



HAMPO-USB-0651-V1.0

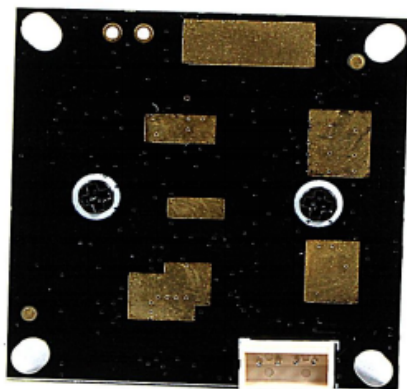
3MP AR0330 Fixed Focus USB 2.0 Camera Module

Product Description

Hampo 003-0651 is a 3MP USB camera module adopting 1/3 – inch CMOS AR0330 sensor.

High-performance ISP that performs the entire Auto functions in addition to complete image signal processing pipeline that provides best-in-class images, videos and the optional MJPEG/H.264 compressions.

Widely use for applications such as data collection , security monitoring , digital video camcorder, Web cameras and video conferencing cameras, smart terminal etc.





1. Full HD Resolution: AR0330 with better clarity as well.
2. Support H.264 Output: faster transmission speed.
3. Superior low-light performance
4. 96 Degree Large View
5. Plug&Play



Product Specifications

Camera Model No.	HAMPO-0030-0651
Sensor Size	AR0330
Maximum Resolution	2304 x 1296
Maximum Pixels	3MP
Sensor Size	1/3"
Pixel Size	2.2μm x 2.2μm
Frame Rate	30fps
Wide Dynamic Range	72.4BD
Output Format	MJPEG / YUV2/H.264
Lens Specs (Default)	FOV =96°(Diagonal)
	TTL = 15.79 mm
	Lens Construction = 2G+2P+IR
	S-Mount = M12* P0.5mm
Auto Control	Saturation, Contrast, Acutance, White Balance, Exposure
Audio (YES)	Digital Microphone, Single, Dual Channel Optional
Input Voltage	DC 5V
Working Current	Max 220mA
USB Interface	USB 2.0
Storage Temperature	-20°C to +70°C
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

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



Windows

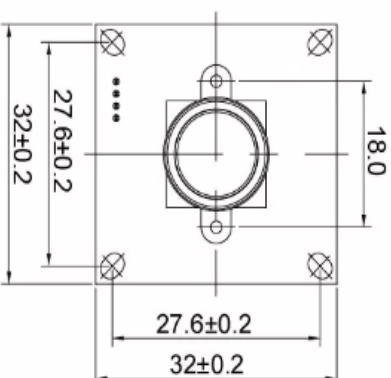
Mac OS

Linux

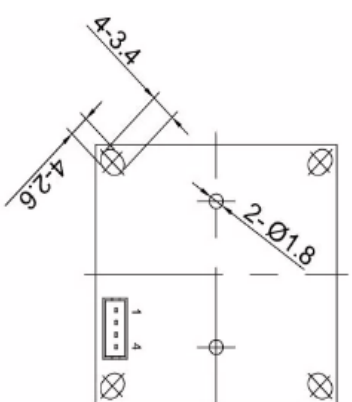
Raspberry Pi

RoHS

TOP VIEW

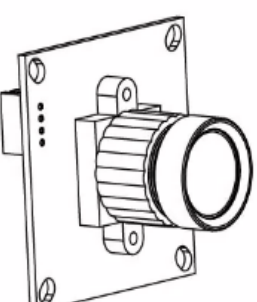
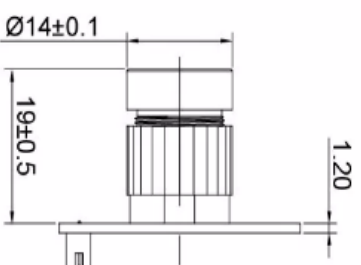


BOTTOM VIEW

PH1.5_{top} entry type, 4PIN

GND	DP	DM	5V
PIN1	PIN2	PIN3	PIN4

SIDE VIEW



Lens parameter: 2G2P+1R

EF.L:3.6mm

F.NO:3.0

View Angle: D96°, H80°, V65°

Distortion: <0.35%


Chip Type:1/3"

Array Size:3MP

Thread Size:M12*P0.5mm

NOTE

Sensor:AR0330;

UNSPECIFIED TOL:		SIGNATURE		DATE		R & D Center		DONGGUAN HAMPO ELECTRONICS TECHNOLOGY CO.,LTD	
		DWG.BY		MIKE		2022.07.02			
XXX ± 0.005		CHK.BY				PART NAME		USB Camera	
XX ± 0.05		APP.BY				DWG NO		2.03.0651.01IN	
X ± 0.1		MATERIAL		/		SCALE		SIZE	
Z ± 0.5°		TREATMENT		/		UNIT		SHEET	
						mm		1/1	
								A4	
								/	

1/3-Inch CMOS Digital Image Sensor

AR0330 Data Sheet, Rev. U

For the latest data sheet, please visit www.onsemi.com

Features

- 2.2 μm pixel with ON Semiconductor A-Pix™ technology
- Full HD support at 60 fps (2304H x 1296V) for maximum video performance
- Superior low-light performance
- 3.4Mp (3:2) and 3.15 Mp (4:3) still images
- Support for external mechanical shutter
- Support for external LED or Xenon flash
- Data interfaces: four-lane serial high-speed pixel interface (HiSPi™) differential signaling (SLVS), four-lane serial MIPI interface, or parallel.
- On-chip phase-locked loop (PLL) oscillator
- Simple two-wire serial interface
- Auto black level calibration
- 12-to-10 bit output A-Law compression
- Slave mode for precise frame-rate control and for synchronizing two sensors

Applications

- 1080p high-definition digital video camcorder
- Web cameras and video conferencing cameras
- Security

General Description

The ON Semiconductor AR0330 is a 1/3-inch CMOS digital image sensor with an active-pixel array of 2304Hx1536V. It can support 3.15 megapixel (2048H x 1536V) digital still image capture and a 1080p60+20%EIS (2304H x 1296V) digital video mode. It incorporates sophisticated on-chip camera functions such as windowing, mirroring, column and row subsampling modes, and snapshot modes.

