



HAMPO-D6MA-S5K3P3 V3.0

16MP Samsung S5K3P3 MIPI Interface Auto Focus Camera Module



Front View



Back View

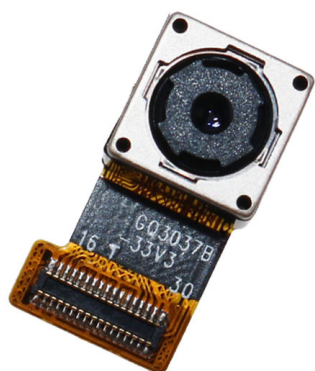
Specifications

Camera Module No.	HAMPO-D6MA-S5K3P3 V3.0
Resolution	16MP
Image Sensor	S5K3P3
Sensor Type	1/3.1"
Pixel Size	1.00 um x 1.00 um
EFL	4.24 mm
F.NO	2.20
Pixel	4632 x 3480
View Angle	78.4°(DFOV) 66.2°(HFOV) 51.6°(VFOV)
Lens Dimensions	8.50 x 8.50 x 5.37 mm
Module Size	17.60 x 9.40 mm
Module Type	Auto Focus
Interface	MIPI
Auto Focus VCM Driver IC	DW9714
Lens Model	HAMPO-LENS-50065B5
Lens Type	650nm IR Cut
Operating Temperature	-30°C to +70°C
Mating Connector	OK-10F030-04



HAMPO-D6MA-S5K3P3 V3.0

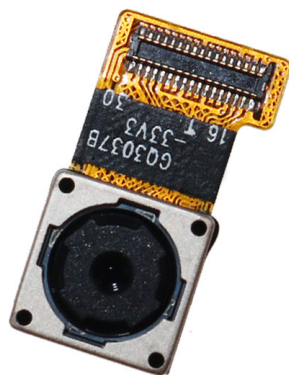
16MP Samsung S5K3P3 MIPI Interface Auto Focus Camera Module



