

## JAL-OV8865-A898B V2.3

### 8MP OmniVision OV8865 MIPI Interface Auto Focus Camera Module



Front View



Back View

#### Specifications

Camera Module No.	JAL-OV8865-A898B V2.3
Resolution	8MP
Image Sensor	OV8865
Sensor Type	1/3.2"
Pixel Size	1.4 um x 1.4 um
EFL	3.85 mm
F.NO	2.20
Pixel	3264 x 2448
View Angle	72.9°(DFOV) 61.1°(HFOV) 47.9°(VFOV)
Lens Dimensions	8.50 x 8.50 x 6.00 mm
Module Size	16.55 x 9.00 mm
Module Type	Auto Focus
Interface	MIPI
Auto Focus VCM Driver IC	DW9714P
Lens Model	KLT-LENS-50008A1
Lens Type	650nm IR Cut
Operating Temperature	-30°C to +85°C
Mating Connector	24-5804-030-000-829

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### 8MP OmniVision OV8865 MIPI Interface Auto Focus Camera Module



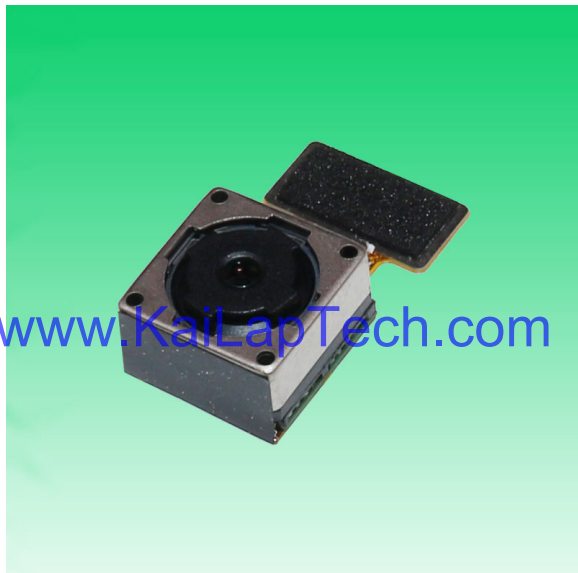
Top View

[www.KaiLapTech.com](http://www.KaiLapTech.com)

