产品规格书

Sample Approval Sheet

敬　呈：　To:	
客 户 料 号: Customer P/N:	
产 品 名 称: Description:	TYPE C F 板上型16PIN SMT
规 格 型 号: Spec:	TYPE C F 板上型16PIN SMT
钿 威 料号: DIANWEI P/N	2.01AX.016X0X

客　户　确　认 Customer Approve		
承　办 Draft	审　核 Confirm	审　核 Approve

钿　威　科　技 DIANWEI Technology		
承　办 Draft	工　程 Engineer	审　核 Approve

东莞市钿威电子科技有限公司

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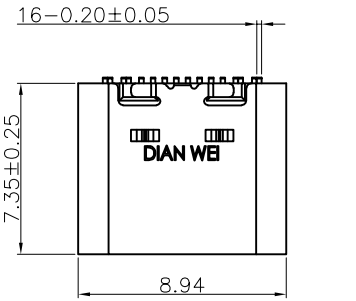
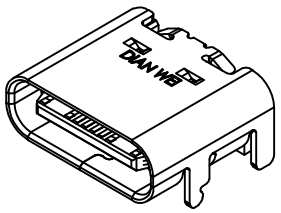
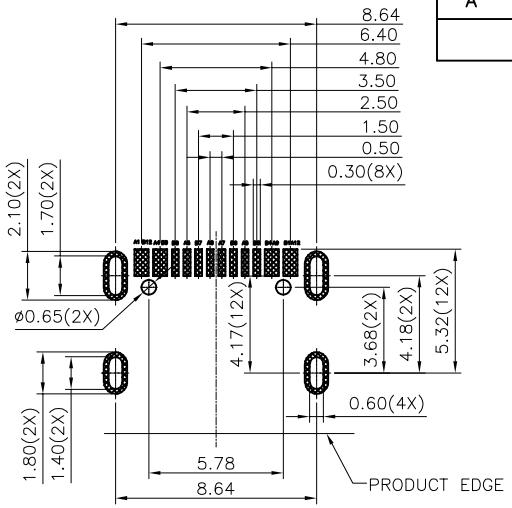
■国家级高新技术企业 ■IATF16949 ■ISO9001:2015 ■ISO14001

DRAWING TYPE	CUSTOMER DRAWING

MARK	DATE	DESCRIPTION	DESIGN
A		NEW DRAWING	Ming Yuan

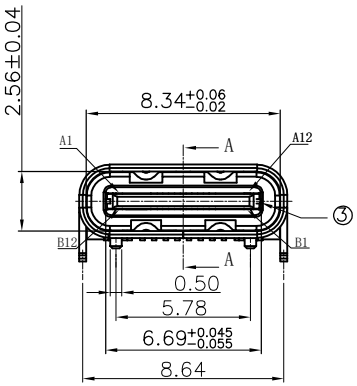


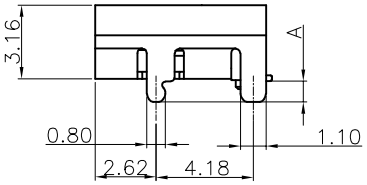


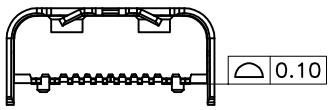


RECOMMENDED PCB LAYOUT(TOP VIEW)
THICKNESS 0.80MM;DEFAULT TOLERANCE:±0.05

Pin	Signal Name	Mating Sequence	Pin	Signal Name	Mating Sequence
A1	GND	First	B12	GND	First
A4	V_{BUS}	First	B9	V_{BUS}	First
A5	CC1	Second	B8	SBU2	Second
A6	Dp1	Second	B7	Dn2	Second
A7	Dn1	Second	B6	Dp2	Second
A8	SBU1	Second	B5	CC2	Second
A9	V_{BUS}	First	B4	V_{BUS}	First
A12	GND	First	B1	GND	First
SHELL		GND	SHELL		GND