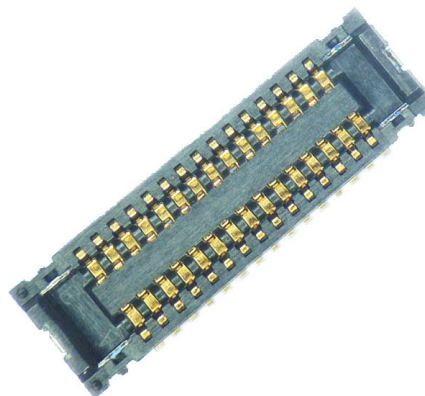
Top View



Side View



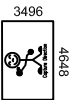
Bottom View



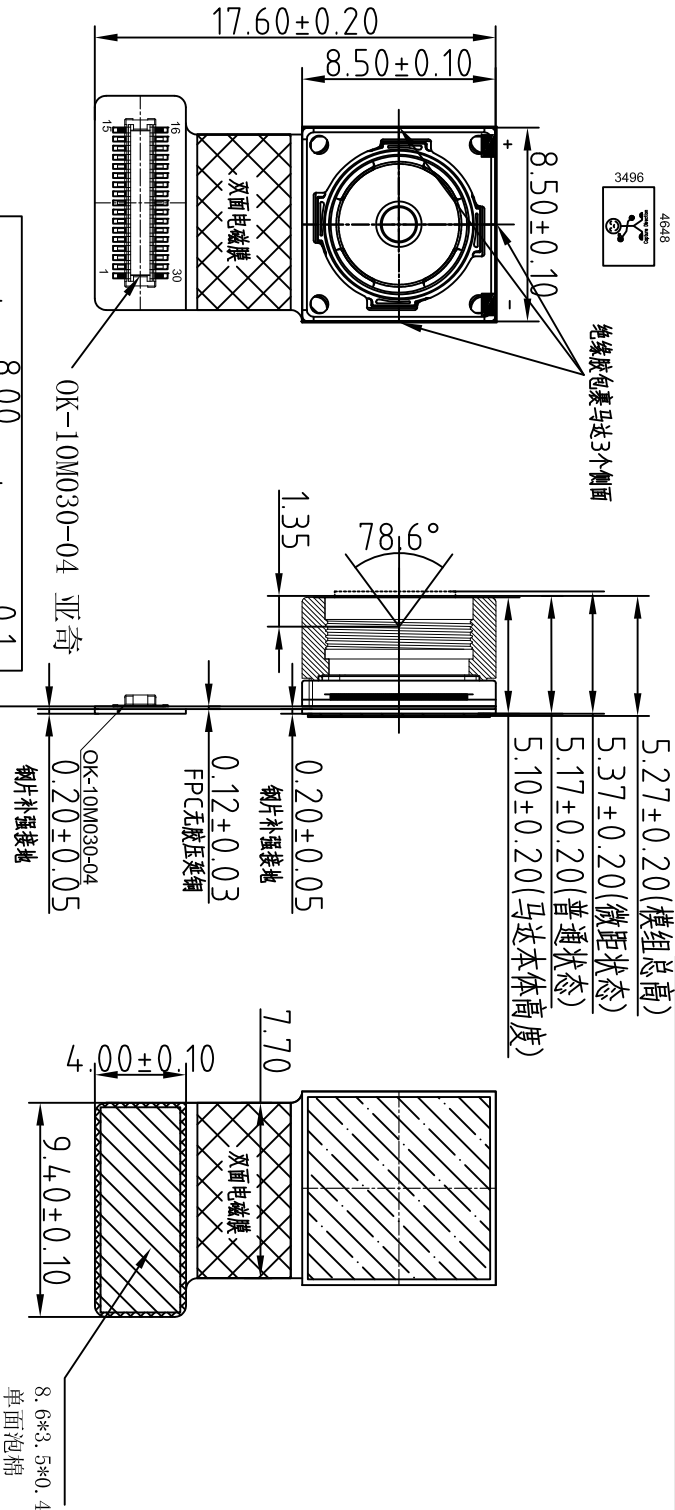
Mating Connector

RoHS

PIN DEFINITION	
1	AF_GND
2	AF_VDD_2.8V
3	DVDD_1.2V
4	DOVDD_1.8V
5	NC
6	AGND
7	AVDD_2.95V
8	DGND
9	SIO_D
10	SIO_C
11	RESET
12	NC
13	GND
14	MCLK
15	GND
16	MDP3
17	MDN3
18	GND
19	MDP2
20	MDN2
21	GND
22	MDP1
23	MDN1
24	GND
25	MCP
26	MCN
27	GND
28	MDPO
29	MDNO
30	GND



绝缘胶包裹马达3个侧面



Parameters:

1、Sensor specification:

Image Sensor: S5K3P3
Pixel: 1.0um \times 1.0um
Lens Type: 1/3.1
Important Voltage Description: DVDD1.2V
I2C_IC:0X20

2、Lens specification:

FOV: 78.6°
F/NO.: 2.2 \pm 5%
TV distortion: <1.5%
Focal length: 4.24mm
Composition: 5P

Version	Mark	Information	Date
V1.0	PD	First Version	2017-02-28
V2.0	PD	改短结构	2017-06-28
V3.0	PD	改封装片	2017-06-28

Designed By	Kevin	Model Name:	D6MA-S5K3P3 V3.0		
Checked By	Aouly_Yan	Projection Type:	Unit: mm	Material:	Version: 1/0
		Third Angle	Scale: 1:1	Sheet: 1 of 1	

1. General Description

The DW9714 is single 10-bit DAC with 120mA output current sink capability. Designed for linear control of voice coil motors, the DW9714 is capable of operating voltage to 3.6V. The DAC is controlled via a I²C serial interface that operates DAC by clock rates up to 400kHz.

