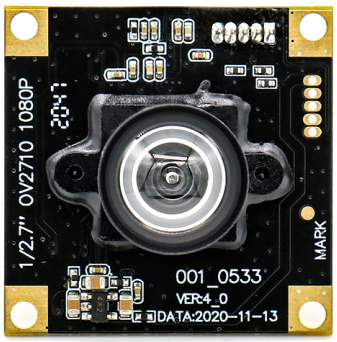
HAMPO-USB-0533-V1.1

2MP OmniVision OV2710 M12 Fixed Focus USB 2.0 Camera Module



HAMPO-USB-0533-V1.0 is a full HD 2MP USB camera module adopt a large 1/2.7" CMOS OV2710 sensor with a good low illumination up to 0.05Lux. The max resolution 1920*1080P at 30fps.

The S-mount (M12) lens holder enables customers to choose different lens as per varies applications. This camera module is ideal solution for route recognition, data collection, automotive, access robotic.

Key Features

- 2MP resolution (1920 x 1080) Full HD
- High speed USB 2.0 Plug and Play
- MJPG and YUV2 output format
- Low illumination
- Compact size
- UVC compliant to Windows, Linux, OS with UVC driver
- High cost effective USB camera module

HAMPO-USB-0533-V1.1

2MP OmniVision OV2710 M12 Fixed Focus USB 2.0 Camera Module

Camera Module No.	HAMPO-USB-0533-V1.1
Resolution	2MP
Image Sensor	OV2710
Sensor Type	1/2.7"
Pixel Size	3.0 um x 3.0 um
EFL	2.90 mm
F.NO	2.40
Pixel	1920 x 1080
View Angle	98°(DFOV) 89°(HFOV) 57°(VFOV)
Lens Dimensions	11.75 x 11.75 x 16.68 mm
Module Type	Fixed Focus
Lens Model	HAMPO-LENS-6205
Interface	USB 2.0
Output Format	MJPG / YUV2
Auto Control	Saturation, Contrast, Acutance White Balance, Exposure
Audio	/
Input Voltage	DC 5V
Working Current	Max 220mA
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

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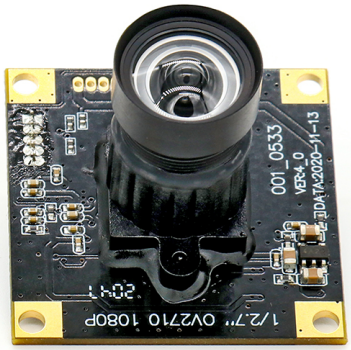


Top View

Side View

Bottom View

Mating Connector

HAMPO-USB-0533-V1.1

2MP OmniVision OV2710 M12 Fixed Focus USB 2.0 Camera Module

FORMAT	RESOLUTION	FRAME RATE
		USB 2.0
MJPG	640 x 480 (VGA)	**30 FPS**
	1024 x 768 (Super VGA)	**30 FPS**
	1280 x 720 (720P)	**30 FPS**
	1920x 1080 (2MP)	**30 FPS**
YUY2	640 x 480 (VGA)	**30 FPS**
	1024 x 768 (Super VGA)	**10 FPS**
	1280x 720 (720P)	**10 FPS**
	1920 x 1080 (2MP)	**5 FPS**

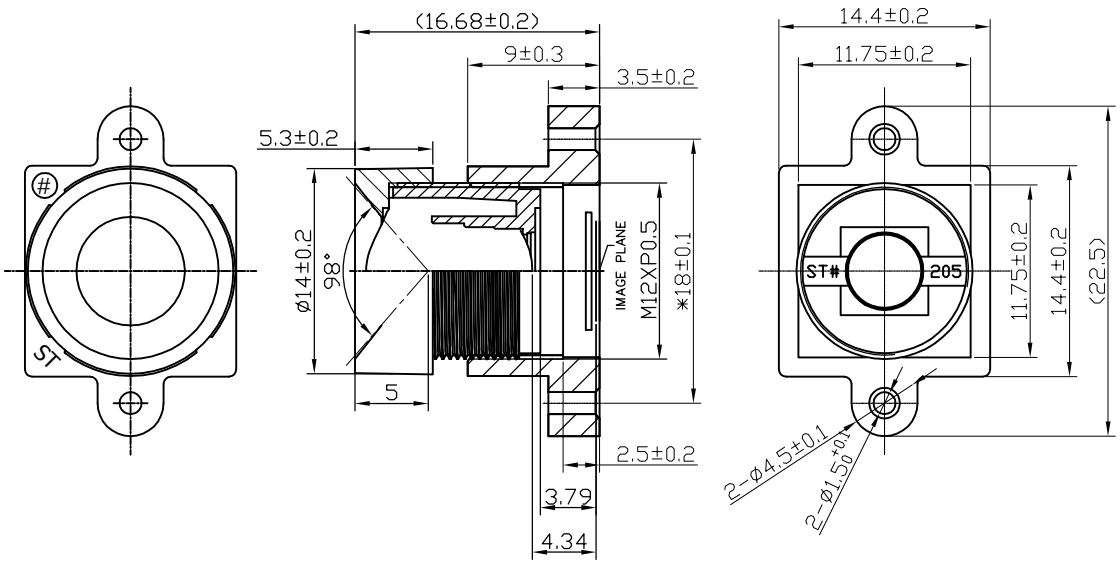
PRODUCT NAME :