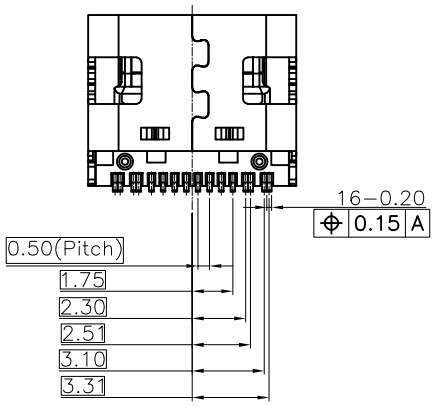


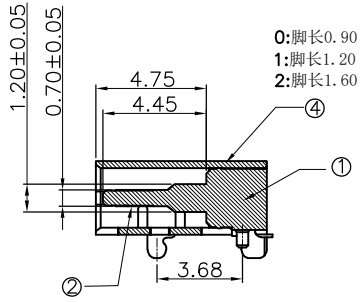
序号	A尺寸
1	0.90
2	1.20
3	1.60

NOTES:
1. MATERIAL: SEE "TABLE 1":
2. FINISH: SEE "TABLE 1":

3. ELECTRICAL :
   3-1.CONTACT CURRENT RATING : 12A(VBUS PIN AND GND PIN),
   3-2.INSULATION RESISTANCE : 100 MEGAOHMS MIN. AT 200VDC.
   3-3.DIEELECTRIC WITHSTANDING VOLTAGE : 100VAC MIN.
   3-4.LOW LEVEL CONTACT RESISTANCE : INITIAL 40mΩ MAX. AFTER 50mΩ MAX.

4.MECHANICAL CHARACTERISTICS :
   4-1. MATING FORCE: 5~20N.;
   4-2. UNMATING FORCE: 8~20N(INITIAL),6~20N(AFTER 10000 CYCLES);
   4-3.DURABILITY : 10,000 MATING CYCLES.
   4-4.OPERATING TEMPERATURE :-40°C TO +80°C





SECTION A-A

PART NO. INSTRUCTIONS:
2.01AX.016X0X
- 0:black, 1:white
- 0:脚长0.90, 1:脚长1.20, 2:脚长1.60
- 2 :Gold plated 1U"
- 3 :Gold plated 5U"
- 4 :Gold plated 10U"
- 5 :Gold plated 15U"
- 8 :Gold plated 30U"
- A :Gold plated 3U"

TABLE 1:

NO.	PART NAME	QTY	MATERIAL	DESCRIPTION	REMARK
④	Shell	1	Stainless steel	NI:50U"MIN PLATING;	T=0.30mm
③	MID PLATE	1	Stainless steel	NI:50U"MIN PLATING;	T=0.20mm
②	Terminal	16	Copper alloy	SEE PART NO. INSTRUCTIONS	T=0.25mm
①	Molding	3	HIGH TEMP	SEE PART NO. INSTRUCTIONS	

UNLESS OTHERWISE SPECIFIED TOLERANCE			
ANG	TOL	DIM	TOL
.X	±5°	.X	±0.38
.XX	±3°	.XX	±0.20
.XXX	±1°	.XXX	±0.10

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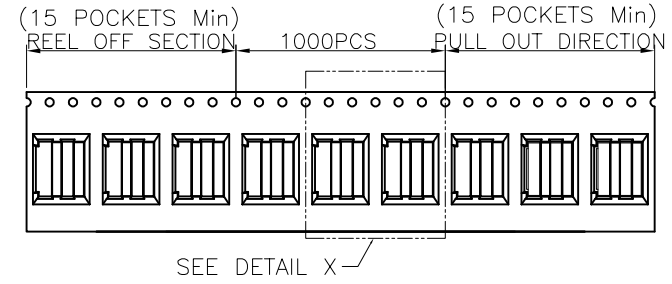
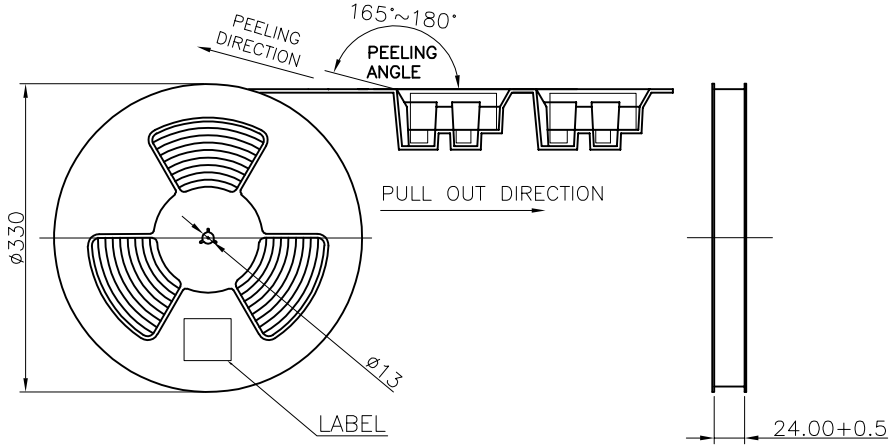
APPROVED	VERIFIED	DESIGN
		袁明

