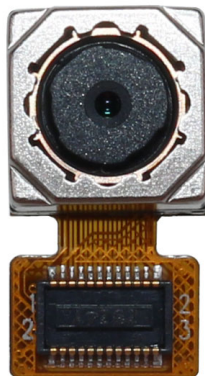


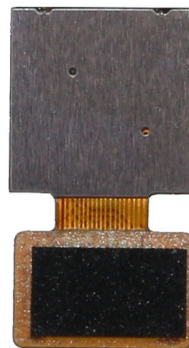


## HAMPO-H7MA-OV5647 V1.0

### 5MP OmniVision OV5647 MIPI Interface Auto Focus Camera Module



Front View



Back View

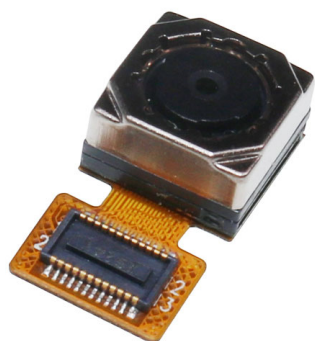
#### Specifications

Camera Module No.	HAMPO-H7MA-OV5647 V1.0
Resolution	5MP
Image Sensor	OV5647
Sensor Type	1/4"
Pixel Size	1.4 um x 1.4 um
EFL	3.20 mm
F.NO	2.80
Pixel	2592 x 1944
View Angle	70.0°(DFOV) 58.6°(HFOV) 45.3°(VFOV)
Lens Dimensions	8.50 x 8.50 x 4.97 mm
Module Size	15.60 x 8.50 mm
Module Type	Auto Focus
Interface	MIPI
Auto Focus VCM Driver IC	DW9714
Lens Model	HAMPO-LENS-M5182
Lens Type	650nm IR Cut
Operating Temperature	-30°C to +70°C
Mating Connector	24-5805-024-000-829



## HAMPO-H7MA-OV5647 V1.0

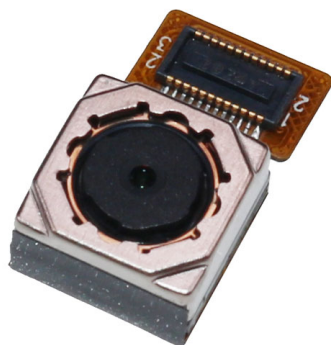
### 5MP OmniVision OV5647 MIPI Interface Auto Focus Camera Module



