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KLT-2A-FF-OV9734 V4.0

1MP OmniVision OV9734 MIPI Interface Fixed Focus **Endoscope Camera Module**



Front View

Back View

Specifications

Camera Module No.	KLT-2A-FF-OV9734 V4.0
Resolution	1MP
Image Sensor	OV9734
Sensor Type	1/9"
Pixel Size	1.4 um x 1.4 um
EFL	1.03 mm
F.NO	4.70
Pixel	1280 x 720
View Angle	88.0°(DFOV) 80.0°(HFOV) 50.5°(VFOV)
Lens Dimensions	Φ3.5 mm
Module Size	21.16 x 3.50 mm
Module Type	Fixed Focus
Interface	MIPI
Auto Focus VCM Driver IC	None
Lens Type	650nm IR Cut
Operating Temperature	-30°C to +85°C
Mating Connector	BM23FR0.6-16DS-0.35V(51)

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Top View



Side View



Bottom View



Mating Connector

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ecker Classic target has long been trusted as an indu c workflow. It consists of an array of 24 scientifically rs, as well as neutral grays for creating custom neutr

represent the colors you would find in nature, such a real world counterparts and reflect light consistently tural objects under any lighting condition, and with an tone to produce pure, flat, rich color without dots or

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OV9734-OV9234 720p HD product brief





a lead-free

package

OmniVision's Smallest 720p High Definition Sensor for Next-Generation Notebooks and Mobile Devices

The OV9734 is an ultra-compact and power efficient CameraChip[™] image sensor designed for slim notebooks, tablets, handsets, and other devices that require a thin bezel. Built on OmniVision's PureCel[®] technology, the OV9734 CameraChip[™] delivers premium quality images and video, while consuming significantly less power than previous generation image sensors.

OmniVision's 1/9-inch OV9734 is capable of capturing crisp 720p HD video at 30 frames per second (fps) or VGA video at 45 fps, while consuming approximately 25 percent less power than the previous generation 720p sensor. Additionally, the OV9734 meets the video quality specifications for popular video conferencing platforms. To fit ultra-thin bezel devices, the OV9734 comes in a compact package that can meet 2.5 mm z-height and is 47 percent smaller in y-dimension compared to the previous generation 720p sensor.

The OV9234, a black and white version of the OV9734, is also available as a dedicated IR camera solution for facial recognition and other biometric applications. Both sensors are available in CSP and COB packaging.

Find out more at www.ovt.com.





Applications

- Smartphones
- PC Multimedia
- Tablets
- **Product Features**
- support for image sizes:
 full size (1280x720)
 VGA (640x480)
- 2x2 RGB binning (640x360) - 2x2 B&W binning (640x360)
- support for output formats: RAW output with 1-lane MIPI
- on-chip phase lock loop (PLL)
- capable of maintaining register values at software power down
- programmable controls for:
 frame rate
 mirror and flip
 gain/exposure
 - windowing

 support for horizontal and vertical sub-sampling

Digital Still Cameras

Toys

- automatic black level calibration (ABLC)
- defect pixel correction (DPC)
- support for black sun cancellation
- standard SCCB interface
- GPIO tri-state configurability and programmable polarity

0V9734-0V9234



Ordering Information

- OV09734-H16A-2A (color, lead-free, 16-pin CSP)
- OV09234-H16A (b&w, lead-free, 16-pin CSP)

Product Specifications

- active array size: 1280 x 720
- power supply:
 core: 1.2VDC ±5%
 analog: 2.6 3.0V (2.8V normal)
 I/O: 1.8V
- power requirements: - active: 69 mW - XSHUTDN: 0.9 µW
- X3H01DN: 0.9 µW
- temperature range:
 operating: -30°C to +85°C junction temperature
 stable image: 0°C to +50°C junction
- temperature
- output formats: 10-bit RAW RGB
- ∎ lens size: 1/9"
- lens chief ray angle: 32.1°
- input clock frequency: 6 27 MHz

- scan mode: progressive
 maximum image transfer rate: 30 fps
- sensitivity: 585 mV/Lux-sec
- shutter: rolling shutter
- max S/N ratio: 36.4 dB
- dynamic range: 68.4 dB @ 16x gain
- maximum exposure interval: 798 x t_{ROW}
- **pixel size:** 1.4 μm x 1.4 μm
- dark current: 2 e⁻/sec
 @ 50°C junction temperature
- image area: 1819.58 μm x 1033.34 μm
- package dimensions: 2532 µm x 1722 µm





Functional Block Diagram

0.35mm Pitch, 0.6 and 0.8mm Height, Board to Board or Board to FPC Connectors

BM23FR Series



Features

1. Space-saving design

Compact design ideal for mobile devices (See Fig.1) •Pitch : 0.35mm, Width : 1.98mm, Stacking height : 0.6/0.8mm

2. Robust [Breaking Strength : 90N]

Metal guides prevent housing damage due to incorrect mating. (See Fig.2)

3. Highly reliable contact design

2-point contact design for signal contact ensures high reliability. (See Fig.3)

4. Good mating operation

Wide self alignment range with metal guides offers enhanced mating operation. (0.4mm in pitch direction, 0.35mm in width direction) Furthermore, a clear tactile click generated by the unique locking contact design insures complete mating.