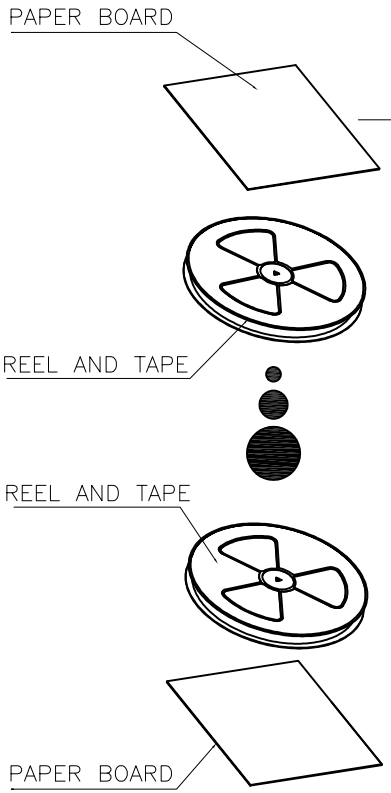
DRAWING NO				
PART NAME:	TYPE C F 板上型16PIN SMT 客户图			
PART NO.	2.01AX.016X0X			
DATE	UNITS	SCALE	PAGE	REV
2022.05.26	mm	1:1	1/1	A

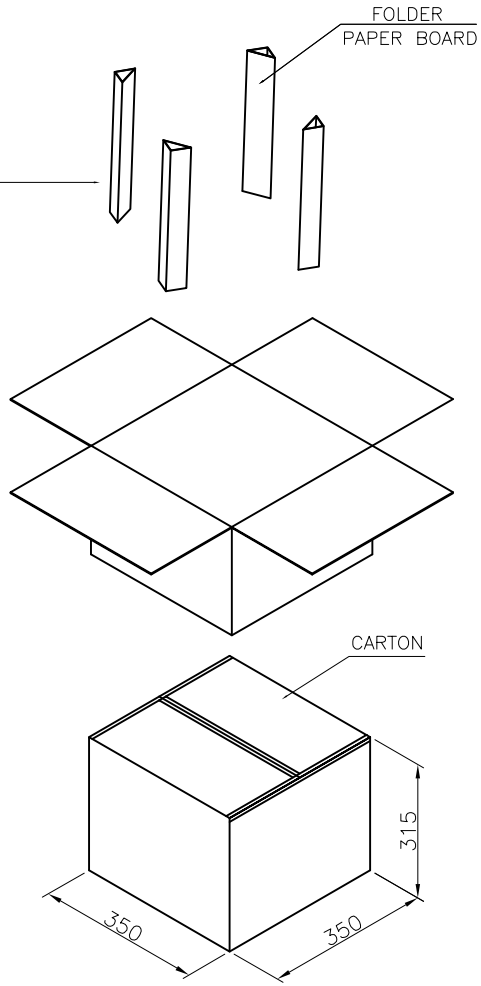
DRAWING TYPE	PACKAGE DRAWING

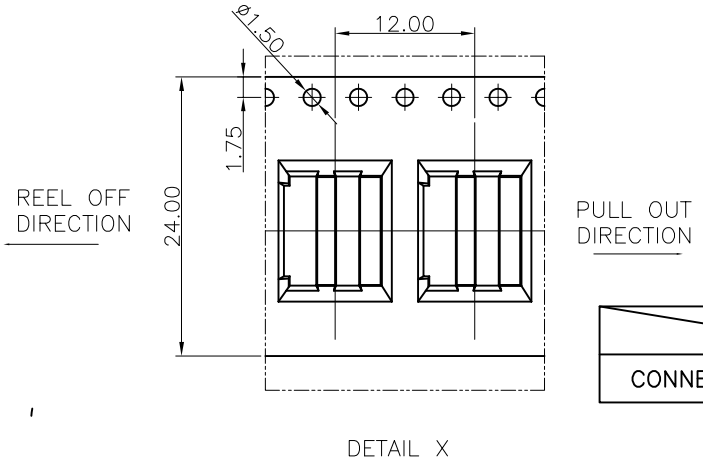
MARK	DATE	DESCRIPTION	DESIGN
A		NEW DRAWING	Ming Yuan