The DW9714 incorporates with a power-on reset circuit, power-down function, and exactly matched sense resistor. Power-on reset circuit ensure when supply power up, DAC output is to 0V until valid write-bit value takes place. It has a power down features that reduces the current consumption of the device to 1uA maximum.

The DW9714 is designed for auto focus and optical zoom camera phones, digital still cameras, and camcorders applications. The I²C address for the DW9714 is 0x18.

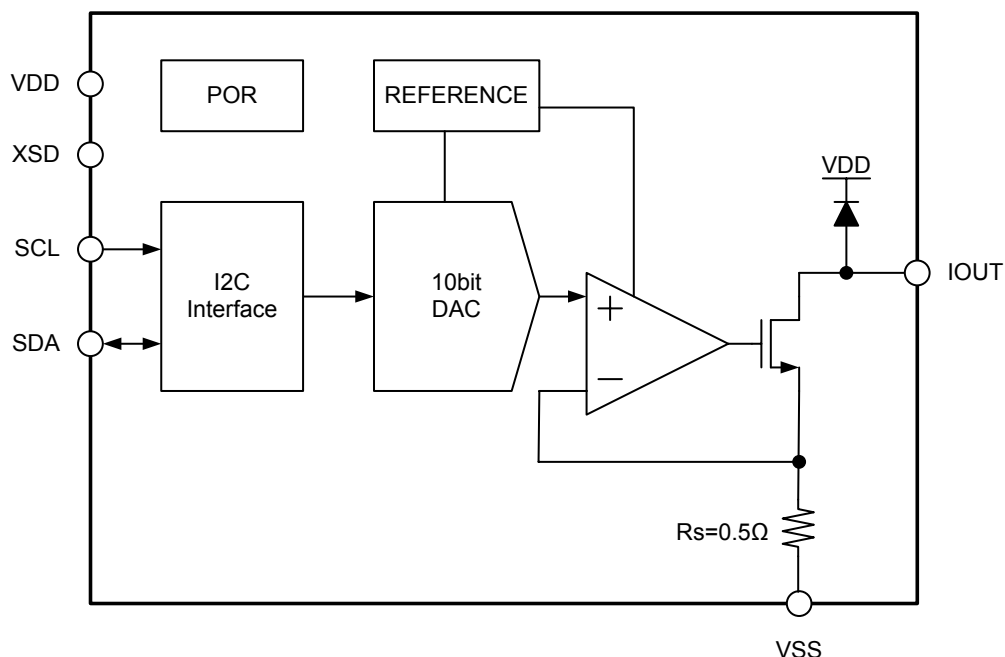
■ Features

- VCM driver for auto-focus
- 10bit resolution current sinking of 120mA for VCM
- VCM slew rate control (SRC) – Linear slope control, Dual level control
- Supply voltage range (VDD) : 2.3V to 3.6V
- Fast mode I2C interface (1.8V interface available)
- Power on reset (POR)
- Package : 0.80mm(W) X 1.20mm(H) X 0.3mm(T) 6pins WLCSP

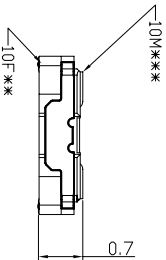
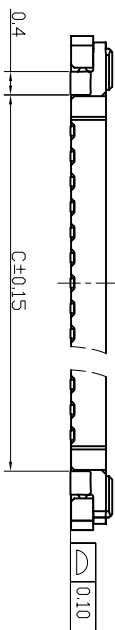
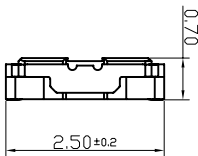
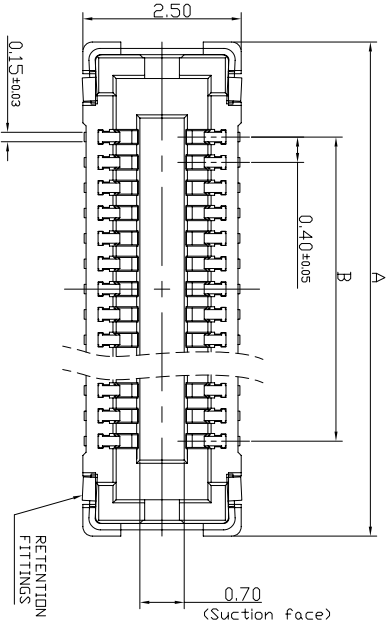
■ Applications

