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	Date Issued	2015-04-06	Prepared by	Josephine
	Date revised	2018-11-23	checked by	Jay
Product Specification	Rev. No.	01	Approved by	Mei Chen
Title : USB 3.0 CONN				

1. SCOPE (适用范围)

This specification covers the performance, tests and quality requirements for the USB 3.0 Connector.(本规范涵盖了 USB3.0 连接器的性能、测试和质量要求。)

2. PRODUCT DESCRIPTION (产品描述)

DESCRIPTION (描述)	Part Number (料号)
USB3.0 连接器 AF90 度贴片 板上 7.0 平口 LCP 两脚 SPCC	U231-091N-4BLRA00-F

3. APPLICABLE DOCUMENT (适用文件)

XB Connectivity The following documents form a part of this specification to the extent specified herein. 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. (下列文件构成本规范的一部分，在此规定的范围内。本规范要求与产品图纸有冲突时，以产品图纸为准。如果本规范的要求与参考文件发生冲突，应以本规范为准。)

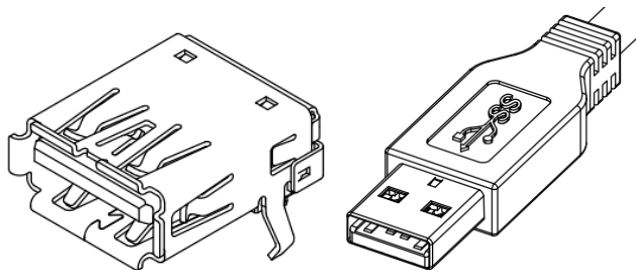
- EIA 364 Test procedures for electrical connector (EIA364 电子连接器的测试程序)
- UL 94-V0 Flammability standard (UL 94-V0 阻燃性标准)

4. REQUIREMENTS (要求)

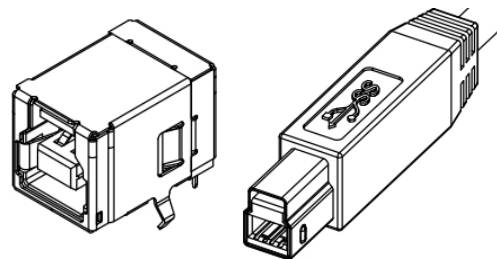
4.1. Design and Structure (设计和结构)

Product shall be of the design, structure and physical dimensions specified on the applicable product drawing. (XB Connectivity 产品的设计、结构和物理尺寸参考所适用的产品图纸)

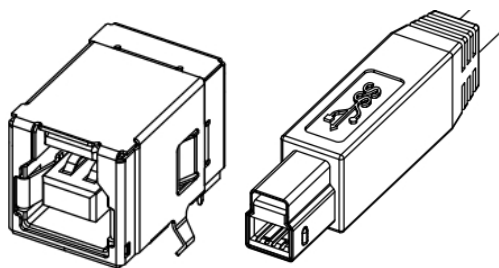
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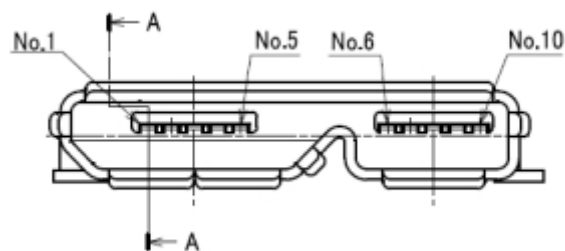
USB 3.0 Standard A



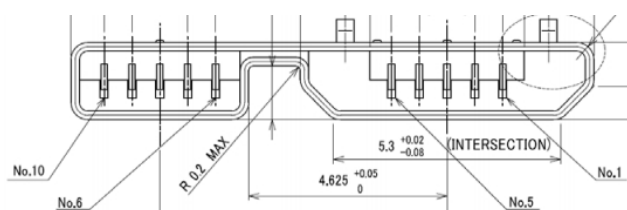
USB 3.0 Standard B (9PIN)



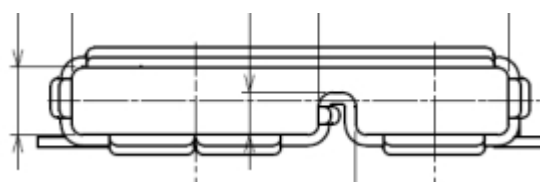
USB 3.0 Powered B



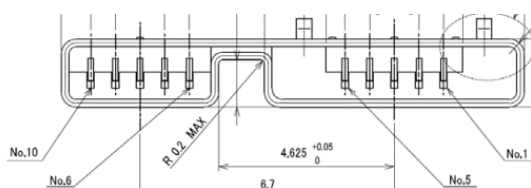
USB 3.0 Micro B Receptacle



USB 3.0 Micro B Plug



USB 3.0 Micro AB Receptacle



USB 3.0 Micro A Plug

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4.2. Materials/ Finish (材料/表面处理)

Materials used in the structure of product shall be as specified on the applicable product drawing. (XB Connectivity 产品结构中使用的材料参考所适用的产品图纸)

4.3. Ratings (额定功率)

Item (项目)	Standard (标准)	
Rated Voltage (Maximum)额定电压	100V	AC
Rated Current (Maximum)额定电流	0.25A	
Powered B Type Rated Current (Maximum) 电力B型额定电流	1.8A	
Operating temperature range工作温度范围	-25℃~+85℃ From -25 to +85 degree centigrade	
Storage Temperature Range储存温度范围	-40℃~+85℃ From -40 to +85 degree centigrade	

5. TEST STANDARD (测试标准)

Unless otherwise specified, the standard range of atmospheric conditions for making measurements and tests are as follows (除另有说明外, 用以进行测量和测试的标准环境条件范围如下)

5.1 Ambient temperature (环境温度) : 5℃ to 35℃

5.2 Relative humidity (相对湿度) : 45% to 85%

5.3 Air pressure (气压) : 86Kpa to 106Kpa

6. HOWEVER, IF DOUBTS ARISE CONCERNING JUDGMENTS. PERFORM UNDER THE FOLLOWING STANDARD CONDITIONS. (但是, 如果对判决产生疑问, 按照下列标准条件执行)

Temperature (温度) : 23±1℃.

