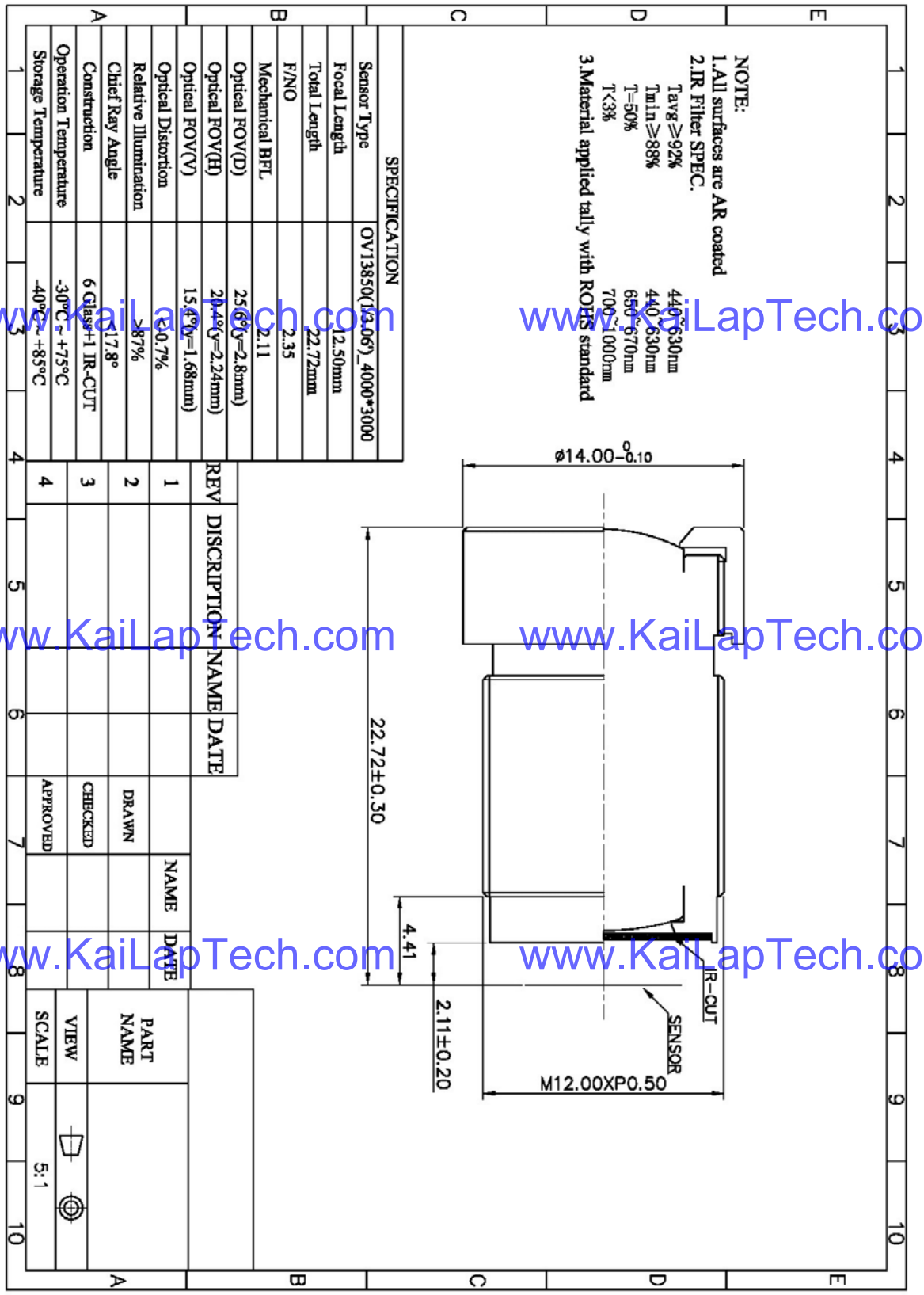
Composition: 6G+IR FILTER

IR Cut Coating: 650nm±10nm@50%

Kai Lap Technologies Group Ltd

Designed By	Kevin	Model Name:	KLT-TSE-OV13850 V1.0
Checked By	Aouly_Yan	Projection Type: Third Angle	Unit: mm / Material: ---------- / Scale: 1:1 / Sheet: 1 of 1 / Version: 1/0

