

## 司南微电子（深圳）有限公司

SINAWELL Electronics(Shenzhen) Co., Ltd.

Customer name	Shenzhen cannice technology co., ltd
product name	MA10-01
Customer item	300012000254/300012000256
Project name	MA10-01
product brand	SN
product model	MA10-01

attachment	<input checked="" type="checkbox"/> front cover	<input checked="" type="checkbox"/> blueprint	<input type="checkbox"/> FAI report	<input type="checkbox"/> CPK report
	<input checked="" type="checkbox"/> Reliability test report	<input type="checkbox"/> 3D model	<input checked="" type="checkbox"/> RoHS	<input type="checkbox"/> UN38.3

Supplier sign-off	make	check	approve
	陈德	李小龙	张平

client Sign off	make	check	approve

admit condition	<input type="checkbox"/> admit	<input type="checkbox"/> disallow
	<input type="checkbox"/> Conditional recognition	Conditions to be met:
	<input type="checkbox"/> Temporary recognition	limit the quantity_PCS

Supplier information:	
name : SINAWELL Electronics(Shenzhen) Co., Ltd.	contacts : 张文锋
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Rev: B

# FPC 天线样品承认书

## The Main FPC Touch & Antenna Sample Confirmation

客户名称 Customer	Shenzhen cannice technology co., ltd		
项目名称 Project Name	MA10-01	日期 Date	2023-6-1
物料编号 Project NO.	SN1082	备注 Notes	FPC antenna
客户料号	300012000254/300012000256		
频段 Frequency Range	BT		
设计 Designed By	RF Engineer 岳文奇	Structural Engineer 李小龙	
审核 Checked By	Engineering Manager 张平		
客户确认 Client's Approval			

设计单位: 司南微电子(深圳)有限公司

Designer: SINAWELL Electronics(Shenzhen) Co., Ltd.

地址: 深圳市宝安区新安 28 区大宝路 49-1 号金富来大厦 A 座 712-717

Add: 712-717, Block A Jinfulai Building, 49-1 Dabao Road, Xinan 28<sup>th</sup> area, Baoan District, Shenzhen, China

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## Catalogue

front cover .....	1
catalogue .....	2
1. Overview of specification.....	3
2. FPC antenna appearance.....	3
3. electrical property .....	3
3.1. Antenna frequency band .....	3
3.2. matching circuit.....	3
3.3. return loss.....	4
4. Appearance structure .....	4
4.1. FPC antenna material.....	4
5. remarks .....	5
6. Appendix 1: Structural Drawings .....	6/7
7. Appendix II (3D Test Report) .....	8/9
8. Size report.....	10/11
9. Salt spray report.....	12
10. Description of FPC storage period.....	13
11. Base material inspection report.....	14
12. quality certificate .....	15
13. List of raw materials for products .....	16

### 1. Overview of specifications

This specification describes the situation of MA10-01 built-in FPCFPC BT+ touch antenna, and its frequency band is BT.

### 2. FPC touch+antenna appearance



### 3. Electrical performance

#### 3.1. Antenna frequency band

	BT
Transmitting frequency band(MHz)	2400MHz-2500MHz

#### 3.2. Matching circuit

The test point is behind the antenna connector (RF test port), as shown in the figure below.

1. BT Antenna matching。

Element	Value
<b>E1(0402)</b>	<b>1.5PF</b>
<b>E2(0402)</b>	<b>0 Ω</b>
<b>E3(0402)</b>	<b>ESD</b>
<b>E4(0402)</b>	<b>10PF</b>

