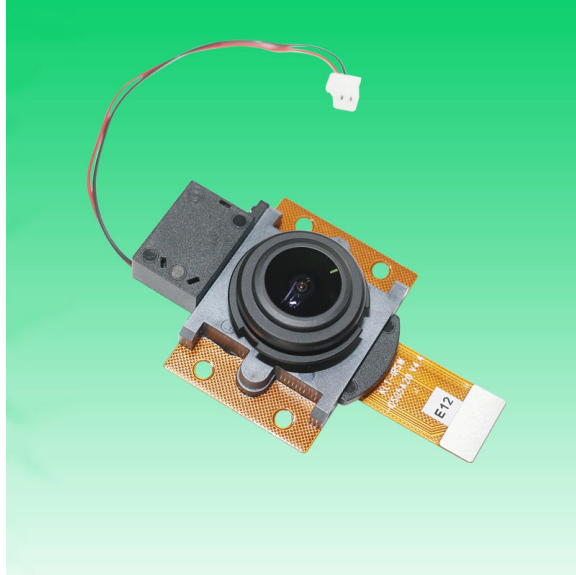
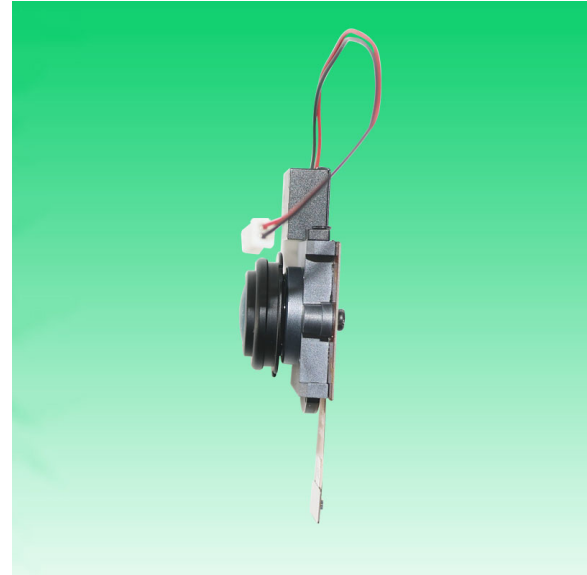


KLT-IRSW-OS05A20 V4.4**5MP OmniVision OS05A20 IR Switch MIPI Interface Fixed Focus Camera Module**

Camera Module No.	KLT-IRSW-OS05A20 V4.4
Resolution	5MP
Image Sensor	OS05A20
Sensor Type	1/2.7"
Pixel Size	2.0 um x 2.0 um
EFL	1.95 mm
F.NO	2.20
Pixel	2688 x 1944
View Angle	180.0°(DFOV) 171.5°(HFOV) 118.0°(VFOV)
Lens Dimensions	22.20 x 21.50 x 12.96 mm
Module Size	50.00 x 30.00 mm
Module Type	Fixed Focus
IR Switch Input Voltage	3.3V - 5.5V
Lens Filter IR Frequency	645nm +/- 15nm
Lens Filter AR Frequency	700nm - 1,000nm
Operation (IR Day Time)	Red Line: Negative Black Line: Positive
Operation (AR Night Time)	Red Line: Positive Black Line: Negative
IR Switch Connector	MOLEX 51021-0200 (2 Pin)
Interface	MIPI
Operating Temperature	-30°C to +85°C
Mating Connector	WP7A-S026VA1

KLT-IRSW-OS05A20 V4.4**5MP OmniVision OS05A20 IR Switch MIPI Interface Fixed Focus Camera Module**