Lens Model: KLT-LENS-TRC-2040A2



Panasonic
ideas for life

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

NARROW PITCH (0.4 mm) CONNECTORS F4S SERIES

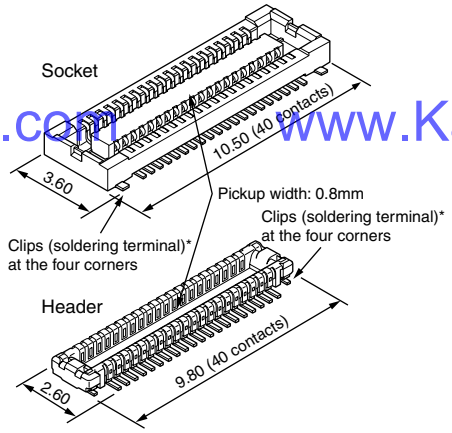
TOUGH CONTACT

Socket Header

Compliance with RoHS Directive

FEATURES

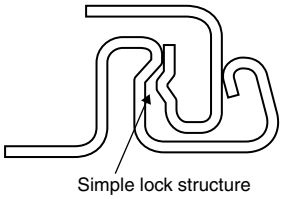
1. Space-saving (3.6 mm widthwise)
The required space is smaller than our F4 series (40-contact type):
Socket — 27% smaller,
Header — 38% smaller
The small size contributes to the miniaturization of target equipment.



* 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.



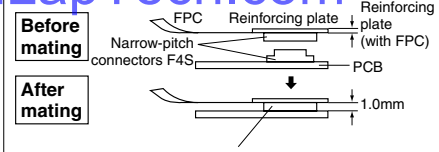
4. Gull-wing type terminals
The gull-wing type terminals facilitate automatic mounting inspections.

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"

Example of Board-to-FPC connections



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

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.

PRODUCT TYPES TOUGH CONTACT

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. 1,000MΩ (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.
Mechanical characteristics	Composite insertion force	Max. 0.981N/contacts × contacts (initial)	
	Composite removal force	Min. 0.165N/contacts × contacts	
	Contact holding force (Socket contact)	Min. 0.49N/contacts	Measuring the maximum force. As the contact is axially pull out.
Environmental characteristics	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)	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. No dew condensation.
	Thermal shock resistance (header and socket mated)	5 cycles, insulation resistance min. 100MΩ, contact resistance max. 90mΩ	Sequence 1. –55 +3 0 °C, 30 minutes 2. ~ , Max. 5 minutes 3. 85 +3 0 °C, 30 minutes 4. ~ , Max. 5 minutes
	Humidity resistance (header and socket mated)	120 hours, insulation resistance min. 100MΩ, contact resistance max. 90mΩ	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. 90mΩ	Bath temperature 35±2°C, saltwater concentration 5±1%
	H_2S resistance (header and socket mated)	48 hours, contact resistance max. 90mΩ	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		20-contact type: Socket: 0.03 g Header: 0.01 g	

2. Material and surface treatment

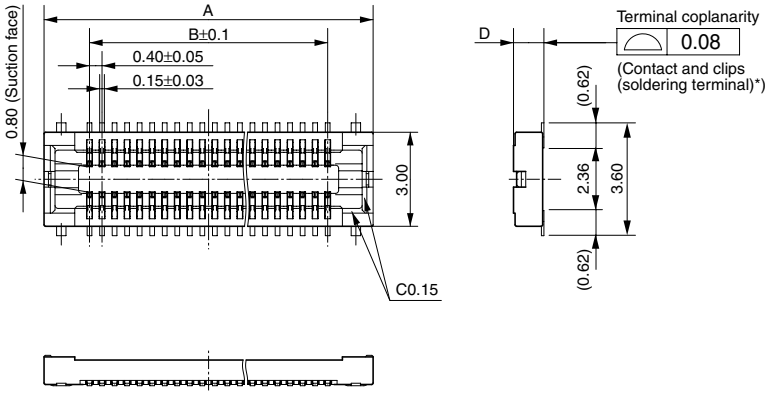
Part name	Material	Surface treatment
Molded portion	LCP resin (UL94V-0)	—
Contact and Post	Copper alloy	Contact portion: Base: Ni plating Surface: Au plating Terminal portion: Base: Ni plating Surface: Au plating (except the terminal tips) The socket terminals close to the portion to be soldered have 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)

