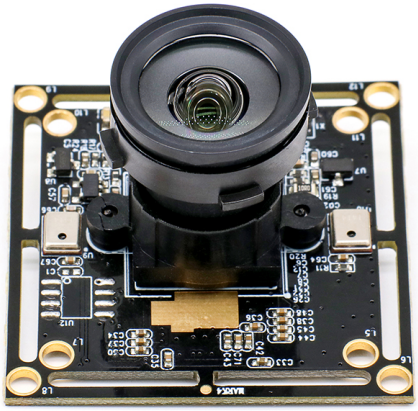
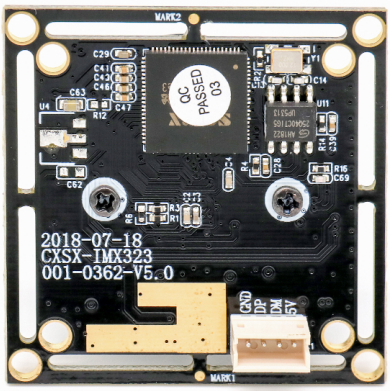
HAMPO-USB-0362-V1.0

2MP Sony IMX323 M12 Fixed Focus USB 2.0 Camera Module





HAMPO-USB-0362-V1.0 is a 2MP low light USB camera module support H.264 video recording. Adopting advanced Sony 1/2.9" IMX323 CMOS image sensor, image quality is very hight and stable, low color deviation reproduction.

Supports USB2.0 high-speed data transmission, and supports OTG protocol(UVC). It has a dedicated, high performance image signal processor chip that performs all automactic functions(auto white balance, auto exposure control), as well as a complete image signal processing pipeline, providing first-class image and video YUY2 and MJPEG compression This camera module is ideal solution for face recognition, identity detection, automotive, access control.

Key Features

- Full HD Resolution, the max is about 2001(H)*1121(V)
- Excellent Low Light Performance, the illumination color 0.01Lux@F1.2
- MJPG/YUV2/H.264 output format, provides sharp image and accurate color
- Low color deviation reproduction, image quality is very high and stable
- Plug&Play, UVC-compliant, just connect the camera to PC computer, laptop, Android device without extra drivers to be installed

HAMPO-USB-0362-V1.0

2MP Sony IMX323 M12 Fixed Focus USB 2.0 Camera Module

Camera Module No.	HAMPO-USB-0362-V1.0
Resolution	2MP
Image Sensor	IMX323
Sensor Type	1/2.9"
Pixel Size	2.8 um x 2.8 um
EFL	3.60 mm
F.NO	3.0
Pixel	1920 x 1080
View Angle	96°(DFOV) 80°(HFOV) 65°(VFOV)
TTL	19.00 mm
Module Type	Fixed Focus
Lens Model	HAMPO-LENS-3428
Interface	USB 2.0
Output Format	H.264/MJPG / YUV2
Auto Control	Saturation, Contrast, Acutance White Balance, Exposure
Audio	Digital Microphone, Single, Dual Channel
Input Voltage	DC 5V
Working Current	Max 300mA
PCB Size	38mm x 38mm / 32mm x 32mm
System Compatibility	Windows XP (SP2, SP3), Vista, 7, 8, 10, 11 Android, Mac OS, Linux or OS with UVC Driver Raspberry Pi by USB Port
Software for USB Camera	AMCAP, Webcam Viewer, V4L2 Controls Contacam, VLC Player, MotionEye OS iSpy, ZoneMider, Yawcam
IR filter	650nm IR
Operating Temperature	-30°C to +85°C
USB Cable	USB-Cable-U015