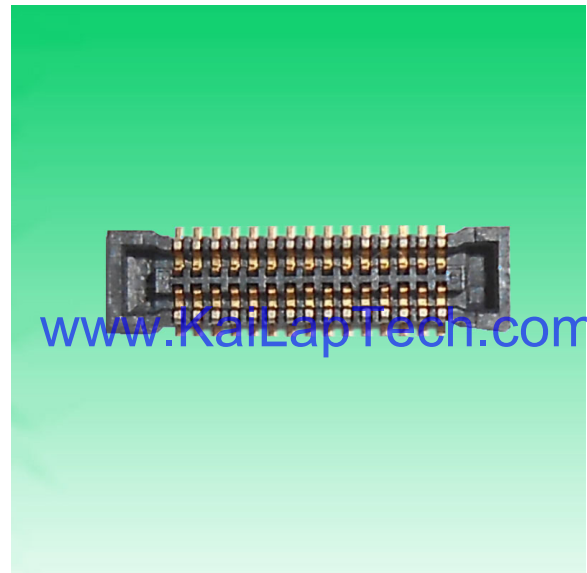


Side View

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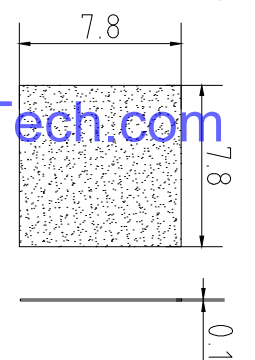
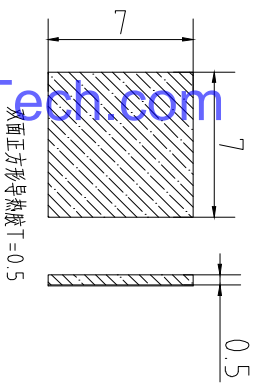
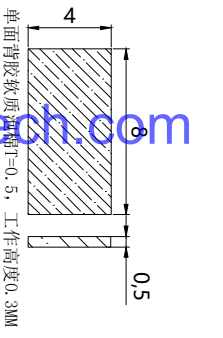
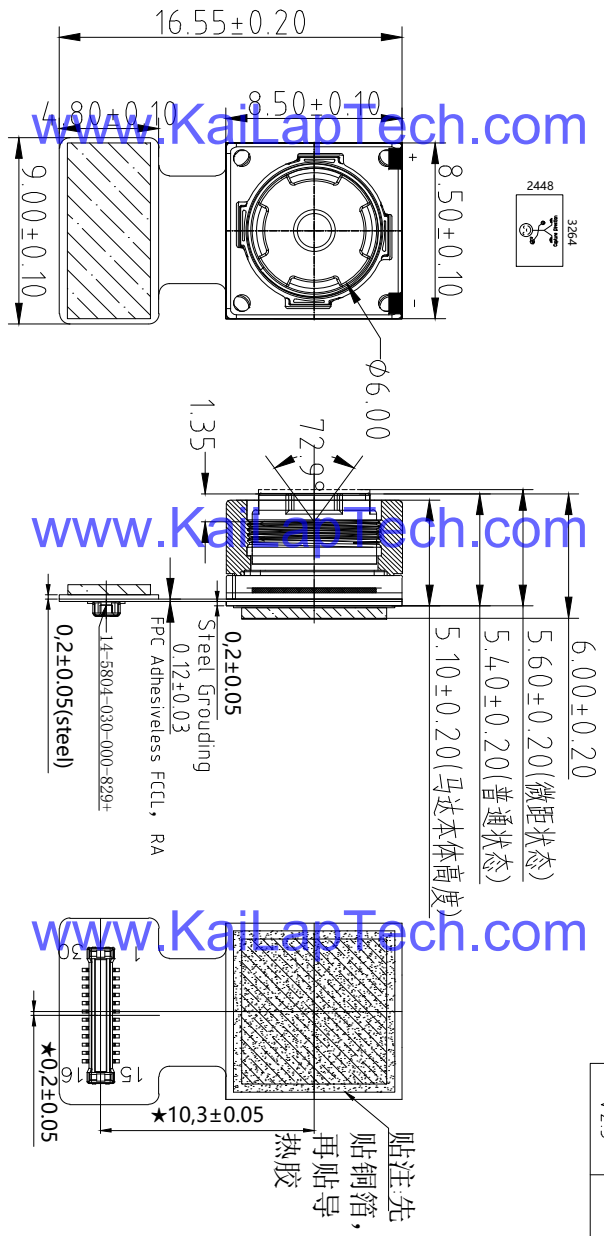
Bottom View



Mating Connector

Version	Information	Date
V2.1	Update capture derrection	5-8-2021
V2.3	Change VCM	6-8-2021

NO	SIGNAL
1	AFGND
2	VAF
3	DVDD1.8V
4	D0VDD1.8V
5	NC
6	AGND
7	AVDD2.8V
8	DGND
9	I2C-SDA
10	I2C-SCL
11	RST
12	PWDN1
13	DGND
14	MCLK
15	DGND
16	DP3
17	DN3
18	DGND
19	DP2
20	DN2
21	DGND
22	DP1
23	DN1
24	DGND
25	CLKP
26	CLKN
27	DGND
28	DPO
29	DNO
30	DGND