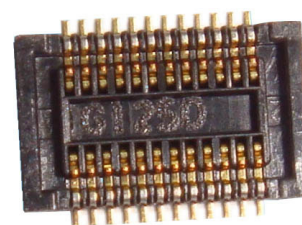
Top View



Side View

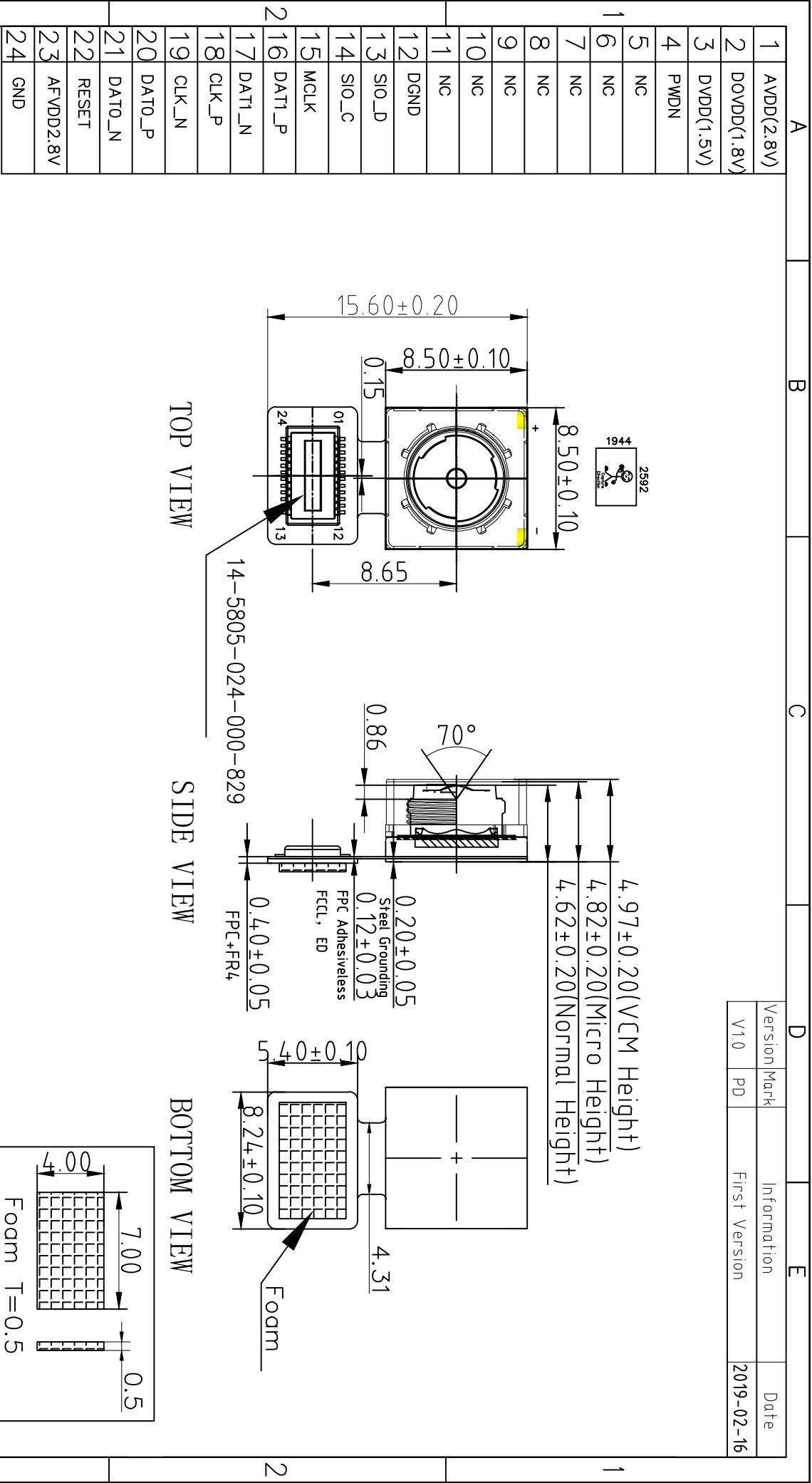


Bottom View



Mating Connector

Version	Mark	Information	Date
V1.0	PD	First Version	2019-02-16



Parameter:

1、Sensor specification:

Image Sensor: OV5647

Pixel: 1.4um×1.4um

Lens Type: 1/4

Important Voltage Description: DVDD1.5V (external power supply);

2、Lens specification:

FOV: 70°

F/NO.: 2.8

TV distortion: <1.0%

Focal length: 3.2mm

Composition: 4P

3

3

2

2

1

1

A

B

C

D

E

Designed By	Kevin	Model Name:	H7MA-0V5647 V1.0	
Checked By	Aouly_Yan	Projection Type:	Unit: mm	Material: -----
		Third Angle	Scale: 1:1	Sheet: 1 of 1
				Version: 1/0

