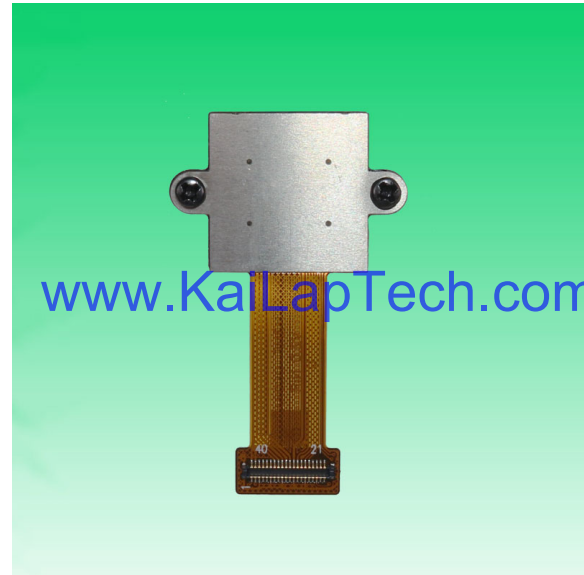


KLT-H3MF-OS08A20 V2.0

8MP OmniVision OS08A20 MIPI Interface M14 Fixed Focus Camera Module



Front View



Back View

Specifications

Camera Module No.	KLT-H3MF-OS08A20 V2.0
Resolution	8MP
Image Sensor	OS08A20
Sensor Type	1/1.8"
Pixel Size	2.0 um x 2.0 um
EFL	5.00 mm
F.NO	2.00
Pixel	3840 x 2160
View Angle	105.0°(DFOV) 84.0°(HFOV) 52.0°(VFOV)
Lens Dimensions	16.40 x 16.40 x 33.67 mm
Module Size	40.00 x 22.00 mm
Module Type	Fixed Focus
Interface	MIPI
Auto Focus VCM Driver IC	None
Lens Model	KLT-LENS-PB501-06
Lens Type	650nm IR Cut
Operating Temperature	-30°C to +85°C
Mating Connector	AXE540124