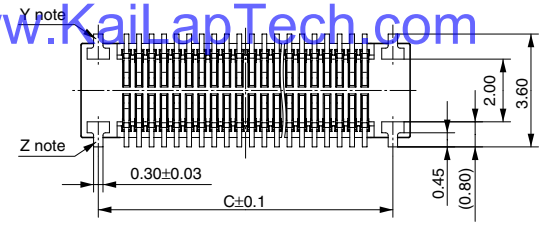
DIMENSIONS (Unit: mm)

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

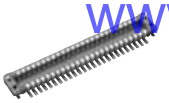
Note: Since the clip (soldering terminal)* has a single-piece construction, sections Y and Z are electrically connected.

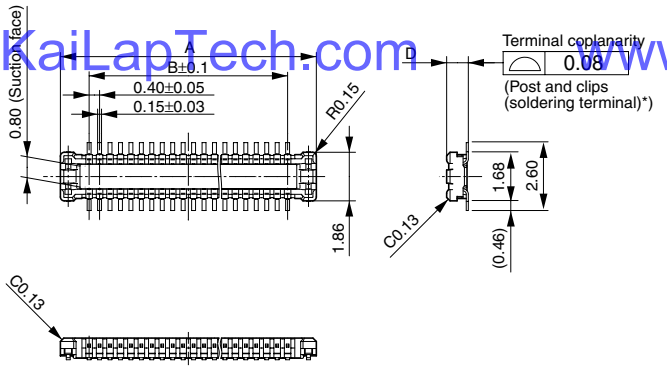
Dimension table (mm)

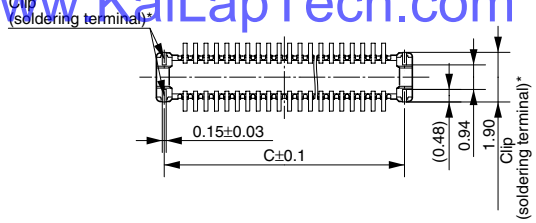
Number of contacts/ dimension	A	B	C
10	4.5	1.6	3.4
12	4.9	2.0	3.8
14	5.3	2.4	4.2
16	5.7	2.8	4.6
18	6.1	3.2	5.0
20	6.5	3.6	5.4
22	6.9	4.0	5.8
24	7.3	4.4	6.2
26	7.7	4.8	6.6
28	8.1	5.2	7.0
30	8.5	5.6	7.4
32	8.9	6.0	7.8
34	9.3	6.4	8.2
36	9.7	6.8	8.6
38	10.1	7.2	9.0
40	10.5	7.6	9.4
42	10.9	8.0	9.8
44	11.3	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







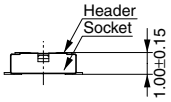
General tolerance: ±0.2

Mated height/ dimension	D
1.0mm	0.83
1.2mm	1.01

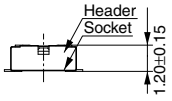
Dimension table (mm)

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

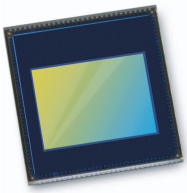
• Socket and Header are mated



Mated height: 1.0 mm



Mated height: 1.2 mm



OV13850 13MP product brief

lead free
available in a lead-free package

Power-Efficient 13-Megapixel Image Sensor with Best-In-Class Performance for High-End Smartphones and Tablets

The OV13850 is a high performance PureCel™ 13-megapixel CameraChip™ sensor that delivers best-in-class high- and low-light performance, as well as dramatically reduced power consumption for smartphones and tablets.

The OV13850 sensor offers a number of performance enhancements, including improved full-well capacity (FWC) and sensitivity for industry-leading high- and low-light performance. It also offers a 40 percent reduction in power consumption compared to our previous generation sensor, making the OV13850 ideally suited for feature-rich mobile devices.

The 1/3.06-inch OV13850 supports an active array of 4224 x 3136 pixels (13.2-megapixels) operating at 30 frames per second (fps) for zero shutter lag and can seamlessly transition between recording video and capturing still images. Additionally, the sensor supports 4K2K ultra-high definition video at 30 fps with full-horizontal field of view (FOV) and electronic image stabilization (EIS), as well as high frame rate 1080p HD video at 60 fps with EIS to enable high quality videos.

