



HAMPO-MAA12-IMX586 V1.0

48MP Sony IMX586 MIPI Interface Auto Focus Camera Module



Front View



Back View

Specifications

Camera Module No.	HAMPO-MAA12-IMX586 V1.0
Resolution	48MP
Image Sensor	IMX586
Sensor Type	1/2.0"
Pixel Size	0.8 um x 0.8 um
EFL	4.74 mm
F.NO	1.79
Pixel	8000 x 6000
View Angle	79.4°(DFOV) 67.2°(HFOV) 53.2°(VFOV)
Lens Dimensions	10.80 x 10.80 x 6.40 mm
Module Size	18.61 x 9.00 mm
Module Type	Auto Focus
Interface	MIPI
Auto Focus VCM Driver IC	DW9767
Lens Model	HAMPO-LENS-PS60122A100
Lens Type	650nm IR Cut
Operating Temperature	-20°C to +70°C
Mating Connector	OK-10F030-04



HAMPO-MAA12-IMX586 V1.0

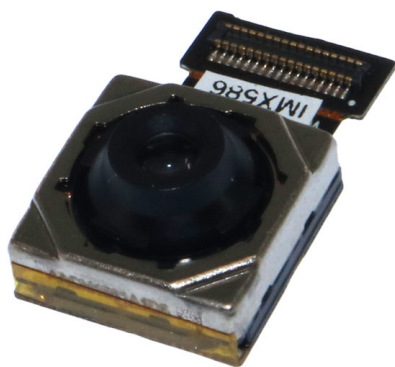
48MP Sony IMX586 MIPI Interface Auto Focus Camera Module



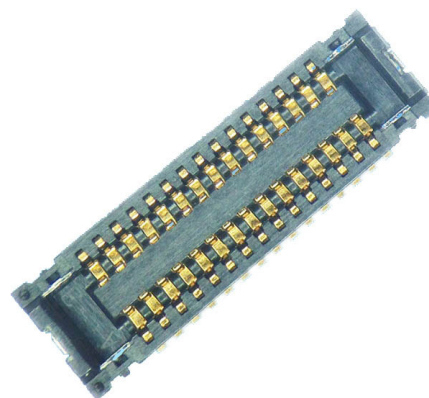
Top View



Side View



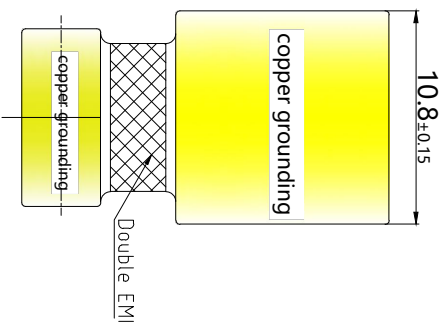
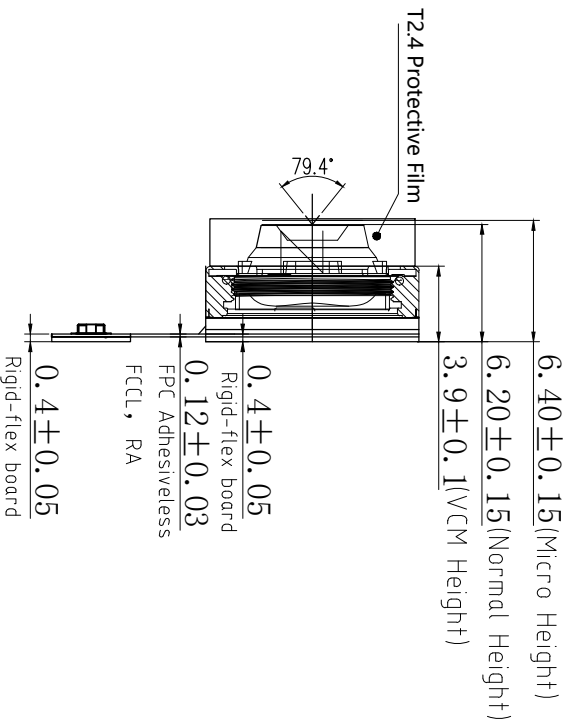
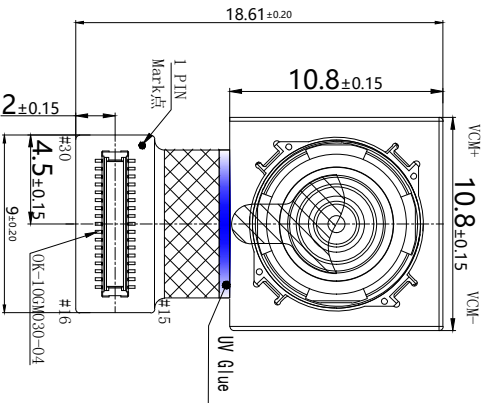
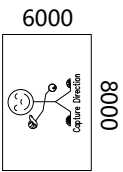
Bottom View