KLT-H3MF-OS08A20 V2.0

8MP OmniVision OS08A20 MIPI Interface M14 Fixed Focus Camera Module



Top View



Side View

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Bottom View



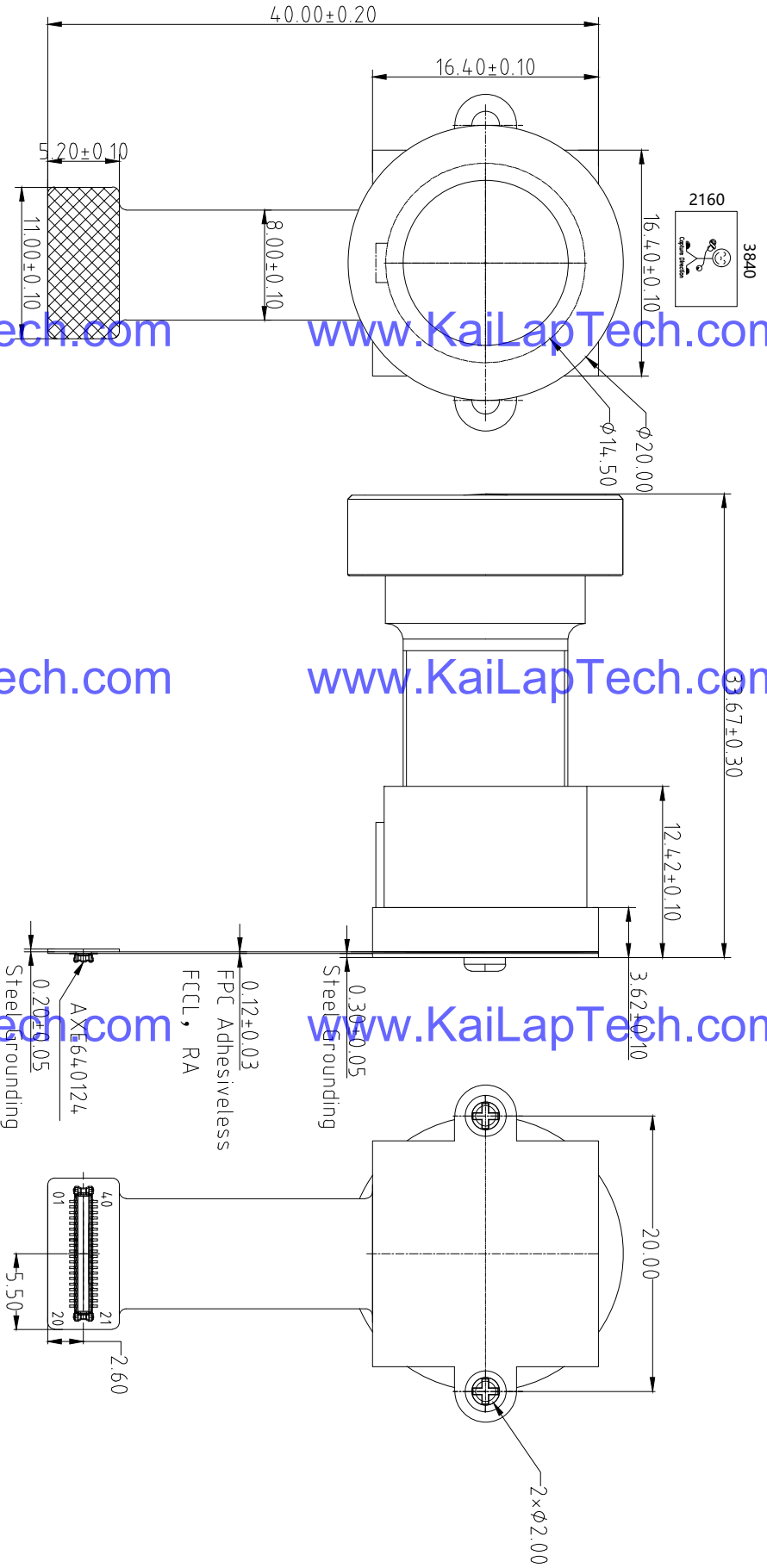
Mating Connector

ROHS

PIN SIGNAL

1	RESET
2	PWDN
3	DGND
4	MDP0
5	MIDN0
6	DGND
7	MDP1
8	MDN1
9	DGND
10	MDP2
11	MDN2
12	DGND
13	MDP3
14	MDN3
15	DGND
16	MCP
17	MCN
18	SID
19	NC
20	NC
21	NC
22	NC
23	NC
24	NC
25	SCL
26	SDA
27	DGND
28	MCLK
29	DVDD1.2V
30	DOVDD1.8V
31	DGND
32	AVDD2.8V
33	AGND
34	DGND
35	NC
36	NC
37	NC
38	NC
39	DGND
40	DGND

Version	Information	Date
V1.0	First Version	3-11-2019
V2.0	Change lens and holder	5-14-2021



TOP VIEW

SIDE VIEW

BOTTOM VIEW

Parameter:

1. Sensor specification:

Image Sensor: OS08A20
 Pixel: $2\mu\text{m} \times 2\mu\text{m}$
 Lens Type: 1/1.8
 Important Voltage Description: DVDD1.2V (external power supply);

2. Lens specification:

FOV: $105^\circ(\text{D}), 84^\circ(\text{H}), 52^\circ(\text{V})$
 F/#: 2.0
 TV Distortion: $< 7.5\%$
 Focal length: 5mm
 Composition: 8G+IR FILTER
 IR Cut Coating: $650\text{nm} \pm 10\text{nm} @ 50\%$

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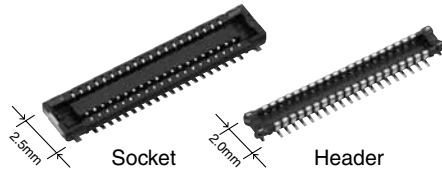
Designed By: Kelvin