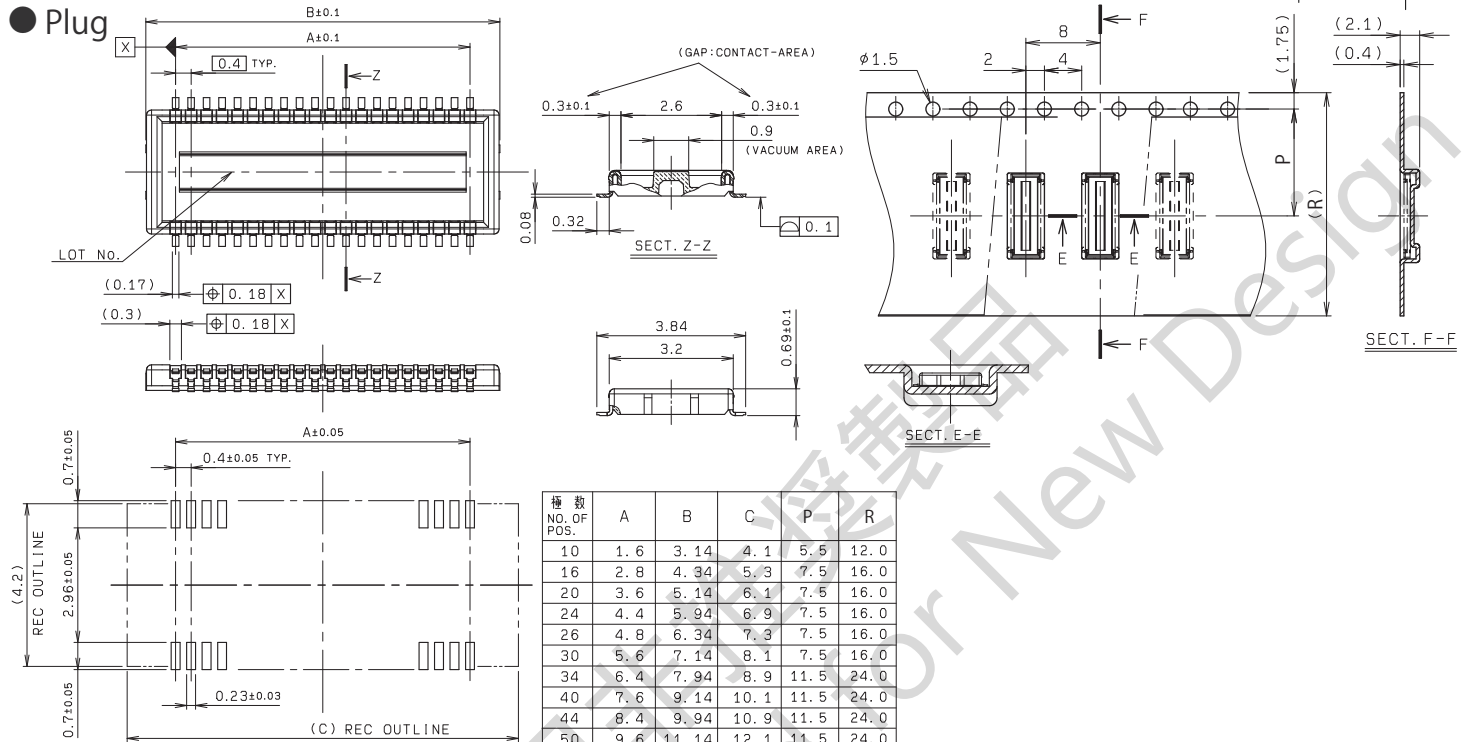
# HAMPO-LENS-M5182

[illegible]