1. SPECIFICATION :

	SPECIFICATION	
1	SENSOR SIZE	1/2.7″
2	MAX IMAGE CIRCLE	----
3	WAVELENGTH	400-700nm(COLOR)
4	FOCAL LENGTH (EFL)	f=2.9±5%mm
5	F/NO (INFINITE)	F/NO=2.4
6	BACK FOCAL LENGTH	BFL=4.34±5%mm
7	FLANGE BACK LENGTH	FB=3.79±5%mm
8	FIELD OF VIEW (DIAGONAL-DISTORTION)	ø6.6mm-98°±5%(-2.0%)
9	(Horizontal-DISTORTION)	ø5.76mm-89°±5%(-1.0%)
10	(Vertical-DISTORTION)	ø3.24mm-57°±5%(-1.5%)
11	CHIEF RAY ANGLE (MAX)	16.7°
12	THREAD SIZE	M12XP0.5
13	ELEMENT	3G2P+IR
14	TEMPERATURE RANGE :STORAGE	-20°C~85°C
15	TEMPERATURE RANGE :STABLE IMAGE	0°C~70°C
16	IR FILTER SPEC	FILTER:Tavg>=88% at430-620nm
		T=50% at650±15nm
		Tavg<5% at700-1100nm

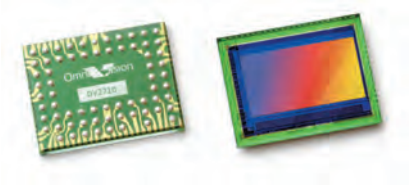
2. OPTICAL LAYOUT :

scale 2 : 1



REV	DESCRIPTION	DATE	NAME
①			
②			
③			
④			
⑤			

UNIT	mm	BORDER	A4	NAME	DATE
SCALE	2:1	DRAWING BY			
SURFACE		CHECKED BY			
VIEW		APPROVED BY			
PRODUCT NAME :					



OV2710-1E full HD (1080p) product brief

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

lead free

available in a lead-free package

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

The OV2710-1E is among the very first no-compromise full HD (1080p) sensors available on the market, meaning it offers HD video format with a display resolution of 1920 x 1080 pixels, operating at 30 frames per second. Built with OmniVision's proprietary 3 µm OmniPixel3-HS™ high sensitivity pixel technology, the OV2710-1E delivers low-light sensitivity of 3700 mV/lux-sec, S/N ratio of 40 dB, and a peak dynamic range of 69 dB, enabling cameras to operate in virtually every lighting condition from bright daylight to nearly complete darkness below 15 lux.

The OV2710-1E 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 OV2710-1E 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 OV2710-1E.

Find out more at www.ovt.com.

OV2710-1E

Applications

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

Ordering Information

- **OV02710-A68A-1E**
  (color, lead-free, 68-pin CSP3)