Model Name: KLT-H3MF-OS08A20 V2.0

Checked By: Aouly Yan

Projection Type: Third Angle

Unif: mm
 Scale: 1:1
 Material: -----
 Sheet: 1 of 1
 Version: 1/0



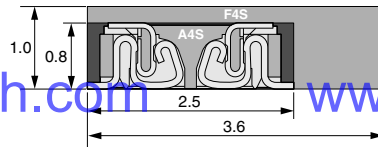
RoHS compliant

FEATURES

1. 2.5 mm wide slim two-piece style connectors

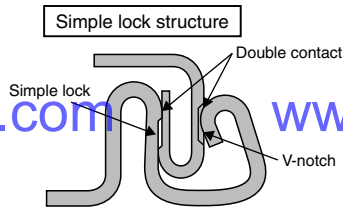
Compact and slim structure contributes overall miniaturization of product design. <Compared to F4S series (40 pin contacts, when mated)>

- Width: 30% down
- Footprint: 30% down



2. "TOUGH CONTACT ADVANCED" ensures high resistance to various environments in lieu of slim and low profile body

3. Simple lock structure provides tactile feedback to ensure excellent mating/unmating operation feel.



The connector gives the tactile feedback when inserted, allowing reliable mating.

- 4. Mated heights of 0.8 and 1.0 mm are available for the same foot pattern.
- 5. Connectors for inspection available

APPLICATIONS

Recommended for board-to-FPC connections of mobile equipment, such as cellular phones, smart phones, laptops, and portable music players

ORDERING INFORMATION

	AXE				2	4
5: Narrow Pitch Connector A4S (0.4 mm pitch) Socket						
6: Narrow Pitch Connector A4S (0.4 mm pitch) Header						
Number of pins (2 digits)						
Mated height						
<Socket>						
1: For mated height 0.8/1.0 mm						
<Header>						
1: For mated height 0.8 mm						
2: For mated height 1.0 mm						
Functions						
2: Without positioning bosses						
Surface treatment (Contact portion / Terminal portion)						
<Socket>						
4: Ni plating on base, Au plating on surface (for Ni barrier available)						
<Header>						
4: Ni plating on base, Au plating on surface						

PRODUCT TYPES

Mated height	Number of pins	Part number		Packing	
		Socket	Header	Inner carton (1-reel)	Outer carton
0.8mm	10	AXE510124	AXE610124	5,000 pieces	10,000 pieces
	12	AXE512124	AXE612124		
	14	AXE514124	AXE614124		
	16	AXE516124	AXE616124		
	18	AXE518124	AXE618124		
	20	AXE520124	AXE620124		
	22	AXE522124	AXE622124		
	24	AXE524124	AXE624124		
	26	AXE526124	AXE626124		
	28	AXE528124	AXE628124		
	30	AXE530124	AXE630124		
	32	AXE532124	AXE632124		
	34	AXE534124	AXE634124		
	36	AXE536124	AXE636124		
	38	AXE538124	AXE638124		
	40	AXE540124	AXE640124		
	44	AXE544124	AXE644124		
	50	AXE550124	AXE650124		
	54	AXE554124	AXE654124		
	56	AXE556124	AXE656124		
60	AXE560124	AXE660124			
64	AXE564124	AXE664124			
70	AXE570124	AXE670124			
80	AXE580124	AXE680124			
1.0mm	10	AXE510124	AXE610224	5,000 pieces	10,000 pieces
	12	AXE512124	AXE612224		
	14	AXE514124	AXE614224		
	20	AXE520124	AXE620224		
	24	AXE524124	AXE624224		
	26	AXE526124	AXE626224		
	30	AXE530124	AXE630224		
	32	AXE532124	AXE632224		
	40	AXE540124	AXE640224		
	44	AXE544124	AXE644224		
	50	AXE550124	AXE650224		
	54	AXE554124	AXE654224		
60	AXE560124	AXE660224			
70	AXE570124	AXE670224			
80	AXE580124	AXE680224			

- Notes: 1. Order unit:
 For volume production: 1-inner carton (1-reel) units
 Samples for mounting check: 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 pins other than those listed above.