**Parameter:**

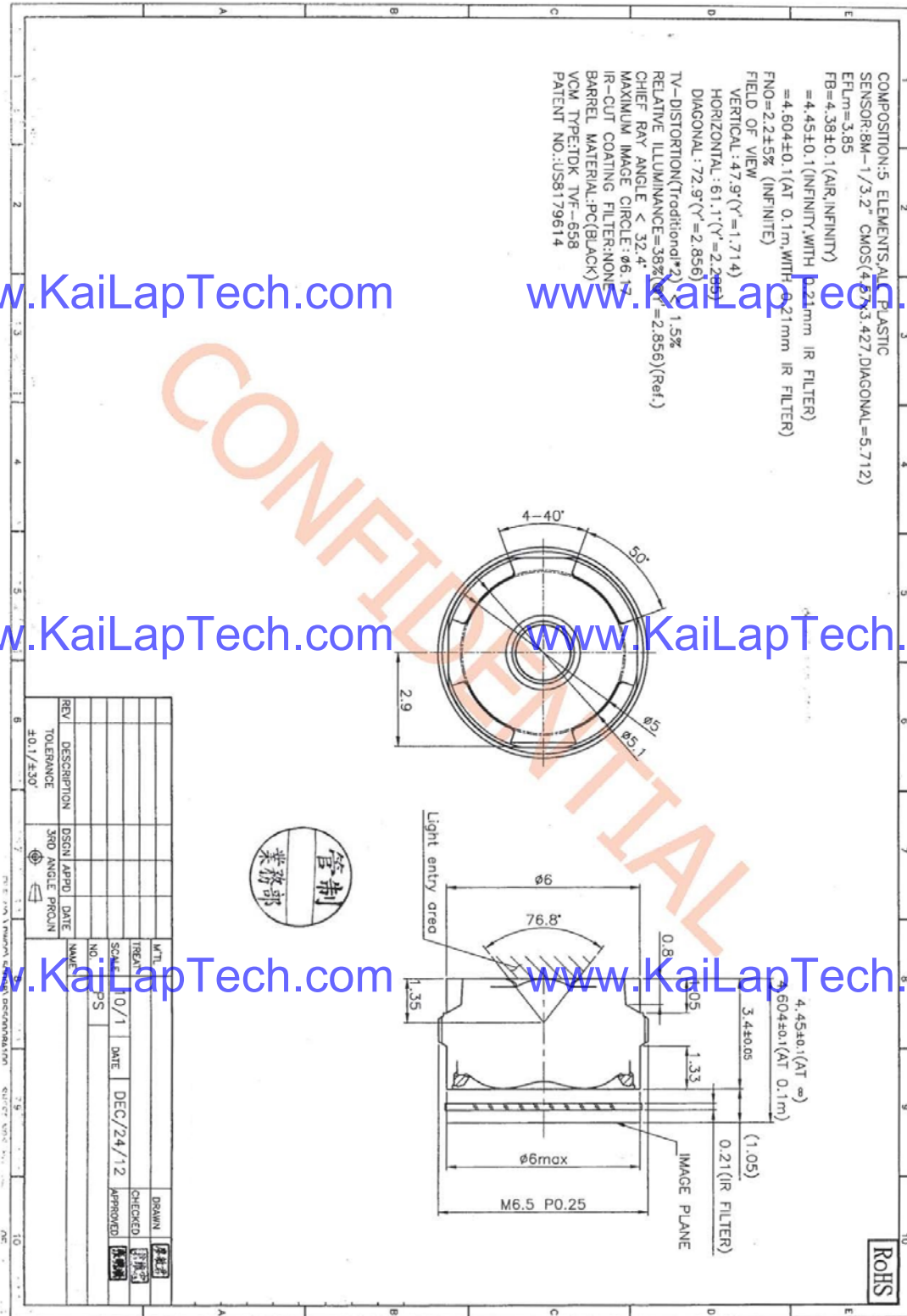
- Sensor specification:**
  - Image Sensor: OV8865
  - Pixel: 1.4umx1.4um
  - Lens Type: 1/4
  - Important Voltage Description: DVDD1.2V (external power supply);
- Lens specification:**
  - FOV: 72.9°(D);61.1°(H);47.9°(V);
  - F/NO: 2.2
  - TV Distortion: <1.5%
  - Focal length: 3.85mm
  - Composition: 5P+IR FILTER
  - IR Cut Coating: 650nm±10nm@50%

Kai Lap Technologies Group Ltd

Designed By	Kevin	Model Name:	JAL-OV8865-A898B V2.3
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-50008A1



**FEATURES**

- 120mA output driver with 10-bit resolution DAC
- Smart Actuator Control (SAC™) modes
- Supply voltage ( $V_{DD}$ ): 2.3V to 4.3V
- I/O voltage ( $V_{IN}$ ): 1.8V to  $V_{DD}$
- Fast mode and Fast mode plus I<sup>2</sup>C interface compatible
- Power On Reset (POR)
- Power Down (PD) mode current consumption less than 1uA
- Package: 6-pin WLCSP (0.77mm x 1.14mm x 0.30mm)

**APPLICATIONS**

- Mobile camera
- Digital still camera
- Camcorder
- Web camera
- Action camera

**GENERAL DESCRIPTION**

The DW9714P designed for linear control of Voice Coil Motors (VCM). This device is compatible with DW9714. The DW9714P has a single 10-bit DAC with 120mA output current sink capability. This device features SAC™ mode which can minimize the mechanical vibration and achieve very fast mechanical settling time. The SAC™ is protected by patent and registered trademark of DONGWOON ANATECH.

The DW9714P operates from a single 2.3V to 4.3V supply. The internal DAC is controlled via an I<sup>2</sup>C serial interface that operates at clock rate up to 1MHz. The I<sup>2</sup>C address for the DW9714P is 0x18. The DW9714P offers PD mode with current consumption less than 1uA.