Top View



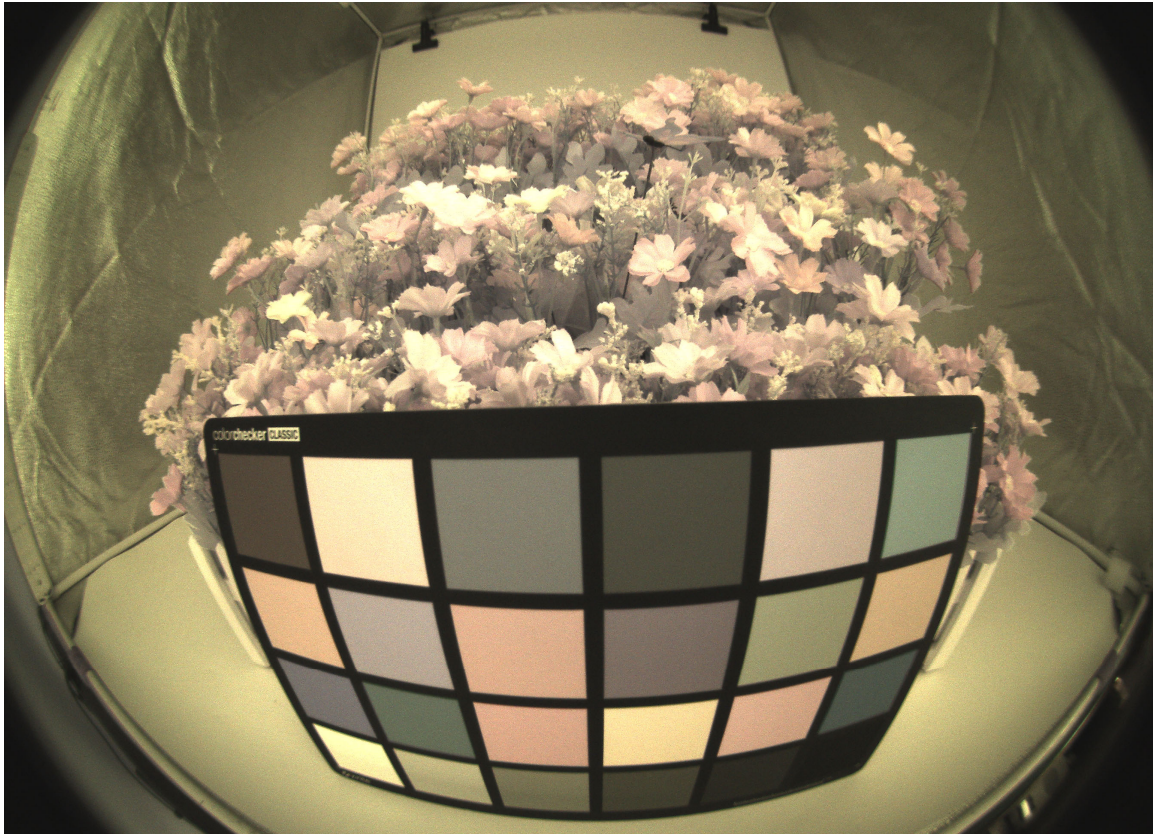
Side View

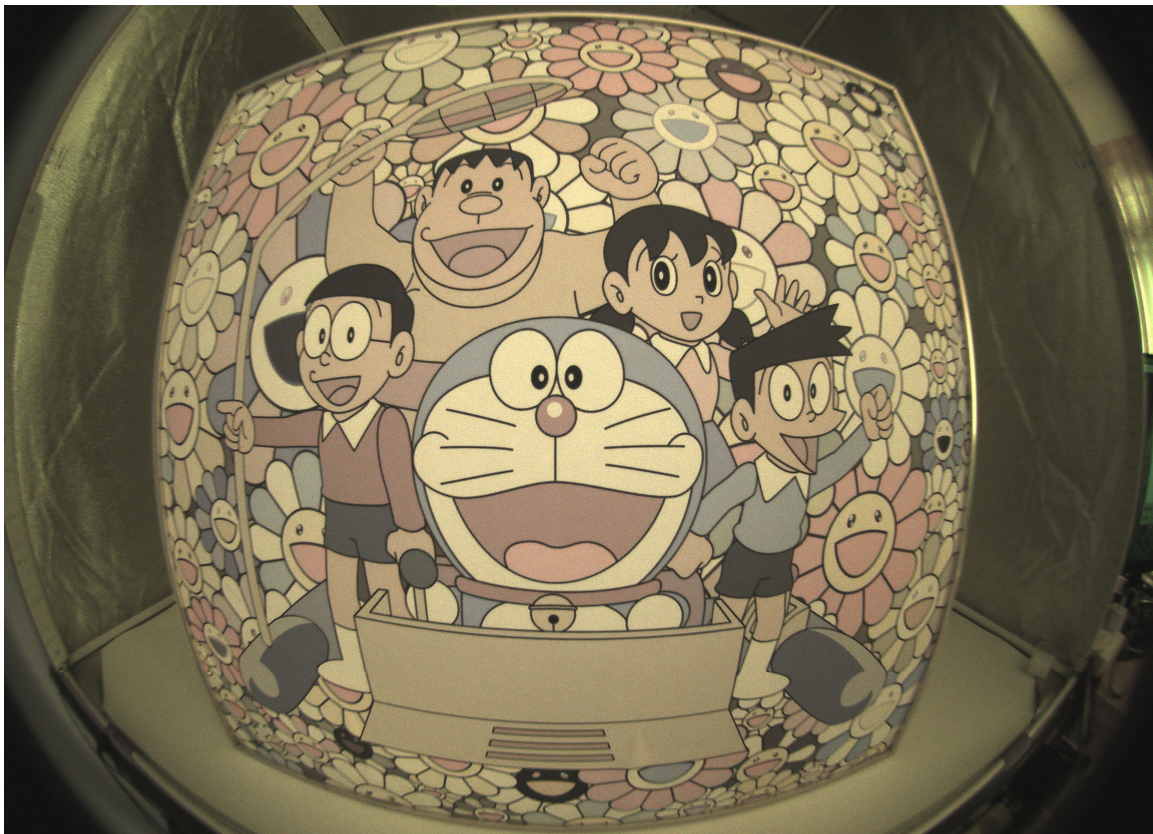


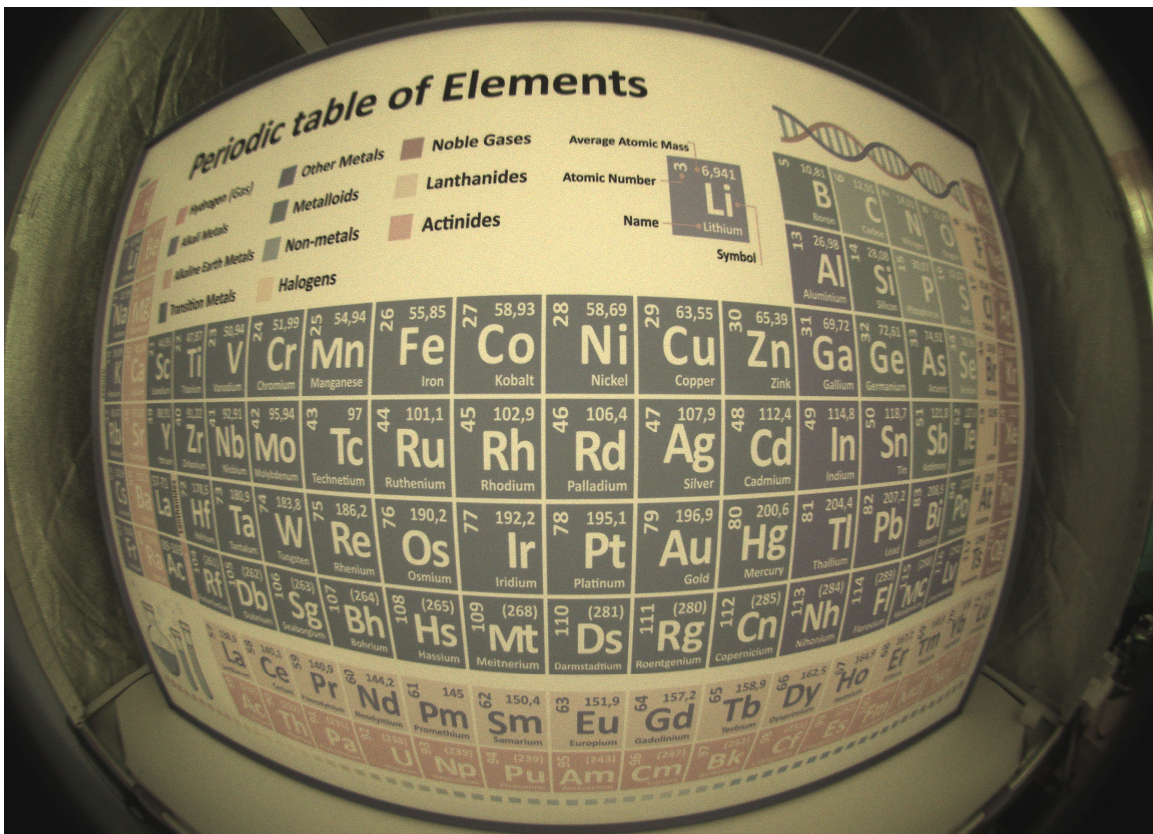
Bottom View

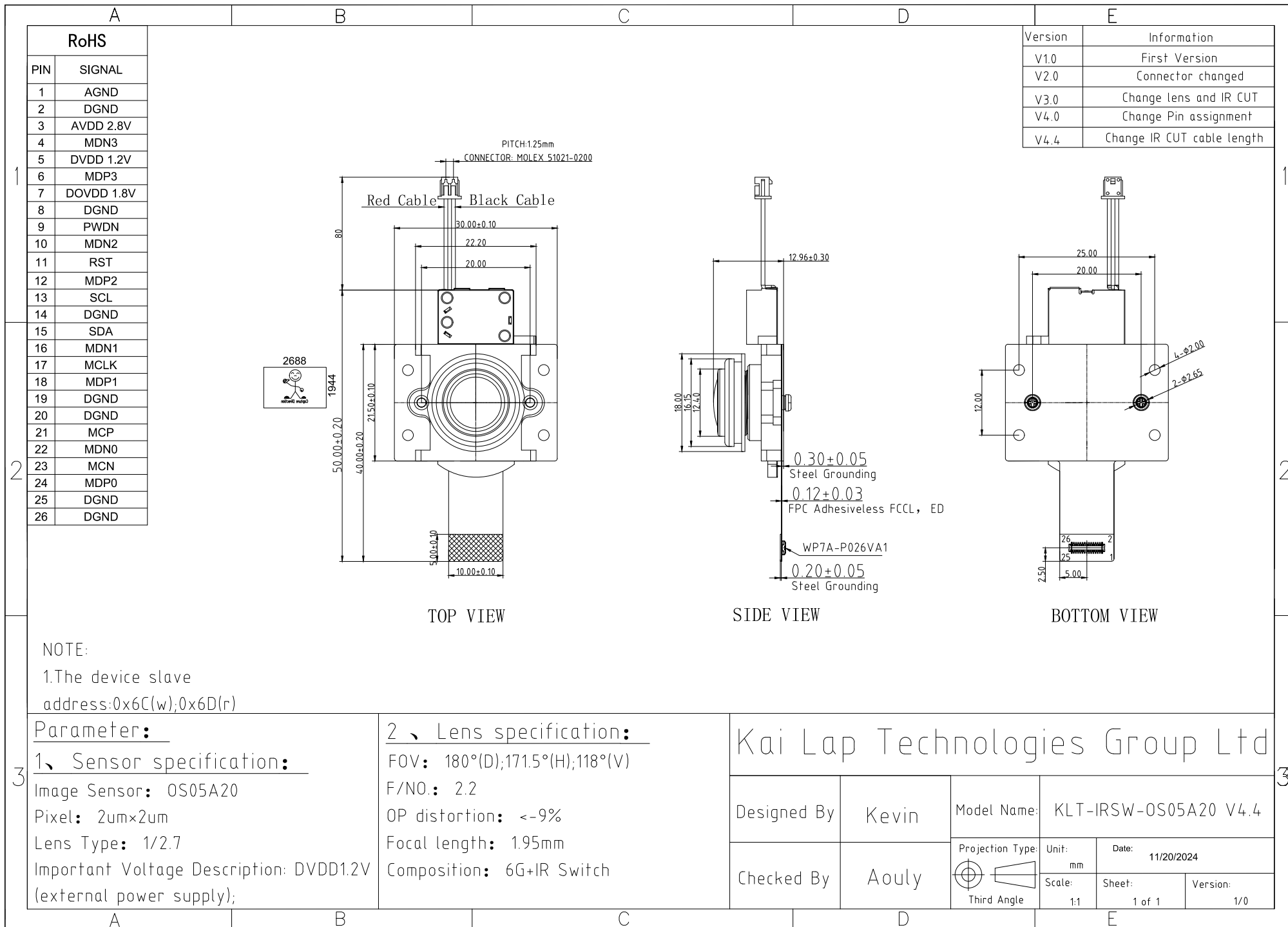


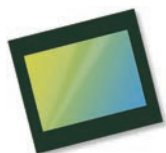
Mating Connector











OS05A20 5-megapixel product brief



available in
a lead-free
package

New OS05A20 Uses Nyxel® Technology to Bring Superior Image Quality to Video Surveillance Cameras Day or Night

The 5-megapixel OS05A20 is the world's first image sensor to implement Nyxel® technology, OmniVision's breakthrough near-infrared (NIR) technology that allows image sensors to see better and farther under low- and no-light conditions. By using Nyxel® technology and a 2 x 2 micron pixel, the OS05A20 PureCel® image sensor has the unique ability to capture high-quality, high-resolution day or night, making it ideally suited for professional surveillance systems.

Nyxel® technology combines thick-silicon pixel architectures with extended deep trench isolation (DTI) to improve quantum efficiency (QE) up to 3x for 850 nm sensitivity and up to 5x for 940 nm sensitivity, while

maintaining all other image-quality metrics. These improvements deliver unrivaled image quality, extended image-detection range and a reduced light-source requirement, leading to lower power consumption.

Available in a 1/2.7-inch optical format, the OS05A20 is capable of capturing full-resolution 2688 x 1944 video at 60 frames per second (fps), 1080p full high definition (HD) video at 120 fps, and 720p HD video at 180 fps. The sensor comes in a chip scale package (CSP).

Find out more at www.ovt.com.



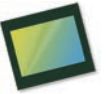
Applications

- Security Cameras
- High Resolution Consumer Cameras
- Action Cameras

Product Features

- 2 μm x 2 μm pixel
- optical size of 1/2.7"
- 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 images sizes:
 - 2688 x 1944
 - 1080p (1920x1080)
 - 720p (1280x720)
- supports 2x2 binning
- standard serial SCCB interface
- 12/10-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 SCCB support
- support for frame sync

