

Sample specification

client:

Customer Type: _____

Product number: _____ HS120

date: _____ 2022-03-10

Supplier confirmation countersign column:

intelligent	unit	make	review	approve
	signature			

Customer acknowledges the countersignature column:

client	unit	project	purchase	approve
	signature			

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1. Main product specifications

specification		
Module model	HS120	
sensor type	RGB: 1/5" IR: 1/5"	
chip packaging	RGB:CSP IR:CSP	
pixel size	RGB: 1.75μm×1.75μm IR: 1.75μm×1.75μm	
resolution	RGB:1600H×1200IR:1600H×1200V	
power requirements	RGB: AVDD 2.8V DOVDD 1.8V IR: AVDD 2.8V DOVDD 1.8V	
Maximum transmission frame rate	RGB: 30fps10bit IR: 30fps10bit	
data transfer interface	RGB:MIPI IR:MIPI	
lens structure	RGB:3P+IR IR:3P+IR	
resolution	RGB:Center:≥500 four weeks:≥400 IR: Center:≥500 four weeks:≥400	
Light source (IR filter)	RGB:650nm IR:850nm (single pass)	
Aperture (F/No)	RGB:2.4±5%IR:2.4±5%	
Field of view (OpticalFOV)	RGB:85° IR:85°	
Distortion (TV-Distortion)	RGB:<1.0%IR:<1.0%	
temperature range	Image stabilization temperature	RGB: 0°C~60°C IR: 0°C~60°C
	Operating temperature	RGB:-30~85°CIR:-30~85°C

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3.Appearance Specification

Exterior				
serial number	project	Require	Testing method	Unqualified classification
1	module Exterior	There is no dirt on the surface of the module, no scratches visible to the naked eye, plastic No impurities in the glue	8X magnification mirror	A
2	lens	Under the light of 800 ± 100 Lux intensity, head-up, 45 degrees When inspecting by reflected light, there should be no visible scratches or dirt Sewage	8X magnification mirror	A
3	thread glue	The dispensing length is 1/3-1/2 of the circumference, and the glue should not overflow to lens end face and lens mount	8X magnification mirror	A
4	PCB	1) The surface is free from dirt and the printed characters are clear; 2) The edges Edge burr length less than 1mm, width less than 0.3mm; 3) Edge notch length less than 1mm, width less than 0.1mm mm No more than 2 places on each edge	45X microscope mirror (continuously variable coke)	A
Dimensions				
serial number	project	Require	Testing method	Unqualified classification
1	high	Meet drawing requirements	digital caliper	A
2	length	Meet drawing requirements	digital caliper	A
3	width	Meet drawing requirements	digital caliper	A

Description of non-conforming product classification:

a) Seriously unqualified: Unqualified batches determined by inspection, or unqualified products that cause large economic losses and directly affect product quality, main functions, performance technical indicators, etc., are represented by the letter B;

b) General unqualified: General unqualified refers to unqualified products that can meet the following conditions at the same time, represented by the letter C.

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

4. Image Specification

Optical performance inspection requirements				
sequence No	Test items	Require	Testing method	unqualified Classification
1	stain (Dust)	In the white field, it is not allowed to obtain the image, and the visual inspection of the full frame is not allowed to see foreign body	test clip Tool. Small light Box. 6500K white backlight	A
2	Imaging direction (imaging dir section)	Meet drawing requirements	Test Fixture	A
3	Dead pixels and clusters dead point (Dead & Wound Pixel)	1) Under dark field: the total number of bright spots is less than 400pixel; the cluster type of 2 adjacent pixels Bright spots less than 20; no more than 3 pixels cluster bright point. 2) Under the white field: the total number of dark spots is less than 400pixel; the cluster type of 2 adjacent pixels Dark points less than 20; no more than 3 pixel cluster dark point.	testing software small light box (6500K white color backlight)	A
4	resolution (Resolution)	1 million pixels: the center is not less than 600LW/PH	MTF test procedure sequence	A
5	Field of view (FOV)	Horizontal : Vertical: Diagonal:	Test Fixture, field of view target	A
6	chromatic aberration (Color)	The color reproduction error is not more than 20%	testing software Color checker card	A
7	geometric distortion (TV distortion)	Neither pincushion distortion (positive number) nor barrel distortion (negative number) is greater than 1%	testing software ISO12233 Target board	A
8	grayscale (Grayscale)	The brightness difference between two adjacent gray scales that can be distinguished must be less than 10%	testing software, Gray scale target	A
9	Dispersion (CA)	less than 0.5	testing software ISO12233 Target board	A
10	Thread Torque (Torsional)	Not less than 1 kgf.cm	Torque wrench	A
11	Base thrust (Thrust)	Not less than 2 N	thrust gauge	A

