

## Product Specifications Catalog

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## 1. Key Specifications (Main Specifications)

<b>Module No.</b>	<b>HBV-RPI-AUTO-IRCUT-36 S1.0</b>
<b>Module Size</b>	30.58mm×32mm×24±0.5mm
<b>Temperature (Operation)</b>	- 20°C to 70°C
<b>Temperature (Stable Image)</b>	0°C to 50°C
<b>Assembly technique</b>	SMT (ROSH)
<b>Focus</b>	Fixed
<b>Object distance</b>	30CM-∞
<b>Resolution</b>	800LW/PH (Center)
<b>PCB printing ink</b>	Black
<b>interface</b>	15p-1.0 mipi
<b>Working power supply</b>	3.3v(pin15)
<b>Operating system</b>	Raspberry Pi
<b>Package</b>	Anti-electrostatic tray
<b>Certifications</b>	FCC and CE
<b>Sensor Type</b>	OV5647 (1/4" )
<b>Active Array Size</b>	2592*1944
<b>Sensitivity</b>	600mV/Lux-sec
<b>Pixel Size</b>	1.4μm x 1.4μm
<b>Maximum Image Transfer Rate</b>	15fps for QSXGA;
<b>Output formats</b>	8/10bit RGB RAW output
<b>S/N Ratio</b>	34db
<b>Dynamic Range</b>	67db @8x gain
<b>EFL</b>	3.6mm
<b>BFL(Optical)</b>	6.8mm
<b>FOV</b>	67°
<b>TV Distortion</b>	<6%
<b>Relative Illumination (Sensor)</b>	70%
<b>IR Filter</b>	Auto IR-CUT
<b>DSP Type</b>	
<b>AGC/AEC/Whiter balance</b>	
<b>Output Formats</b>	
<b>Fixed Pattern Noise</b>	
<b>Package</b>	



3. Appearance Specification (Appearance Specifications)

Exterior				
serial number	project	Require	Testing method	Unqualified classification
1	Mod appearance	The surface of the module is free of dirt, scratches visible to the naked eye, and no impurities in the plastic.	8X magnifying glass	A
2	lens	When inspecting with $800 \pm 100$ Lux intensity light and 45 degree reflected light, there should be no visible scratches or dirt.	8X magnifying glass	A
3	thread glue	The glue dispensing length is 1/3-1/2 of the circumference, and the glue should not overflow to the lens end face and lens base	8X magnifying glass	A
4	sealant	Fill the sealant evenly between the base and the FPC, there should be no gaps, no uneven thickness, and there should be no glue overflowing the edge of the FPC, causing the external dimensions to exceed the standard. Phenomenon	8X magnifying glass	A
5	PCB	1) The surface is free of dirt and the printed characters are clear; 2) The length of the edge burr is less than 1mm, and the width is less than 0.3mm; 3) The length of the edge gap is less than 1mm, and the width is less than 0.1mm, and there are no more than 2 places on each edge	45X microscope (continuous zoom)	A
Dimensions				
serial number	project	Require	Testing method	Unqualified classification
1				
2				
3	width	Meet the drawing requirements	digital caliper	A

4. Image Specification (Image Specifications)

Optical performance inspection requirements				
serial number	Test items	Require	Testing method	Failed Classification
1	stain (Dust)	In the white field, the image is obtained, and the visual inspection of the whole screen is not allowed to have visible foreign objects.	Test Fixtures, Small Lights Box.6500K White Backlight	A
2	Imaging direction (imaging direction)	Meet the drawing requirements	Test Fixture	A
3	Dead Pixels and Clustered Dead Pixels (Dead & Wound Pixel)	1) In the dark field: the total number of bright spots is less than 400 pixels; the cluster bright spots of 2 adjacent pixels are less than 20; there are no cluster bright spots with more than 3 pixels. 2) In the white field: the total number of dark spots is less than 400 pixels; the clustered dark spots of 2 adjacent pixels are less than 20; there are no clustered dark spots with more than 3 pixels.	testing software small light box (6500K white backlight)	A
4	Resolution (Resolution)	5 million pixels: the center is not less than 800LW/PH	MTF Test Procedure	A
5	field of view (FOV)	Horizontal : Vertical: Diagonal: 67°	Test Fixture, field of view target	A
6	image uniformity (Shading)	The average brightness at 90% of the test field between the four corners 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 (the sampling frame size is 40*40 pixels, and the sensor vignetting compensation function is not turned on ).	testing software, Small light box (3400Lux, 6500K white backlight)	A
7	Chromatic aberration	The error of color reproduction is not more than 20%	testing software	A
8				
9	(Grayscale)		Grayscale target	
10	Dispersion (CA)	less than 0.5	testing software ISO12233 standard board	A
11	Torsional	Not less than 1 kgf.cm	Torque handle	A
12	base thrust (Thrust)	not less than 2 N	thrust gauge	A

