

Shenzhen Huiju Camera Co.,Ltd

The Camera Module Specification With 2M Pixel Color CMOS Sensor

Customer Name

Item No **HJY1A_G8_SM-V2.0**

Date **2026-09-11**

Version **V1.0**

Prepared

Checked

Approval

Customer Sign

Chop

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1. Application field

Suitable for laptop, large screen advertising machine display, identification, scanning code, electron microscope, educational equipment, video conference equipment, scanner, fitting mirror, medical cosmetology equipment;

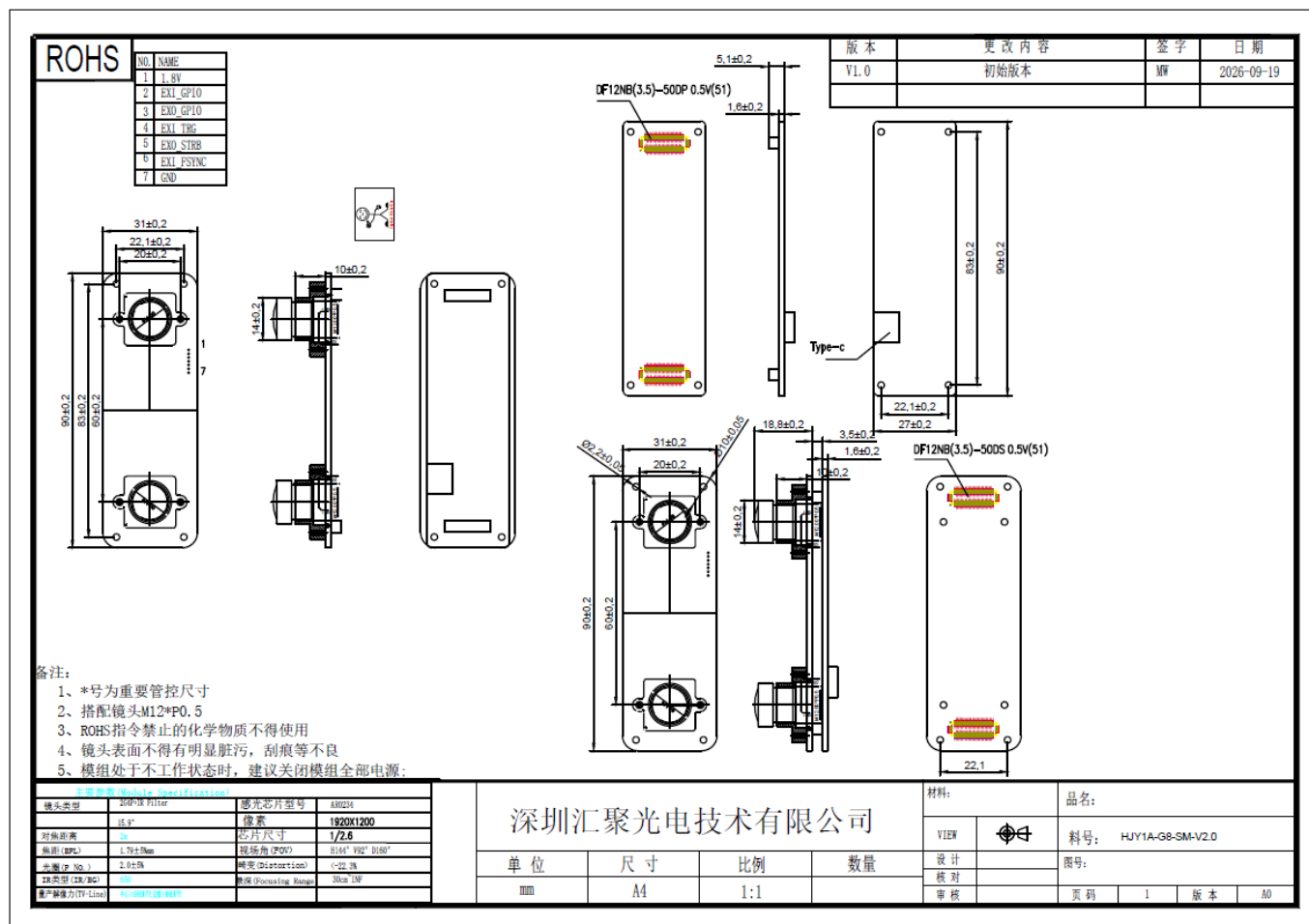
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2.Key Specifications

