CS20-MIPI Module Product Specification

Date	Version	Description
October 8, 2023	V0.1	First Draft
December 3, 2023	V0.2	Update 2D drawing and part parameters description

Contents

1、 Module Description

Product Description:

The CS20-MIPI module is comprised of a receiver (RX) component and a transmitter (TX) component. It features a resolution of 640x480 pixels, operates at a wavelength of 940nm, and is equipped with a Time-of-Flight (ToF) image sensor capable of capturing three-dimensional information. The module offers long-distance capability and low power consumption.

Product Characteristics:

- Full resolution: 1280 x 960, supporting up to 60 frames per second of raw data output.
- Interface: Utilizes the MIPI-CSI2 standard interface with two lanes (each at 1.6 Gbps).
- Output formats: RAW10 and RAW12.
- Camera control interface compatibility: Supports CCI and I2C, enabling dual-wire serial communication at up to 1 MHz.

2、Technical Parameters

Resolution	640*480/320*240
FOV	H71.8°xV57.3°
Measurement Distance	0.1-5m, indoor
VCSEL Wavelength	940nm
Accuracy	0.1~0.5m: ±5mm; 0.5~5m: ±1% @ 90% reflectivity
Dimensions	Appendix 1 2D drawing
Date Format	RAW10
Powering Method	IOVDD_ToF(1.8V)，VCSEL_3V3，VCC_3V3
Power Consumption	120mW (average） @measure distance 3 meters
Operating System	Android, Windows, Linux, ROS
Operating Temperature	-10 ~ 50℃
Safety	Laser CLASS1

3、Storage Conditions

Conditions	Description	Min	Max	Unit
Storage Temperature		-15	60	°C
	Humidity	Temperature/RH: 40°C/90%		
Operating Temperature		-10	50	°C

4、Module Cleaning Procedures

1. Avoid using chemicals or water to clean the lens.

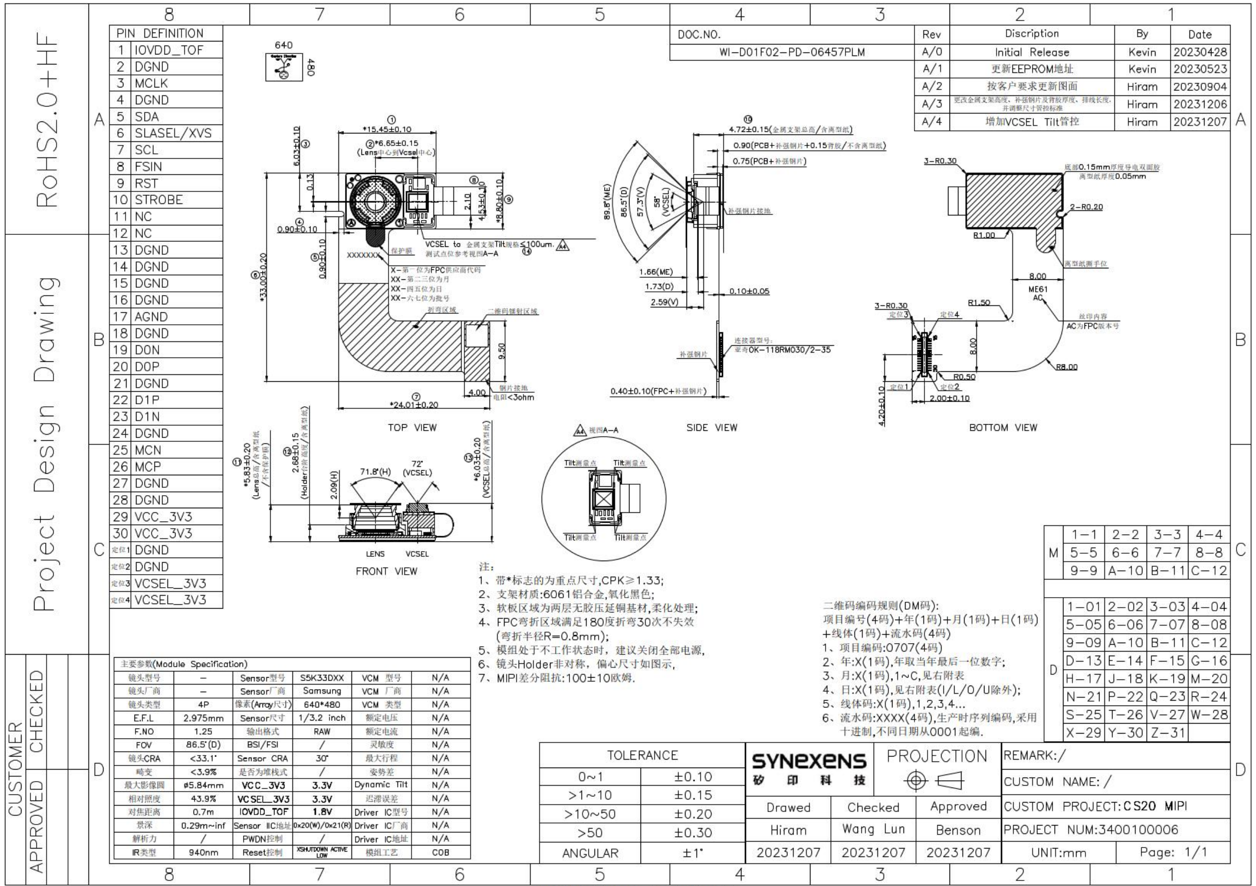
2. Use a lens blower brush to remove dust and dirt from the lens as thoroughly as possible.