Mating Connector

D		E	
Version	Information	Date	
V1.0	First Version	4-14-2022	

No	Name	
01	AVDD1	2.8V
02	AVDD2	1.8V
03	GND	
04	MCP	
05	MCN	
06	DGND	
07	MDPO	
08	MDNO	
09	DGND	
10	MDP2	
11	MDN2	
12	DOVDD	1.8V
13	DVDD1	1.1V
14	DVDD2	1.1V
15	PVDD	NC
16	PGND	NC
17	AFVDD	2.8V
18	AFGND	
19	MDN1	
20	MDP1	
21	DGND	
22	MDN3	
23	MDP3	
24	DGND	
25	XVS-OUT	NC
26	RESET	
27	SCL	
28	SDA	
29	MCLK	
30	AGND	



TOP VIEW

SIDE VIEW

BOTTOM VIEW

NOTE:
1.Sensor I2C slave address: 0x20(W);021(R).
2.Driver IC:DW9767 I2C:0x18(W);.0x19(R).

Parameter:

1、Sensor specification:

Image Sensor: IMX586-AAHJ5
Pixel: 0.8um×0.8um
Lens Type: 1/2
Important Voltage Description: DVDD1.1V
(external power supply);

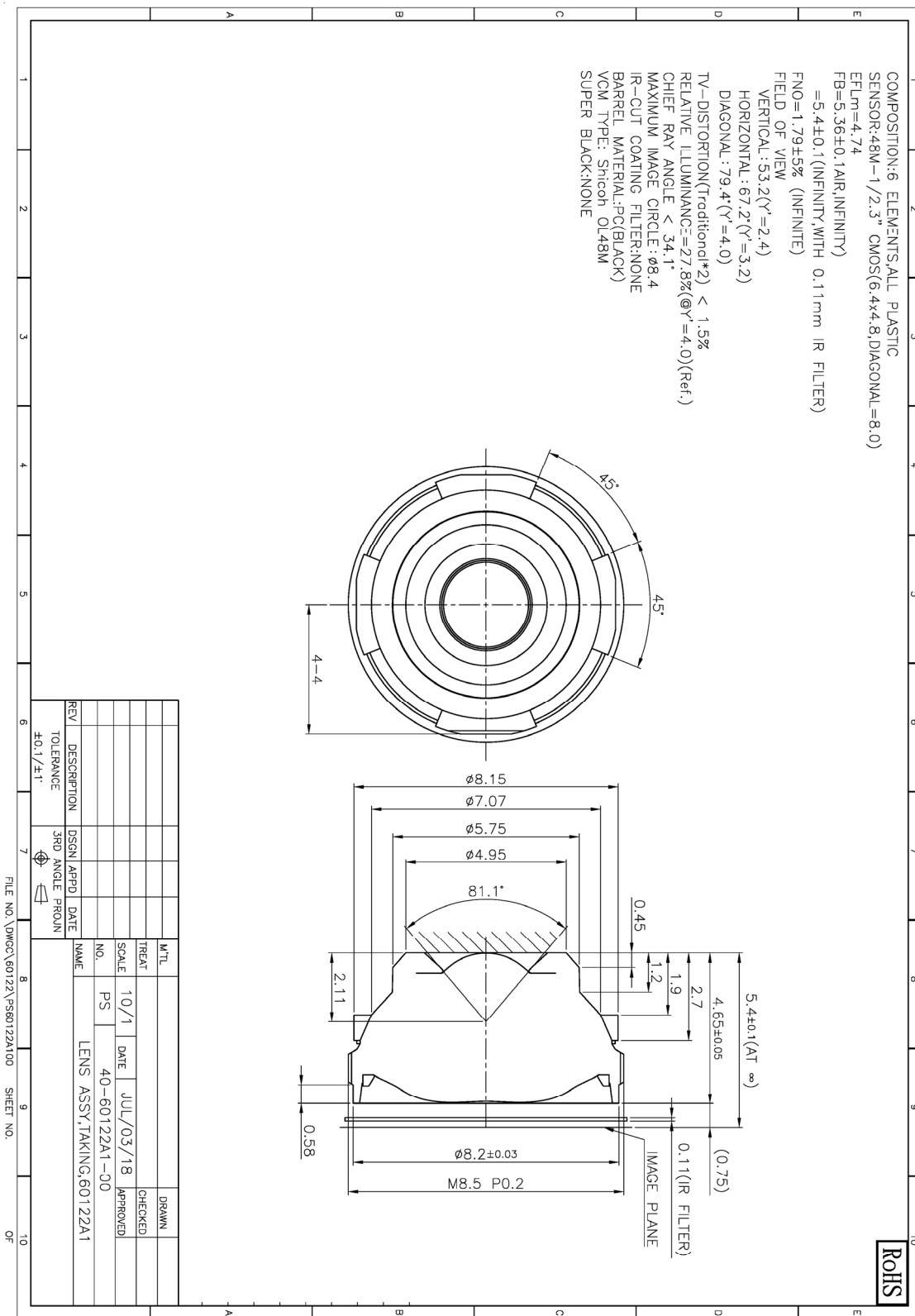
2、Lens specification:

FOV: 79.4°(D);67.2°(H);53.2°(V)
F/NO.: 1.79
TV distortion: <1.5%
Focal length: 4.74mm
Composition: 6P+IR FILTER
IR Cut Coating: 650nm±10nm@50%

Designed By	Kevin	Model Name:	MAA12-IMX586 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-PS60122A100



FEATURES

Bi-directional current driver for autofocus
10-bit resolution DAC (Typ. +/- 100mA)
Embedded 8Kbyte eFlash memory
Smart Actuator Control (SAC™) mode
Supply voltage range (V_{DD}): 2.3V to 3.3V
I/O voltage range (V_{IN}): 1.8V to V_{DD}
Fast mode and Fast mode plus I²C interface compatible
Power On Reset (POR)
Thermal Shutdown (TSD)
S/W Memory protection
Power down mode less than 1uA
Package: 8-pin WLCSP (0.77mm x 1.70mm x 0.30mm)

APPLICATIONS

Mobile cameras
Digital still cameras
Camcorders
Web cameras
Action cameras

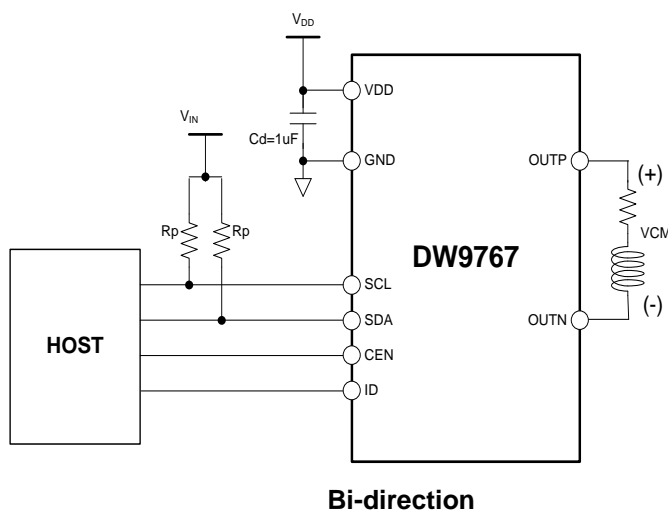
GENERAL DESCRIPTION

The DW9767 is designed for linear control of bi-directional voice coil motors. The DW9767 is a single 10-bit DAC with a typical +/- 100mA output current sinking capability and has an 8Kbyte eFlash memory. This device features Smart Actuator Control (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 DW9767 operates from a single 2.3V to 3.3V supply. The internal DAC and eFlash are controlled via an I²C serial interface that operates at clock rate up to 1MHz. The DW9767 offers a power down mode with current consumption less than 1uA. DW9767 has software protection, it is available to guard against inadvertent writes.

The DW9767 can be used for auto focus applications in mobile cameras, digital still cameras, camcorders, web cameras and action cameras.