The DW9714P can be used for auto focus applications in mobile cameras, digital still cameras, camcorders, web cameras and action cameras.

**TYPICAL APPLICATION CIRCUIT**

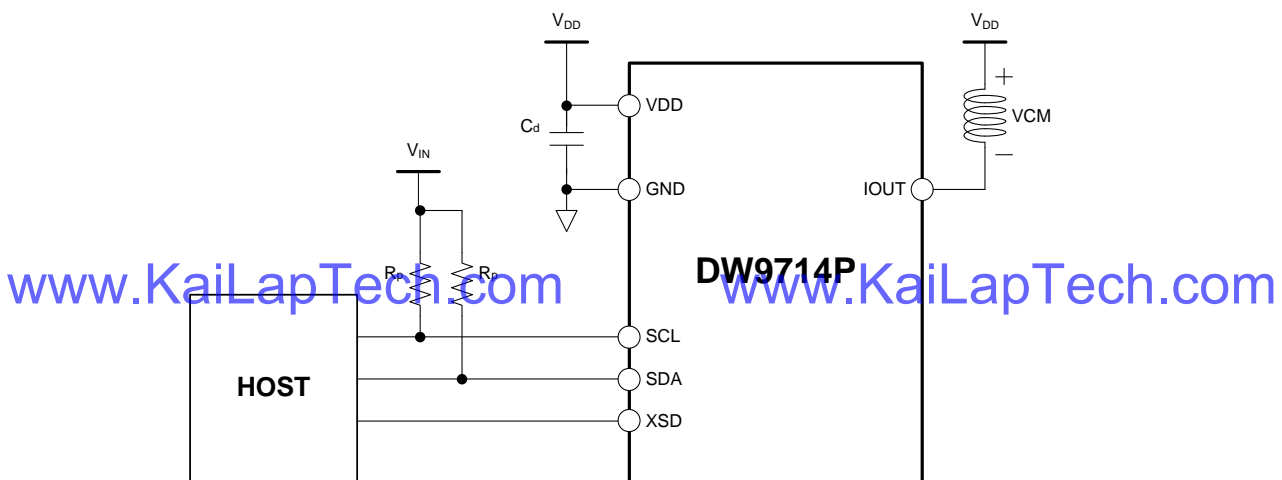
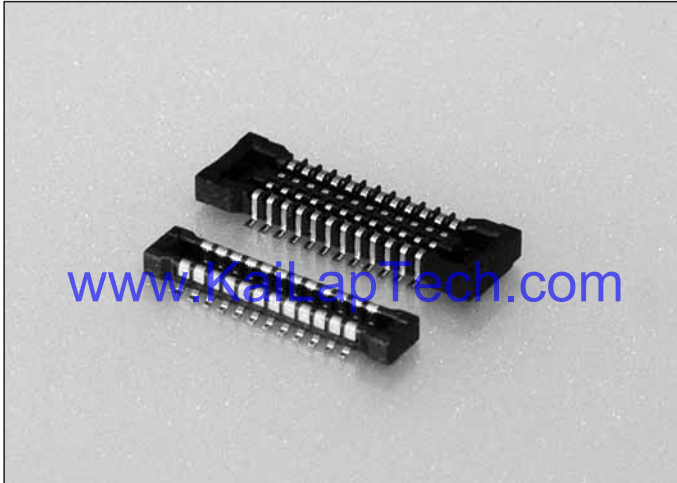


Figure 1. Typical application circuit

# 0.4<sub>mm</sub>Pitch

# Series 5804



シリーズ (Series)	5804
基板間高さ (Stacking Height)	0.9mm
極間隔 (Pitch)	0.4mm
極数 (No. of Positions)	10~80
定格電流 (Rated Current)	DC 0.3A
定格電圧 (Rated Voltage)	DC 50V
耐電圧 (D.W.Voltage)	AC 250Vrms/min.
コンタクト材質 (Contact Material)	銅合金 Copper alloy
インシュレータ材質 (Insulator Material)	耐熱樹脂 Heat resistance plastic
使用温度範囲 (Operating Temperature)	-40~85°C

## SERIES 5804

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### ◇概要

5804シリーズは、市場における携帯電話やデジタルAV機器等の小型化、薄型化の要求に基づき開発された0.4mmピッチ、嵌合高さ0.9mmの超低背基板対基板コネクタです。幅寸法は2.4mmと、より一層の省面積化を実現しています。

### ◇Outline

Series 5804 is a 0.4mm pitch and ultra low profile Board to Board connector with 0.9mm in mating height is developed to meet marketing needs for minimum size of cell phones, digital AV equipment, etc. A great deal of space saving is achieved with 2.4mm in width.