3.3. Return loss

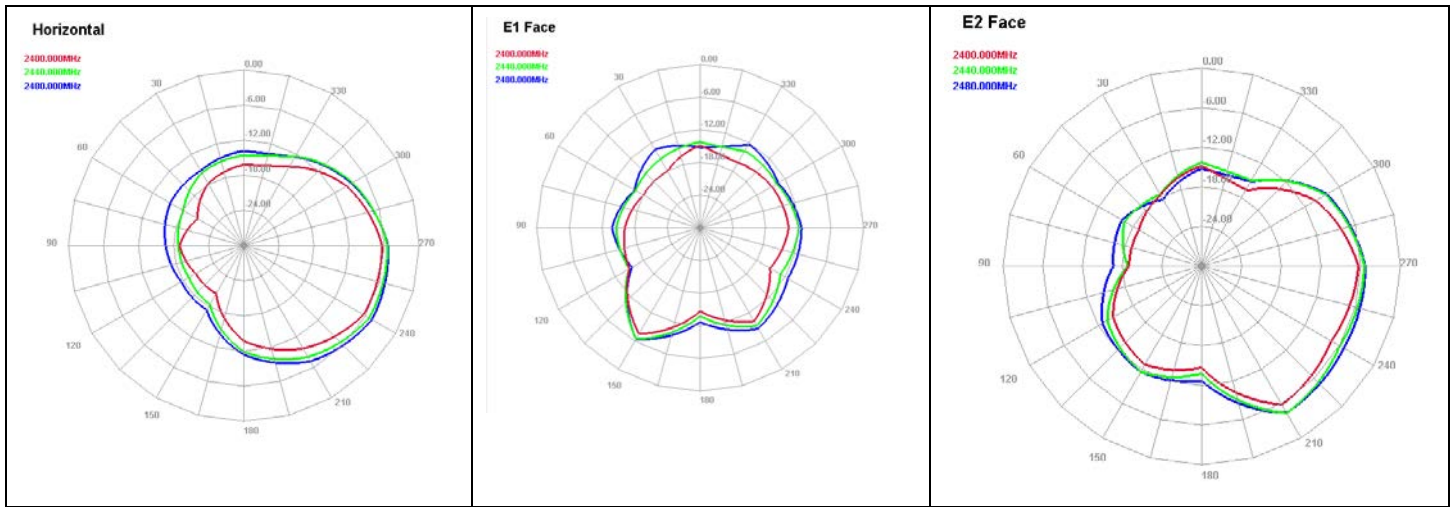
BT VSWR+ Return

	Resonance point range(MHz)	frequency point(MHz)/Maximum return loss(dB)	
		2400	2500
	2400-2500	VSWR	2.45
		Return loss	-8
			2.34
			-9

L

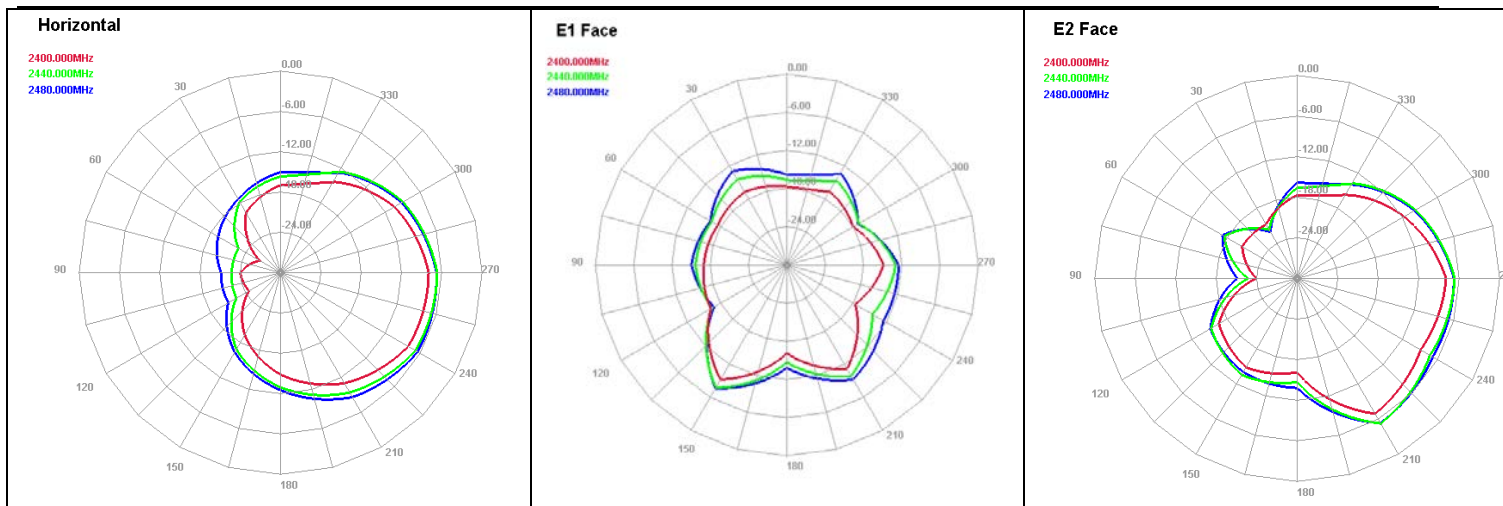
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2300	5.78	-12.38	-6.01
2310	5.56	-12.55	-6.18
2320	6.93	-11.59	-5.23
2330	6.93	-11.59	-5.36
2340	6.82	-11.66	-5.4
2350	7.85	-11.05	-4.83
2360	7.06	-11.51	-5.33
2370	6.48	-11.89	-5.7
2380	8.02	-10.96	-4.66
2390	7.79	-11.09	-4.87
2400	6.21	-12.07	-5.82
2410	7.45	-11.28	-4.99
2420	7.83	-11.06	-4.82
2430	8.58	-10.66	-4.32