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AXE5, 6

SPECIFICATIONS

■ Characteristics

	Item	Specifications	Conditions
Electrical characteristics	Rated current	0.3A/pin contact (Max. 5 A at total pin 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. 1.200N/pin contacts × pin contacts (initial)	
	Composite removal force	Min. 0.165N/pin contacts × pin contacts	
	Contact holding force (Socket contact)	Min. 0.20N/pin 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) 300°C within 5 sec. 350°C within 3 sec.	Infrared reflow soldering 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°C, 30 minutes 2. ~, Max. 5 minutes 3. 85°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 ₂ S 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	30 times
Unit weight		20 pin contact type: Socket: 0.02 g Header: 0.01 g	

■ 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). Soldering terminals: Sockets: Base: Ni plating Surface: Pd+Au flash plating (except the terminal tips) Headers: Base: Ni plating Surface: Au plating (except the terminal tips)

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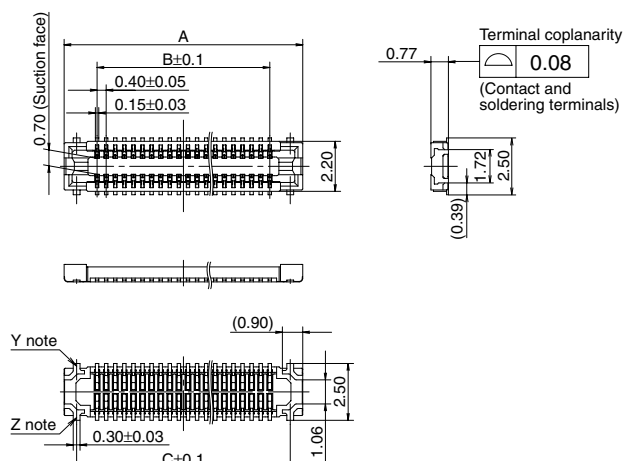
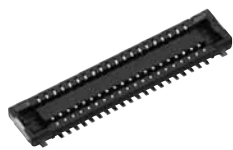
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DIMENSIONS (Unit: mm)

The CAD data of the products with a **CAD Data** mark can be downloaded from: <http://industrial.panasonic.com/ac/e>

Socket (Mated height: 0.8 mm/1.0 mm)

CAD Data



Dimension table (mm)

Number of pins/ 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
44	11.3	8.4	10.2
50	12.5	9.6	11.4
54	13.3	10.4	12.2
56	13.7	10.8	12.6
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

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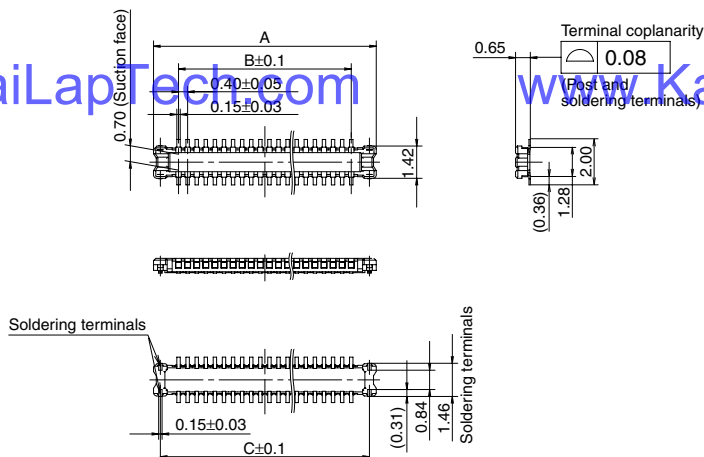
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General tolerance: ±0.2

Note: Since the soldering terminals has a single-piece construction, sections Y and Z are electrically connected.

Header (Mated height: 0.8 mm)

CAD Data



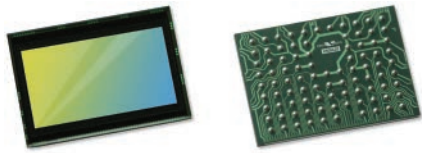
Dimension table (mm)

Number of pins/ 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
44	10.6	8.4	10.0
50	11.8	9.6	11.2
54	12.6	10.4	12.0
56	13.0	10.8	12.4
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

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General tolerance: ±0.2



OS08A20 8-megapixel product brief



High Resolution 8-Megapixel PureCel® Sensor Brings Superior Near-Infrared Imaging to Surveillance Applications



available in
a lead free
package

OmniVision's OS08A20 is the first 8-megapixel image sensor to combine Nyxel® technology with OmniVision's PureCel® pixel architecture, which allows the OS08A20 to capture ultra-high definition (UHD) 4K2K video and images that are bright and crisp in all lighting conditions. This makes it an ideal imaging solution for professional surveillance systems, as well as other nascent security applications such as body-worn cameras.

