



# USB camera module specification book

**The Camera Module Specification  
With 0.3M Pixel Color CMOS Sensor and USB 2.0 output**

Customer name \_\_\_\_\_

identification of product **HBVCAM -1319 S3.0**

product name \_\_\_\_\_

Submission date **2019-10-11**

edition **S 3.0**

authorized strength \_\_\_\_\_

examine and verify \_\_\_\_\_

ratify \_\_\_\_\_

Customer confirmation

Customer seal



## Catalogue of product specifications

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## 1. Key Specifications (main specification)

<b>Module No .</b>	<b>HBVCAM -1319 S 3.0</b>														
<b>Module Size</b>	25mm × 8mm × 4.5mm ±0.2MM														
<b>Temperature (Operation )</b>	-30°C to 70°C														
<b>Temperature (Stable Image )</b>	0°C to 50°C														
<b>Assembly technique</b>	SMT (ROSH )														
<b>F ocus</b>	F ixed														
<b>Object distance</b>	30CM -infinity														
<b>R esolution</b>	600LW /PH (Center )														
<b>PCB printing ink</b>	bla ck														
<b>i nterface</b>	USB 2.0														
<b>Power suuply</b>	USB bus power														
<b>supply voltage</b>	DC 5V ±5%														
<b>Maximum Power consumption</b>	400mW														
<b>Operating system request</b>	Win XP /win 7、8 / vista /android 4.0/ mac /Linux with uvc														
<b>S ensor</b>	GC 0307 (1/7" )														
<b>Seneor Package</b>	CSP ,Bare Die														
<b>Maximum resolution</b>	640*480														
<b>Sensitivit y</b>	.03mv / (lux -sec )														
<b>Pixel Size</b>	3.2 μm x 3.2 μm														
<b>Maximum Image Transfer Rate</b>	<table border="0"> <tr> <td>YUY 2 160x</td> <td>30FPS</td> </tr> <tr> <td>120 YUY 2</td> <td>30FPS</td> </tr> <tr> <td>176x 144 YUY</td> <td>30FPS</td> </tr> <tr> <td>2 320x 240</td> <td>30FPS</td> </tr> <tr> <td>YUY 2 352x</td> <td>30FPS</td> </tr> <tr> <td>288 YUY 2</td> <td></td> </tr> <tr> <td>640x 480</td> <td></td> </tr> </table>	YUY 2 160x	30FPS	120 YUY 2	30FPS	176x 144 YUY	30FPS	2 320x 240	30FPS	YUY 2 352x	30FPS	288 YUY 2		640x 480	
YUY 2 160x	30FPS														
120 YUY 2	30FPS														
176x 144 YUY	30FPS														
2 320x 240	30FPS														
YUY 2 352x	30FPS														
288 YUY 2															
640x 480															
<b>S /N Ratio</b>	42 db														
<b>Max Dynamic Range</b>	69 db														
<b>Shutter type</b>	Electronic rolling shutter														
<b>AGC /AEC /Whiter balance</b>	Auto														
<b>Output Formats</b>	YUY 2														
<b>M icrophone</b>	N O														
<b>Lens Construction</b>	2P +IR														
<b>F /No</b>	2.8														
<b>EFL</b>	2.6mm														
<b>FOV</b>	50°														
<b>TV Distortion</b>	<1%														
<b>Relative Illumination (Sensor )</b>	70%														
<b>IR Filter</b>	650±10nm														
<b>Module Package</b>	Anti -electrostatic tray														
<b>C e rtifications</b>	FCC /CE /ROSH														





### 3. Appearance Specification (external specification)

surface				
order number	project	ask	method of calibration	Disqualified classification
1	Module appearance	The surface of the module is no dirty, no visible scratches, and no impurities in the plastic	8X magnifying glass	A
2	lens	In $800 \pm 100$ Lux intensity light, 45 degrees of reflected light examination, no visible scars or dirt	8X magnifying glass	A
3	Threaded glue	The dot glue length is $1 / 3 - 1 / 2$ of the circumference, and the glue can not overflow to the lens end surface and the lens base	8X magnifying glass	A
4	gasket cement	Sealant is evenly filled between the base and FPC, with no gap, no uneven thickness, and no glue overflow of FPC edge, leading to excessive external size	8X magnifying glass	A
5	P CB	1) The surface is not dirty and the printing font is clear; 2) the edge burr length is less than 1mm and the width is less than 0.3mm; 3) the edge gap length is less than 1mm and the width is less than 0.1mm and not more than 2	45X, microscope (continuous zoom)	A
External size				
order number	project	ask	method of calibration	Disqualified classification
1	altitude	Meet the drawing requirements	digital caliper	A
2	length	Meet the drawing requirements	digital caliper	A
3	width	Meet the drawing requirements	digital caliper	A