2440	8.57	-10.67	-4.36
2450	8.08	-10.93	-4.73
2460	8.04	-10.95	-4.78
2470	8.79	-10.56	-4.55
2480	9.46	-10.24	-4.35
2490	9.36	-10.29	-4.43
2500	8.67	-10.62	-4.74


**R**

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2300	4.17	-13.8	-7.18
2310	3.97	-14.01	-7.55
2320	5.07	-12.95	-6.38
2330	4.98	-13.03	-6.67
2340	5.14	-12.89	-6.54
2350	5.92	-12.28	-5.91
2360	5.19	-12.85	-6.57
2370	4.9	-13.1	-6.83
2380	6.29	-12.01	-5.71
2390	5.8	-12.36	-6.04
2400	4.59	-13.38	-6.92
2410	5.49	-12.6	-6.12
2420	5.79	-12.38	-5.88
2430	6.56	-11.83	-5.32
2440	6.63	-11.78	-5.25
2450	6.19	-12.08	-5.64
2460	6.13	-12.13	-5.75

2470	6.79	-11.68	-5.43
2480	7.12	-11.47	-5.33
2490	7.2	-11.42	-5.34
2500	6.73	-11.72	-5.52



#### 4. Appearance structure

##### 4.1. FPC antenna material FPC

#### 5. Remarks

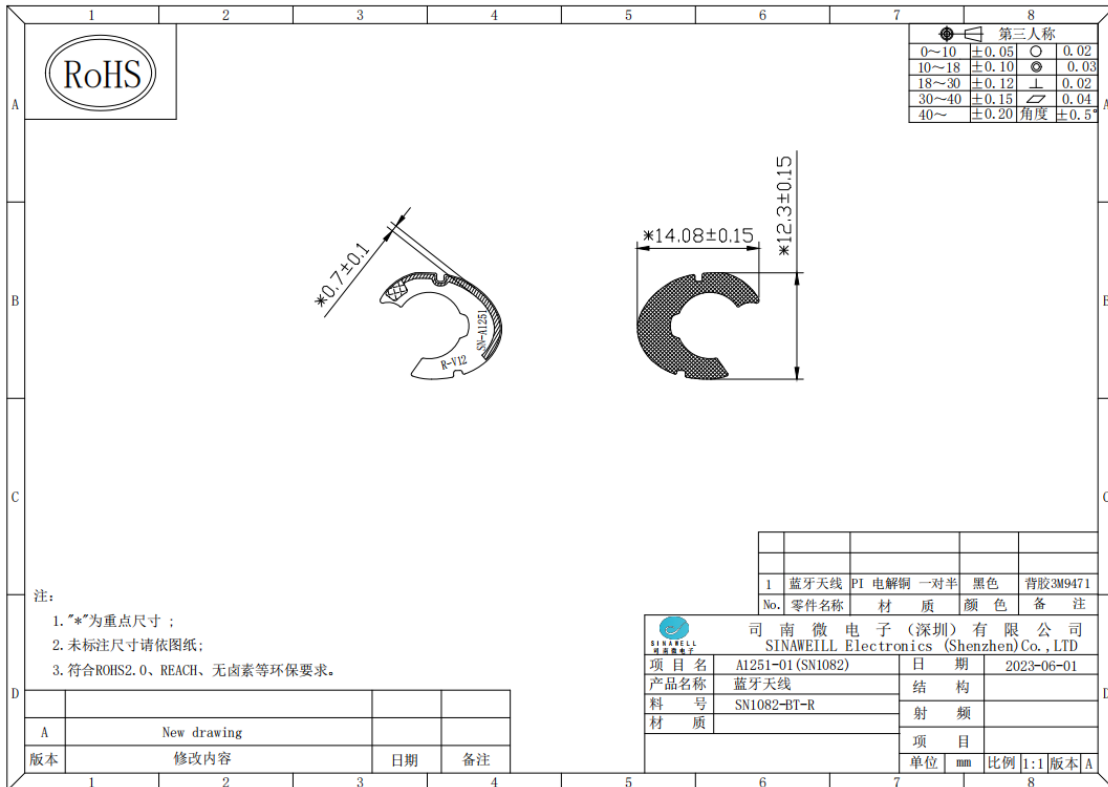
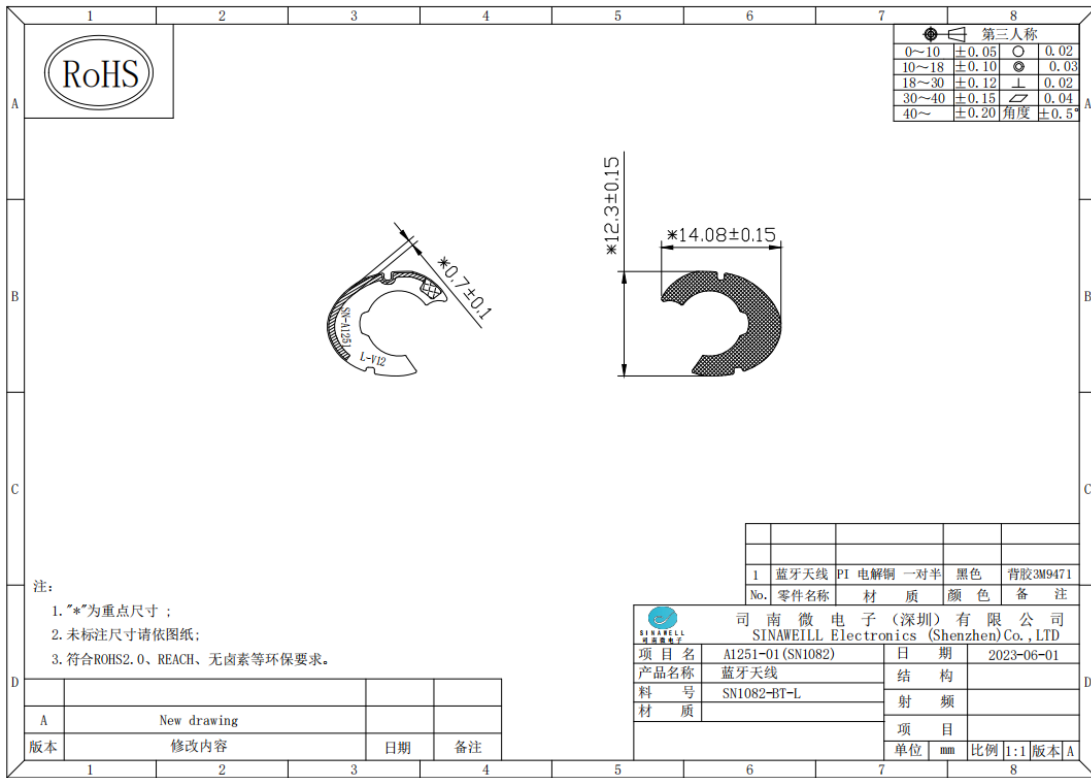
(Electrical Performance Test Report)