The OV13850 fits into an industry standard 8.5 x 8.5 x 5 mm module.

Find out more at www.ovt.com.

OmniVision

OV13850

Applications

- Cellular Phones
- Tablets
- PC Multimedia

Product Features

- PureCel™ image sensor
- 1.12 µm x 1.12 µm pixel
- optical size of 1/3.06"
- 31.2° CRA for <6 mm z-height
- programmable controls for frame rate, mirror and flip, cropping, and windowing
- support for image sizes: 13.2MP (4224x3136), 10MP (16:9, 4224x2376), 4K2K (3840x2160), EIS 1080p (2112x1188), EIS 720p (1408x792), and more
- 13.2MP at 30 fps
- two-wire serial bus control (SCCB)
- strobe output to control flash
- 8 kbits of embedded one-time programmable (OTP) memory
- two on-chip phase lock loops (PLLs)
- programmable controls: gain, exposure, frame rate, image size, horizontal mirror, vertical flip, cropping, and panning
- image quality controls: defect pixel correction, automatic black level calibration, lens shading correction, and alternate row HDR
- built-in temperature sensor
- suitable for module size of 8.5 x 8.5 x <6 mm

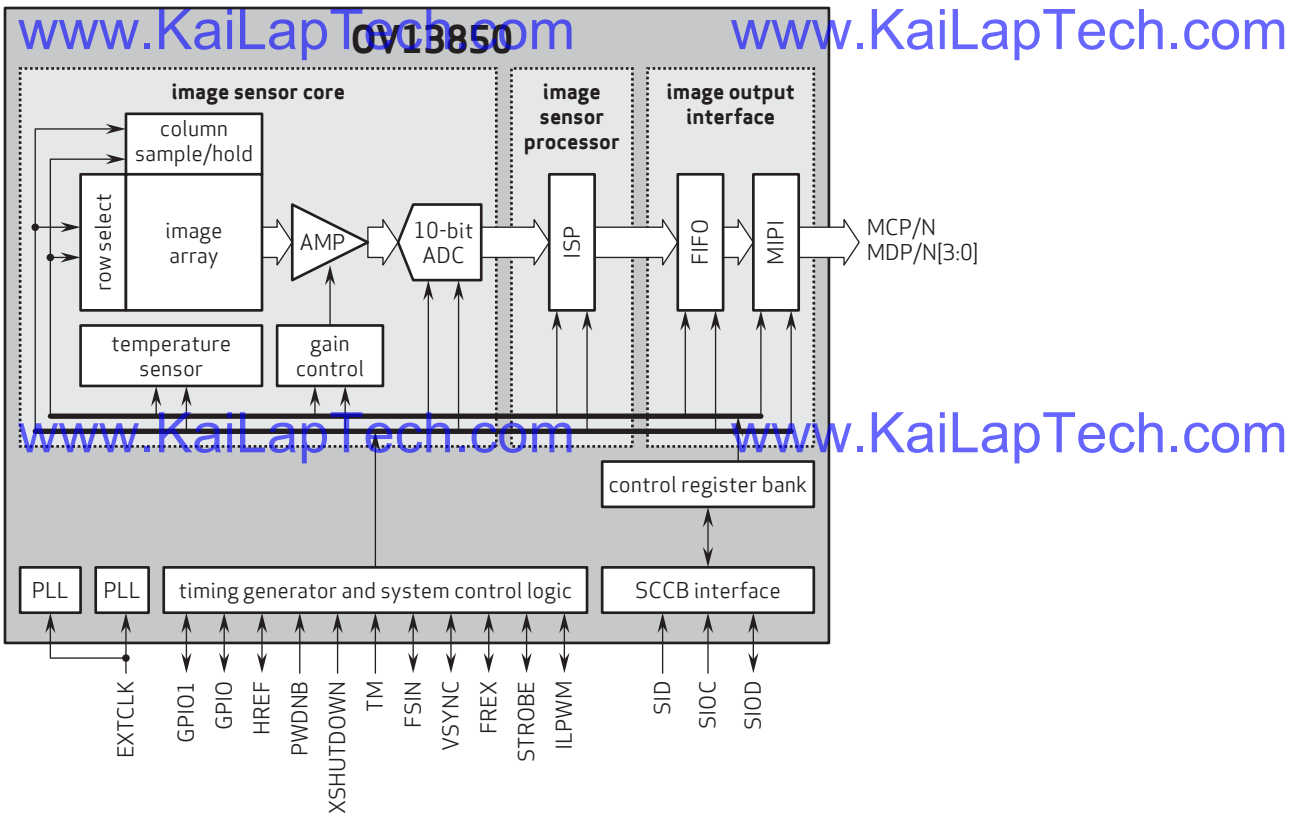
Ordering Information

- **OV13850-G04A**
  (color, chip probing, 200 µm backgrinding, reconstructed wafer with good die)