TYPICAL APPLICATION CIRCUIT



REV	ECN NO	DRA	APPD	DATE
A	FIRST RELEASE	George Gao	Human Zhou	2013.09.12

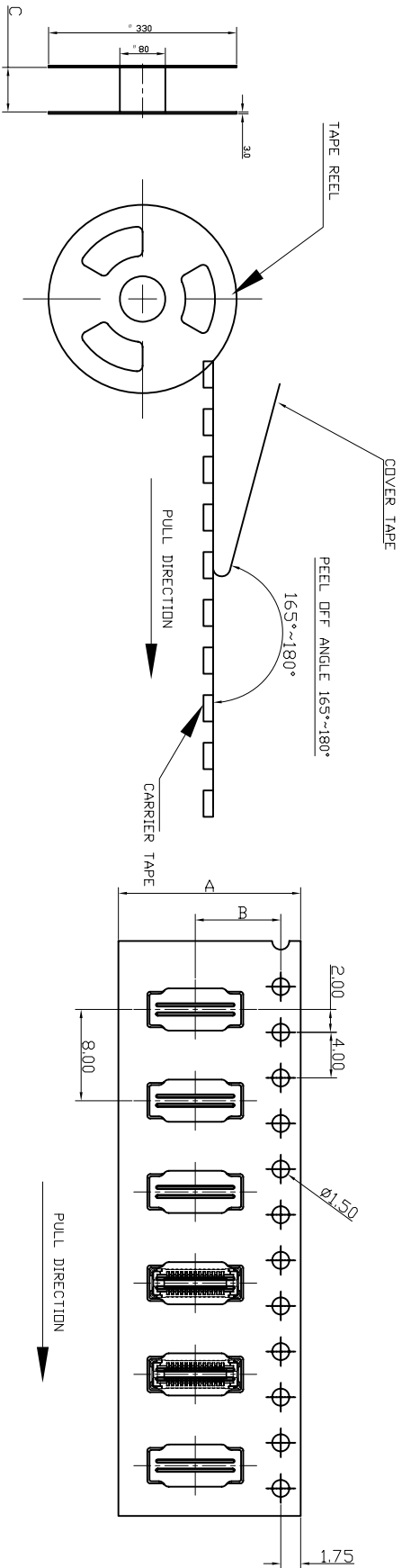


TABLE:

40	24.00	11.50	25.4	5000
32	16.00	7.50	17.4	
30				
26				
24				
10				

NUMBER OF CONTACTS	A	B	C	QTY/REEL
--------------------	---	---	---	----------

DIMENTION IN mm		<div><div>OCN®</div><div>OCN TECHNOLOGY</div><div>0.4MM BTB (MATING HEIGHT 0.7H)</div></div>											
TOLERANCE UNLESS OTHERWISE SPECIFIED		APPRO:		TITLE:									
. ± 0.20		. ± 2°		0.4MM BTB (MATING HEIGHT 0.7H)									
.0 ± 0.10		.0 ± 1°		OK-10F***-04									
.00 ± 0.05		.00 ± 0.5°											
.000 ± 0.03		.000 ± 0.3°											
OKMO:		DMG NO:											
DWS:		PROU		QTY		SIZE		SHEET		SCALE		REV	
George Gao		1/1		1/1		1:1		A					
2013.09.18		1/1		1/1		1:1		A					

Diagonal 8.000 mm (Type 1/2.0) 48Mega-Pixel CMOS Image Sensor with Square Pixel for Color Cameras

IMX586-AAJH5-C

General description and application

IMX586 is a diagonal 8.000 mm (Type 1/2.0) 48 Mega-pixel CMOS active pixel type stacked image sensor with a square pixel array. It adopts Sony's back-illuminated and stacked CMOS image sensor to achieve high speed image capturing by column parallel A/D converter circuits and high sensitivity and low noise image (comparing with conventional CMOS image sensor) through the backside illuminated imaging pixel structure. R, G, and B pigment primary color mosaic filter is employed. It operates with five power supply voltages: analog 2.9 V and 1.8V, digital 1.1 V, PLL-PHY 1.1V and 1.8 V for input/output interface and achieves low power consumption.

In addition, this product is designed for use in cellular phone and tablet PC. When using this for another application, Sony Semiconductor Solutions Corporation does not guarantee the quality and reliability of product. Therefore, don't use this for applications other than cellular phone and tablet PC. Consult your Sony Semiconductor Solutions Corporation sales representative if you have any questions.