### ◇特長

- (1) スリム・低背でありながらコネクタ裏面に下壁を設け金属の露出がなく、製品の端子ランド対向間にパターン配線が可能であり、高密度実装に最適な構造です。
- (2) 高い接触信頼性を実現するために、接触構造は振動や落下衝撃に強い挟み込み構造を採用するとともに、接触部は飛散したフラックスや付着した異物を排除する独自の構造を採用しました。
- (3) 嵌合時のロック構造は、独自のロック構造を採用。低背でありながらも優れたクリック感と、抜去時の保持力を強化しています。

### ◇Features

- (1) Pattern can be laid out between connector leads, which is suitable for high density package, because no metal is exposed on the bottom of the connector besides its slim and low profile.
- (2) The pinching structure, highly resistant to vibration and drop shock, is adopted in contacts and the original structure excluding splashed flux or foreign matters attached is adopted on contacting points in order to obtain high contacting reliability.
- (3) Original locking structure is adopted for mating lock mechanism that realizes the firm clicking response and enhances the retention force when connectors unmated even with their low profile.

本カタログには推奨めっきを掲載しております。めっき種類・仕様、ならびに生産対応可能極数については営業部に御確認願います。  
Recommended plating types are mentioned in this catalogue.  
For other plating types and their specifications, and available numbers of positions, please feel free to contact our sales department.



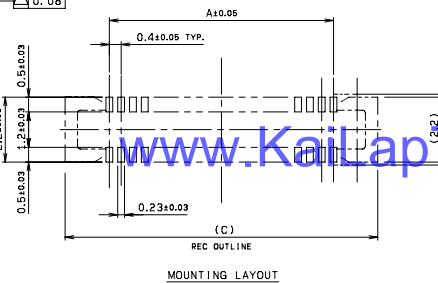
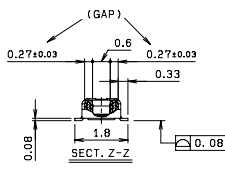
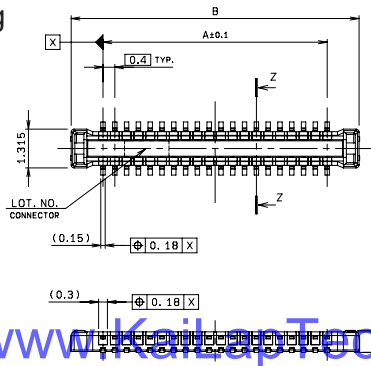
0.4mm Pitch

SERIES

# 5804 プラグ/リセ ST SMT

## Plug/Receptacle Vertical SMT

### ● Plug

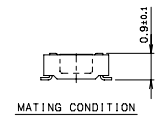
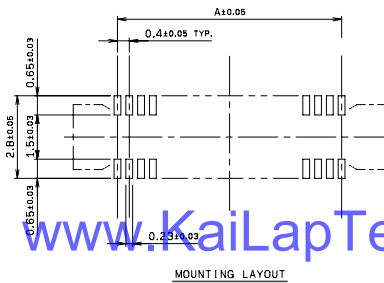
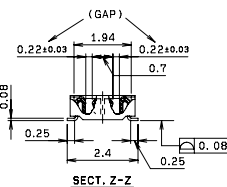
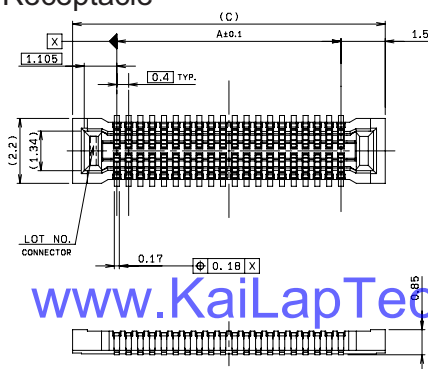


極数 NO. OF POS.	A	B	C
10	1.6	3.76	4.6
12	2.0	4.16	5.0
14	2.4	4.56	5.4
16	2.8	4.96	5.8
18	3.2	5.36	6.2
20	3.6	5.76	6.6
22	4.0	6.16	7.0
24	4.4	6.56	7.4
26	4.8	6.96	7.8
30	5.6	7.76	8.6
32	6.0	8.16	9.0
34	6.4	8.56	9.4
40	7.6	9.76	10.6
44	8.4	10.56	11.4
50	9.6	11.76	12.6
54	10.4	12.56	13.4
60	11.6	13.76	14.6
70	13.6	15.76	16.6
80	15.6	17.76	18.6