# 0.4mm Pitch 5805 Series

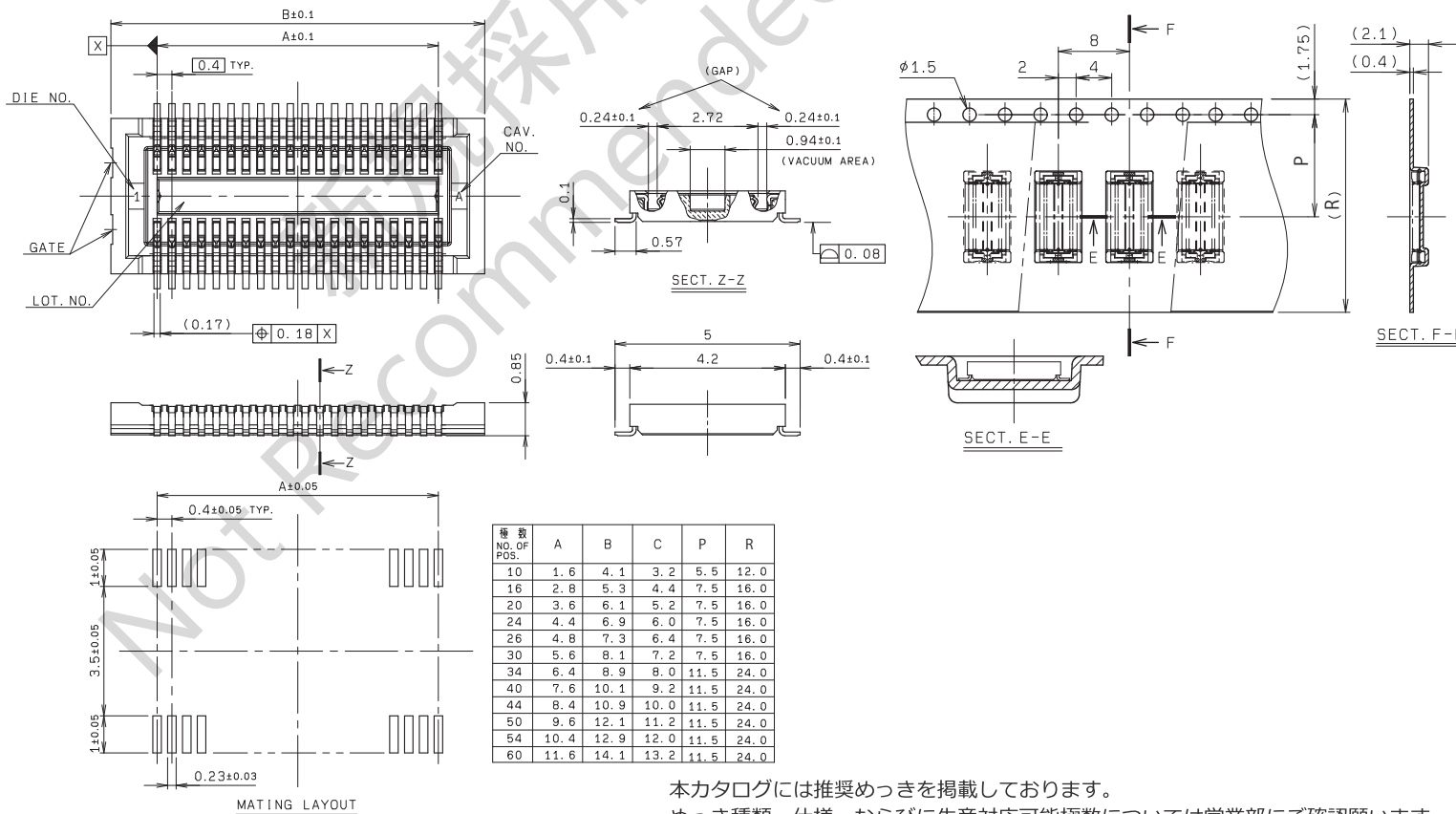
0.4mm ピッチ 嵌合高さ1.0mm 金具無し SMT  
0.4mm Pitch, Stacking Height=1.0mm, Without Metal tab, SMT

## ● Plug



## ● Receptacle

MOUNTING LAYOUT



## 注文コード/Ordering Code

Plug

Part No. 14 5805 0XX 020 829S+

Receptacle

Part No. 24 5805 0XX 000 829S+

極数 No. of Pos.

極数 No. of Pos.

RoHS 対応品  
RoHS Compliant Product

本カタログには推奨めっきを掲載しております。

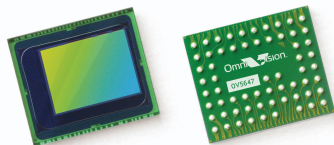
めっき種類・仕様、ならびに生産対応可能極数については営業部にご確認願います。

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.

梱包数量：3,000 個/リール  
PACKING QUANTITY: 3,000/Reel





# OV5647 5-megapixel product brief



## 5-megapixel 1/4" Image Sensor with 1.4 $\mu\text{m}$ OmniBSI Technology Offering HD Video



available in  
a lead-free  
package

The OV5647 is a 5-megapixel CMOS image sensor built on OmniVision's proprietary 1.4-micron OmniBSI™ backside illumination pixel architecture. The OV5647 delivers 5-megapixel photography in addition to high frame rate of 720p/60 and 1080p/30 high-definition (HD) video capture in an industry standard camera module size of 8.5 x 8.5 x 5 mm, making it an ideal solution for the mainstream mobile phone market.

The 720p/60 HD video is captured in full field of view (FOV) with 2x2 binning to double the sensitivity and improve signal-to-noise ratio (SNR). The post binning re-sampling filter helps minimize spatial and aliasing artifacts to provide superior image quality.