In the electrical performance test report, the 3D darkroom data provided for manufacturers,  
The following table format

Appendix 1: Structural Drawings

Appendix II (Electrical Performance Test Report)


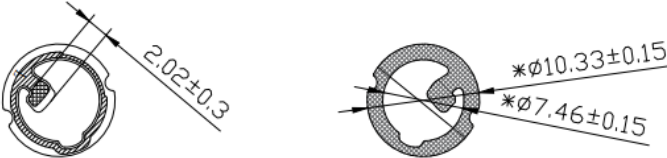



### FPC structural drawings


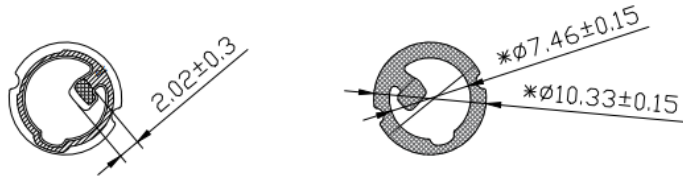







### Key size

NO	measure(m m)	tolerance(m m)	remarks
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2	12.3	±0.15	
3	0.7	±0.1	
4			
5			

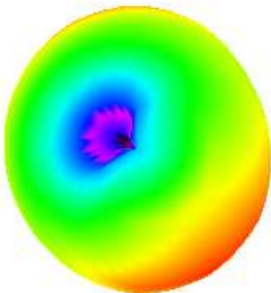
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							<table border="1" style="font-size: 8px;"> <tr> <th colspan="4">第三人称</th> </tr> <tr> <td>0~10</td> <td>±0.05</td> <td>○</td> <td>0.02</td> </tr> <tr> <td>10~18</td> <td>±0.10</td> <td>◎</td> <td>0.03</td> </tr> <tr> <td>18~30</td> <td>±0.12</td> <td>⊥</td> <td>0.02</td> </tr> <tr> <td>30~40</td> <td>±0.15</td> <td>∠</td> <td>0.04</td> </tr> <tr> <td>40~</td> <td>±0.20</td> <td>角度</td> <td>±0.5°</td> </tr> </table>	第三人称				0~10	±0.05	○	0.02	10~18	±0.10	◎	0.03	18~30	±0.12	⊥	0.02	30~40	±0.15	∠	0.04	40~	±0.20	角度	±0.5°															
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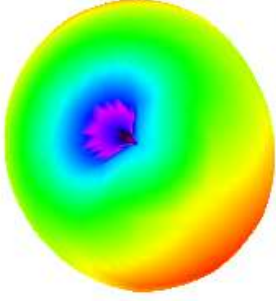
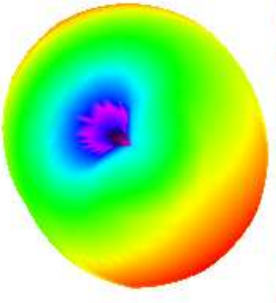
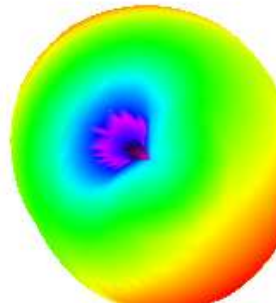
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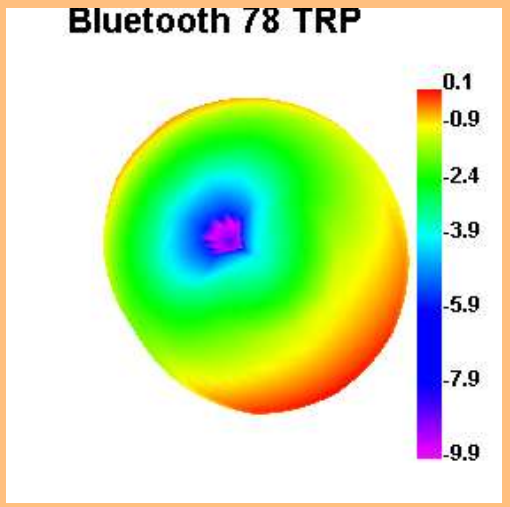
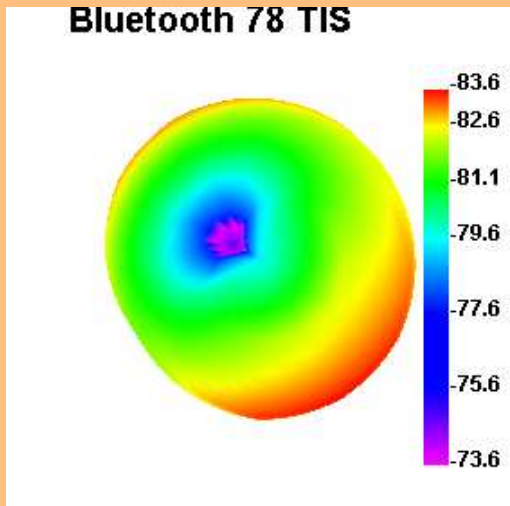
### Key size