DETAIL X

	REEL	CARTON
CONNECTOR (PCS)	1000	10000

UNLESS OTHERWISE SPECIFIED TOLERANCE			
ANG	TOL	DIM	TOL
.X	±2.0°	.X	±0.10
.XX	±1.0°	.XX	±0.05
.XXX	±0.5°	.XXX	±0.03

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DRAWING NO		PART NAME:	TYPE C F 板上型16PIN SMT 客户图			
		PART NO.	2.01A0.016X0X			
APPROVED	VERIFIED	DESIGN	DATE	UNITS	SCALE	PAGE	REV
		袁明	2022.05.26	mm	1:1	1/1	A

1. SCOPE（范围）

1.1. CONTENTS（目录）

This specification covers the performance, methods and quality requirements for **USB TYPE-C Plug And Receptacle Connector** Connector.

此份规格书包含了 USB TYPE-C 插头和母座连接器的性能、测试及品质要求。

1.2. QUALIFICATION（条件）

When tests are performed on the subject product line, the procedures specified specifications shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

当所有测试项目被应用于生产线时，规格书上的这些指定程序将被使用，所有的检验须按对应的检验规范及产品图纸执行。

2. APPLICABLE DOCUMENT（使用文件）

The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, the latest edition of the document applies. In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.

来至此规格书的部分文件仅限用于此，除非有最新版本文件指定发行，当此规格书标准与产品图纸相冲突时，以产品图纸为准，当此规格书与参考文献相冲突时，以此规格书为准。

3. REQUIREMENTS（要求）

3.1. DESIGN AND CONSTRUCTION（结构设计）

Product shall be of the design, construction and physical dimensions specified on the applicable product drawing.

产品的设计、结构和物理尺寸须详细的标示在产品图纸上。

3.2. MATERIALS（材质）

A. Housing ： Refer To DIANWEI Drawings

胶芯：参考钿威图纸

B. Contact ： Refer To DIANWEI Drawings

端子：参考钿威图纸

C.Shell/Latch ： Refer To DIANWEI Drawings

外壳/挂钩：参考钿威图纸

3.3. RATINGS （额定）

A. Voltage: 5-48V AC (RMS. max)

电压：交流电 5－48 伏

B. Current: 12A(VBUS PIN :A4,A9,B4,B9 3A/PIN),
12A(GND PIN:A1,A12,B1,B12 3A/PIN MAX),0.25A/PIN(OTHER PIN).

最大支持电流：12A(VBUS PIN:A4,A9,B4,B9 单 PIN3A),12A(接地片：A1,A12,B1,B12 单 PIN 3A/PIN 最大)

其它 PIN：0.25A.

C. Operating Temperature: -40 °C to +80°C

工作温度：-40 °C~ +80°C

3.4. PERFOMANCE REQUEIREMENT AND TEST DESCRIPTION （性能测试要求与条件）

The product shall be designed to meet the electrical, mechanical and environmental performance

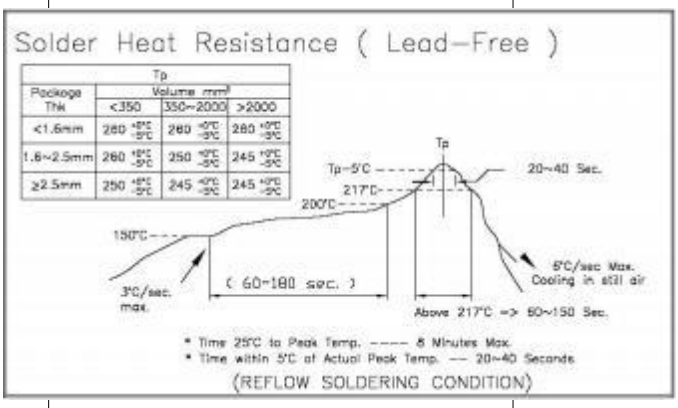
requirements specified in Figure 1. All tests shall be performed at ambient environmental conditions.