Wide Compatibility with Windows, Android, Mac OS, Linux, or Raspberry Pi

HI-SPEED CERTIFIED USB 2.0 Windows ANDROID Mac OS Linux Raspberry Pi

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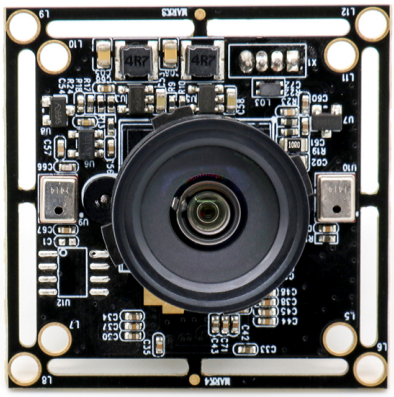
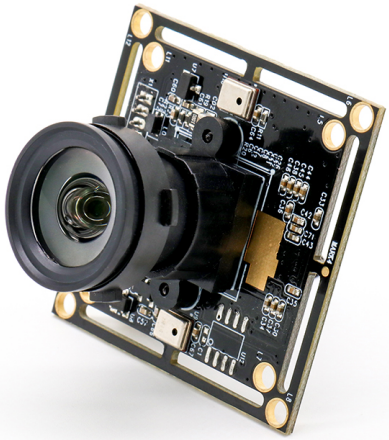


Top View

Side View



Bottom View

Mating Connector

HAMPO-USB-0362-V1.0

2MP Sony IMX323 M12 Fixed Focus USB 2.0 Camera Module

FORMAT	RESOLUTION	FRAME RATE
		USB 2.0
MJPG	640 x 480 (VGA)	**30 FPS**
	1280 x 720 (720P)	**30 FPS**
	1920 x 1080 (16:9)	**30 FPS**
YUY2	640 x 480 (VGA)	**30 FPS**
	1280 x 720 (720P)	**10 FPS**
	1920 x 1080 (16:9)	**5 FPS**

Product specifications

Lens parameter:2G2P+IR

EFL:3.6mm

F.NO:3.0

View Angle:D96°,H80°,V65°

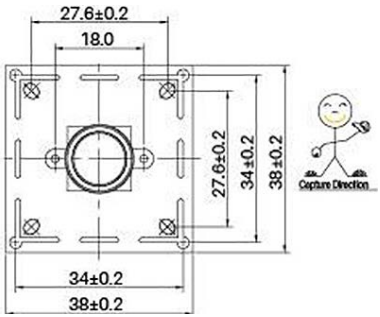
Distortion:<0.35%

Chip Type:1/2.9"

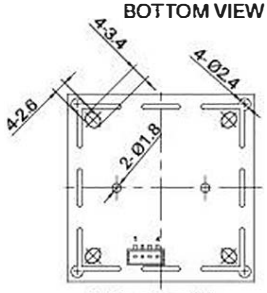
Array Size:2.19MP

Thread Size:M12*P0.5mm

TOP VIEW



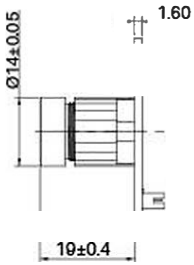
BOTTOM VIEW

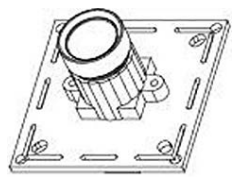


PH1.5,top entry type, 4PIN

GND	DP	DM	5V
PIN1	PIN2	PIN3	PIN4

SIDE VIEW





SONY

Diagonal 6.23 mm (Type 1/2.9) CMOS Image Sensor with Square Pixel for Color Cameras

Preliminary

IMX323LQN-C

Description

The IMX323LQN-C is a diagonal 6.23 mm (Type 1/2.9) CMOS active pixel type image sensor with a square pixel array and approximately 2.12 M active pixels. This chip operates with analog 2.7 V, digital 1.2 V, and interface 1.8 V triple power supplies. High sensitivity, low dark current and no smear are achieved through the adoption of R, G and B primary color pigment mosaic filters. This chip features an electronic shutter with variable integration time. (Applications: Consumer use drive recorder, Consumer use network camera)

Features

- ◆CMOS active pixel type dots
- ◆Input clock frequency: 37.125 MHz
- ◆Readout mode
  HD1080 p mode
  HD720 p mode
- ◆Variable-speed shutter function (Minimum unit: One horizontal sync signal period (1XHS))
- ◆H driver, V driver and serial communication circuit on chip
- ◆DCK sync mode supported
- ◆CDS/PGA on chip
  0 dB to 21 dB: Analog Gain 21 dB (step pitch 0.3 dB)
  21.3 dB to 45 dB: Analog Gain 21 dB + Digital Gain 0.3 to 24 dB (step pitch 0.3 dB)
- ◆10-bit / 12-bit A/D converter on-chip
- ◆CMOS logic parallel SDR Data-Clock output
- ◆R, G, B primary color pigment mosaic filters on chip
- ◆Recommended lens F value: 2.8 or more (close side)
- ◆Recommended exit pupil distance: –30 mm to –∞