OS05A20



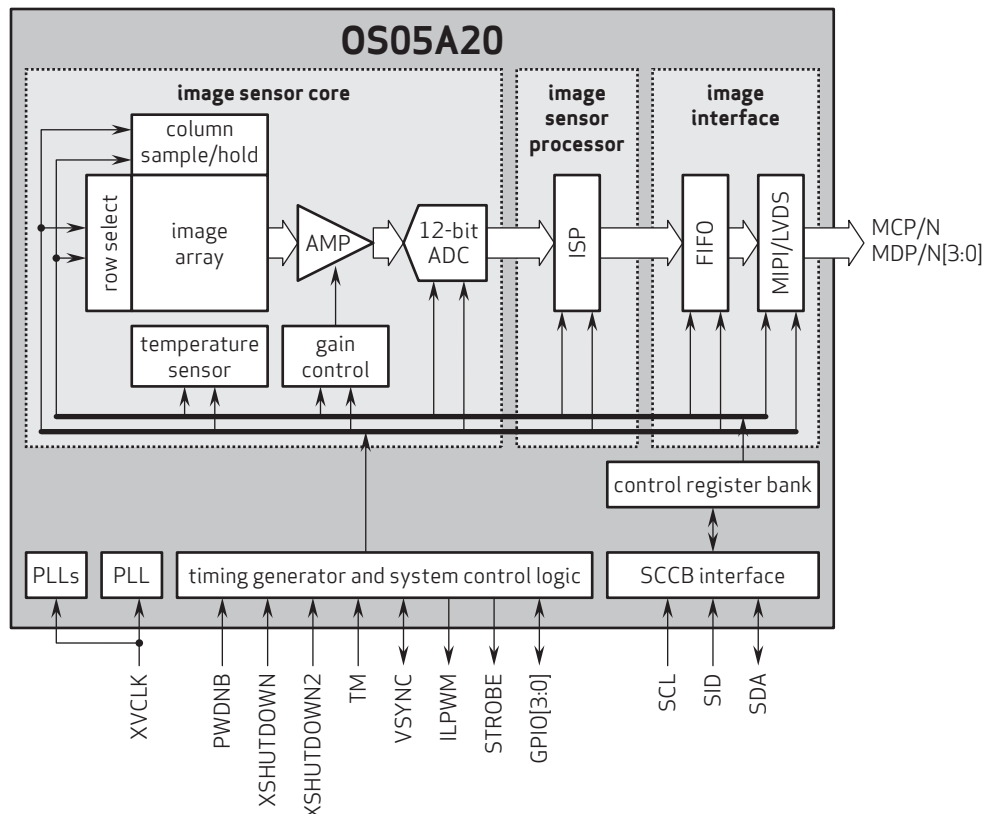
Ordering Information

- OS05A20-H73A-1B (color, lead-free) 73-pin CSP
- OS05A20-H73A-1C (color, lead-free) 73-pin CSP

Technical Specifications

- active array size: 2688 x 1944
- maximum image transfer rate:
 - 2688 x 1944: 60 fps
 - 2688 x 1520: 60 fps
- power supply:
 - core: 1.2V
 - analog: 2.8V
 - I/O: 1.8V
- power requirements:
 - active: 210 mW
 - standby: 2 mA
 - XSHUTDOWN: 2 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 RGB RAW
- lens size: 1/2.7"
- lens chief ray angle: 11° linear
- scan mode: progressive
- pixel size: 2.0 μm x 2.0 μm
- image area: 5434.56 μm x 3948.05 μm

Functional Block Diagram



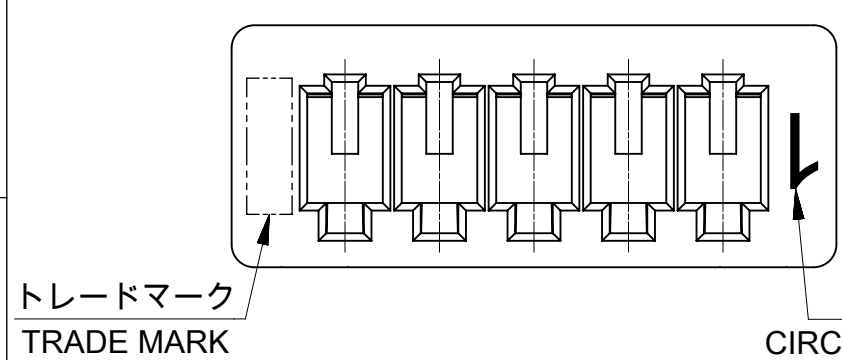
4275 Burton Drive
Santa Clara, CA 95054
USA

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

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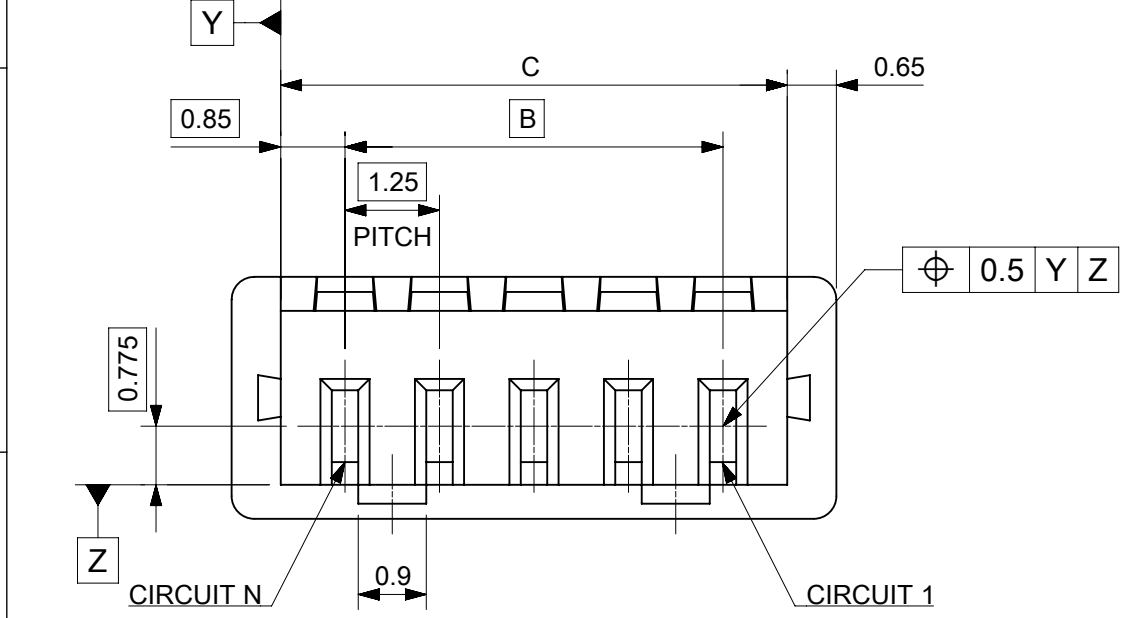
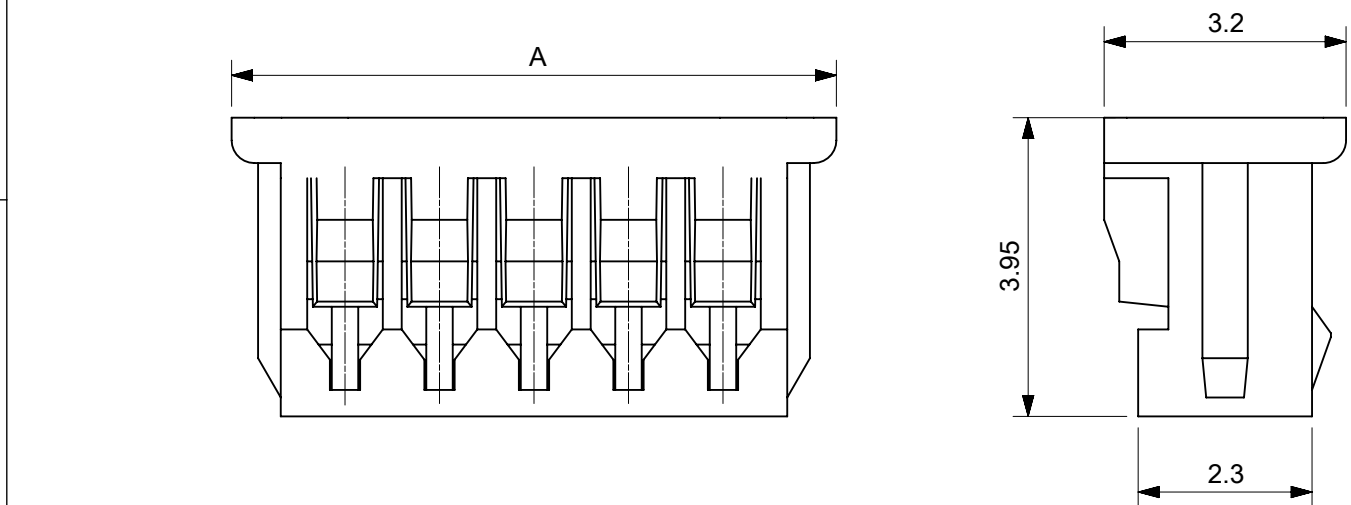
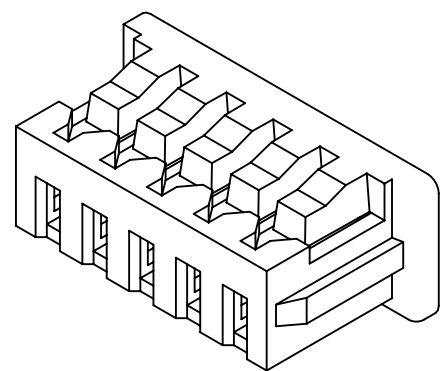
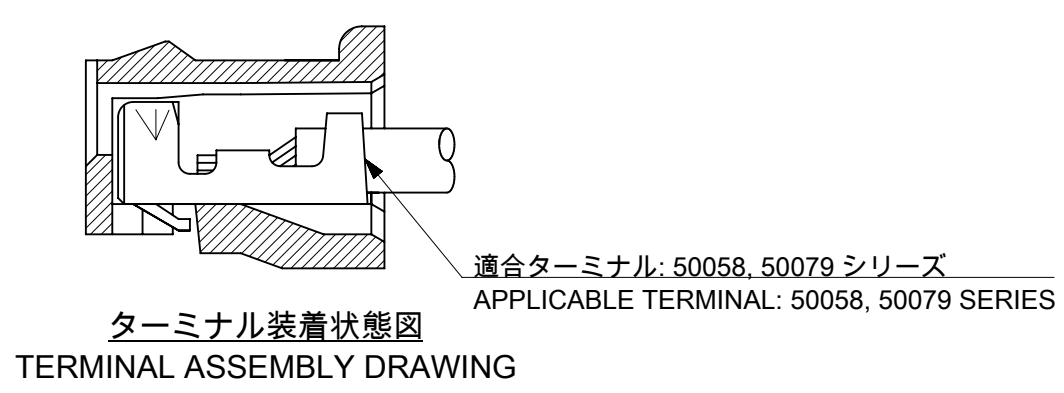