OmniBSI technology offers significant performance benefits over front-side illumination technology, such as increased sensitivity per unit area, improved quantum efficiency,

reduced crosstalk and photo response non-uniformity, which all contribute to significant improvements in image quality and color reproduction. Additionally, OmniVision CMOS image sensors use proprietary sensor technology to improve image quality by reducing or eliminating common lighting/electrical sources of image contamination, such as fixed pattern noise and smearing to produce a clean, fully stable color image.

The low power OV5647 supports a digital video parallel port or high-speed two-lane MIPI interface, and provides full-frame, windowed or binned 10-bit images in RAW RGB format. It offers all required automatic image control functions, including automatic exposure control, automatic white balance, automatic band filter, automatic 50/60 Hz luminance detection, and automatic black level calibration.

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

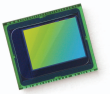
## Applications

- Mobile Phones
- Digital Still Cameras
- PC Multimedia

## Product Features

- 1.4  $\mu\text{m}$  x 1.4  $\mu\text{m}$  pixel with OmniBSI technology for high performance (high sensitivity, low crosstalk, low noise)
- optical size of 1/4"
- automatic image control functions:
  - automatic exposure control (AEC)
  - automatic white balance (AWB)
  - automatic band filter (ABF)
  - automatic 50/60 Hz luminance detection
  - automatic black level calibration (ABLC)
- programmable controls for frame rate, AEC/AGC 16-zone size/position/weight control, mirror and flip, cropping, windowing, and panning
- image quality controls: lens correction, defective pixel canceling
- support for output formats: 8-/10-bit raw RGB data
- support for video or snapshot operations
- support for LED and flash strobe mode
- support for internal and external frame synchronization for frame exposure mode
- support for 2x2 binning for better SNR in low light conditions
- post binning resampling filter to minimize spatial/aliasing artifacts on 2x2 binned image
- support for horizontal and vertical sub-sampling
- standard serial SCCB interface
- digital video port (DVP) parallel output interface
- MIPI interface (two lanes)
- 32 bytes of embedded one-time programmable (OTP) memory
- on-chip phase lock loop (PLL)
- embedded 1.5V regulator for core power
- programmable I/O drive capability, I/O tri-state configurability
- support for black sun cancellation