5. Supports USB 3.1 Gen.2 (10Gbps) transmission

Signal contacts support USB3.1 Gen.2 transmission speed.

Environmental

·Halogen-free*

As defined by IEC 61249-2-21 Br : 900ppm max., Cl : 900ppm max. Br+Cl : 1,500ppm max.







In cases where the application will demand a high level of reliavility, such as automotive, please contact a company representative for further information.



Product Specifications

Dallara	Rated current 0.3A		Operating temperature range	-55°C (No	to 85°C ote1)	Storage temperature range	-10°C to 60°C (Note2)
Ratings Rated voltage		30V AC/DC	Operating humidity range	20% to 80%		Storage humidity range	40% to 70% (Note2)
Items Specifications		Conditions					
1. Contact re	esistance	100mΩ max.			Measured at 20mV AC, 1kHz, and 1mA		
2. Insulation	resistance	$50M\Omega$ min.			Measured at 100V DC		
3. Withstand	ling voltage	No flashover or insulation breakdown			100V AC for 1 minute		
4. Durability		Contact resistance: 100mΩ max.			10 mating cycles		
5. Vibration	ation No electrical discontinuity for more than 1µs.		Frequency: 10 to 55Hz, single amplitude : 0.75mm in 3 axis directions for 5 minutes, 10 cycles				
6. Shock res	sistance	No electrical discontinuity of 1µs or more.			Acceleration : 490m/s^2 , duration of pulse : 11ms at 3 times for 3 directions		
7. Humidity		Contact resistance : $100m\Omega$ max. Insulation resistance : $25m\Omega$ min.		96 hours at temperature of 40±2°C and a humidity range from 90 to 95%			
8. Temperat	ure cycle	Contact resistance: $100m\Omega$ max. Insulation resistance: $50M\Omega$ min.		-55°C for 30 minutes → 85°C for 30 minutes, 5 cycles			
9. Soldering heat resistance No dissolution or melting of the resin that will affect the performance.		Reflow: with recommended temperature profile; Hand soldering at soldering iron temperature of 350°C for 3 seconds max.					

Note 1 : Includes temperature rise caused by current flow.

Note 2: Storage refers to long-term-storage of unused items before they are mounted on the PCB.

Operating temperature/humidity range applies to the state of temporary storage such as non-powered after mounting on the PCB, and during transportation, etc.

Materials / Finish

Product	Part	Material	Finish	UL Regulation
Receptacle Header	Insulator	LCP	Black	UL94V-0
	Contact	Copper alloy	Gold plating	
	Metal Fitting	Copper alloy	Gold plating	

Product Number Structure

Refer to the chart below when determining the product specifications from the product number. Please select from the product numbers listed in this catalog when placing orders

Receptacle / Header



H=0.6mm Receptacle







H=0.8mm Receptacle









Recommended PCB layout [H=0.6 mm]



Recommended PCB layout [H=0.8 mm]



Recommended metal mask dimensions (mask thickness : 100μm) [0.6mm and 0.8mm common]



Unit : mm

Part No.	HRS No.	No. of contacts	A	В	С	D
BM23FR0.6-6DS-0.35V(***)	480-0287-0 **	·-0 ** 6 3.55		0.70	2.11	1.08
BM23FR0.6-8DS-0.35V(***)	480-0360-0 **	8	3.90	1.05	2.46	1.43
BM23FR0.6-10DS-0.35V(***)	480-0258-0 **	10	4.25	1.40	2.81	1.78
BM23FR0.6-12DS-0.35V(***)	480-0371-0 **	12	4.60	1.75	3.16	2.13
BM23FR0.6-16DS-0.35V(***)	480-0295-0 **	16	5.30	2.45	3.86	2.83
BM23FR0.6-20DS-0.35V(***)	480-0272-0 **	20	6.00	3.15	4.56	3.53
BM23FR0.6-24DS-0.35V(***)	480-0260-0 **	24	6.70	70 3.85 5.26 4.2		4.23
BM23FR0.6-30DS-0.35V(***)	480-0327-0 **	30	30 7.75 4.90		6.31	5.28
BM23FR0.6-34DS-0.35V(***)	480-0274-0 **	34	8.45	8.45 5.60 7.01		5.98
BM23FR0.6-40DS-0.35V(***)	480-0390-0 **	40	9.50 6.65		8.06	7.03
BM23FR0.6-50DS-0.35V(***)	480-0382-0 **	50 11.2		8.40	9.81	8.78
Part No.	HRS No.	No. of contacts	A B		С	
BM23FR0.8-10DS-0.35V(***)	480-0298-0 **	10	4.25 1.4		40	2.81
BM23FR0.8-18DS-0.35V(***)	480-0469-0 **	18	5.65 2.80		4.21	
BM23FR0.8-60DS-0.35V(***)	480-0300-0 **	60	13.00 10.15		11.56	

Note 1 : Please place orders in full reel quantities.