- Digital camera
- Cell phone
- Lens auto focus
- Web camera

2. Block Diagram



REV	ECN NO	DRA	APPD	DATE
A	FIRST RELEASE	George Gao	Human Zhou	2013/09/18



MATING SECTION

- 3) Characteristics:
- 3-1. Rated voltage: 60V AC/DC
 - 3-2. Rated current: 0.3A/contact (Max. 5A at total contact)
 - 3-3. Insulation resistance: Min. 1000M Ω (initial)
 - 3-4. Breakdown voltage: 150V AC for 1 min.
 - 3-5. Saltwater spray resistance (header and socket mated): 24 hours, insulation resistance min.100M Ω , contact resistance max. 90m Ω
 - 3-6. Contact resistance: Max. 90m Ω
 - 3-7. Ambient temperature: -55℃~+85℃
 - 3-8. Storage temperature: -55℃~+85℃ (product only); -40℃~+50℃ (emboss packing)
 - 3-9. Composite insertion force: Max. 0.981N/contacts X contacts (initial)
 - 3-10. Composite removal force: Min. 0.165N/contacts X contacts
 - 3-11. Post holding force: Min. 0.49N/contacts
 - 3-12. Insertion and removal life: 50 times

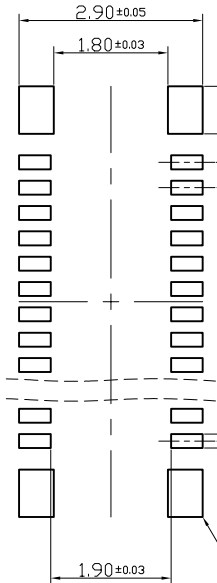


TABLE:

40	10.60	7.60
32	9.00	6.00
30	8.60	5.60
26	7.80	4.80
24	7.40	4.40
10	4.60	1.60
NUMBER OF CONTACTS	A	B

RECOMMENDED PCB LAYOUT

OK-10F***-04

SOCKET PITCH-0.4MM NUMBER OF CONTACTS

DIMENTION IN mm		OCN 芯奇科技 OCN TECHNOLOGY			
TOLERANCE UNLESS OTHERWISE SPECIFIED		APPR:	TITLE:	0.4MM BTB (MATING HEIGHT 0.7H)	
±0.20		±2°		OK-10F***-04	
±0.10		±1°			
±0.05		±0.5°			
±0.03		±0.3°			
		DRAW: George Gao 2013/09/18	PROU	QTY	SIZE
				1/1	1:1
					REV A

S5K3P3SQ

**1/3.1" 16Mp CMOS Image Sensor for
supporting PD-AF Pattern**

**Revision 0.00
December 2015**

SAMSUNG Confidential
samsung / ellen.piao at 2015.12.11

Data Sheet

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1

Product Overview

1.1 Introduction

The S5K3P3SQ is a highly integrated 16M pixel camera chip that includes a CMOS image sensor (CIS), image correction functionality and serial transmission using 4-lane MIPI. It is designed for fast yet low power operation, delivering full resolution capture at 30 frames per second (fps) and full field of view (16:9) FHD video at 60fps.

The S5K3P3SQ supports Phase Detection Auto Focus (PD AF) mechanism allowing efficient Auto Focus in the system.

It is fabricated by the SAMSUNG 65 nm back-side-illumination (BSI) CMOS image sensor process developed for imaging applications to realize a high-efficiency and low-power photo sensor. The sensor consists of 4632×3480 effective pixels which meet the 1/3.1-inch optical format.