# OV5647



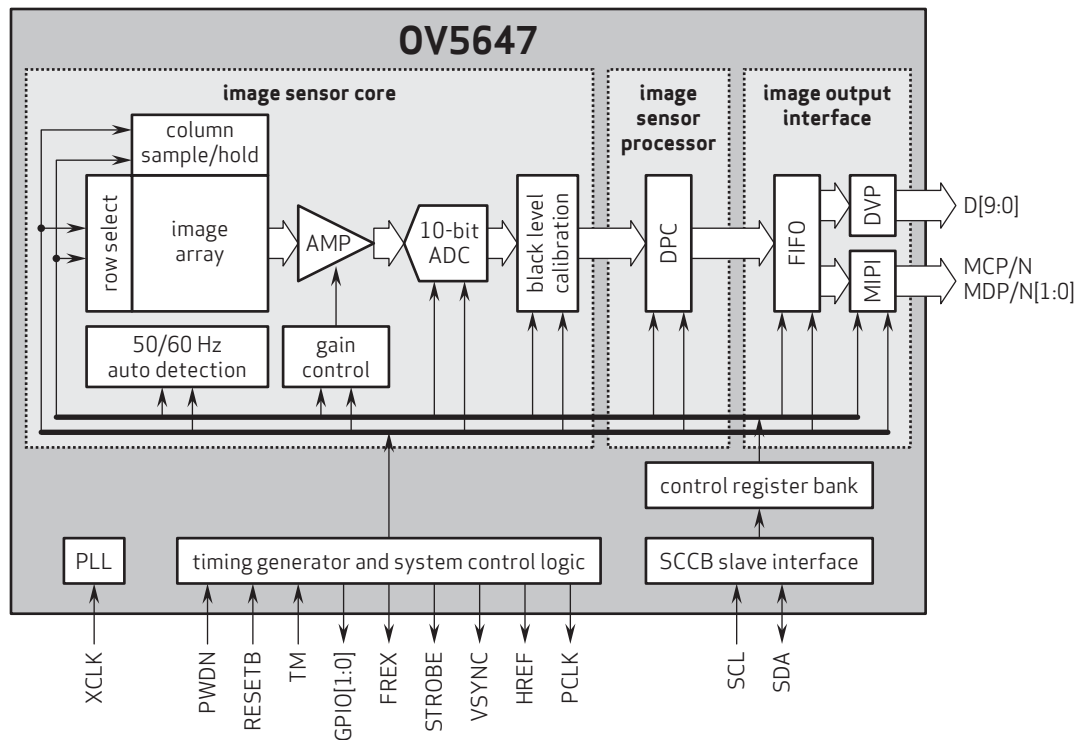
## Ordering Information

- OV05647-G04A  
(color, chip probing, 200  $\mu\text{m}$  backgrinding, reconstructed wafer)

## Product Specifications

- active array size: 2592 x 1944
- power supply:
  - core: 1.5V  $\pm 5\%$  (with embedded 1.5V regulator)
  - analog: 2.6 - 3.0V (2.8V typical)
  - I/O: 1.7 - 3.0V
- power requirements:
  - active: 96 mA
  - standby: 20  $\mu\text{A}$
- temperature range:
  - operating: -30°C to 70°C junction temperature
  - stable image: 0°C to 50°C junction temperature
- output formats: 8-/10-bit RGB RAW data
- lens size: 1/4"
- lens chief ray angle: 24°
- input clock frequency: 6 - 27 MHz
- max S/N ratio: 34 dB