Module No	HJY1A_G8_SM-V1.0
Module Size	L90mm × W31mm × H18.8mm (±0.2MM)
Temperature (Operation)	-20°C to 70°C
Temperature (Storage)	-20°C to 80°C
Assembly technique	SMT (ROSH)
Object distance	30CM – ∞
PCB printing ink	black
USB power supply voltage	DC5V
Interface	USB 3.0 SMD Type-c
Power	200MA
Operating system request	Win XP / 7/10 or Linux2.6.26.Android4.0以上
Package	Anti-electrostatic tray
Sensor Type	1/2.6" COMS Global shuttle
Array Size	1920x1080/ (3840*1080)
Max Dynamic range	
Pixel Size	3.0μm x 3.0μm
Maximum Image Transfer Rate	4000*1200P 60FPS
Package	CSP
Lens Type	
Lens Construction	2G4P
F/No	2.0
EFL	1.79mm
BFL(Optical)	3.4mm
FOV	D160° H144 V92
TV Distortion	<22 %
IR Filter	650±10nm
DSP Type	
AGC/AEC/Whiter balance	Auto
Support the compression formats	MJPEG/YUV
IMU	ICM-42688-P

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2. Module Mechanical Dimension



IMU description:

IMU model & parameters	Brand: TDK InvenSense Model: ICM-42688-P	
IMU parameter	Accelerometer	Gyroscope
Full scale range	±2g - ±16g	±15.625 dps - ±2000 dps
Output data rate	Full scale / 32768	Full scale / 32768
Sample rate	600 Hz	600 Hz
Random walk noise	AXY: ≤65 mg/√Hz AZ: ≤70 mg/√Hz	≤2.8 mdps/√Hz
Temperature drift	±0.005 %/°C	±5 mdps/°C

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4.Appearance Specification

Appearance				
No.	Check Item	specification	Check method	Criteria
1	Module Appearance	There is no dirt, no visible scratch, no impurities in the plastic.	8X Magnify	A
2	Lens	No visible bruises or dirt can be seen in the light of 800 + 100Lux intensity and 45 degree reflected light.	8X Magnify	A
3	Thread glue	The glue length is 1/3-1/2 of the circumference, and the glue should not overflow to the lens end and lens base.	8X Magnify	A
4	Sealant	Between the base and the FPC is evenly filled with sealant, there is no gap, no uneven thickness, no glue overflow FPC edge leads to the appearance of excessive size.	8X Magnify	A
5	PCB	1) the surface is clean and clear; 2) the length of the edge burr 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 no more than 2 parts per edge	45X Microscope (Zoom)	A
Dimension				
No	Item	Specification	Check method	Criteria
1	Height	Conform to drawing	Digital caliper	A
2	Length	Conform to drawing	Digital caliper	A
3	Width	Conform to drawing	Digital caliper	A