表 1 详述了产品的电气、机械和环境的测试要求，所有测试都须在室温下执行。

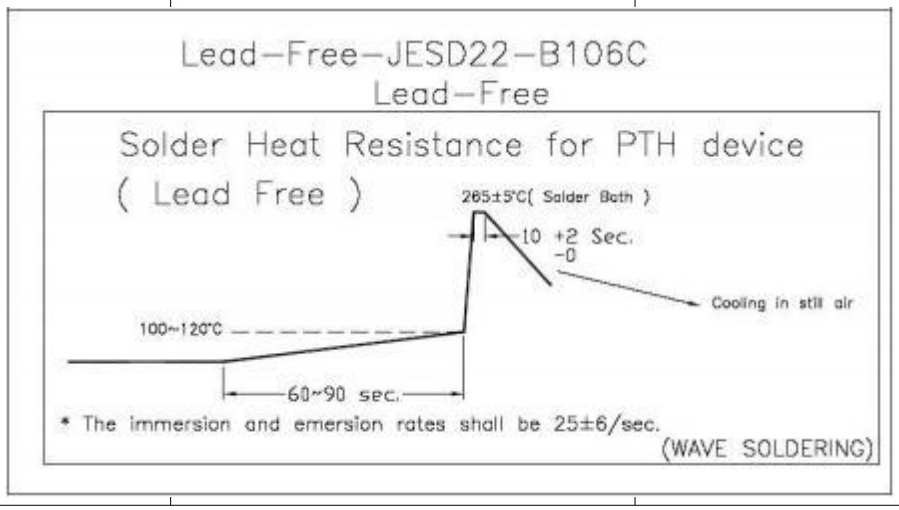
3.5. TEST REQUIREMENTS AND PROCEDURES SUMMARY（测试条件与步骤摘要）

TEST ITEM（测试项目）		REQUIREMENT（规格）	PROCEDURE（步骤）
1	Appearance of Product 产品外观	Meets requirements of product drawing. No physical damage. 对照产品图纸，无物理损伤	Visual inspection. EIA-364-18 目视检查，参考 EIA-364- 18
ELECTRICAL REQUIREMENT（电气性能）			
2	Contact Resistance 接触阻抗	40 mΩ Max(Initial) for VBUS,GND and all other contacts. 50 mΩ (Max) after environmental stresses. 电源 PIN,接地 PIN 及其它 PIN 脚阻抗 初始时最大 40 毫欧姆 测试后50 毫欧姆最大	Subject mated contacts assembled in housing to 20mV Max open circuit at 100mA Max. EIA-364-23B. 成对的端子与胶芯组装后，最大电压 20 毫伏，短路电路最大 100 毫安培， 参考 EIA-364-23B
3	Dielectric withstanding Voltage 耐电压	No flashover & spark over & excess leakage & breakdown 不可跳火、不可有火花，不可超出泄漏额，不可击穿	Test voltage 100V AC between adjacent contacts of mated and unmated connector assemblies for one minute. Interval of shield case and contacts too, in the same way EIA-364-20B 100 伏交流电下测试未配对连接器间相邻端子电路一分钟，
4	Insulation Resistance 绝缘阻抗	100 MΩ min. 最小 100 兆欧姆	Test voltage 100±10V DC between adjacent contacts of mated and unmated connector assemblies. Interval of shield case and contacts too, in the same way. EIA-364-21C. 100±10 伏交流电下测试相邻未配对连接器间电路，参考 EIA-364-21C
5	Temperature Rising 温度上升	30℃ Max. Under loaded rating current 30℃最大	Contact series-wired, apply test current of loaded rating current to the circuit, and measure the temperature rising by probing on soldered areas of contacts, after the temperature becomes stabilized deduct ambient temperature from the measured value. EIA-364-70,method B
MECHANICAL REQUIREMENT			
6	Mating Force 插入力	5 N~20 N. 5 ~ 20 牛顿之间.	Measure force necessary to mate connector assemblies at maximum rate of 12.5 mm(0.492)/min. EIA-364-13 测量插入力需配对的连接器完全契合 运行速度 12.5 毫米每分钟 参考 EIA-364- 13
7	Unmating Force 拔出力	8 N~20 N. 8 ~ 20 牛顿之间.	Measure force necessary to mate connector assemblies at maximum rate of 12.5 mm(0.492)/min.