5.Sample Plan

serial number	Test items	sampling frequency	Testing method	Remark
Imaging and Reliability Project				
1	stain	Each batch N=5, C=0	same as production	Production full inspection project
2	Imaging direction	Each batch N=5, C=0	Test Fixture	Production full inspection project
3	dead point	Each batch N=5, C=0	same as production	Production full inspection project
4	resolution	Each batch N=5, C=0	MTF test procedure	Production full inspection project
5	Field of view	Each batch N=5, C=0	Test fixture, field of view target plate	Sample stage full inspection evaluation Project QA sampling project
6	Image uniformity	Each batch N=5, C=0	Test software, small light box (3400Lux6500K white backlight)	Production full inspection project
7	Dispersion	Each batch N=5, C=0	testing software Color checker card	Sample stage full inspection evaluation Project QA sampling project
8	geometric distortion	Each batch N=5, C=0	testing software ISO12233 target plate	Sample stage full inspection evaluation Project QA sampling project
9	grayscale	Each batch N=5, C=0	testing software Gray scale target	Sample stage full inspection evaluation Project QA sampling project
	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		
appearance item				
1	Mod Appearance	AQL=0.65	8X magnifying glass	Production full inspection project
2	lens	AQL=0.65	8X magnifying glass	Production full inspection project
3	Thread glue	AQL=0.65	8X magnifying glass	Production full inspection project
4	sealant	AQL=0.65	8X magnifying glass	Production full inspection project
5	PCB	AQL=0.65	40X microscope (continuous zoom)	Production full inspection project
6	Connector	AQL=0.65	40X microscope (continuous zoom)	Production full inspection project
Dimensions				
1	high	AQL=0.65	same as production	Production full inspection project
2	length	AQL=0.65	same as production	Production full inspection project
3	width	AQL=0.65	same as production	Production full inspection project
4	Thread Torque	Each batch N=5, C=0	Torque wrench	QA sampling items
5	Base thrust	Each batch N=5, C=0	thrust gauge	QA sampling items

6. Reliability Specification

serial number	Test items	conditional requirements	test equipment
1	cryogenic storage	- 30°C, 96hours heating and cooling time each 3	Freezer
2	low temperature operation	- 20°C, 96hours heating and cooling time each 3 0min	Freezer
3	high temperature storage	70°C, 96hours heating and cooling time 30 each min	high temperature box
4	high temperature operation	70°C, 96hours heating and cooling time each 3 0min	high temperature box
5	High temperature and high humidity storage	60°C, 90%RH, 120hours heating and cooling each time 30min	High temperature and humidity box
6	High temperature and high humidity operation	40°C, 90%RH, 48hours heating and cooling Between each 30min	High temperature and humidity box
7	Thermal shock test	- 10°C) → 70°C (30min each) high and low Temperature and mutual conversion time is less than 5 minutes Total: 10cycles	low temperature box/high thermostat
8	Free drop test (package installed)	Height 150cm, 10 times	oak floor
9	Vibration test (packaging back)	10Hz~200Hz~10Hz, amplitude 2mm, XYZ Three directions, vibration 2 small Time	Vibration test bench
10	Electrostatic test (power off)	800V, air discharge measurement 10 times	Static Tester