



USB camera module specification

The USB Camera Module Specification With 2MP Pixel Global shutter CMOS Sensor

Customer

Product number

HJX35_V13-38-V1.0

Date

2021-3-17

Version

compile

Audit

Authorize

The customer to
confirm

Customer seal

Product specification catalogue

1	The main specifications of products	3
2	Product structure drawing	4
3	Product appearance specification	5
4	Product image specification	6
5	Product sampling plan	7
6	Product reliability specification	8

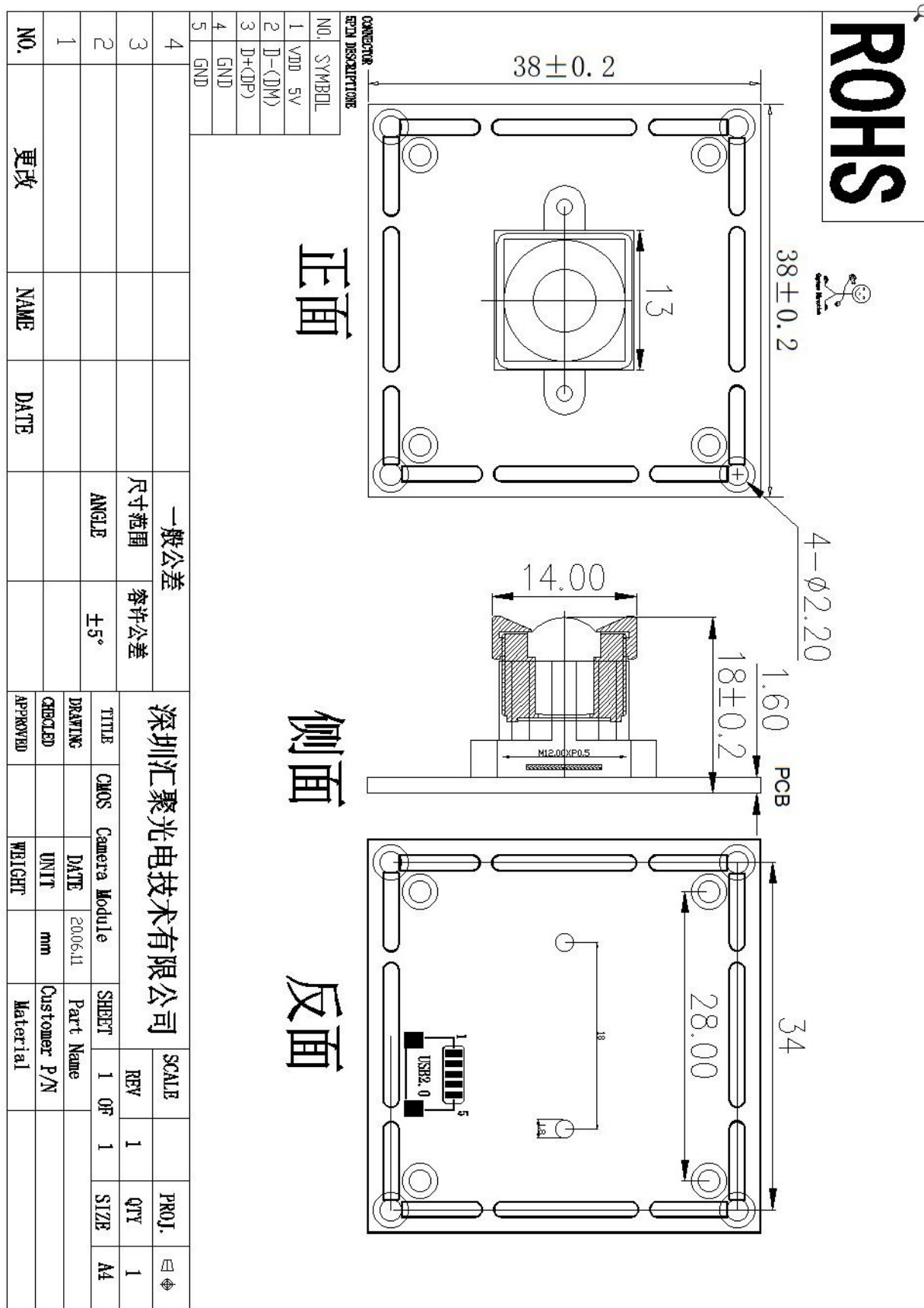
1. Scope of product application:

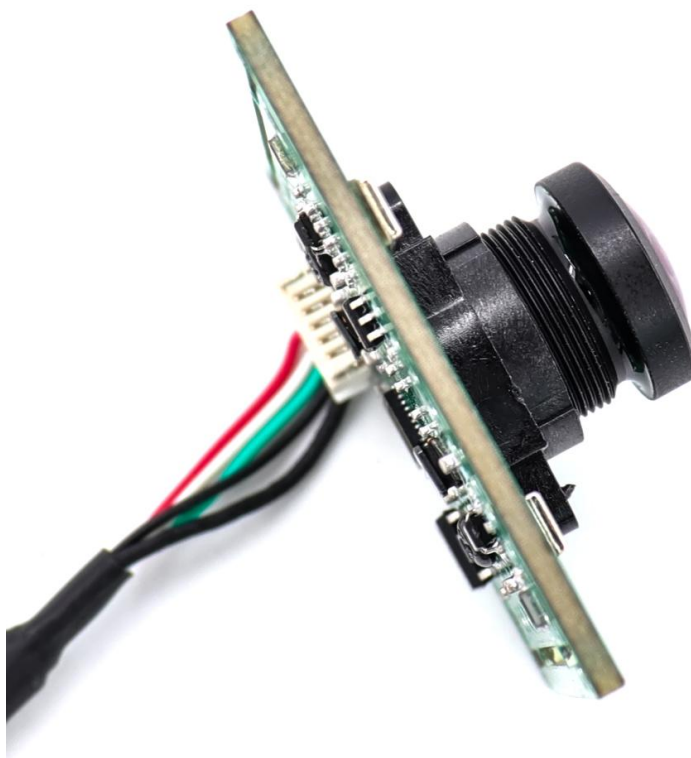
Our products are applicable to outdoor mid, notebook, ATM, IOT, new retail intelligent container, UAV, AI robot, advertising machine, video conference, face recognition, license plate recognition, human ID comparison, security gate, backlight monitoring, embedded automatic device, monitoring device, multimedia computer, Learning, education, monitoring, driving record, parking aid system and other digital imaging equipment and data entry products;

1. Key Specifications

Module No模组型号		HJX35_V13-38-V1.0
Module Size	模组尺寸	L32mm ×W32mm×H16.15mm (±0.2MM)
Temperature (Operation)	工作温度	-20°C to 70°C
Assembly technique	相机板装配技术	SMT (ROSH)
Object distance	成像距离	10CM - ∞
PCB printing ink	PCB 油墨	black
USB power supply voltage	供电电压	DC5V
Interface	连接接口	USB 2.0 SMD 5P1.0MM
Power	工作电流	150-180MA
Support system platform	操作系统	Win XP / 7/10 or Linux2.6.26.Android4.0以上
Package	包装方式	Anti-electrostatic tray
Sensor Type		传感器类型
Most effective pixels		最高有效像素
Pixel Size		像素点尺寸
Resolution		分辨率
Resolution and frame rate		分辨率帧率
Package		封装
Focus type:		fixed focus
Lens		镜头
Lens Construction		镜头结构
F/No		光圈
FL		焦距
FOV		视场角
TV Distortion		畸变
IR Filter		滤光片
DSP Type		
AGC/AEC/Whiter balance		增益/曝光/白平衡
Support the compression formats		输出图像格式
补充说明		本产品具体技术规格和电性能可以参阅芯片说明书

2. Module Mechanical Dimension





3. Appearance Specification

appearance				
The serial number	project	requirements	Inspection methods	Nonconformity classification
1	Module appearance	There is no dirt, no visible scratch, no impurities in the plastic.	8 x magnifying glass	A
2	The lens	No visible bruises or dirt can be seen in the light of 800 + 100Lux intensity and 45 degree reflected light.	8 x magnifying glass	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.	8 x magnifying glass	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.	8 x magnifying glass	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.	45 x microscope (continuous zoom)	A
Installation dimensions				
The serial number	project	requirements	Inspection methods	Nonconformity classification
1	highly	Conform to drawing requirements	Digital caliper	A
2	length	Conform to drawing requirements	Digital caliper	A
3	width	Conform to drawing requirements	Digital caliper	A

4. Image Specification

Optical performance inspection requirements				
序号	Inspection items	requirements	Inspection methods	Nonconformity classification
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 requirements	The test fixture	A
3	Dead & Wound Pixel	1) under the dark field: the total number of highlights is less than 200pixel; 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 200pixel; The cluster dimmer of two adjacent pixel is less than 20; There are no more than 7.5 pixels of the cluster.	The test software A small light box (6500K white backlight)	A
4	Resolution	2 million pixel: the center is not less than 600LW/PH.	MTF test program	A
5	FOV	horizontal : Vertical: Diagonal:	Test fixture, Field Angle plate.	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)	Test software, Small light box (3400Lux, 6500K white backlight)	A
7	Color	The color reduction error is not greater than 20%.	The test software Color checker card	A
8	TV distortion	The occipital distortion (positive) or barrel distortion (negative) is less than 1%.	The test software ISO12233 target board	A
9	Grayscale	Adjacent distinguishable gray order brightness difference must be less than 8.	Test software, Gray-scale target board	A
10	CA	Less than 0.5	The test software ISO12233 target board	A
11	Torsional	Not less than 1 KGF. Cm.	The torsion move hand	A
12	Thrust	Not less than 2 N	Thrust meter	A