- dynamic range: 67 dB @ 8x gain
- maximum image transfer rate:
  - QXGA (2592x1944): 15 fps
  - 1080p: 30 fps
  - 960p: 45 fps
  - 720p: 60 fps
  - VGA (640x480): 90 fps
- sensitivity: 600 mV/lux-sec
- shutter: rolling shutter
- maximum exposure interval: 1968 x  $t_{\text{row}}$
- pixel size: 1.4  $\mu\text{m}$  x 1.4  $\mu\text{m}$
- dark current: 8 mV/sec @ 50°C junction temperature
- image area: 3673.6  $\mu\text{m}$  x 2738.4  $\mu\text{m}$
- die dimensions: 5520  $\mu\text{m}$  x 4700  $\mu\text{m}$

## 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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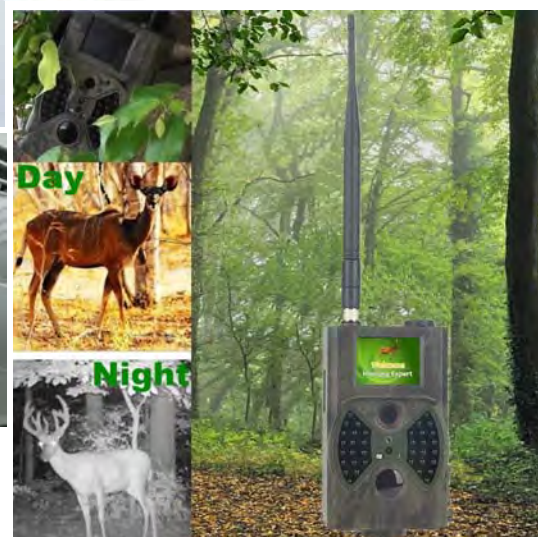
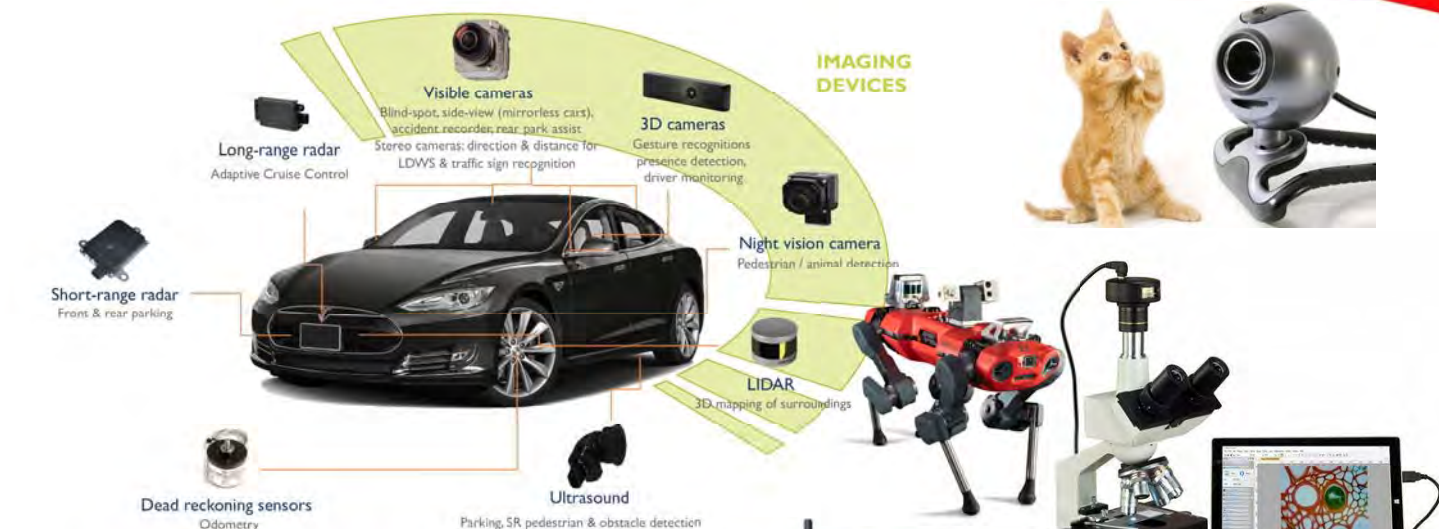