Functions and Features

- ◆ Back-illuminated and stacked CMOS image sensor
- ◆ Quad Bayer Coding color filter arrangement
- ◆ Phase Detection Auto Focus (PDAF)
- ◆ High Frame Rate 30fps@Full resolution (QBC Re-mosaic) / 30fps@QBC-HDR / 120fps@2x2 Adjacent Pixel Binning (16:9) / 240fps@2x2 Adjacent Pixel Binning V2H2(16:9)
- ◆ High signal to noise ratio(SNR)
- ◆ Dual sensor synchronization operation
- ◆ Built-in 2D Dynamic Defect Pixel Correction
- ◆ Lens Shading Correction (LSC)
- ◆ Built-in temperature sensor
- ◆ Output video format of RAW10/8, COMP8
- ◆ QBC Re-mosaic function
- ◆ QBC HDR function
- ◆ Two PLLs for independent clock generation for pixel control and data output interface
- ◆ CSI-2 serial data output
 - MIPI D-PHY 2lane/4lane, Max. 2.5Gbps/lane, D-PHY spec. ver. 1.2 compliant
 - MIPI C-PHY 1/2/3trio, Max 2.5Gbps/Trio, C-PHY spec ver. 1.0 compliant
- ◆ 2-wire serial communication (Supports I²C "Fast mode" and "Fast-mode Plus")
- ◆ 28K bit of OTP ROM for users

Sony Semiconductor Solutions Corporation reserves the right to change products and specifications without prior notice.

This information does not convey any license by any implication or otherwise under any patents or other right.

Application circuits shown, if any, are typical examples illustrating the operation of the devices. Sony Semiconductor Solutions Corporation cannot assume responsibility for any problems arising out of the use of these circuits.

Device Structure

◆ CMOS image sensor	
◆ Image size	: Diagonal 8.000 mm (Type 1/2.0)
◆ Total number of pixels	: 8032 (H) × 6248 (V) approx. 50.18 M pixels
◆ Number of effective pixels	: 8032 (H) × 6088 (V) approx. 48.89 M pixels
◆ Number of active pixels	: 8000 (H) × 6000 (V) approx. 48.00 M pixels
◆ Chip size	: 7.504 mm (H) × 5.659 mm (V)
◆ Unit cell size	: 0.80 μm (H) × 0.80 μm (V)
◆ Substrate material	: Silicon

Absolute Maximum Ratings

Item	Symbol	Ratings	Unit	notes
Supply voltage (analog1)	VANA1	-0.3 to +4.2	V	refer to VSS level
Supply voltage (analog2)	VANA2	-0.3 to +2.52	V	
Supply voltage (digital1, digital2(PLL-PHY))	VDIG1,2	-0.3 to +1.54	V	
Supply voltage (interface)	VIF	-0.3 to +2.52	V	
Input voltage (digital)	VI	-0.3 to +2.52	V	
Output voltage (digital)	VO	-0.3 to +2.52	V	
Guaranteed Operating temperature	TOPR	-20 to +70	°C	
Guaranteed storage temperature	TSTG	-30 to +80	°C	
Guaranteed performance temperature	TSPEC	-20 to +60	°C	

Recommended Operating Voltage

Item	Symbol	Ratings	Unit	notes
Supply voltage (analog1)	VANA1	2.9 ± 0.1	V	refer to VSS level
Supply voltage (analog2)	VANA2	1.8 ± 0.1	V	
Supply voltage (digital1, digital2(PLL-PHY))	VDIG1,2	1.1 ± 0.1	V	
Supply voltage (interface)	VIF	1.8 ± 0.1	V	