Description of qualified product classification:

- **Qualified:** the main functions, performance and technical indicators, etc. are qualified in batch after inspection, which is represented by letter A;
- **General nonconformity:** General nonconformity refers to the nonconforming products that can meet the following conditions at the same time, represented by 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.

- **Serious nonconformity:** batch nonconformity determined by inspection, or nonconformity that causes large economic losses and directly affects product quality, main functions, performance and technical indicators, etc., is represented by letter C;

5. Sample Plan

The serial number.	Inspection items	The sampling frequency	Inspection methods	note
Imaging and reliability projects				
1	The stain	Each batch N=5, C=0.	Same as production	Production of all inspection items.
2	Imaging direction	Each batch N=5, C=0.	The test fixture	Production of all inspection items.
3	Bad points and cluster bad points	Each batch N=5, C=0.	Same as production	Production of all inspection items.
4	The resolution	Each batch N=5, C=0.	MTF test program	Production of all inspection items.
5	Viewing Angle	Each batch N=5, C=0.	Test fixture, Field Angle plate	Sample phase full inspection evaluation project. QA sampling project
6	Image uniformity	Each batch N=5, C=0.	Test software, Small light box (3400Lux, 6500K white backlight)	Production of all inspection items.

7	The dispersion	Each batch N=5, C=0.	The test software、Color checker card	Sample phase full inspection evaluation project. QA sampling project
8	Geometric distortion	Each batch N=5, C=0.	The test software、ISO12233 target boards	Sample phase full inspection evaluation project. QA sampling project
9	gray-scale	Each batch N=5, C=0.	The test software Gray-scale target boards	Sample phase full inspection evaluation project. QA sampling project
10	Reliability test	Sample preparation stage: sampling plan: 2PCS/ each production batch, acceptable level 0/1. Production stabilization stage: sampling plan: 5PCS/month per project, acceptable level 0/1.		

Appearance of the project

1	Module appearance	AQL=0.65	8 x magnifying glass	Production of all inspection items.
2	The lens	AQL=0.65	8 x magnifying glass	Production of all inspection items.
3	Thread glue	AQL=0.65	8 x magnifying glass	Production of all inspection items.
4	sealant	AQL=0.65	8 x magnifying glass	Production of all inspection items.
5	PCB	AQL=0.65	45X microscope (continuous zoom)	Production of all inspection items.
6	The connector	AQL=0.65	45X microscope (continuous zoom)	Production of all inspection items.

外型尺寸

1	highly	AQL=0.65	Same as production	Production of all inspection items.
2	length	AQL=0.65	Same as production	Production of all inspection items.
3	width	AQL=0.65	Same as production	Production of all inspection items.
4	Screw torque	Each batch N=5, C=0	The torsion move hand	QA sampling project
5	The base of thrust	Each batch N=5, C=0.	Thrust meter	QA sampling project

6. Reliability Specification

The serial number	Test project	Conditions and requirements	Test equipment
1	Low temperature storage	- 30 °C, 96 hours cooling time every 30 min	Low temperature box
2	Low temperature operation	- 20 °C, 96 hours cooling time every 30 min	Low temperature box
3	High temperature storage	80 °C, 96 hours cooling time every 30 min	High temperature box
4	High temperature operation	70 °C, 96 hours cooling time every 30 min	High temperature box
5	High temperature and high humidity storage.	60 °C, 90% RH, 120 to pump up the cooling time for 30 min	High temperature humidity chamber
6	High temperature and high humidity operation.	48 hours 40 °C, 90% RH, cooling time every 30 min	High temperature humidity chamber
7	Cold and thermal shock test	- 10 °C to 70 °C (each 30 min) high and low temperature conversion time is less than 5 minutes Total to each other: 10 cycles	Low temperature box/high temperature box.
8	Free fall test (after packing)	Height 150cm, 10 times.	Oak floor
9	Vibration test (after packing)	10Hz ~ 200Hz ~ 10Hz, amplitude 2mm, XYZ in three directions, vibration for 2 hours.	Vibration test bench
10	Static test (power outages)	150Pf, 330 o + 8KV, air discharge measurement 10 times.	Electrostatic tester