OmniVision's breakthrough Nyxel® technology delivers significant quantum efficiency (QE) improvements at 850 nm and 940 nm while maintaining high-modulation transfer function, allowing the OS08A20 to monitor a larger area. Additionally, by reducing the need for external lighting sources, Nyxel® technology enables lower power consumption.

The OS08A20 supports a wider range of resolution formats and frame rates, including 4K2K (3840x2160) in a 16:9 aspect ratio at 60 frames per second (fps), quad HD (2560x1440) at 60 fps, or full 1080p HD at 120 fps. It comes in a 2x2-micron pixel size and 1/1.8-inch optical format for improved sensitivity.

Find out more at www.ovt.com.



Applications

- Security Cameras
- Action Cameras
- High Resolution Consumer Cameras
- Digital Still Cameras (DSC)
- Digital Video Camcorders (DVC)

Product Features

- 2 μm x 2 μm pixel
- optical size of 1/1.8"
- QE enhancement in 850 nm and 940 nm
- programmable controls for:
 - frame rate
 - mirror and flip
 - cropping
 - windowing
- supports output formats:
 - 12-/10-bit RAW RGB
- supports image sizes:
 - 4K2K (3840x2160)
 - 2560 x 1440
 - 1080p (1920x1080)
 - 720p (1280x720)
- supports 2x2 binning
- standard serial SCCB interface
- 12-bit ADC
- up to 4-lane MIPI/LVDS serial output interface (supports maximum speed up to 1500 Mbps/lane)
- 2-exposure staggered HDR support
- programmable I/O drive capability
- light sensing mode (LSM)
- PLL with SCC support
- support for FSIN