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

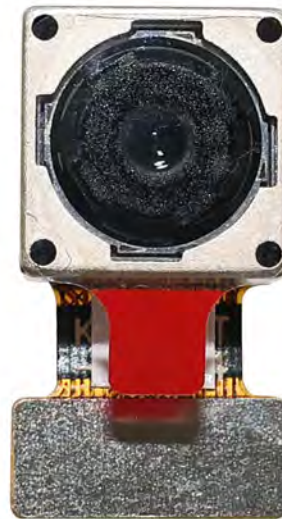


HAMPO Package Solutions

Hampo Camera Module



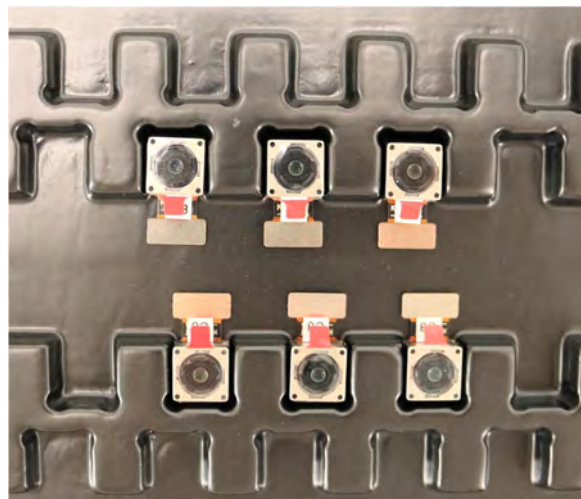
Complete with Lens Protection Film



Tray with Grid and Space



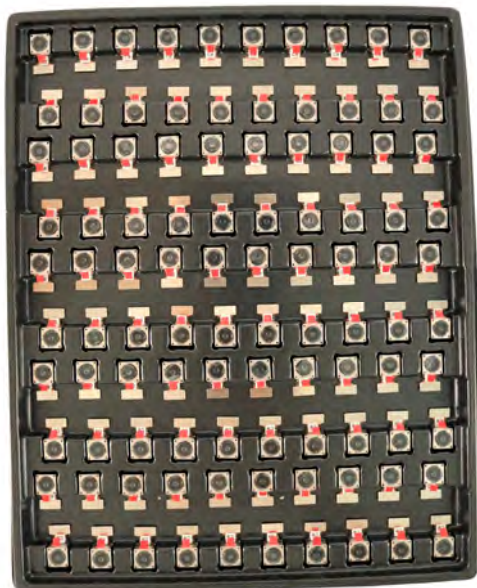
Place Cameras on the Tray



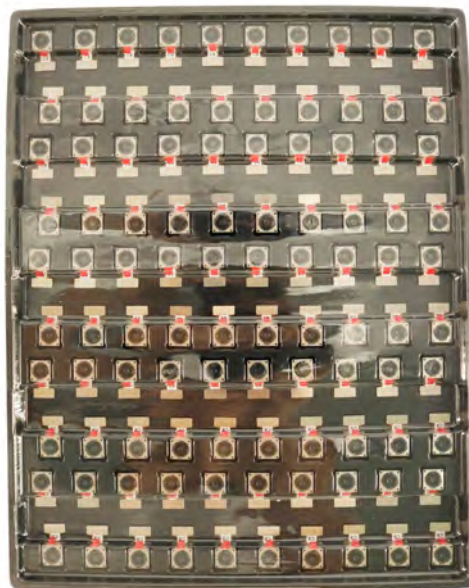


Camera Modules Package Solution

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 envelopes. Each envelope is wrapped in a clear, crinkled plastic protective sleeve. The box is open, with the flaps visible at the top and bottom. 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 90A12 (90586 V1.0)
90586, 90P Inertia
Auto Focus, 79.4 Degrees
GUTIE, IN CHINA

 Tray 1 of 1
300 PAGES
Production Date
20 August 2022
Ops Code
2234 (Week 34, 2022)

[illegible]



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



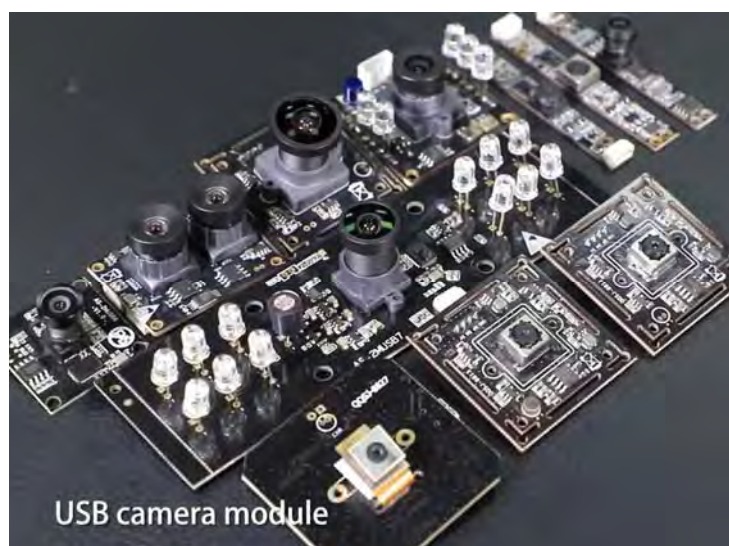


Company HAMPO

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.



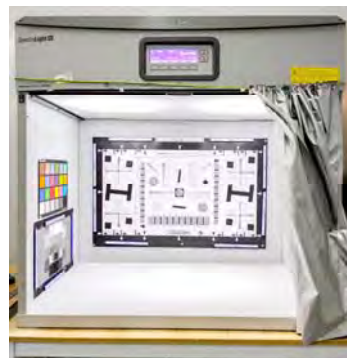


Hampo Strength

Powerful Factory



Professional Service



Promised Delivery