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### ● Receptacle

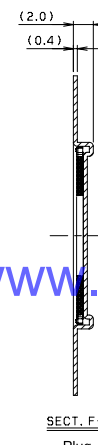
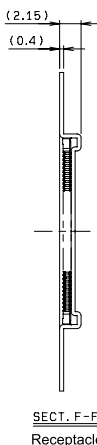
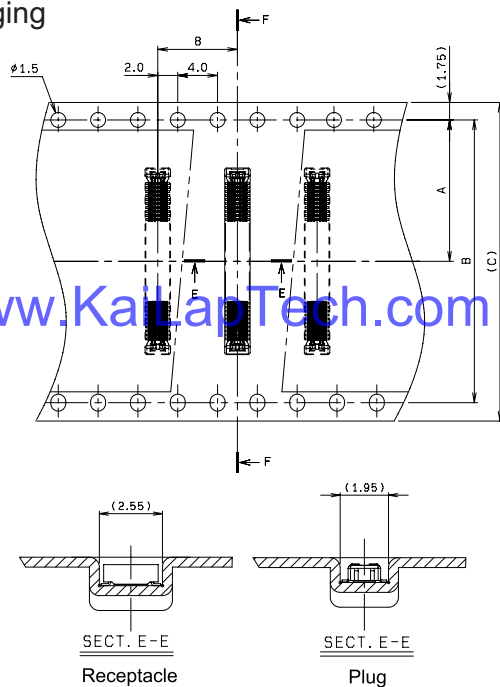


極数 NO. OF POS.	A	C
10	1.6	4.6
12	2.0	5.0
14	2.4	5.4
16	2.8	5.8
18	3.2	6.2
20	3.6	6.6
22	4.0	7.0
24	4.4	7.4
26	4.8	7.8
30	5.6	8.6
32	6.0	9.0
34	6.4	9.4
40	7.6	10.6
44	8.4	11.4
50	9.6	12.6
54	10.4	13.4
60	11.6	14.6
70	13.6	16.6
80	15.6	18.6

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### ● Packaging



極数 NO. OF POS.	A	B	C
10	5.5	-	12.0
12	5.5	-	12.0
14	7.5	-	16.0
16	7.5	-	16.0
18	7.5	-	16.0
20	7.5	-	16.0
22	7.5	-	16.0
24	7.5	-	16.0
26	7.5	-	16.0
30	7.5	-	16.0
32	7.5	-	16.0
34	11.5	-	24.0
40	11.5	-	24.0
44	11.5	-	24.0
50	11.5	-	24.0
54	11.5	-	24.0
60	11.5	-	24.0
70	11.5	-	24.0
80	14.2	28.4	32.0

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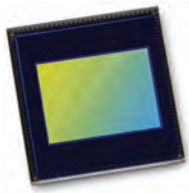
注文コード ORDERING CODE  
**X4 5804 OXX 000 829+**

**RoHS 対応品**  
RoHS Compliant Product

1 : Plug  
2 : Receptacle  
極数 Number of positions

注) 生産可能極数については営業部に ご確認願います。  
Note) Feel free to contact our sales department for available numbers of positions.

梱包数量 : 3000個/リール  
PACKING QUANTITY : 3000/Reel



# OV8865 8MP product brief



## High-Performance, Low-Power 8-Megapixel Image Sensor for Mainstream Smartphones and Tablets



available in  
a lead free  
package

OmniVision's OV8865 is a low-power, high-performance 8-megapixel camera solution for mainstream smartphones and tablets. Utilizing an improved 1.4-micron OmniBSI-2™ pixel, the OV8865 delivers best-in-class pixel performance in a smaller, more power efficient package compared to the previous generation OV8835 sensor.

The OV8865 offers a number of performance improvements including a five percent improvement in dynamic range and a 50 percent reduction in dark current, resulting in superior high- and low-light images. Furthermore, the OV8865 consumes considerably less power than the OV8835, achieving the sub 200 mW benchmark preferred by high-end mobile device manufacturers.

The 1/3.2-inch OV8865 supports an active array of 3264 x 2448 (8-megapixels) operating at 30 frames per second (fps) for high-speed photography. The sensor is also capable of capturing 1080p high-definition (HD) video at 30 fps or 720p at 60 fps.

