



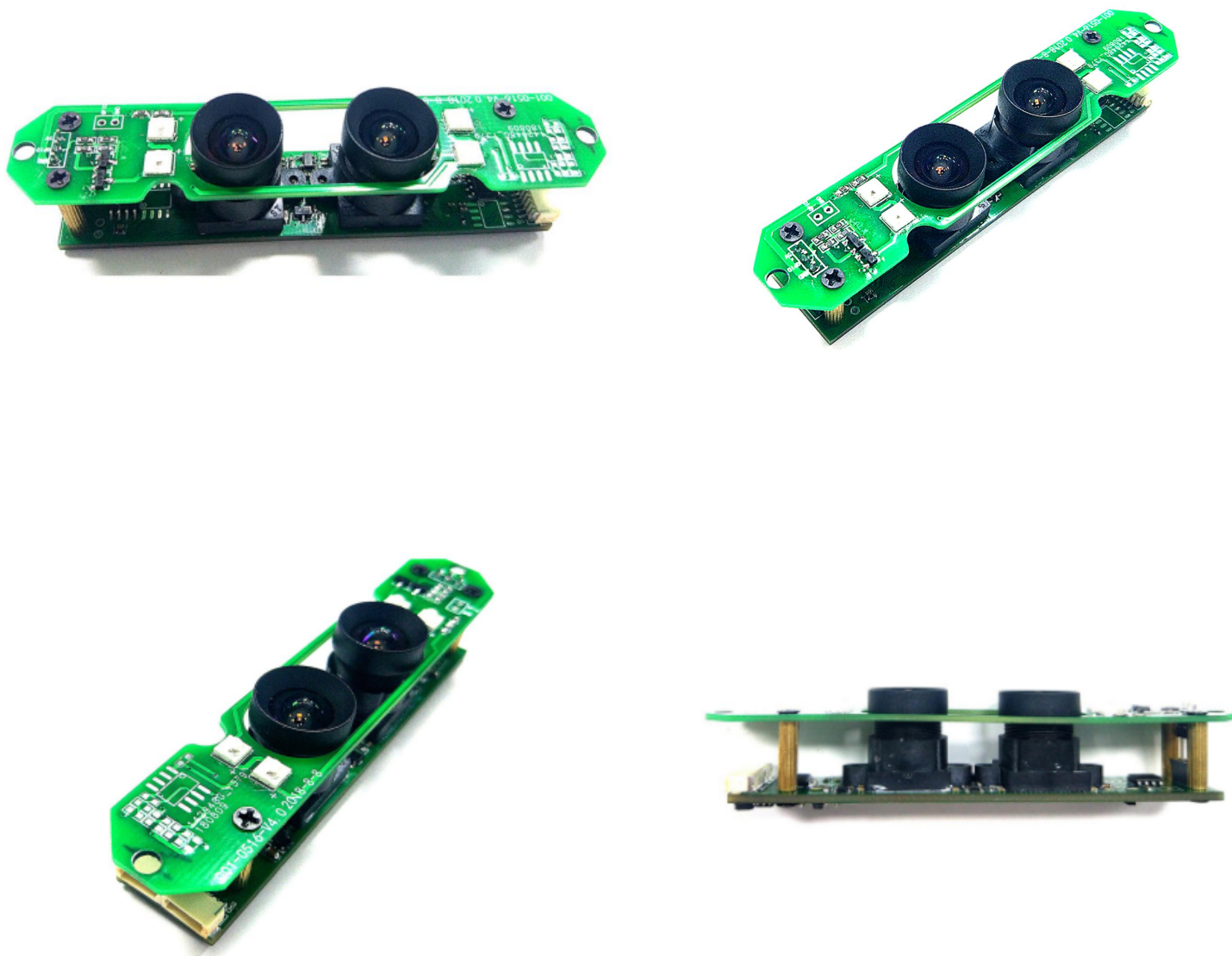
**HAMPO-003-0514**

**2MP On-Semi AR0230 OmniVision OV2710 Fixed Focus  
Dual Lens Stereo USB 2.0 Camera Module**

**Product Description**

Hampo 003-0514 is a synchronized dual lens USB camera module, with 1/2.7" CMOS AR0230 & OV2710 image sensor, the max resolution is 1920\*1080P @30fps for each camera, delivery 96dB of wide dynamic range and good low light performance.