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5.Image Specification

Optical performance specification				
No	Check Item	Specification	Check method	Criteria
1	Dust	In the white field, the image is obtained and the visual images are not allowed to have visible foreign bodies.	Test fixture. Light box. 6500K white backlight	A
2	imaging direction	Conform to drawing	Testing fixture	A
3	Dead & Wound Pixel	1) under the dark field: the total number of highlights is less than 400pixel; The cluster of two adjacent pixels is less than 20; There are no more than three pixel highlights. 2) white field: the total dark points are less than 400pixel; The cluster dimmer of two adjacent pixel is less than 20; There are no more than 3 pixels of the cluster.	The test software A small light box (6500K white backlight)	A
4	Resolution	2M pixel:	MTF test procedure	A
5	FOV	horizontal : Vertical: Diagonal:	Test fixture FOV Panel	A
6	Shading	The brightness mean of 90% test field at the center of the four corners is at least 45% of the brightness of the center test field. The brightness of each Angle is above 35% of the center brightness (the sample size is 40*40 pixels, and the sensor dark Angle compensation function is not opened)	The test software A small light box (6500K white Backlight)	A
7	Color	The color reduction error is not greater than 20%	Test software Color checker card	A
8	TV distortion	The occipital distortion (positive) or barrel distortion (negative) is less than 1%.	Test software ISO12233	A
9	Grayscale	Adjacent distinguishable gray order brightness difference must be less than 8.	Test software Gray scale panel	A
10	CA	Less than 0.5	Test software ISO12233 standard	A
11	Torsional	Not less than 1 kgf.cm	Torsion meter	A
12	Thrust	Not less than 2 N	Push meter	A

Description of classification of nonconforming product:

A) serious non-conformance: determine after inspection batch is unqualified, or cause large economic

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loss, a direct impact on product quality, main function, performance, technical indicators such as unqualified, expressed with letter a;

B) generally not qualified: general disqualification refers to non-conforming products that can meet the following conditions at the same time, with the letter b.

I) does not affect the appearance of the final product quality.

II) does not affect the final product technical performance;

III) does not affect the raw materials or final product of processing or assembling of next working procedure

6. Sample Plan

No	Check Item	Sample plan	Check method	Remark
Picture and reliable item				
1	dirt	Each lot N=5, C=0	Same as production	All product
2	Direction	Each lot N=5, C=0	Test fixture	All product
3	Bad points and cluster bad points	Each lot N=5, C=0	Same as production	All product
4	Resolution	Each lot N=5, C=0	MTF test procedure	All product
5	FOV	Each lot N=5, C=0	Test fixture FOV Panel	Sampling check
6	Image uniformity	Each lot N=5, C=0	The test software A small light box (6500K white Backlight)	All product
7	The dispersion	Each lot N=5, C=0	Test software Color checker card	Sampling check
8	Distortion	Each lot N=5, C=0	Test software ISO12233	Sampling check
9	Gray scale	Each lot N=5, C=0	Test software Gray scale card	Sampling check
10	Reliability	Sampling plan for sample stage: 2PCS/lots, Criteria:0/1		
Appearance				
1	module	AQL=0.65	8X magnify	All unit
2	Lens	AQL=0.65	8X magnify	All unit
3	Thread glue	AQL=0.65	8X magnify	All unit
4	Sealant	AQL=0.65	8X magnify	All unit
5	PCB	AQL=0.65	45XMicroscope (zoom)	All unit

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6	connector	AQL=0.65	45XMicroscope (zoom)	All unit
dimension				
1	Height	AQL=0.65	Same as production	All unit
2	length	AQL=0.65	Same as production	All unit
3	Width	AQL=0.65	Same as production	All unit
4	Torsion	N=5, C=0	Torsion meter	QA sampling check
5	Push force	N=5, C=0	Push meter	QA sampling check

7. Reliability Specification

No	Test item	specification	Test machine
1	Low temperature storage	-30℃, 96hours each temperature 30min	Chamber
2	Low temperature operation	-20℃, 96hours each temperature 30min	Chamber
3	High temperature storage	80℃, 96hours each temperature 30min	Chamber
4	High temperature operation	70℃, 96hours each temperature 30min	Chamber
5	High temperature high humidity storage	60℃, 90%RH, 120hours each temperature 30min	Chamber
6	High temperature high humidity Operation	40℃, 90%RH, 48hours each temperature 30min	Chamber
7	High/Low temperature shock test	-10℃)→70℃ (30min) switch time less than 5 minute Total: 10cycles	H/L Chamber
8	Drop test	Height 150cm, 10 time	Woodboard
9	Vibration	10Hz~200Hz~10Hz, 2mm, XYZ direction, 2.5hour	Vibration Tester
10	ESD	800V, air discharge 10cycle	ESD tester

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