## Cameras Applications



### IMAGING DEVICES







## 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





## Camera Inspection Standard

Inspection Item		Inspection Method	Standard of Inspection
Category	Item		
Appearance	FPC/ PCB	Color	Major Difference is Not Allowed.
		Be Torn/Chopped	Copper Crack Exposure is Not Allowed.
		Marking	Clear, Recognizable (Within 30cm Distance)
	Holder	Scratches	The Inside Crack Exposure is Not Allowed
		Gap	Meet the Height Standard
		Screw	Make Sure Screws Are Presented (If Any)
		Damage	The Inside Crack Exposure is Not Allowed
	Lens	Scratch	No Effect On Resolution Standard
		Contamination	No Effect On Resolution Standard
		Oil Film	No Effect On Resolution Standard
		Cover Tape	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

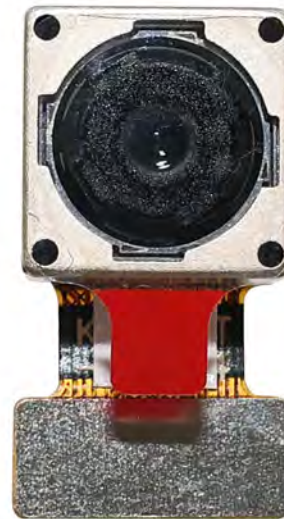


## HAMPO Package Solutions

Hampo Camera Module



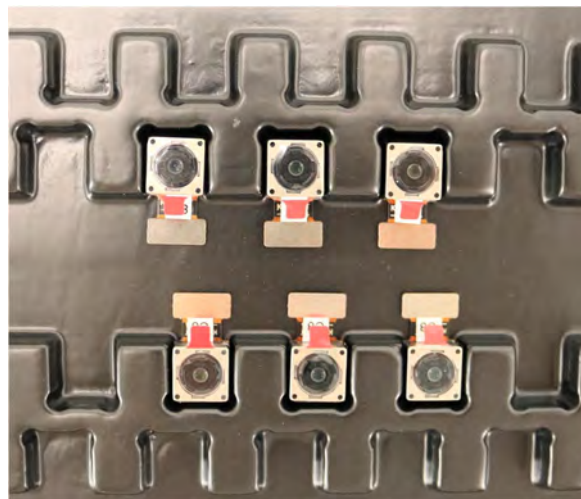
Complete with Lens Protection Film



Tray with Grid and Space



Place Cameras on the Tray

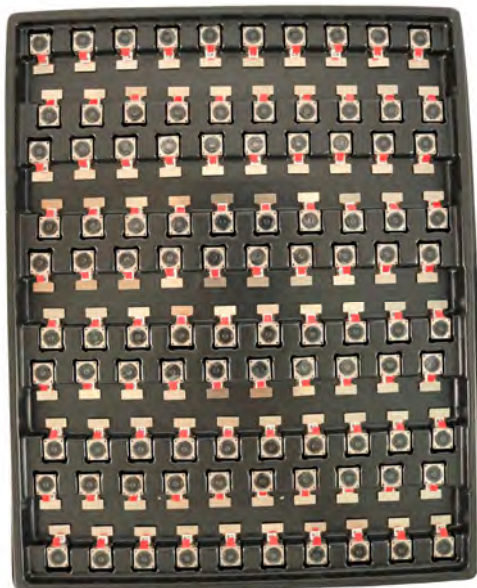




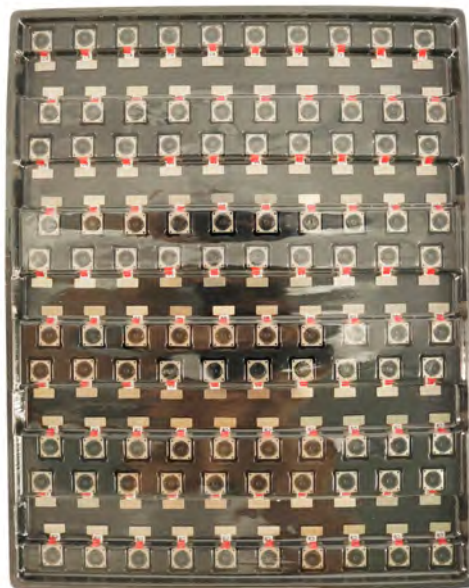


## Camera Modules Package Solution

Full Tray of Cameras



Cover Tray with Lid



Place Tray into Anti-Static Bag



Vacuum the Anti-Static Bag







## Camera Modules Package Solution

### Sealed Vacuum Anti-Static Bag with Labels

1. Model and Description 2. Quantity 3. Manufacturing Date Code 4. Caution





## Large Order Package Solution

Place Foam Sheets Between Tray Bags



Foam Sheets are Larger Than Trays



Place Foam Sheets and Trays into Box



Foam Sheets are Tightly Fitting in Box



Seal the Carbon Box



Label the Carbon Shipping Box







An open cardboard box is shown from a top-down perspective. Inside the box, there is a stack of white, flat, rectangular objects, which appear to be solar panels or similar thin electronic components. The stack is held together by several blue, flexible straps or ties that wrap around the edges of the items. The top flaps of the cardboard box are open, revealing the contents. The background is a plain, light-colored surface.

An open, empty cardboard box with a white interior lining. The box is shown from a top-down perspective, with the lid flaps open and folded outwards. The interior is lined with a white material, and the box is set against a plain white background.




HAMPO Model No. HAMPO M612 (REAR V18) 1800W, 800W Inverter Auto Focus, 70-8 Degree MADE IN CHINA	Tray 1 of 1 300 PIECES Production Date 20 August 2022 Date Code 2234 (Week 34, 2022)
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## Sample Order and Connector Package Solution

Place Camera Sample into Anti-Static Bag



Place Connectors into Anti-Static Bag



Label the Sample Bags



Place Connectors into Reel



Place Samples into the Carbon Box



Place Connectors into the Carbon Box







## Company HAMPO

Dongguan Hampo Electronic Technology Co., Ltd. was established in 2015, a next-generation technology driven manufacturer specialized in research, design, and produce of audio and video products. Hampo is occupying 150,000 square feet automated plants with 500 employees of annual throughput 180,000,000 units cameras.

Hampo 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. Hampo 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

Hampo provides the following limited warranty if you purchased the Product(s) directly from Hampo company or from Hampo's website, [www.hampotech.com](http://www.hampotech.com). Product(s) purchased from other sellers or sources are not covered by this Limited Warranty. Hampo 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, Hampo 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 Hampo is solely limited to repair and/or replacement on the terms set forth above. Hampo is not reliable or responsible for any subsequent events.







## Hampo Strength

### Powerful Factory



### Professional Service



### Promised Delivery