OmniVision



トレードマーク
TRADE MARK

回路番号 1 マーク
CIRCUIT 1 INDICATOR MARK



NOTES

1 材料 : TABLE 1 参照
MATERIAL : SEE TABLE 1

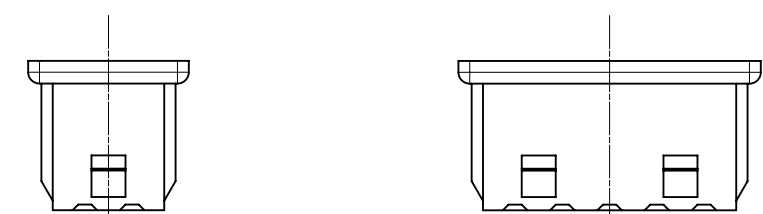
2 適合製品および各種仕様書についてはSHEET 2 を参照。
PLEASE REFER TO SHEET 2 FOR
APPLICABLE PRODUCTS AND SPECIFICATIONS.
APPLICABLE MATE PARTNER, APPLICABLE TERMINAL.

3 発注番号
ORDER NO.

51021**00

極数
CIRCUIT SIZE

4 ロックの数は、2,3極は1ロック、
4極以上は2ロック。
LOCKING WINDOW: ONE PLACE FOR 2 AND 3 CIRCUIT,
AND TWO PLACES FOR MORE THAN 4 CIRCUIT.



4 2, 3極ロック形状(1ロック) 4 4極以上ロック形状(2ロック)
FIGURE OF 2, 3 CIRCUIT (1 LOCK) FIGURE OF MORE THAN 4 CIRCUIT (2 LOCKS)

19.2	17.5	20.5	510211500	15
17.95	16.25	19.25	510211400	14
16.7	15	18	510211300	13
15.45	13.75	16.75	510211200	12
14.2	12.5	15.5	510211100	11
12.95	11.25	14.25	510211000	10
11.7	10	13	510210900	9
10.45	8.75	11.75	510210800	8
9.2	7.5	10.5	510210700	7
7.95	6.25	9.25	510210600	6
6.7	5	8	510210500	5
5.45	3.75	6.75	510210400	4
4.2	2.5	5.5	510210300	3
2.95	1.25	4.25	510210200	2
C	B	A	3 発注番号 ORDER NUMBER	極数 CIRCUIT SIZE
梱包形態 : ポリ袋			PACKING : POLYBAG	

1 TABLE 1

部品 PART	材質 MATERIAL
ハウジング HOUSING	ポリエステル(PBT), UL94V-0, 色 : ナチュラル(白) POLYESTER (PBT) , UL94V-0, COLOR : NATURAL(WHITE)
DOCUMENT STATUS	P1 RELEASE DATE 2022/04/19 08:41:20

FUNCTIONAL SYMBOLS	THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX ELECTRONIC TECHNOLOGIES, LLC AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION	CURRENT REV DESC: REVISED	molex			
FA = 0	DIMENSION UNITS mm	SCALE NTS	PICOBLADE 1.25 RECEPTACLE HOUSING			
FE = 0	GENERAL TOLERANCES (UNLESS SPECIFIED)		PRODUCT CUSTOMER DRAWING			
FE = 0	ANGULAR TOL ± 3.0 °		DOCUMENT NUMBER 510210000-SD			
DIVISIONAL SYMBOLS	4 PLACES	± 0.2	DOC TYPE PSD			
	3 PLACES	± 0.2	DOC PART 000			
	2 PLACES	± 0.2	REVISION B			
	1 PLACE	± 0.2	SHEET NUMBER 1 OF 2			
	0 PLACES	± 0.2				
DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS		THIRD ANGLE PROJECTION	DRAWING A3-SIZE	SERIES 51021	MATERIAL NUMBER SEE CHART	CUSTOMER GENERAL MARKET