Product Specifications

- **active array size:** 4224 x 3136
- **power supply:**
  - **core:** 1.14 - 1.26V (1.2V nominal)
  - **analog:** 2.6 - 3.0V (2.8V nominal)
  - **I/O:** 1.7 - 3.0V (1.8V or 2.8V nominal)
- **power requirements:**
  - **active:** 223 mW
  - **standby:** 300 µW
  - **XSHUTDOWN:** 1 µW
- **temperature range:**
  - **operating:** -30°C to +85°C junction temperature
  - **stable image:** 0°C to +60°C junction temperature
- **output interfaces:** up to 4-lane MIPI serial output
- **output formats:** 10-bit RGB RAW
- **lens size:** 1/3.06"
- **lens chief ray angle:** 31.2°
- **input clock frequency:** 6 - 64 MHz
- **maximum image transfer rate:** 30 fps
- **scan mode:** progressive
- **pixel size:** 1.12 µm x 1.12 µm
- **image area:** 4815 µm x 3678.3 µm
- **die dimensions:** 6210 µm x 5517 µm

Functional Block Diagram



4275 Burton Drive
Santa Clara, CA 95054
USA

Tel: + 1 408 567 3000
Fax: + 1 408 567 3001
www.ovt.com

Version 1.6, December, 2013

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

CMOS CAMERA MODULES

your BEST camera module partner

Cameras Applications

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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




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Camera Inspection Standard

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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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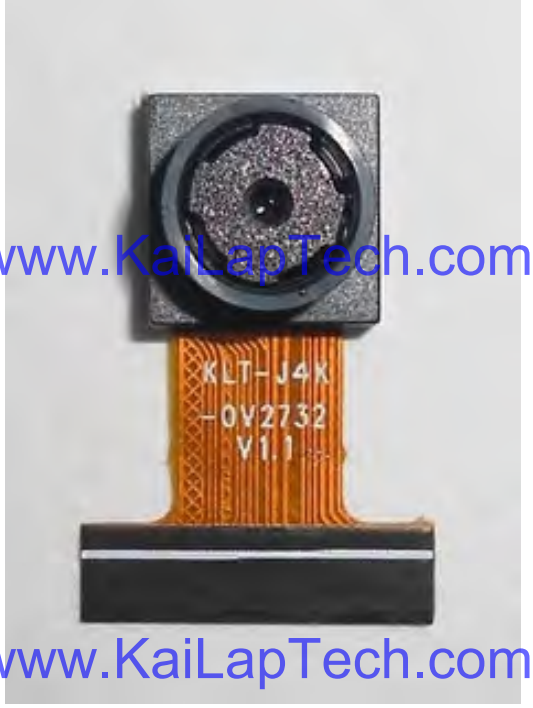
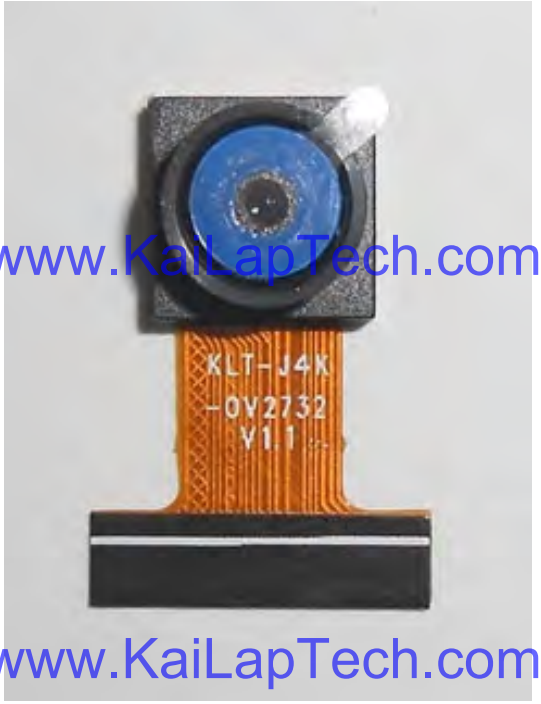
KLT Package Solutions