The CIS has on-chip 10-bit ADC arrays to digitize the pixel output and on-chip Correlated Double Sampling (CDS) to drastically reduce Fixed Pattern Noise (FPN). It incorporates on-chip camera functions such as defect correction, exposure setting, white balance setting, image scaling and image data compression.

The S5K3P3SQ CIS is programmable through a CCI or SPI serial interface and includes on-chip one-time programmable (OTP) non-volatile memory (NVM).

samsung / ellen.piao at 2015.12.11

1.2 Features

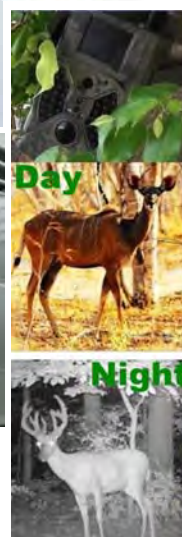
- 16Mp sensor with 1/3.1" optics
- Pixel size: 1.0um
- Effective resolution: 4632 (H) × 3480 (V)
- Electronic rolling shutter and global reset
- Support digital video stabilization margins in main view modes
- Frame rate:
 - Capture: 16M 30 fps
 - FHD video: 4M(16:9) 60 fps
 - HD video: 1.78M (16:9) 120 fps
 - High speed: WVGA 120 fps
 - High speed: VGA (4:3) 120 fps
- Phase Detection Auto Focus (PD AF) support
- Interfaces:
 - Fine interface frequency control using additional dedicated PLL for EMI avoidance and integration flexibility.
 - MIPI CSI2 - four lanes (1.5 Gbps per lane)
 - Output formats: RAW8 (using DPCM/PCM compression), RAW10
- Control interface:
 - I2C interface - Two-wire serial communication circuit up to 400 kHz.
- Xenon/LED flash
- Mechanical shutter
- 32Kbit on-chip OTP memory to support defect corrections and chip ID.
- Analog gain x16
- Vertical and horizontal flip mode
- Continuous frame capture mode
- 2/2, 3/3, 4/4, 6/6 - average/average-sub-sampling readout
- Pixel elimination readout function
- Bayer down scaler function for ratios of - x1.5, x2, x2.5, x3, ..., x8 and x1.25
- Bad pixel correction
- On-chip temperature sensor
- Built-in test pattern generation
- Supply voltage: 2.95 V for analog and 2.8 V or 1.8 V for I/O, 1.2 V for digital core supply
- Operating temperature: -30 °C to +70 °C