NEW


0.4mm Pitch, Stacking Type
Board-to-Board (FPC) Connector

CONNECTOR

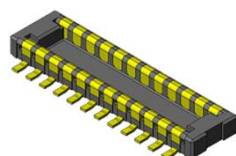
MB-0228-3

September 2017

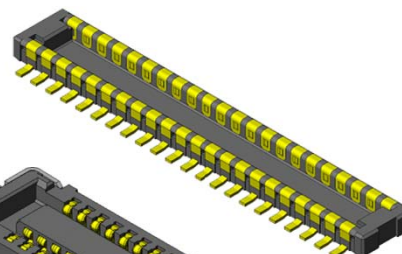
WP7 Series

RoHS Compliant

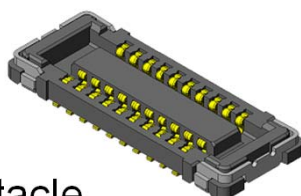
Plug



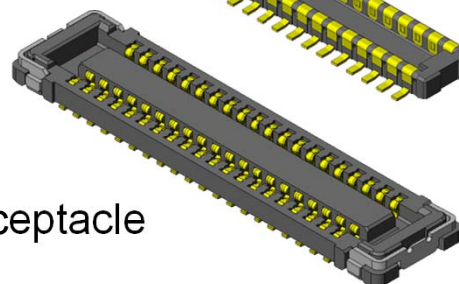
Plug



Receptacle



Receptacle



The WP7 Series is a low-profile board-to-board (FPC) connector with 0.4mm pitch spacing that is ideal for high-density mounting in slim information communication devices like mobile phones, smartphones, LCD, and notebook PC.

To satisfy different product function requirements, a low pin count type and a high pin count type (WP7A / WP7B) are available with the same mounting pattern.

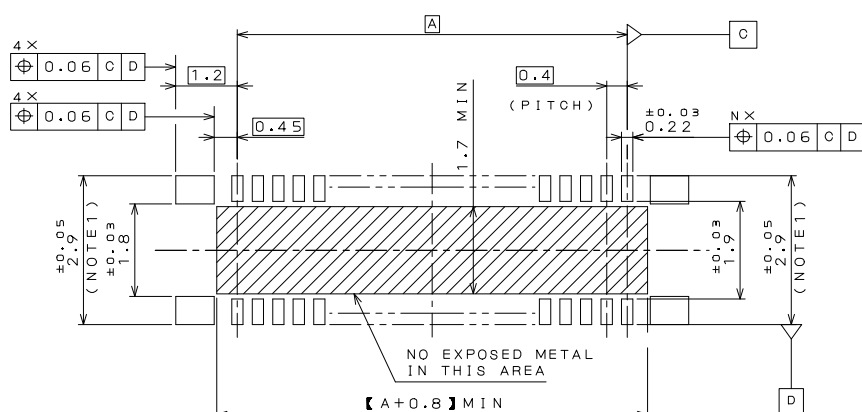
Features

- 0.4mm pitch, 2 rows, 0.7mm stacking height.
- Contact structure ensures high wear-resistance and high contact reliability.
- Secure hold-downs prevent insulator breakage and peeling from FPC.
- 2-point contact design to resist twisting stress.
- Pb-free (Ni barrier on contact prevents solder wicking.)
- Receptacle contacts adopt an optimal configuration according to the pin counts.
 High removal force WP7A (low pin count: 10-32 pos.)
 Low insertion force WP7B (high pin count 34-70 pos.)
- Signal contact supports 10 Gbps transmission rate.
- Supports MIPI, USB3.1 Gen2, and PCIe Gen3 transmission.

General Specifications

- | | |
|---|---|
| <ul style="list-style-type: none"> ■(WP7A) No. of Contacts:
10, 16, 20, 22, 24, 26,
28, 30, 32 pos. ■(WP7B) No. of Contacts:
34, 40, 50, 60, 70 pos. ■Pitch: 0.4mm, 2 rows ■Operating Temperature:
-40 Deg. C to +85 Deg. C ■Contact Resistance:
70mΩ max. (initial) ■Life Time: 30 mating cycles | <ul style="list-style-type: none"> ■Rated Current: AC, DC 0.3A each per terminal ■Rated Voltage: AC, DC 50V ■Insulation Resistance: 100MΩ min. (initial) ■Dielectric Withstanding Voltage:
AC250Vr.m.s for 1 minute ■(WP7A) total insertion force:
1.50N x n max. (n: No. of pos.) ■(WP7A) total removal force:
0.15N x n min. (n: No. of pos.) ■(WP7B) total insertion force:
1.00N x n max. (n: No. of pos.) ■(WP7B) total removal force:
0.10N x n min. (n: No. of pos.) |
|---|---|

WP7A Receptacle



DIMENSIONS 寸法 NUMBER OF CONTACT 芯数	A	B	C	D
10	1.6	4.6	2.8	2.0
16	2.8	5.8	4.0	2.0
20	3.6	6.6	4.8	2.0
22	4.0	7.0	5.2	2.0
24	4.4	7.4	5.6	2.0
26	4.8	7.8	6.0	5.0
28	5.2	8.2	6.4	5.0
30	5.6	8.6	6.8	5.0
32	6.0	9.0	7.2	5.0