NO	measure(m m)	tolerance(m m)	remarks
1	7.46	±0.15	
2	10.33	±0.15	
3	2.02	±0.3	
4			
5			

### 3D test report

BT	Channel	3D Coupling test	field strength pattern
TRP	0	<b>-5.26</b>	<p><b>Bluetooth 0 TRP</b></p>  <p>Color scale values: -2.9, -3.9, -5.4, -6.9, -8.9, -10.9, -12.9</p>

TIS	0	-78.86	<p><b>Bluetooth 0 TIS</b></p> 
TRP	39	-2.32	<p><b>Bluetooth 39 TRP</b></p> 
TIS	39	<b>-79.98</b>	<p><b>Bluetooth 39 TIS</b></p> 

TRP	78	-2.23	 <p>Bluetooth 78 TRP</p>
TIS	78	-81.26	 <p>Bluetooth 78 TIS</p>

### Size report

	client	Cannice	Project name	MA10-01		Measurement date	2023-6-1	
	supplier	Sinawell	Measuring tool	Two dimensional measuring instrument		unit of measure	mm	
NO	measure	tolerance	sample1	sample2	sample3	sample4	sample5	decide
1	14.08	±0.15	14.11	14.09	14.08	14.09	14.08	OK
2	12.3	±0.15	12.33	12.31	12.31	12.35	12.34	OK
3	0.7	±0.1	0.71	0.70	0.72	0.73	0.72	OK

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draw up a form: 杨世梅

check: 陈德

## Size report

	client	Cannice	Project name	MA10-01		Measurement date	2023-6-1	
	supplier	Sinawell	Measuring tool	Two dimensional measuring instrument		unit of measure	mm	
NO	measure	tolerance	sample 1	sample2	sample3	sample4	sample5	decide
1	7.46	±0.15	7.43	7.44	7.43	7.44	7.42	OK

**Confirmation of Sample**  
样品承认书


2	10.33	±0.15	10.34	10.35	10.36	10.37	10.36	OK
3	2.02	±0.3	2.20	2.24	2.27	2.22	2.22	OK
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draw up a form: 杨世梅

check: 陈德

### Salt spray report

Customer name	Cannice	Project name	MA10-01-L	test controler	杨世梅
---------------	---------	--------------	-----------	----------------	-----

Test quantity	5PCS	test item	salt haze	Dat of observation	2023-6-1
test condition	1.Temperature: 35℃				
	2.Humidity: 98%, PH: 6.5-7.2				
	3.Temperature in the cabinet: 37℃				
	4.Test duration: 48 hours				
	5.Solution concentration: 5%NaCl				
Test steps	1.Put the product into the salt spray box				
	2.Place the product at the right angle				
	3.Set relevant parameters and start spraying				
	4.Take out the experimental products, rinse the products with clean water and leave them at room temperature for two hours before inspection.				
test	project	Before testing	After the test	test result	remarks
	cladding material	good	good	qualified	
	Electricalconducti vity	good	good	qualified	
	electric resistance	good	good	qualified	
	binding force	good	good	合格	

draw up a form: 杨世梅

check: 陈德



# FPC Description of shelf life

1. Storage conditions: temperature 21℃ ±4℃, humidity 60% ±10%.

2. the factory guarantee

①. Appearance guarantee: no oxidation will occur under the storage condition of original packaging for 12 months.