It widely used for binocular stereo vision secondary development. Like Robot vision, Virtual reality, Augmented Reality, biometric Retina analyze, 3D measurement, People Counting & Tracking etc application. Customer could develop their own software and device, integrated with this dual lens camera to capture or view dual image picture or video.



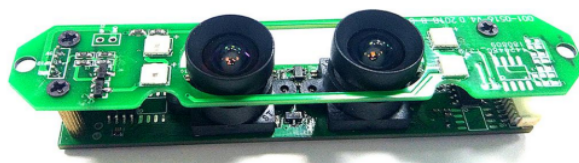
**Wide Compatibility with Windows, Android, Mac OS, Linux, or Raspberry Pi**





## Key Features

1. Synchronized dual lens camera module
2. Full HD 1080P Resolution: Full HD 1080P Resolution: adopt 1/2.7" AR0230 WDR color sensor and OV2710 low light IR sensor.
3. WDR & Low Light Performance: AR0230 RGB sensor which support 96DB of wide dynamic range, and the other one with OV2710 IR sensor feature an excellent low light performance.
4. Best Universal Compatibility: support USB 2.0 OTG, plug&play.



	RGB Camera	IR Camera
Sensor	AR0230	OV2710
Maximum Resolution	1920 x 1080	1920 x 1080
Maximum Pixels	2 MP	2 MP
Sensor Size	1/2.7"	1/2.7"
Pixel Size	3.0um*3.0um	3.0um*3.0um
Focus Length	7mm	7mm
Wide Dynamic Range	105DB	69DB
Output Format	MJPEG/YUV2	MJPEG/YUV2
Lens Specs (Default)	FOV =82°(Diagonal) 63°(Horizontal) 35°(Vertical)	FOV =82°(Diagonal) 63°(Horizontal) 35°(Vertical)
	TTL = 17mm	TTL = 17mm
	Lens Construction = 2G2P + IR (650nm 850nm)	Lens Construction = 2G2P + IR (650nm 850nm)
	S-Mount = M12 * P0.5mm	S-Mount = M12 * P0.5mm
Auto Control	Saturation, Contrast, Acutance, White Balance, Exposure	Saturation, Contrast, Acutance, White Balance, Exposure
Input Voltage	DC 5V	DC 5V
Working Current	Max 200mA	Max 200mA
USB Interface	2.0	2.0
Storage Temperature	-20°C to +70°C	-20°C to +70°C
PCB Size	80mm x 16mmx 20mm	80mm x 16mmx 20mm
System Compatibility	Windows XP (SP2, SP3), Vista, 7, 8,10, 11, Android, Mac OS	Windows XP (SP2, SP3), Vista, 7, 8,10, 11, Android, Mac OS
	Linux or OS with UVC Driver, Raspberry Pi by USB Port	Linux or OS with UVC Driver, Raspberry Pi by USB Port
Software for USB Camera	AMCAP, Webcam Viewer, V4L2 Controls, Contacam	AMCAP, Webcam Viewer, V4L2 Controls, Contacam
	VLC Player, Motion Eye OS, iSpy, ZoneMider, Yawcam	VLC Player, Motion Eye OS, iSpy, ZoneMider, Yawcam

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



## Product Overview

### AR0230AT: 2 MP 1/3" CMOS Image Sensor

For complete documentation, see the data sheet.

The AR0230AT is a 1/2.7-inch CMOS digital image sensor with an active-pixel array of 1928Hx1088V. It captures images in either linear or high dynamic range modes, with rolling-shutter readout. It includes sophisticated camera functions such as in-pixel binning, windowing and both video and single frame modes. It is designed for both low light and high dynamic range scene performance. It is programmable through a simple two wire serial interface. The AR0230AT produces extraordinarily clear, sharp digital pictures, and its ability to capture both continuous video and single frames makes it the perfect choice for a wide range of applications.