3. Wipe with a dry, clean microfiber cloth.

5、Disclaimer

The provided information is for reference only. Users must ensure that their applications comply with the technical specifications. The company does not assume any responsibility for the use or results derived from this information.

Appendix 1：Module Drawings



PIN DEFINITION	
1	IOVDD_TOF
2	DGND
3	MCLK
4	DGND
5	SDA
6	SLASEL/XVS
7	SCL
8	FSIN
9	RST
10	STROBE
11	NC
12	NC
13	DGND
14	DGND
15	DGND
16	DGND
17	AGND
18	DGND
19	D0N
20	D0P
21	DGND
22	D1P
23	D1N
24	DGND
25	MCN
26	MCP
27	DGND
28	DGND
29	VCC_3V3
30	VCC_3V3
定位1	DGND
定位2	DGND
定位3	VCSEL_3V3
定位4	VCSEL_3V3

DOC.NO.	Rev	Discription	By	Date
WI-D01F02-PD-06457PLM	A/0	Initial Release	Kevin	20230428
	A/1	更新EEPROM地址	Kevin	20230523
	A/2	按客户要求更新图面	Hiram	20230904
	A/3	更改金属支架高度、补强钢片及背胶厚度、排线长度，并调整尺寸管控标准	Hiram	20231206
	A/4	增加VCSEL Tilt管控	Hiram	20231207

主要参数(Module Specification)

镜头型号	–	Sensor型号	S5K33DXX	VCM 型号	N/A
镜头厂商	–	Sensor厂商	Samsung	VCM 厂商	N/A
镜头类型	4P	像素(Array尺寸)	640*480	VCM 类型	N/A
E.F.L	2.975mm	Sensor尺寸	1/3.2 inch	额定电压	N/A
F.NO	1.25	输出格式	RAW	额定电流	N/A
FOV	86.5°(D)	BSI/FSI	/	灵敏度	N/A
镜头CRA	<33.1°	Sensor CRA	30°	最大行程	N/A
畸变	<3.9%	是否为堆栈式	/	姿势差	N/A
最大影像圆	ø5.84mm	VCC_3V3	3.3V	Dynamic Tilt	N/A
相对照度	43.9%	VCSEL_3V3	3.3V	迟滞误差	N/A
对焦距离	0.7m	IOVDD_TOF	1.8V	Driver IC型号	N/A
景深	0.29m~inf	Sensor IIC地址	0x20(W)/0x21(R)	Driver IC厂商	N/A
解析力	/	PWDN控制	/	Driver IC地址	N/A
IR类型	940nm	Reset控制	XSHUTDOWN ACTIVE LOW	模组工艺	COB

注：

1、带*标志的为重点尺寸,CPK≥1.33;

2、支架材质:6061铝合金,氧化黑色;

3、软板区域为两层无胶压延铜基材,柔化处理;

4、FPC弯折区域满足180度折弯30次不失效（弯折半径R=0.8mm);

5、模组处于不工作状态时，建议关闭全部电源，

6、镜头Holder非对称，偏心尺寸如图示，

7、MIPI差分阻抗:100±10欧姆.

二维码编码规则(DM码):
项目编号(4码)+年(1码)+月(1码)+日(1码)+线体(1码)+流水码(4码)

1、项目编码:0707(4码)

2、年:X(1码),年取当年最后一位数字;

3、月:X(1码),1~C,见右附表

4、日:X(1码),见右附表(I/L/O/U除外);

5、线体码:X(1码),1,2,3,4...

6、流水码:XXXX(4码),生产时序列编码,采用十进制,不同日期从0001起编.

M	1-1	2-2	3-3	4-4
	5-5	6-6	7-7	8-8
	9-9	A-10	B-11	C-12

D	1-01	2-02	3-03	4-04
	5-05	6-06	7-07	8-08
	9-09	A-10	B-11	C-12
	D-13	E-14	F-15	G-16
	H-17	J-18	K-19	M-20
	N-21	P-22	Q-23	R-24
	S-25	T-26	V-27	W-28
	X-29	Y-30	Z-31	

TOLERANCE	
0~1	±0.10
>1~10	±0.15
>10~50	±0.20
>50	±0.30
ANGULAR	±1°

SYNEXENS 矽印科技

PROJECTION

Drawed	Checked	Approved
Hiram	Wang Lun	Benson
20231207	20231207	20231207

REMARK:/

CUSTOM NAME: /

CUSTOM PROJECT:CS20 MIPI

PROJECT NUM:3400100006

UNIT:mm

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