Note 2 : This connector has no polarity.

Note 3 : The specification number(895) in the Part No. changes to(95) in the HRS No.



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Cameras Applications







Video Conference



Live Streaming

Eye Tracker Biometric Detection

Machine Vision

Agricultural Monitor



Night Vision Security



Drone and Sports Eagle Eyes



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Cameras Applications

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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 D00 Y0	DVP data output port 0			
D1 D01 Y1	DVP data output port 1			
D2 D02 Y2	DVP data output port 2			
D3 D03 Y3	DVP data output port 3			
D4 DO4 Y4	DVP data output port 4			
D5 D05 Y5	DVP data output port 5			
D6 D06 Y6	DVP data output port 6			
D7 D07 Y7	DVP data output port 7			
D8 D08 Y8	DVP data output port 8			
D9 D09 Y9	DVP data output port 9			
D10 D010 Y10	DVP data output port 10			
D11 D011 Y11	DVP data output port 11			

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Camera Reliability Test

Reliability Inspection Item		Testing Method	Acceptones Criteria		
Category		Item	resting Method	Acceptance Chiena	
	Storage	High 60°C 96 Hours	Temperature Chamber	No Abnormal Situation	
	Temperature	Low -20°C 96 Hours	Temperature Chamber	No Abnormal Situation	
	Operation	High 60°C 24 Hours	Temperature Chamber	No Abnormal Situation	
En incomental	Temperature	Low -20°C 24 Hours	Temperature Chamber	No Abnormal Situation	
Environmentai	Humidity	60°C 80% 24 Hours	Temperature Chamber	No Abnormal Situation	
	High 60°C 0.5 Hours Thermal Shock Low -20°C 0.5 Hours Cycling in 24 Hours		Temperature Chamber	No Abnormal Situation	
	Drop Test	Without Package 60cm	10 Times on Wood Floor	Electrically Functional	
	(Free Falling)	With Package 60cm	10 Times on Wood Floor	Electrically Functional	
	Vibration Test	50Hz X-Axis 2mm 30min	Vibration Table	Electrically Functional	
Physical		50Hz Y-Axis 2mm 30min	Vibration Table	Electrically Functional	
Flysical		50Hz Z-Axis 2mm 30min	Vibration Table	Electrically Functional	
	Cable Tensile Strength Test Cable Tensile Cycling in 24 Hours		Tensile Testing Machine	Electrically Functional	
Electrical		Contact Discharge 2 KV	ESD Testing Machine	Electrically Functional	
	EOD 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	



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Camera Inspection Standard

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Inspection Item		Inspection Method	Standard of Inspection		
Category		Item			
	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)	
		Scratches	The Naked Eye	The Inside Crack Exposure is Not Allowed	
	l la la la s	Gap	The Naked Eye	Meet the Height Standard	
Appearance	Holdel	Screw	The Naked Eye	Make Sure Screws Are Presented (If Any)	
		Damage	The Naked Eye	The Inside Crack Exposure is Not Allowed	
		Scratch	The Naked Eye	No Effect On Resolution Standard	
	Long	Contamination	The Naked Eye	No Effect On Resolution Standard	
	Lens	Oil Film	The Naked Eye	No Effect On Resolution Standard	
		Cover Tape	The Naked Eye	No Issue On Appearance.	
		No Communication	Test Board	Not Allowed	
		Bright Pixel	Black Board	Not Allowed In the Image Center	
	Image	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	
Function		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	
		Height	The Naked Eye	Follows Approval Data Sheet	
		Width	The Naked Eye	Follows Approval Data Sheet	
Dimer	ISION	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



Tray with Grid and Space





Place Cameras on the Tray





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Camera Modules Package Solution

Full Tray of Cameras



Put Tray into Anti-Static Bag

Cover Tray with Lid



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



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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



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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



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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



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Connectors Large Order Package Solution

Connectors in a Wheel



The Wheel is Perfectly Fitting the Box

Label Connectors in the Wheel



Connectors Box Ready for Shipment



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Company Kai Lap Technologies (KLT)

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

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

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



Limited Warranty

KLT provides the following limited warranty if you purchased the Product(s) directly from KLT company or from KLT's website, <u>www.KaiLapTech.com</u>. 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.



KIT

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KLT Strength

Powerful Factory



Professional Service



Promised Delivery



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