The OV8865 fits into an industry standard 8.5 x 8.5 x 5 mm package.

Find out more at [www.ovt.com](http://www.ovt.com).





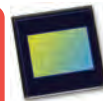
## Applications

- Cellular Phones
- Tablets
- PC Multimedia

## Product Features

- automatic black level calibration (ABLC)
- programmable controls for frame rate, mirror and flip, cropping, and windowing
- static defective pixel canceling
- supports output formats: 10-bit RAW RGB (MIPI)
- supports horizontal and vertical subsampling
- supports image sizes: 3264x2448, 3264x1836, 2616x1584, 1632x1224, 1408x792
- supports 2x2 binning, re-sampling filter
- standard serial SCCB interface
- up to 4-lane MIPI serial output interface
- embedded 1536 bytes one-time programmable (OTP) memory for part identification, etc.
- two on-chip phase lock loops (PLLs)
- programmable I/O drive capability
- built-in temperature sensor

# OV8865



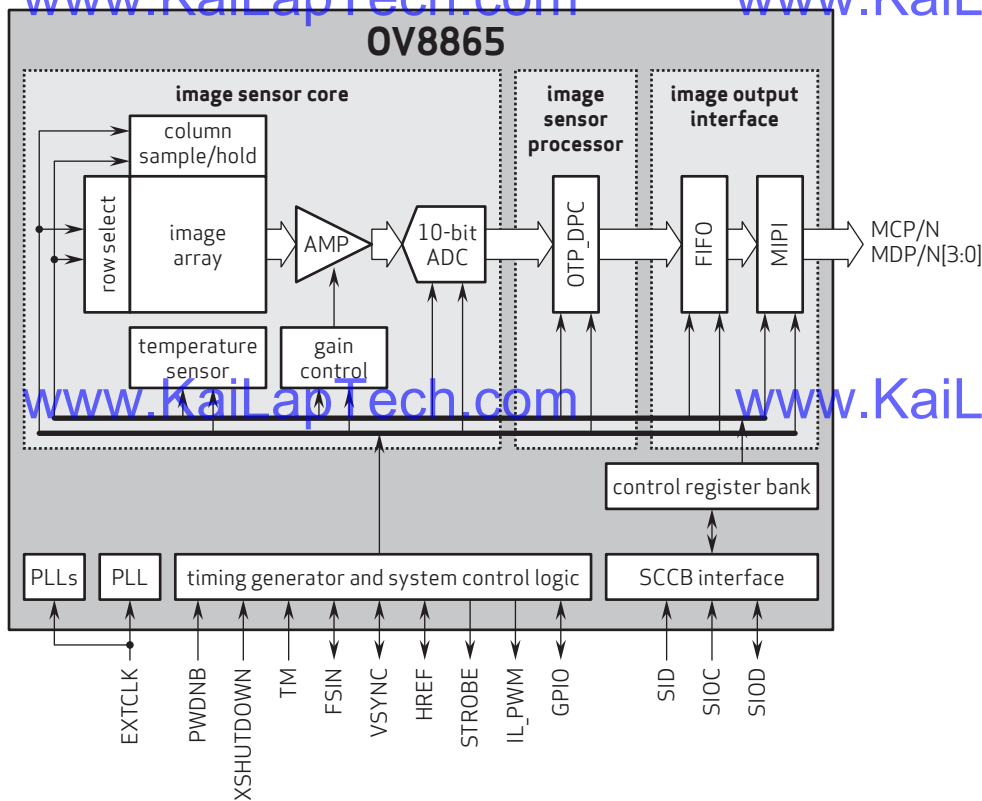
## Ordering Information

- OV08865-G04A-1D**  
(color, chip probing, 200  $\mu\text{m}$  backgrinding, reconstructed wafer with good die)

## Product Specifications

- active array size:** 3264 x 2448
- input clock frequency:** 6 - 27 MHz
- power supply:**
  - core: 1.2V
  - analog: 2.8V
  - I/O: 1.8V, 2.8V
- max S/N ratio:** 36.7 dB
- dynamic range:** 68.8 dB
- power requirements:**
  - active: 196 mW (full resolution @ 30 fps)
  - XSHUTDOWN: 5  $\mu\text{W}$
- maximum image transfer rate:** 30 fps
- sensitivity:** 940 mV/lux-sec
- scan mode:** progressive
- temperature range:**
  - operating: -30°C to +85°C junction temperature
  - stable image: 0°C to +60°C junction temperature
- pixel size:** 1.4  $\mu\text{m}$  x 1.4  $\mu\text{m}$
- dark current:** 20 e<sup>-</sup>/sec @ 60°C junction temperature
- output formats:** 10-bit RAW RGB data
- image area:** 4614.4  $\mu\text{m}$  x 3472  $\mu\text{m}$
- lens size:** 1/3.2"
- die dimensions:** 5850  $\mu\text{m}$  x 5700  $\mu\text{m}$
- lens chief ray angle:** 32.2° non-linear