Table 1: Key Parameters

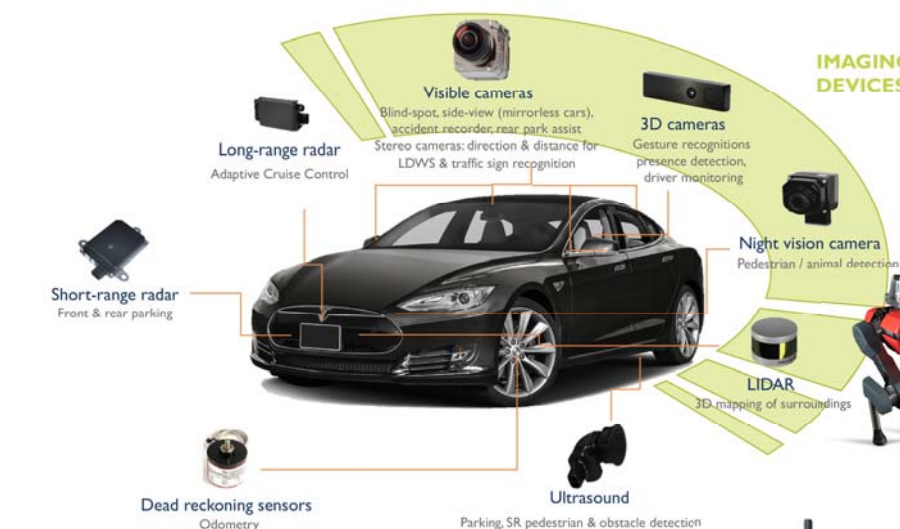
Parameter		Typical Value
Optical format		1/3-inch (6.0 mm) Entire Array: 6.09 mm Still Image: 5.63 mm (4:3) HD Image: 5.82 mm (16:9)
Active pixels		2304(H) x 1536(V): (entire array): 5.07 mm (H) x 3.38 mm (V) 2048(H) x 1536(V) (4:3, still mode) 2304(H) x 1296(V) (16:9, sHD mode)
Pixel size		2.2 μm x 2.2 μm
Color filter array		RGB Bayer
Shutter type		ERS and GRR
Input clock range		6 – 27 MHz
Output clock maximum		196 Mp/s (4-lane HiSPi or MIPI)
Output Video	4-lane HiSPi	2304 x 1296 at 60 fps < 450 mW (V _{cm} 0.2V, 198MP/s) 230 x 1296 at 30 fps < 300 mW (V _{cm} 0.2V, 98 Mp/s)
Responsivity		2.0 V/lux-sec
SNR _{MAX}		39 dB
Dynamic range		69.5 dB
Supply voltage	I/O/Digital	1.7–1.9 V (1.8 V nominal) or 2.4–3.1 V (2.8 V nominal)
	Digital	1.7–1.9 V (1.8 V nominal)
	Analog	2.7–2.9 V
	HiSPi PHY	1.7–1.9 V (1.8 V nominal)
	HiSPi I/O (SLVS)	0.3–0.9 V (0.4 or 0.8 V nominal)
HiSPi I/O (HiVCM)		1.7–1.9 V (1.8 V nominal)
Operating temperature (junction) -T _j		–30°C to + 70° C
Package options		11.4 mm x 11.4 mm CLCC
		6.28 mm x 6.65 mm CSP
		Bare die



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

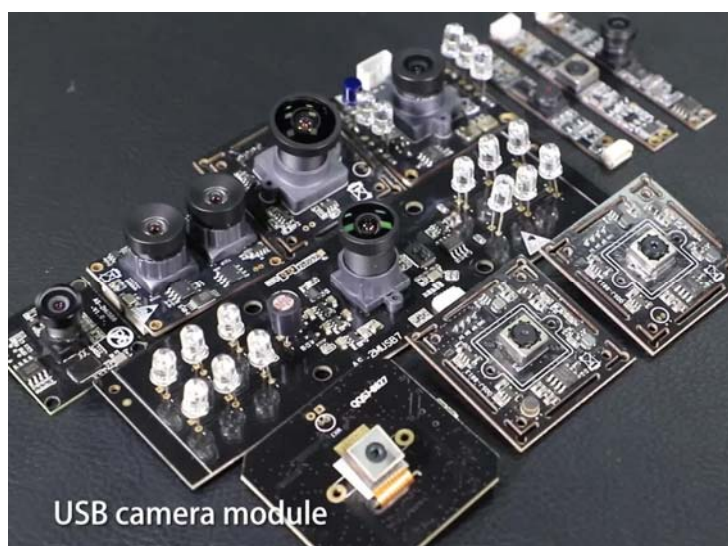


Company HAMPO

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