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 4/7

Cameras Applications



Automotive Driver Pilot



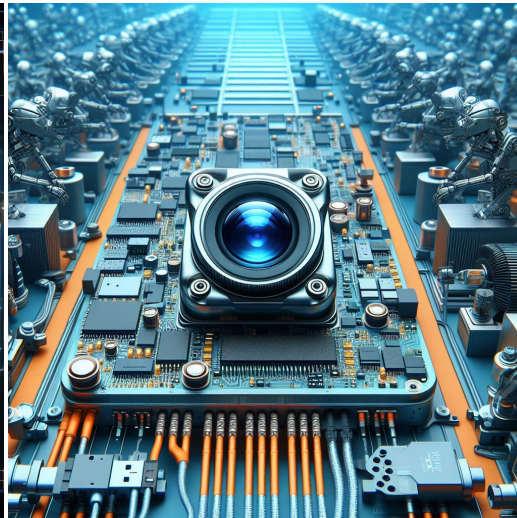
Live Streaming



Video Conference



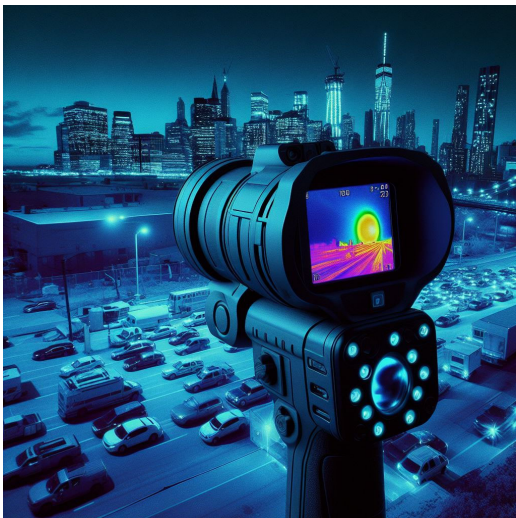
Eye Tracker Biometric Detection



Machine Vision



Agricultural Monitor



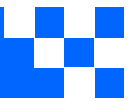
Night Vision Security



Drone and Sports Eagle Eyes



Interactive Pet Camera



Cameras Applications

your BEST camera module partner



IMAGING DEVICES



Camera Module Pinout Definition Reference Chart

OmniVision Sony Samsung On-Semi Aptina Himax GalaxyCore PixArt SmartSens Sensors	
Pin Signal	Description
DGND GND	ground for digital circuit
AGND	ground for analog circuit
PCLK DCK	DVP PCLK output
XCLR PWDN XSHUTDOWN STANDBY	power down active high with internal pull-down resistor
MCLK XVCLK XCLK INCK	system input clock
RESET RST	reset active low with internal pull-up resistor
NC NULL	no connect
SDA SIO_D SIOD	SCCB data
SCL SIO_C SIOC	SCCB input clock
VSYNC XVS FSYNC	DVP VSYNC output
HREF XHS	DVP HREF output
DOVDD	power for I/O circuit
AFVDD	power for VCM circuit
AVDD	power for analog circuit
DVDD	power for digital circuit
STROBE FSTROBE	strobe output
FSIN	synchronize the VSYNC signal from the other sensor
SID	SCCB last bit ID input
ILPWM	mechanical shutter output indicator
FREX	frame exposure / mechanical shutter
GPIO	general purpose inputs
SLASEL	I2C slave address select
AFEN	CEN chip enable active high on VCM driver IC
MIPI Interface	
MDN0 DN0 MD0N DATA_N DMO1N	MIPI 1st data lane negative output
MDP0 DP0 MD0P DATA_P DMO1P	MIPI 1st data lane positive output
MDN1 DN1 MD1N DATA2_N DMO2N	MIPI 2nd data lane negative output
MDP1 DP1 MD1P DATA2_P DMO2P	MIPI 2nd data lane positive output
MDN2 DN2 MD2N DATA3_N DMO3N	MIPI 3rd data lane negative output
MDP2 DP2 MD2P DATA3_P DMO3P	MIPI 3rd data lane positive output
MDN3 DN3 MD3N DATA4_N DMO4N	MIPI 4th data lane negative output
MDP3 DP3 MD3P DATA4_P DMO4P	MIPI 4th data lane positive output
MCN CLKN CLK_N DCKN	MIPI clock negative output
MCP CLKP MCP CLK_P DCKN	MIPI clock positive output
DVP Parallel Interface	
D0 DO0 Y0	DVP data output port 0
D1 DO1 Y1	DVP data output port 1
D2 DO2 Y2	DVP data output port 2
D3 DO3 Y3	DVP data output port 3
D4 DO4 Y4	DVP data output port 4
D5 DO5 Y5	DVP data output port 5
D6 DO6 Y6	DVP data output port 6
D7 DO7 Y7	DVP data output port 7
D8 DO8 Y8	DVP data output port 8
D9 DO9 Y9	DVP data output port 9
D10 DO10 Y10	DVP data output port 10
D11 DO11 Y11	DVP data output port 11

Camera Reliability Test

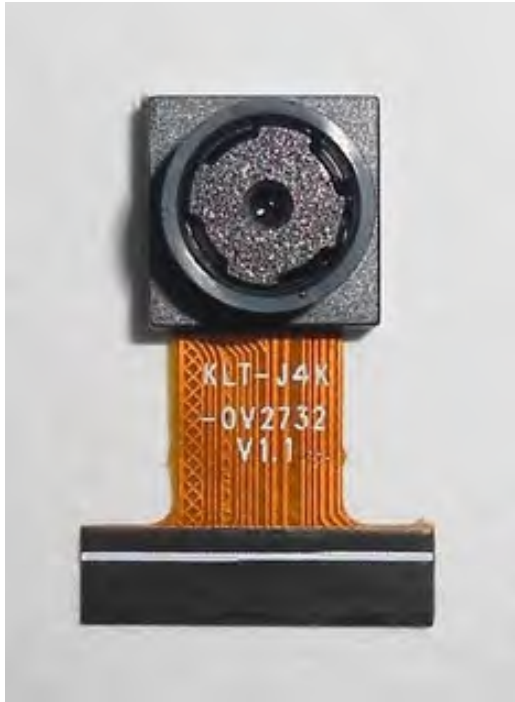
Reliability Inspection Item			Testing Method	Acceptance Criteria
Category		Item		
Environmental	Storage Temperature	High 60°C 96 Hours	Temperature Chamber	No Abnormal Situation
		Low -20°C 96 Hours	Temperature Chamber	No Abnormal Situation
	Operation Temperature	High 60°C 24 Hours	Temperature Chamber	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	Not Allowed
			Bright Pixel	Black Board	Not Allowed In the Image Center
Dark Pixel			White board	Not Allowed In the Image Center	
Blurry			The Naked Eye	Not Allowed	
No Image			The Naked Eye	Not Allowed	
Vertical Line			The Naked Eye	Not Allowed	
Horizontal Line			The Naked Eye	Not Allowed	
Light Leakage			The Naked Eye	Not Allowed	
Blinking Image			The Naked Eye	Not Allowed	
Bruise			Inspection Jig	Not Allowed	
Resolution			Chart	Follows Outgoing Inspection Chart Standard	
Color			The Naked Eye	No Issue	
Noise			The Naked Eye	Not Allowed	
Corner Dark			The Naked Eye	Less Than 100px By 100px	
Color Resolution			The Naked Eye	No Issue	
Dimension			Height	The Naked Eye	Follows Approval Data Sheet
	Width	The Naked Eye	Follows Approval Data Sheet		
	Length	The Naked Eye	Follows Approval Data Sheet		
	Overall	The Naked Eye	Follows Approval Data Sheet		