#### 4. Image Specification (Image Specification)

Optical performance testing requirements				
order number	inspecting item	ask	method of calibration	Nonconforming classification
1	stain (Dust)	In the white field, obtain the image and visually do not allow visible foreign body in the whole picture	.6500Test the fixture. Small light box K white backlight	A
2	Imaging direction (imaging direction)	Meet the drawing requirements	Test fixtures	A
3	Bad points and cluster type bad points (Dead & Wound Pixel )	1) Dark field: the total number of highlights is less than 400pixel; 2 adjacent pixel cluster highlights are less than 20; no 3 pixel cluster highlights. 2) White field: total number of dark points less than 400pixel; 2 cluster adjacent pixel less than 20; no cluster dark more above 3 pixel.	testing software Small light box (6500K white backlight)	A
4	resolution ratio (Resolution )	30 million pixels: center not less than 600 LW / PH	The MTF test procedure	A
5	angle of field (FOV )	Level (horizontal): 40° Vertical (Vertical): 30° Diagonal line (Diagonal): 50°	Test fixtures, Field of view corner marker	A
6	Like surface uniformity (Shading )	The average brightness of the four corners from the center is at least 45% of the brightness of the center test field; the brightness of each corner is more than 35% of the center brightness (sampling box size is 40 * 40 pixels, sensor dark angle compensation function is not on).	testing software, Small Light Box (3400 Lux, 6500K White Backlit)	A
7	chromatic aberration (Color )	The color reduction error is not greater than 20%	testing software Color checker card	A
8	Geometric Distortion (TV distortion)	Pillow distortion (positive number) or barrel distortion (negative number) is not more than 1%	testing software ISO 12233 Plate	A
9	gamma (Grayscale )	The two gray order brightness differences must be less than 8	testing software, Grey scale plate	A
10	dispersion (CA)	Less than 0.5	testing software ISO 12233 Plate	A

11	Thread torsion (Torsional)	Not less than 1 kgf.cm	Twisted hand	A
12	Base thrust (Thrust )	Not less than 2 N	thrust meter	A

Description of the classification of nonconforming products:

A) Serious unqualified: the unqualified batch batch as judged by inspection, or causing great economic losses, directly affecting product quality, main functions, performance and technical indicators, etc., shall be indicated by the letter A;

B) Generally unqualified: generally unqualified refers to the unqualified products that can meet the following conditions at the same time, indicated by the letter B.

I) It does not affect the appearance quality of the final product;

II) Does not affect the technical performance of the final product;

III) The raw material or the final product does not affect the processing or assembly of the next process.

A printing plate.

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**5. Sample Plan (Sampling Plan)**

order number	inspecting item	sampling frequency	method of calibration	remarks
Imaging and reliability items				
1	stain	N =5, C =0	The same as the production	Production of full inspection items
2	Imaging direction	N =5, C =0	Test fixtures	Production of full inspection items
3	Bad points and cluster type bad points	N =5, C =0	The same as the production	Production of full inspection items
4	resolution ratio	N =5, C =0	MTF testing program	Production of full inspection items
5	angle of field	N =5, C =0	Test fixtures, Field of view corner marker	QA sampling inspection items
6	Like surface uniformity	N =5, C =0	testing software, Small light box (3400 Lux, 6500K white backlight)	Production of full inspection items
7	dispersion	N =5, C =0	Test software, Color checker card	QA sampling inspection items
8	geometric distortion	N =5, C =0	testing software, ISO 12233 Plate	QA sampling inspection items
9	gamma	N =5, C =0	testing software, Grey scale plate	QA sampling inspection items
10	reliability trial	Sample trial stage: Sampling plan: 2 PCS / per production batch, acceptable level 0 / 1 Production stability stage: Sampling plan: 5 PCS per project / month, acceptable level 0 / 1		
Appearance project				
1	Module appearance	AQL =0.65	8X magnifying glass	Production of full inspection items





2	lens	AQL =0.65	8X magnifying glass	Production of full inspection items
3	Threaded glue	AQL =0.65	8X magnifying glass	Production of full inspection items
4	gasket cement	AQL =0.65	8X magnifying glass	Production of full inspection items
5	P CB	AQL =0.65	45X, microscope (continuous zoom)	Production of full inspection items
6	junctor	AQL =0.65	45X, microscope (continuous zoom)	Production of full inspection items
External size				
1	altitude	AQL =0.65	The same as the production	Production of full inspection items
2	length	AQL =0.65	The same as the production	Production of full inspection items
3	width	AQL =0.65	The same as the production	Production of full inspection items
4	Threaded torsion	N =5, C =0	Twisted hand	QA sampling inspection items
5	Base thrust	N =5, C =0	thrust meter	QA sampling inspection items



## 6. Reliability Specification (Reliability)

order number	test item	Conditions and requirements	experimental rig
1	Low temperature storage	-30°C, 96hours lift temperature time of 30min each	Low temperature box
2	cold operation	-30°C, 96hours lift temperature time of 30min each	cryogenic box
3	high-temperature storage	80°C, 96hours lift temperature time of 30min each	high-temperature cabinet
4	hot operation	70°C, 96hours lift temperature time of 30min each	high-temperature cabinet
5	High temperature and high humidity storage	60°C, 90% RH, 120hours lift temperature time 30min each	High temperature constant wet box
6	High temperature and high humidity operation	40°C, 90% RH, 48hours lift temperature time 30min each	High temperature constant wet box
7	Hot and cold shock test	-30°C) 80°C (30min each) High and low temperature cross-conversion time is less than 5 minutes Total: 10cycles	Low-temperature box / high-temperature box
8	Free fall test (After packaging)	Height of 150cm, 10 times	Oak ground
9	vibration test (After packaging)	10Hz ~200Hz ~10Hz, amplitude of 2mm, three directions of XYZ, vibration for 2 hours	vibration test stand
10	Electrostatic test (interrupt)	150 Pf, 330 0 ± 8KV, air discharge measurements 10 times	Electrostatic tester



1. After all the reliability tests of the product, the size, appearance, torque force and optical performance all meet the product requirements. 2. Test conditions:

Light ance: small light box  $1500 \pm 10\%$  LUX large light box  $6000 \pm 10\%$  LUX

Colour temperature:  $4,400 \pm 150K$

The PC test software is the MODULE test platform

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7. ECO (Change Record)

order number	clause s and subclauses	Before the change	after change
1			
2			
3			
4			
5			
6			

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