Exmor

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

Rev.0.2

Device Structure

- ◆ CMOS image sensor
- ◆ Image size
  Diagonal 6.23 mm (Type 1/2.9)
- ◆ Total number of pixels
  2001 (H) × 1121 (V) approx. 2.24 M pixels
- ◆ Number of effective pixels
  1985 (H) × 1105 (V) approx. 2.19 M pixels
- ◆ Number of active pixels
  1936 (H) × 1097 (V) approx. 2.12 M pixels
- ◆ Number of recommended recording pixels
  1920 (H) × 1080 (V) approx. 2.07 M pixels
- ◆ Unit cell size
  2.8 µm (H) × 2.8 µm (V)
- ◆ Optical black
  Horizontal (H) direction: Front 16 pixels, rear 0 pixels
  Vertical (V) direction: Front 16 pixels, rear 0 pixels
- ◆ Dummy
  Horizontal (H) direction: Front 0 pixels, rear 0 pixels
  Vertical (V) direction: Front 7 pixels, rear 0 pixels
- ◆ Substrate material
  Silicon

Absolute Maximum Ratings

Supply voltage (analog 2.7 V)	AV_{DD}	–0.3 to +3.3	V
Supply voltage (digital 1.2 V)	DV_{DD}	–0.3 to +2.0	V
Supply voltage (digital 1.8 V)	OV_{DD}	–0.3 to +3.3	V
Input voltage (digital)	V_I	–0.3 to OV_{DD} +0.3	V
Output voltage (digital)	V_O	–0.3 to OV_{DD} +0.3	V
Guaranteed Operating temperature	Topr	–30 to +75	˚C
Guaranteed storage temperature	Tstg	–40 to +80	˚C
Guaranteed performance temperature	Tspc	–10 to +60	˚C

Recommended Operating Conditions

Supply voltage (analog 2.7 V)	AV_{DD}	2.7 ± 0.1	V
Supply voltage (digital 1.2 V)	DV_{DD}	1.2 ± 0.1	V
Supply voltage (digital 1.8 V)	OV_{DD}	1.8 ± 0.1	V
Input voltage (digital)	V_I	–0.1 to OV_{DD}+0.1	V
Output voltage (digital)	V_O	–0.1 to OV_{DD}+0.1	V

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	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

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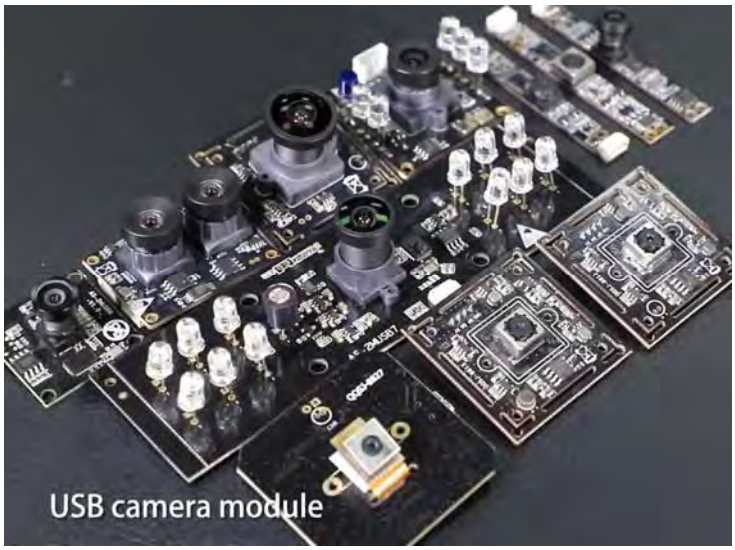
Company HAMPO

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 subsequential events.

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