			EIA-364-13 测量拔出力须配对的额连接器完全脱离 运行速度 12.5 毫米每分钟 参考 EIA-364- 13
8	Durability 耐久性	Mating Force: 5 N~20 N. Unmating Force: 6 N~20 N. Contcat Resistance: 50 mΩMax change for post test Appearance: No breakdown 插入力：5 ~ 20 牛顿之间. 拔出力： 6 ~ 20 牛顿之间. 接触阻抗：测试完成后50 毫欧姆最大	Mate and unmated connector assemblies for 10,000 cycles at. Cycle rate of 200 cycles per hour if done EIA-364-09 插拔次数 10000 次，速度 200 次每小时， 参考 EIA-364-09
9	Random Vibration 耐振动	No discontinuities of 1μs or longer duration Contcat Resistance: 50 mΩMax change for post test 没有超过一微秒的断电 接触阻抗：测试完成后50 毫欧姆最大	Subject mated connectors to 10-55-10Hz traversed in 1 minutes at 1 . 5 2 mm amplitude 1 5 minutes each of 3 mutually perpendicular planes.EIA-364-28
10	Physical shock 物理冲击	No discontinuities of 1μs or longer duration Contcat Resistance:50 mΩMax change for post test Appearance: No breakdown 没有超过一微秒的断电 接触阻抗：测试完成后50毫欧姆最大; 外观：无损伤	Mated connectors are subjected to 11ms duration 30G half-sine shock pulses .Three shocks in each direction applied along three mutually perpendicular planes for 18 shocks EIA-364-27B condition. H
TEST ITEM		**REQUIREMENT**	**PROCEDURE**
11	Solderability 可焊性	Solder tails shall pass 95% Min coverage 粘锡面积最小 95%	Solder temperature: 245±5℃ Duration:5±0.5sec. EIA-364-52焊 接温度： 245±5℃ 持续时间： 5±0.5 秒 参考 EIA-364-52
ENVIRONMENTAL REQUIREMENTS			
12	Resistance to Soldering Heat 耐焊锡热	No physical damage shall occur. 无外观损伤	Pre Heat： 150~180℃, 90±30sec. Heat： 230℃ Min., 35±5sec. Peak Temp.： 260℃ Max. Duration： 2 cycles 初始温度： 150~180 摄氏度, 90±30 秒. 温度: 最小 230 摄氏度., 35±5 秒 最高温度：最大 260摄氏度 周期： 2 次
13	Thermal Shock 热冲击	Withstand Voltage: 100VAC Insulation resistance:100 MΩ Min. There shall be no evidence of damage 抵抗电压：100 伏交流电 绝缘阻抗:最小 100 兆欧姆 无明显损伤	Mated Connector -55+/-3℃(30 minutes), +85+/-2℃(30 minutes) Perform this 1 cycle, repeat 10 cycles condition Ⅰ 将连接器置于-55±3 摄氏度环境中三十分钟， 再置于+85±2 环境中三十分钟，如此为一次，