Description of non-conforming product classification:

a) Seriously unqualified: The batch determined by inspection is unqualified, or causes great economic losses, directly affects product quality, main functions, performance and technology

Unqualified technical indicators, etc., are represented by the letter A;

b) General unqualified: General unqualified refers to the unqualified product that can meet the following conditions at the same time, which is represented by the letter B.

- I) Does not affect the appearance quality of the final product;
- ii) does not affect the technical performance of the final product;
- III) Raw materials or final products do not affect the processing or assembly of the next process.

5. Sample Plan (sampling plan)

serial number.	Test items	Sampling frequency	Testing method	Remark
Imaging and Reliability Project				
1	stain	N=5 for each batch, C=0	same as production	Production inspection items
2	Imaging direction	N=5 for each batch, C=0	Test Fixture	Production inspection items
3	Dead Pixels and Clustered Dead Pixels	N=5 for each batch, C=0	same as production	Production inspection items
4	Resolution	N=5 for each batch, C=0	MTF Test Procedure	Production inspection items
5	field of view	N=5 for each batch, C=0	Test Fixture, field of view target	Sample stage full inspection evaluation project QA sampling project
6	image uniformity	N=5 for each batch, C=0	testing software, Small light box (3400Lux, 6500K white backlight)	Production inspection items
7	Dispersion	N=5 for each batch, C=0	testing software, Color checker card	Sample stage full inspection evaluation project QA sampling project
8	geometric distortion	N=5 for each batch, C=0	testing software, ISO12233 standard board	Sample stage full inspection evaluation project QA sampling project
9	grayscale	N=5 for each batch, C=0	testing software, Grayscale target	Sample stage full inspection evaluation project QA sampling project
10	reliability test	Sample trial production stage: Sampling plan: 2PCS/per production batch, acceptance level 0/1 Stable production stage: Sampling plan: 5PCS per item/month, acceptance level 0/1		
outside				
4	sealant	AQL=0.65	8X magnifying glass	Production inspection items
5	PCB	AQL=0.65	45X microscope (continuous zoom)	Production inspection items
6	Connector	AQL=0.65	45X microscope (continuous zoom)	Production inspection items
Dimensions				
1	high	AQL=0.65	same as production	Production inspection items
2	length	AQL=0.65	same as production	Production inspection items
3	width	AQL=0.65	same as production	Production inspection items
4	Thread torque	N=5 for each batch, C=0	Torque handle	QA sampling project
5	base thrust	N=5 for each batch, C=0	thrust gauge	QA sampling project

## 6. Reliability Specification (reliability)

serial number	Test items	Conditions and Requirements	Test equipment
1	low temperature storage	- 30°C, 96hours heating and cooling time 30min each	low temperature box
2	low temperature operation	- 30°C, 96hours heating and cooling time 30min each	low temperature box
3	high temperature storage	80°C, 96hours heating and cooling time 30min each	high temperature box
4	high temperature operation	70°C, 96hours heating and cooling time 30min each	high temperature box
5	High temperature and high humidity storage	60°C, 90%RH, 120hours, heating and cooling time 30min each	High temperature and humidity box
6	High temperature and high humidity operation	40°C, 90%RH, 48hours, heating and cooling time 30min each	High temperature and humidity box
7	Thermal shock test	- 30°C→80°C (30min each), the high and low temperature conversion time is less than 5 minutes  Clock Total: 10cycles	Low temperature box / high temperature box
8	Free drop test (after packaging)	Height 150cm, 10 times	oak ground
9	Vibration test (after packaging)	10Hz~200Hz~10Hz, amplitude 2mm, XYZ three directions, 2 small vibrations  Time	Vibration test bench
1. 2. Test conditions: Illumination: small light box    1500±10%LUX    big light box    6000±10%LUX Color temperature: 4400±150K			PC test software MODULE test platform

7. ECO (change log)

serial number	entry	Before the change	After the change
1			
2			
3			
4			
5			
6			

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