②. Functional guarantee

A: One year to ensure good welding adhesion.

B: Ensure good conductivity within two years.

3. Precautions for FPC welding

①. FPC itself has hygroscopicity, so it is recommended to preheat it at 100℃ for 30 minutes before use, and preheat it at 100℃ for 120 minutes for three-layer boards (inclusive) or above to avoid board explosion due to hygroscopicity and rapid oxidation during operation.

②. HOT BAR operation

A: FPC is used for pressing, and C vi should span the glass to avoid hanging, which will cause the copper to break when bending.

B: FPC avoids the use of folded corners and is easy to break.

③: SMT operation: the plated parts need to be shielded to prevent atomization in flow welding.

④: Hand welding operation: the operating temperature of soldering iron should not exceed 350℃, and the time for soldering iron to stay on the board should not exceed 3 second



覆铜板检验报告  
PI CCL Quality Test Report

日期 (DATE): 2023-04-12

28

品名 (Product Name)	SHISE131312MB1
PI 厚度 (PI film Thickness) $\mu\text{m}$	13
接着剂厚 (Adhesive Thickness) $\mu\text{m}$	13
铜箔厚度 (Copper Foil Thickness) $\mu\text{m}$	12
幅宽 (Width)mm	250
生产日期 (P/Date)	2023-04-09
保质期 (Shelf life)	2023-04-09-2024-04-08

工厂地址: 江苏省太仓市太平北路 168 号  
TEL: 0512-53378333 FAX: 0512-53378355  
Factory Address: No. 168 Taping North Road,  
TaiCang City, JiangSu Province, China.

测试项目 Item	品质标准 (Spec)	测试结果 (Result)			测试方法 (Test Method)
		生产批号 (LOT NO.):			
		23409A**	***		
厚度 Thickness( $\mu\text{m}$ )	$\pm 5\%$	36	***		SERENGETI SPEC
剥离强度 Peel Strength(kgf/cm)	A 面	$\geq 0.7$	1.01	***	IPC-TM-650 2.4.9
	B 面				
尺寸安定性 Dimensional Stability(%)	MD	$\leq \pm 0.2\%$	-0.0693	Nothing	IPC-TM-650 2.2.4
	TD		0.0673	Follows	
焊锡耐热性 Solder Resistance	300°C*10SEC 无分层起泡	PASS	***		IPC-TM-650 2.4.13
外观 Appearance	无凸点、撞损、裁切不良、皱痕等等	OK	***		SERENGETI SPEC

- 注: 1. 保存条件: 常温常湿保存一年 (Deadline of reserve is 1 year in normal condition).  
2. 以上测试项目仅供参考 (Above test for reference only).

苏州蔡伦格蒂电子材料有限公司

审核: 经办:



品保部

# quality certificate

Customer name: Shenzhen cannice Technology Co., Ltd.

Our company promises that MA10-01-L products have been produced and inspected according to your technical quality indicators or supply quality agreement, and all indicators are qualified, so they are allowed to leave the factory.

Our company promises that MA10-01-L products have been produced and inspected according to your technical quality indicators or supply quality agreement, and all indicators are qualified, so they are allowed to leave the factory.

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## List of raw materials for products

category	Material name	material specifications	supplier
FPC	base material	A pair of semi-adhesive electrolytic copper	Cai LUN ge di
	gum	3M 9471 LE	3M
	Front ink	black oil (PSM-800)	Youli
	character	white oil (KTM-150F)	Kaiyao
	gild	1U"	Zhifu