			重复 10 次 参考 EIA-364-32C 条件 I
14	Humidity Life 恒温恒湿	Withstand Voltage: No breakdown Insulation resistance:100 MΩ Min. Contcat Resistance: 50 mΩMax change for post test Appearance: No breakdown 抵抗电压：不可击穿 绝缘阻抗：最小 100 兆欧姆 接触阻抗： 测试完成后50 毫欧姆最大 外观：无损伤	Mated Connector 25~65℃ , 90~95% RH, 1 Cycle:24 hours ,7 Cycles. EIA-364-31B 将连接器放于温度 25~65 摄氏度，90~95% RH 中，一次 24 小时，共 7 次 参考 EIA-364-31B
15	Temperature Life (Heat Aging) 高温老化	Withstand Voltage: No breakdown Insulation resistance:100 MΩ Min. Contcat Resistance: 50 mΩMax change for post test Appearance: No breakdown 抵抗电压:不可击穿 绝缘阻抗：最小 100 兆欧姆 接触阻抗：测试完成后50毫欧姆最大 外观：无损伤	Mated Connector to 85±2℃ for 96 hours Upon Completion of the exposure period, the test Specimens shall be conditioned at ambient room, conditions for 1 to 2 hours, after which the Specified measurements shall be performed. EIA-364-17B. 将连接器放于85±2 摄氏度温度下96 小时后，取出放于室温下 1 到 2 小时后按指定方法测量 参考 EIA-364- 17B
16	Salt Spray 盐雾测试	Contcat Resistance: 50 mΩMax change for post test Appearance: By visual inspection without noticeable rust 接触阻抗： 测试完成后50毫欧姆最大 无金属本体暴露在外	Subject mated connectors to 35+/-2 ℃ and 5+/- 1% salt condition for 48hours. After test, rinse the sample with water and recondition the room temperature for 1 hour. EIA-364-26B. 将连接器置于温度 35±2 摄氏度，盐雾浓度 5±1%条件下 48 小时后，用清水清洗样品置于室温下一小时 参考 EIA-364-26B
	Soldering heat Resistance 耐焊锡热	For reflow lead-free soldering condition : 回流无铅焊接条件 Follow IPC/JEDECJ-STD-020C 按照 IPC / jedecj-std -020c  	No deformation of components affecting Performance. 组件没有变形性能的影响
		For waving lead-free soldering condition: 无铅波峰焊条件	

Follow JESD22-B106C
按照 JESD22-B106C

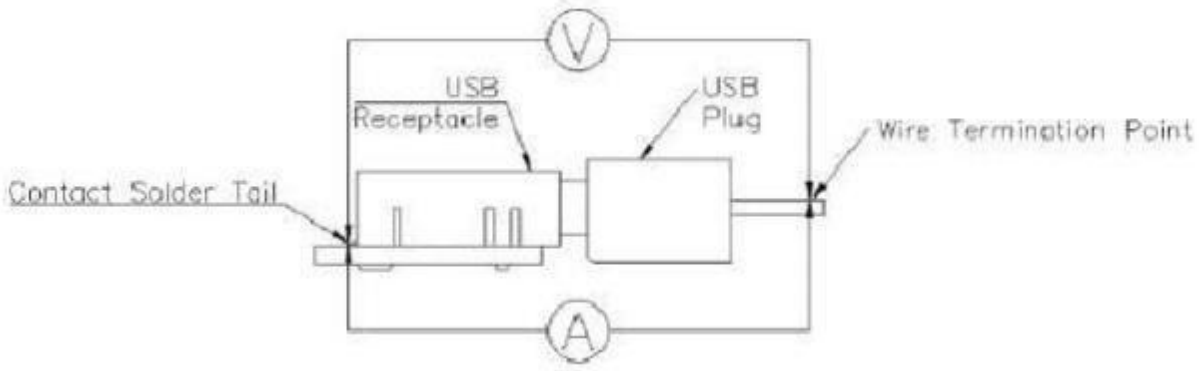


NOTE : Shall meet visual requirements, show no physical damage.
注释：满足视觉要求，外观无物理损伤