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

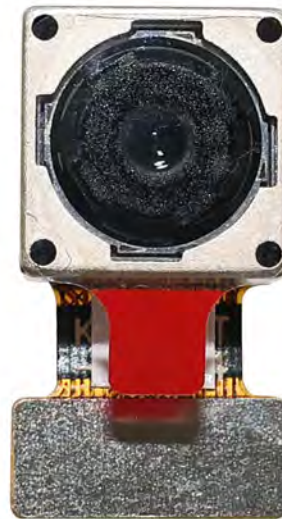


HAMPO Package Solutions

Hampo Camera Module



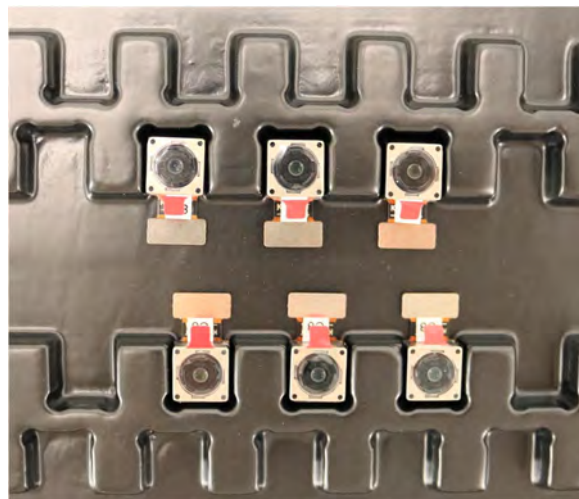
Complete with Lens Protection Film



Tray with Grid and Space



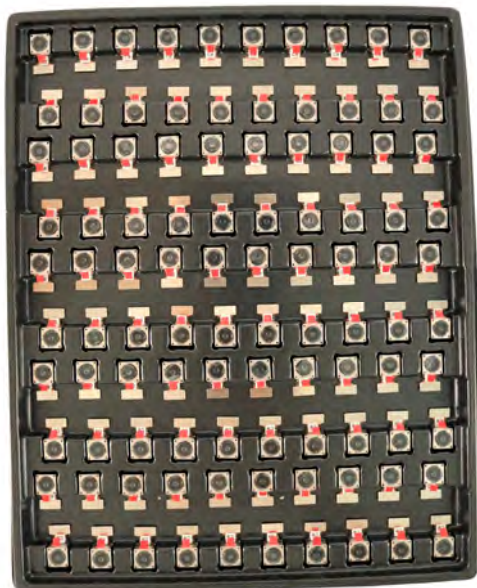
Place Cameras on the Tray



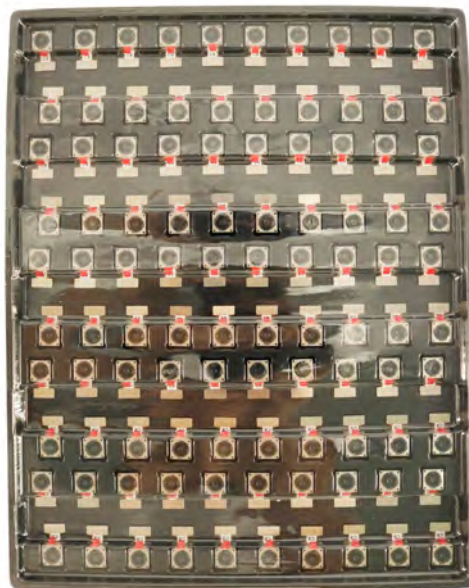


Camera Modules Package Solution

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, empty cardboard box with a white interior lining. The box is shown from a top-down perspective, with the lid flaps open and the white interior visible. The cardboard is a light brown color.




HAMPPO Model No. HAMPPO 90A12 (REXSE v1 B REXSE, 60W Incandes Auto Focus, 70 x Degree SLIDE 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



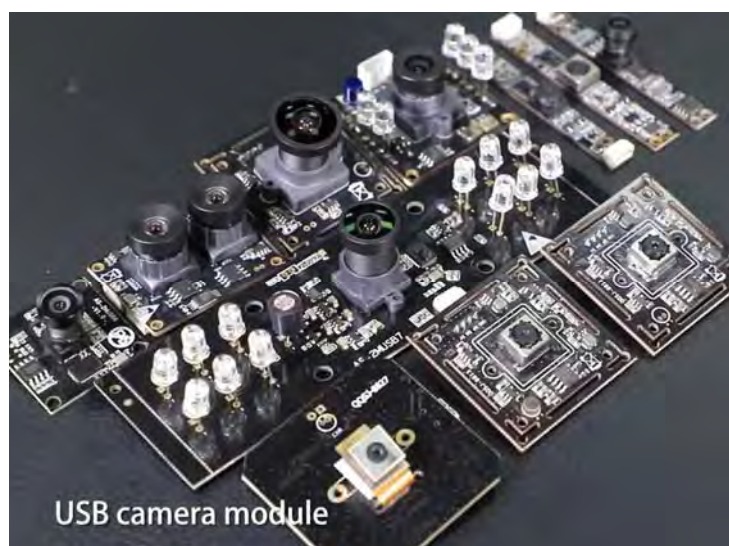


Company HAMPO

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. 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