### Features

- High Dynamic Range

### Applications

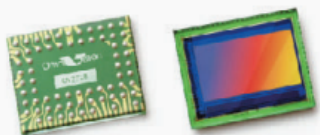
- Automotive

### Part Electrical Specifications

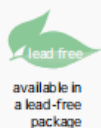
Product	Compliance	Status	Type	Megapixels	Frame Rate (fps)	Optical Format	Shutter Type	Pixel Size (μm)	Output Interface	Color	Package Type
AR0230ATSC00XUEA0-DRBR	AEC Qualified PPAP Capable Pb-free Halide free	Active									IBGA-80
AR0230ATSC00XUEA0-DRBR-E	Pb-free Halide free	Active	CMOS	2.1	30	1/2.7 inch	Electronic Rolling and Global Reset Release	3.0 x 3.0	Parallel HiSPi™	RGB	IBGA-80
AR0230ATSM00XUEA0-DRBR-E	Pb-free Halide free	Active	CMOS	2.1	30	1/2.7 inch	Electronic Rolling and Global Reset Release	3.0 x 3.0	Parallel HiSPi™	Mono	IBGA-80

For more information please contact your local sales support at [www.onsemi.com](http://www.onsemi.com).

Created on: 9/30/2017



# OV2710 full HD (1080p) product brief



## OmniVision's True 1080p High Definition (HD) Video Image Sensor

The OV2710 is a true full HD (1080p) CMOS image sensor designed specifically to deliver high-end HD video to digital video camcorders, notebooks, PC webcam and other mobile applications. The 1/2.7-inch OV2710 addresses the fast growing demand for affordable, HD-quality digital video solutions for video conferencing and recording.

The OV2710 is among the very first no-compromise full HD (1080p) sensors available on the market, meaning it offers the HD video format with a display resolution of 1920 x 1080 pixels, operating at 30 frames per second. Built with OmniVision's proprietary 3  $\mu$ m OmniPixel3-HS™ high sensitivity pixel technology, the OV2710 delivers low-light sensitivity of 3300 mV/lux-sec, S/N ratio of 39 dB, dark current of

10 mV/sec and a peak dynamic range of 69 dB. This enables cameras to operate in virtually every lighting condition from bright daylight to nearly complete darkness below 15 lux.

The OV2710 supports multiple platform architectures and controllers with both parallel and MIPI interfaces. By allowing system designers to leverage the same opto-electrical design across various products and multiple market segments, the OV2710 significantly reduces product development time. OmniVision's OmniPixel3-HS pixel technology has already been proven in high quality webcam/video applications and is now available in 1080p full HD in the OV2710.

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





## Applications

- Notebooks
- Digital Still Cameras
- PC Webcams
- Telepresence
- Camcorders
- Portable Media Players

## Product Features

- programmable controls: gain, exposure, frame rate, image size, horizontal mirror, vertical flip, cropping, windowing, and panning
- automatic image control functions:
  - automatic exposure (AEC)
  - automatic gain control (AGC)
  - automatic white balance (AWB)
  - automatic black level calibration (ABLC)
- serial camera control bus (SCCB)
- lens correction (LENC)
- defective pixel correction (DPC)
- support for digital video port (DVP) parallel output interface
- integrated auto focus filter
- support for one lane MIPI interface (up to 800 Mbps)
- support for 8-/10-bit RAW RGB output format
- support for image sizes:
  - 1080p at 30 fps
  - cropped 720p at 60 fps
  - VGA at 120 fps
- support for black sun cancellation
- embedded one-time programmable (OTP) memory
- on-chip phase lock loop (PLL)
- built-in 1.5V regulator for core