KLT Package Solutions

KLT Camera Module



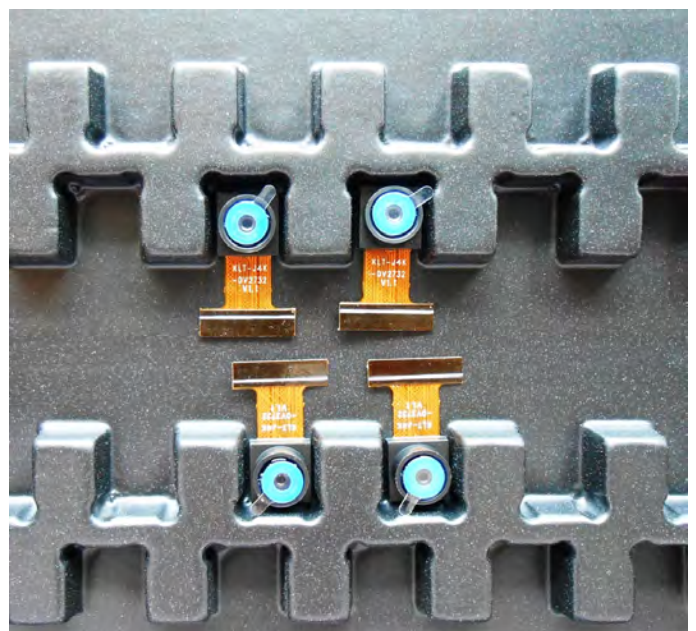
Complete with Lens Protection Film



Tray with Grid and Space

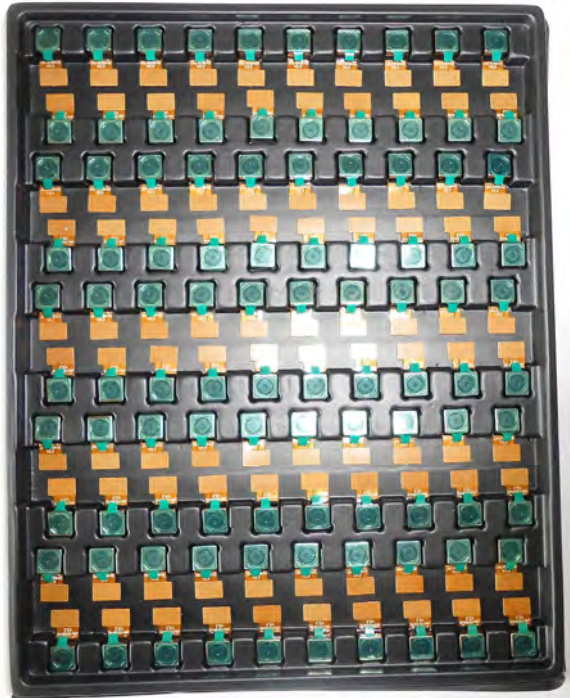


Place Cameras on the Tray



Camera Modules Package Solution

Full Tray of Cameras



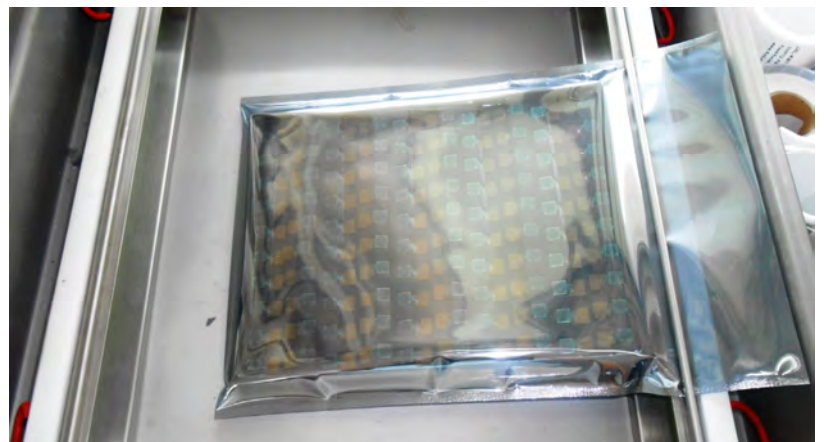
Cover Tray with Lid



Put Tray into Anti-Static Bag



Vacuum the Anti-Static Bag



Camera Modules Package Solution

Sealed Vacuum Bag with Labels

1. Model and Description 2. Quantity 3. Shipping Date 4. Caution



Large Order Package Solution

Place Foam Sheets Between Trays



Foam Sheets are Slightly Larger than Trays



Place Foam Sheets and Trays into Box



Foam Sheets are Tightly Fitting Box



Small Order Package Solution

Place Foam Sheets and Trays into Small Box



Foam Sheets are Nicely Fitting the Small Box



Package in Small Box for Shipment



Place Small Boxes into Larger Box



Carbon Box Package Solution

Seal the Carbon Box

Final Package Labelled Box



Carbon Box Ready for Shipment

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



Sample Order Package Solution

Place Sample into Small Anti-Static Bag



Place Connectors into Small Ant-Static Bag



Sample Labels on the Small Bag

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



Connectors Large Order Package Solution

Connectors in a Wheel



Label Connectors in the Wheel



The Wheel is Perfectly Fitting the Box

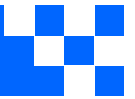


Connectors Box Ready for Shipment





CMOS CAMERA MODULES



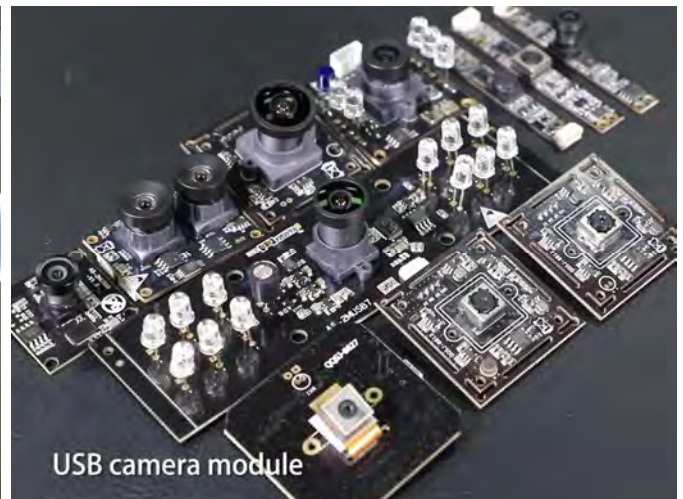
your BEST camera module partner

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 subsequent events.



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



CMOS CAMERA MODULES



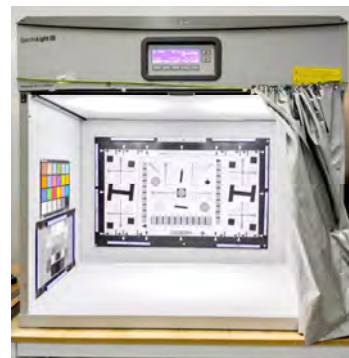
your BEST camera module partner

KLT Strength

Powerful Factory



Professional Service



Promised Delivery



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