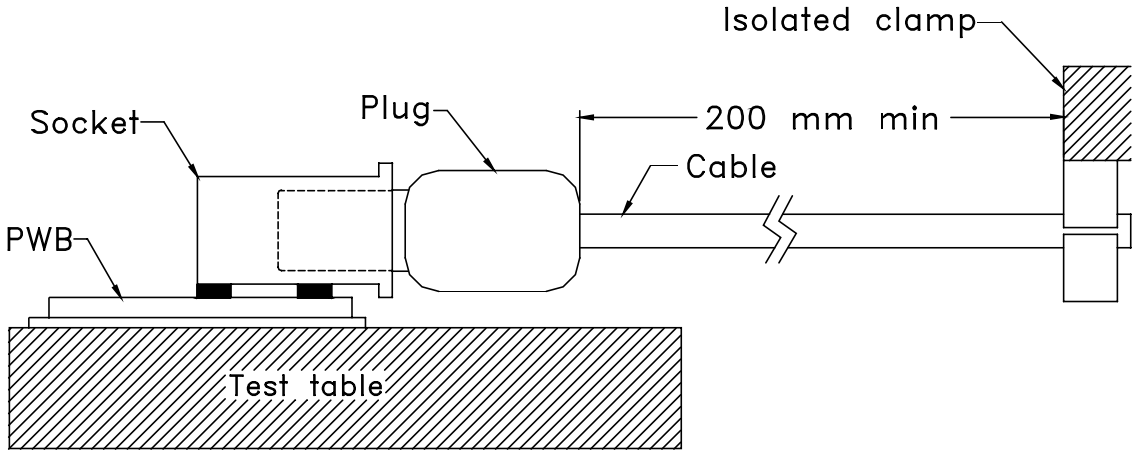
3.6. TEST SEQUENCES（测试顺序）：

Test Item 测试项目	Test Group（测试组）										
	A	B	C	D	E	F	G	H	I	J	K
	Test Sequence（测试顺序）										
1.Appearance 外观	1,3	1,5	1,9	1,5	1,5	1,9	1,9	1,9	1,5	1,3	1,3
2. Contact Resistance 接触阻抗		2	2,8	2,4	2,4	2,6	2,6	2,6	2,4		
3.Dielectric withstanding Voltage 耐电压		4				4,8	4,8	4,8			
4. Insulation Resistance 绝缘阻抗		3				3,7	3,7	3,7			
5. Temperature Rising 温度上升	2										
6. Mating Force 插入力			3,6								
7. Unmating Force 拔出力			4,7								
8. Durability 耐久性			5								
9. Random Vibration 耐振动性				3							
10. Physical shock 物理冲击					3						
11. Solderability 可焊性										2	
12. Resistance to Soldering Heat 耐焊锡热											2

13. Thermal Shock 热冲击							5				
14. Humidity Life 恒温恒湿						5					
15. Temperature Life 高温老化								5			
16. Salt Spray 盐雾测试									3		



Contact Resistance Test(接触阻抗测试)
Figure 1（图 1）



Vibration Test （振动测试）
Figure 3（图 2）

3.7 Attachment:

1.Humidity condition

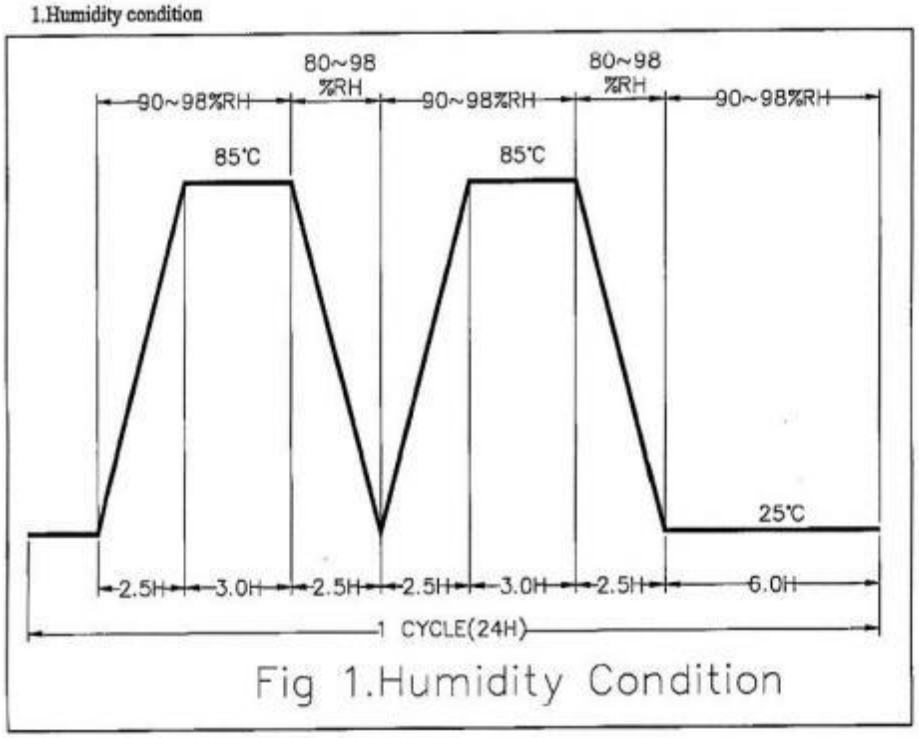


Fig 1.Humidity Condition

2.Flow/Reflow temperatures profile