# OV2710



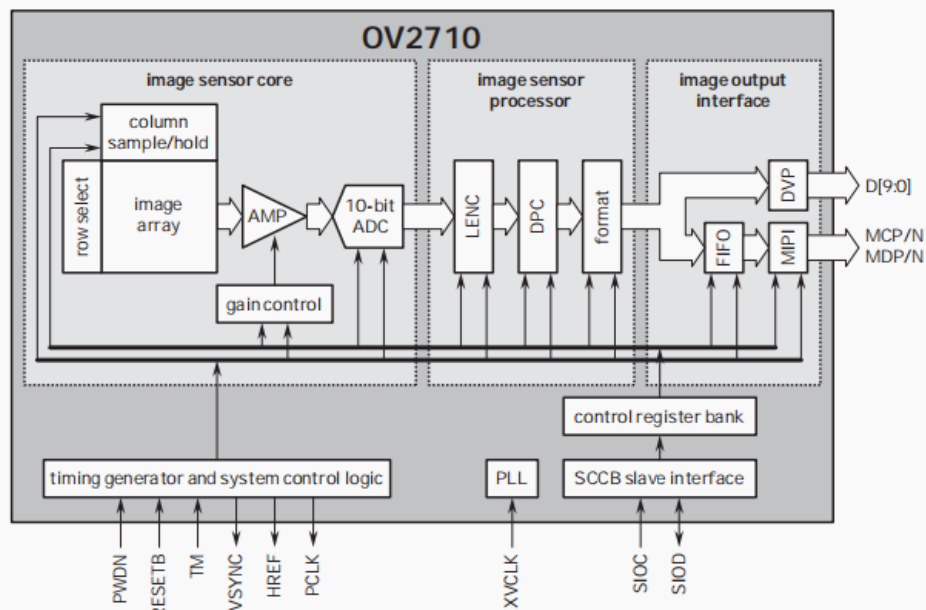
## Ordering Information

- OV02710-A68A (color, lead-free, 68-pin CSP3)

## Product Specifications

- active array size: 1920 x 1080
- dynamic range: 69 dB
- power supply:
  - analog: 3.0 - 3.6 V (3.3 V typical)
  - core: 1.425 - 1.575 V (1.5 V typical)
  - I/O: 1.7 - 3.6 V (1.8 V typical)
- maximum image transfer rate:
  - 1080p: 30 fps
  - 720p: 60 fps
  - VGA: 120 fps
  - QVGA: 240 fps
- temperature range:
  - operating: -30° C to 70° C
  - stable image: 0° C to 50° C
- sensitivity: 3300 mV/(lux-sec)
- shutter: rolling
- S/N ratio: 39 dB
- output interfaces: 10-bit parallel/one lane MIPI
- output formats: 10-bit RAW RGB
- pixel size: 3 μm x 3 μm
- lens size: 1/2.7"
- image area: 5856 μm x 3276 μm
- lens chief ray angle: 23.6°
- package dimensions: 7465 μm x 5865 μm
- input clock frequency: 6 - 27 MHz

## Functional Block Diagram



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Version 1.1, December, 2009

**Omnivision**

## 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



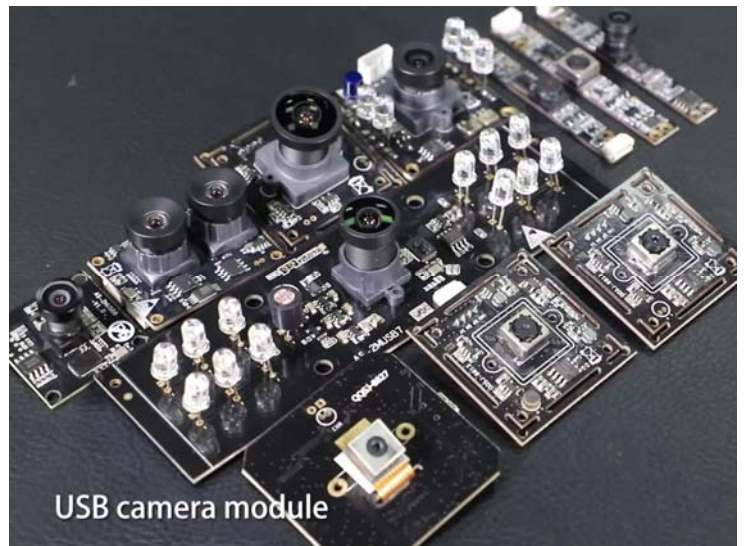


## Company HAMPO

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](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