KLT Camera Module



Complete with Lens Protection Film



Tray with Grid and Space

Place Cameras on the Tray

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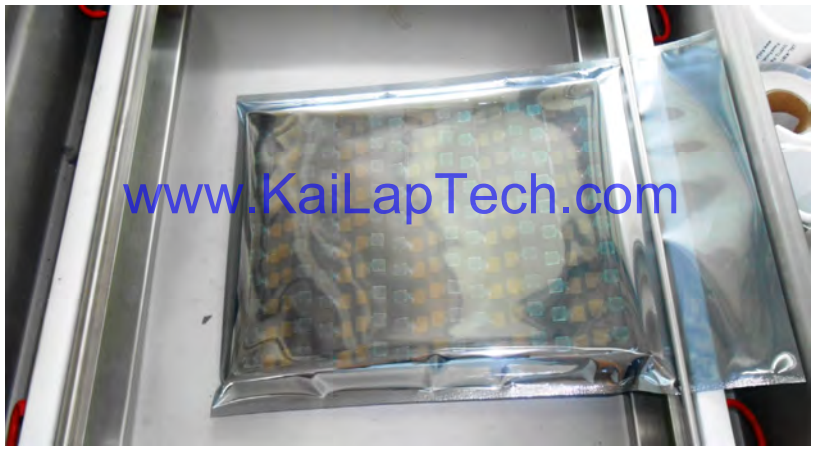
Camera Modules Package Solution

Full Tray of Cameras

Cover Tray with Lid

Put Tray into Anti-Static Bag

Vacuum the Anti-Static Bag



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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

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Place Foam Sheets and Trays into Box

Foam Sheets are Tightly Fitting Box

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Small Order Package Solution

Place Foam Sheets and Trays into Small Box

Foam Sheets are Nicely Fitting the Small Box

Package in Small Box for Shipment

Place Small Boxes into Larger Box

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Carbon Box Package Solution

Seal the Carbon Box

Final Package Labelled Box

Carbon Box Ready for Shipment

1. Delivery Address and Phone No. 2. Box No. and Ship Date 3. Fragile Caution

Sample Order Package Solution

Place Sample into Small Anti-Static Bag

Place Connectors into Small Ant-Static Bag

Sample Labels on the Small Bag

1. Camera Module or Connector Model 2. Shipping Date and Quantity 3. Caution

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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CMOS CAMERA MODULES

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Company Kai Lap Technologies (KLT)

Kai Lap Technologies Group Limited. (KLT) was established in 2009, a next-generation technology driven manufacturer specialized in research, design, and produce of audio and video products. KLT is occupying 20,000 square feet automated plants with 100 employees of annual throughput 30,000,000 units cameras.

KLT provides OEM, ODM design, contract manufacturing, and builds the camera products. You may provide the requirements to us, even with a hand draft, our sales and engineering work together to meet your needs. We consider ourselves your last-term partner in developing practical and innovative solutions.

Our team covers everything from initial concept development to mass produced product. KLT specializes in customized camera design, raw material, electronic engineering, firmware/software development, product testing, and packing design. Our experienced strategic supply systems offer a robust and dependable manufacturing capacity for orders of various sizes.

Limited Warranty

KLT provides the following limited warranty if you purchased the Product(s) directly from KLT company or from KLT's website, www.KaiLapTech.com. Product(s) purchased from other sellers or sources are not covered by this Limited Warranty. KLT guarantees that the Product(s) will be free from defects in materials and workmanship under normal use for a period of one (1) year from the date you receive the product ("Warranty Period").

For all Product(s) that contain or develop material defects in materials or workmanship during the Warranty Period, KLT will, at its sole option, either: (i) repair the Product(s); (ii) replace the Product(s) with a new or refurbished Product(s) (replacement Product(s) being of identical model or functional equivalent); or (iii) provide you a refund of the price you paid for the Product(s).

This Limited Warranty of KLT is solely limited to repair and/or replacement on the terms set forth above. KLT is not reliable or responsible for any subsequential events.

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KLT Strength

Powerful Factory

Professional Service

Promised Delivery

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