OS08A20



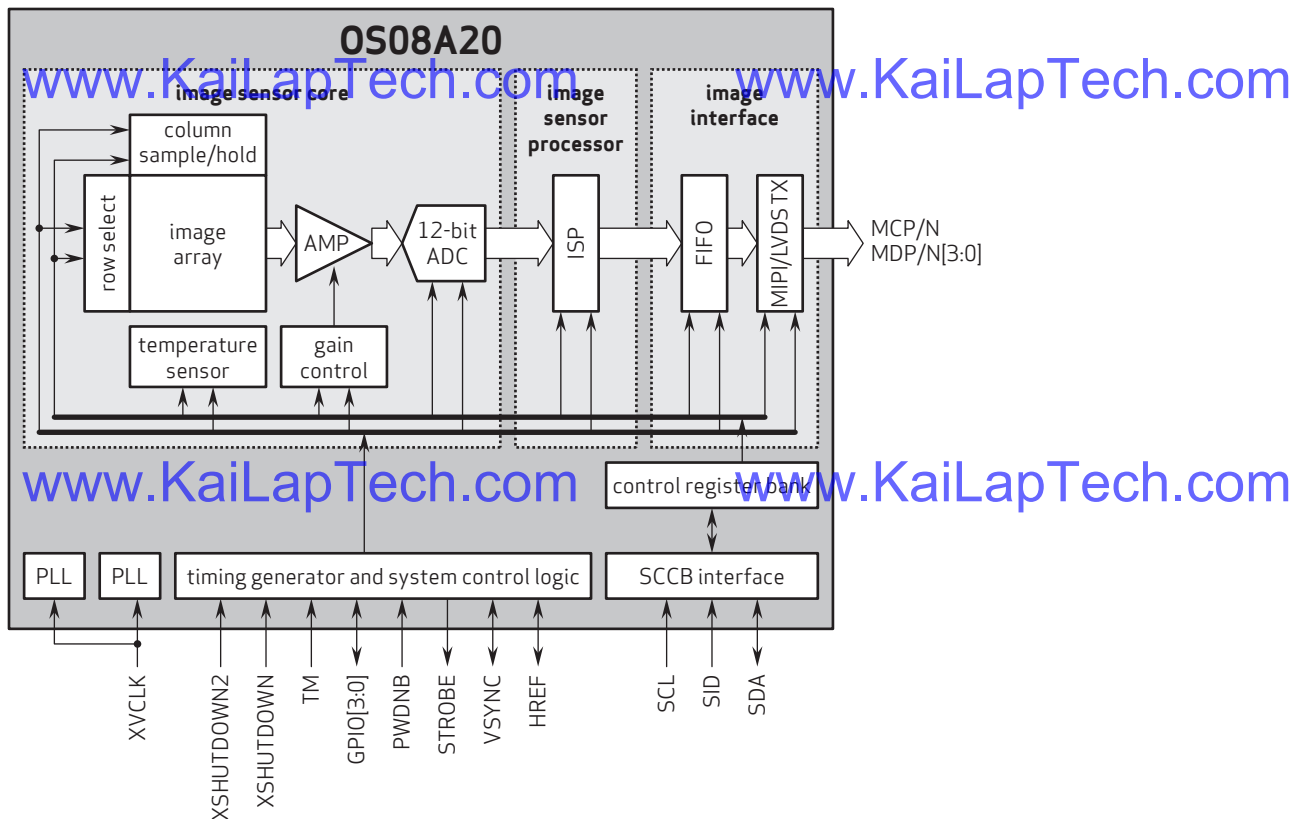
Ordering Information

- OS08A20-H92A-1B (color, lead-free)
92-pin CSP

Technical Specifications

- active array size: 3840 x 2160
- maximum image transfer rate:
 - 4K2K: 60 fps
 - 2560 x 1440: 60 fps
 - 1080p: 120 fps
- power supply:
 - core: 1.2V
 - analog: 2.8V
 - I/O: 1.8V
- power requirements:
 - active: 240 mA
 - XSHUTDOWN: <10 μA
- temperature range:
 - operating: -30°C to +85°C junction temperature
 - stable image: 0°C to +60°C junction temperature
- output formats: 10/12-bit RAW RGB
- lens size: 1/1.8"
- lens chief ray angle: 11° linear
- scan mode: progressive
- pixel size: 2.0 μm x 2.0 μm
- image area: 7736.256 μm x 4379.616 μm

Functional Block Diagram



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Santa Clara, CA 95054
USA

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

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OmniVision



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							
FREQ		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							



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





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
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



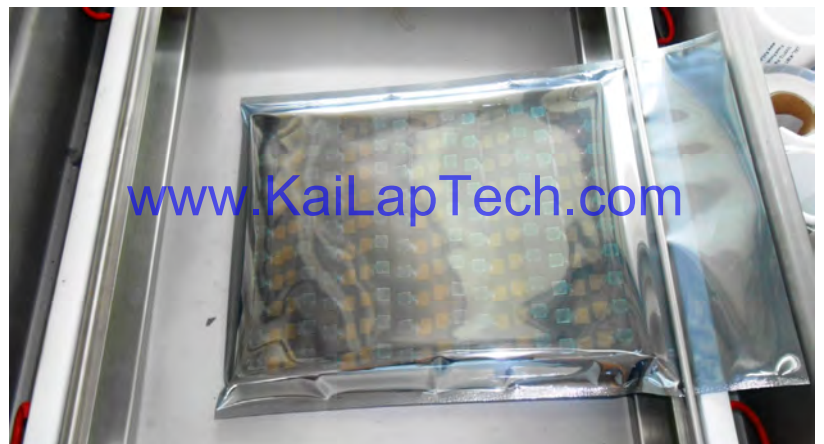
Cover Tray with Lid



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**





CMOS CAMERA MODULES



your BEST camera module partner

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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CMOS CAMERA MODULES



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Small Order Package Solution

Place Foam Sheets and Trays into Small Box



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Package in Small Box for Shipment

Foam Sheets are Nicely Fitting the Small Box



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Place Small Boxes into Larger Box



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your **BEST** camera module partner

Carbon Box Package Solution

Seal the Carbon Box

Final Package Labelled Box



Carbon Box Ready for Shipment

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





Sample Order Package Solution

Place Sample into Small Anti-Static Bag



Place Connectors into Small Ant-Static Bag



Sample Labels on the Small Bag

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





Connectors Large Order Package Solution

Connectors in a Wheel



Label Connectors in the Wheel



The Wheel is Perfectly Fitting the Box



Connectors Box Ready for Shipment



Company Kai Lap Technologies (KLT)

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

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

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

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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 subsequent events.





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