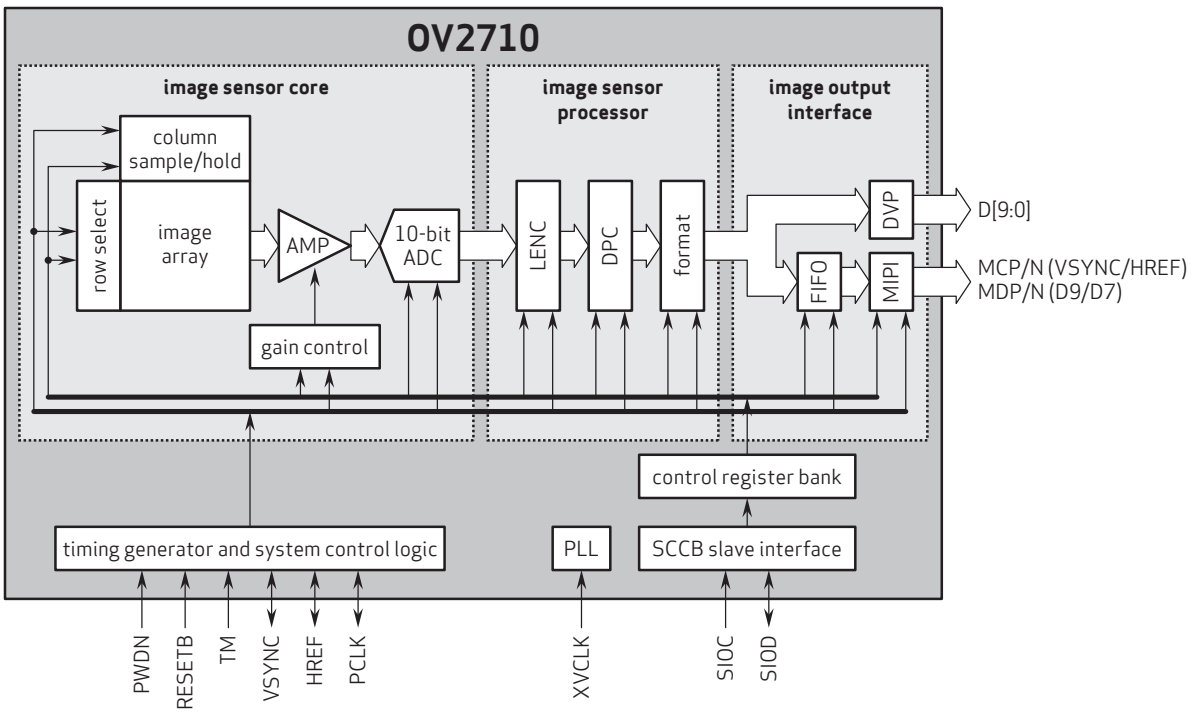
Product Features

- 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)
- defect 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

Product Specifications

- **active array size:** 1920 x 1080
- **power supply:**
  - **analog:** 3.0 - 3.6V (3.3V typical)
  - **core:** 1.425 - 1.575V (1.5V typical)
  - **I/O:** 1.7 - 3.6V (1.8V typical)
- **power requirements:**
  - **active:** 350 mW
  - **power down:** 70 µA
- **temperature range:**
  - **operating:** -30°C to +85°C junction temperature
  - **stable image:** 0°C to +65°C junction temperature
- **output interfaces:** 10-bit parallel/ one lane MIPI
- **output formats:** 10-bit RAW RGB
- **lens size:** 1/2.7"
- **lens chief ray angle:** 23.6°
- **input clock frequency:** 6 - 27 MHz
- **scan mode:** progressive
- **maximum image transfer rate:**
  - **1080p:** 30 fps
  - **cropped 720p:** 60 fps
  - **VGA:** 120 fps
  - **QVGA:** 240 fps
- **sensitivity:** 3700 mV/lux-sec
- **shutter:** rolling
- **max S/N ratio:** 40 dB
- **dynamic range:** 69 dB @ 8x gain
- **maximum exposure interval:** 1096 tline
- **pixel size:** 3 µm x 3 µm
- **dark current:** 20 mV/sec @ 60°C junction temperature
- **image area:** 5856 µm x 3276 µm
- **package dimensions:** 7465 µm x 5865 µm

Functional Block Diagram



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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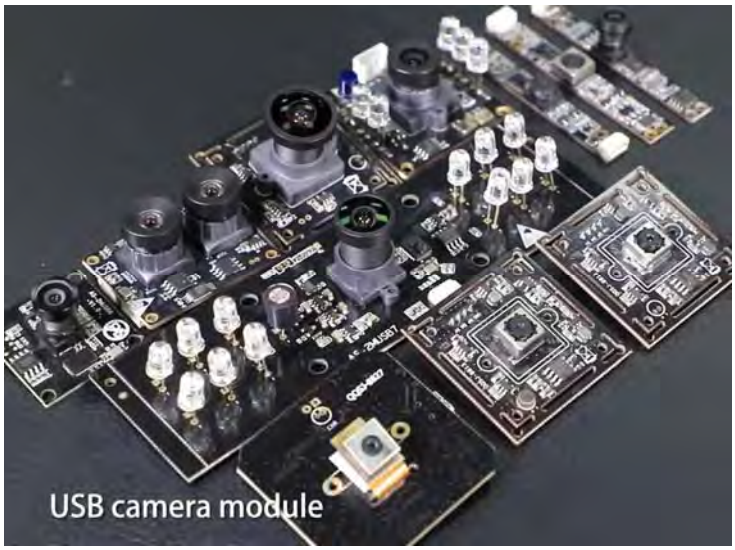
Company HAMPO

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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