## Functional Block Diagram



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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							
<b>MIPI Interface</b>									
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							
<b>DVP Parallel Interface</b>									
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



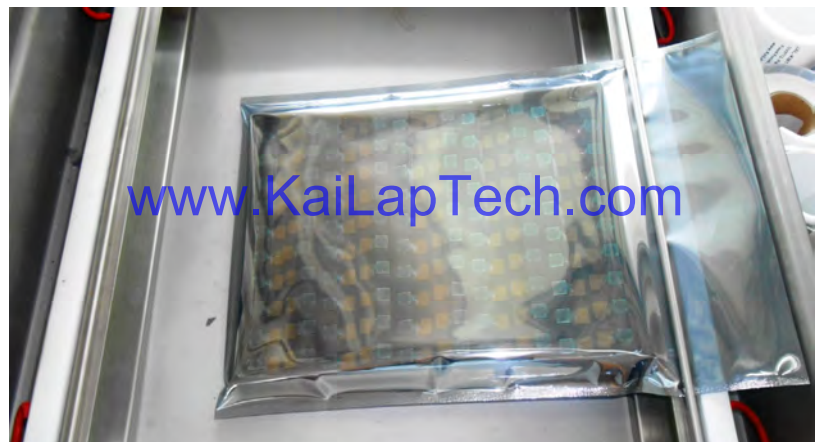
Cover Tray with Lid



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**





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## Large Order Package Solution

Place Foam Sheets Between Trays

Foam Sheets are Slightly Larger than Trays

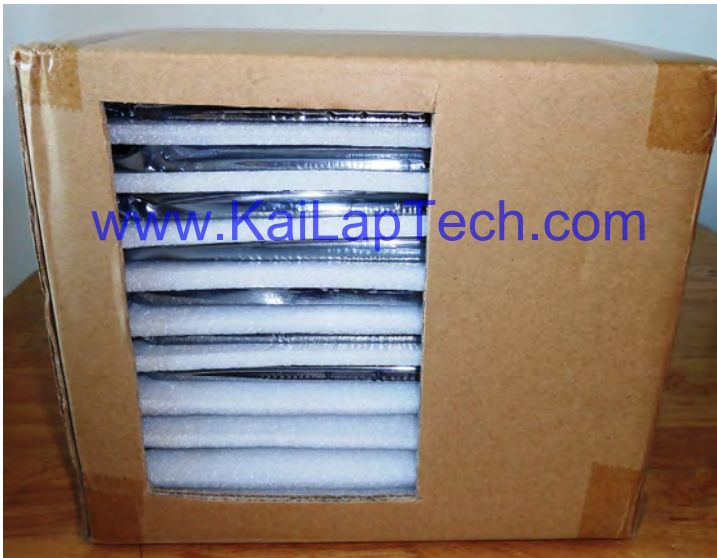


[www.KaiLapTech.com](http://www.KaiLapTech.com)

[www.KaiLapTech.com](http://www.KaiLapTech.com)

Place Foam Sheets and Trays into Box

Foam Sheets are Tightly Fitting Box



[www.KaiLapTech.com](http://www.KaiLapTech.com) [sales@KaiLapTech.com](mailto:sales@KaiLapTech.com) Tel: (852) 6908 1256 Fax: (852) 3017 6778

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## Small Order Package Solution

Place Foam Sheets and Trays into Small Box



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[www.KaiLapTech.com](http://www.KaiLapTech.com)

Package in Small Box for Shipment

Foam Sheets are Nicely Fitting the Small Box



[www.KaiLapTech.com](http://www.KaiLapTech.com)

[www.KaiLapTech.com](http://www.KaiLapTech.com)

Place Small Boxes into Larger Box



[www.KaiLapTech.com](http://www.KaiLapTech.com)



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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



## 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.

[www.KaiLapTech.com](http://www.KaiLapTech.com)

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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](http://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.







# CMOS CAMERA MODULES



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## KLT Strength

### Powerful Factory



### Professional Service



### Promised Delivery



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