Humidity (湿度) : 50%±2% RH.

Air Pressure (气压) : 86~106kPa

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7. PERFORMANCE AND TEST DESCRIPTION (性能和测试类型)

7.1 APPRARANCE (外观)

ITEM	DESCRIPTION (类型)	TEST CONDITION (测试条件)	REQUIREMENT (要求)
1	Appearance (外观)	Visual. (目视)	Should not have any flaw Scratch discoloration and crushed (无任何裂痕、刮伤、污染和变形)

7.2 ELECTRICAL (电气)

ITEM	DESCRIPTION (类型)	TEST CONDITION (测试条件)	REQUIREMENT (要求)
1	Low Level Contact Resistance (接触电阻)	EIA-364-23B Subject mated contacts assembled in housing to 20mV Max open circuit at 100mA. (在开路最大电流 100mA 电压 20 mV 最大下测量)	30 mΩ (Max) Initially for VBUS&GND contacts; (VBUS 和 GND PIN 初始 30 mΩ 最大) 50 mΩ (Max) Initially for all other contacts; (其他 PIN 初始 50 mΩ 最大) Maximum change(delta) of +10 mΩ after environmental stresses. (测试后: 10 mΩ 最大变化量)
2	Insulation Resistance (绝缘电阻)	EIA 364-21, Method 302 Apply 500Volts DC between adjacent contacts of unmated and mated connectors. (对相邻接点之间施加 500V DC 的电流持续 1 分钟)	100 MΩ minimum.

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3	Dielectric Withstanding Voltage (耐电压)	EIA-364-20, Method 301 Apply 100Volts AC (RMS) between adjacent contacts of unmated and mated connectors for 1minute at sea level. (分别在相邻接点之间施加 100V AC 1mA 的电流持续 1 分钟, 最大漏电电流 0.5mA)	No Breakdown (没有损坏)
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7.3 MECHANICAL (机械)

ITEM	DESCRIPTION (类型)	TEST CONDITION (测试条件)	REQUIREMENT (要求)
1	Insertion Force (插入力)	EIA364-13 Insertion and withdrawal speed : 25mm/minute. (以每分钟 25mm 的速度沿轴向插入母座测量其插入力)	35N maximum
2	Withdrawal Force (拔出力)	EIA364-13 Insertion and withdrawal speed : 25mm/minute. (以每分钟 25mm 的速度沿轴向从母座拔出测量其拔出力)	The first time (初始) : 10N Min. 1500 cycles After(1500 次后) : 8N Min.
3	Durability (寿命测试)	EIA 364-09 Operation Speed: 200 cycle/Hour. Durability Cycles: 1500 Cycles Min. (以插拔 200 次/小时的速度沿轴向插拔至少 5000 次)	Meets requirements of product appearance. No physical damage. (符合产品外观要求, 无实物损坏)
4	Random Vibration (任意振动)	EIA 364-28E Frequency (频率) : 10~55~10Hz Direction (方向) : X, Y, Z axis Amplitude (振幅) : 1.52mm Duration: 1 hours in each direction (每个方向各振动 1 小时)	Appearance (外观) : No Damage (没有损坏) Discontinuity (断讯) : 1 μ sec maximum. (不能超过 1 微秒)

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5	Mechanical Shock (机械冲击)	EIA 364-27B Wave form: half sine shock plus. Acceleration Velocity: 490m/s2 (30G) Duration: 11 m sec No. of shock: each axis 3 times Direction: +X,-X,+Y,-Y,+Z,-Z axis (将对插后的连接器固定于冲击实验机上, 施加 11 ms 持续 490m/s2 (30G) 半正弦脉冲波, 沿 3 个互相垂直达的方向每个方向三次冲击共 18 次冲击)	Appearance (外观) : No Damage (没有损坏) Discontinuity (断讯) : 1 μ sec maximum. (不能超过1微秒)
6	Peel Strength (剥离强度) Family Only USB3.0 Micro Type (仅针对 USB3.0 Micro 型)	No visible physical damage shall be noticed to soldered receptacle when it is pulled up from the PCB in the vertical direction with a minimum force of 150N. (将插座焊接在 PCB 上, 以最小 150N 力度从 PCB 垂直方向上拉起, 不得注意到焊接插座有明显的物理损坏)	Meets requirements of product appearance. No physical damage. (符合产品外观要求, 无实物损坏)
7	Wrenching Strength (扭力强度试验) Family Only USB3.0 Micro Type (仅针对 USB3.0 Micro 型)	Mated connectors, apply perpendicular forces to plug at a 15 mm distance from the edge of the receptacle covered by test fixture. Perform this test using virgin parts. Forces are to 4 directions (left, right, up, down). (将插座焊板后夹具覆盖, 对插连接器, 在距离插座口 15mm 处对公头向四个方向(左, 右, 上, 下)施力)	Appearance 0-20N: No plug or receptacle damage. 20-40N: No receptacle damage. (检查外观, 当 0-20N 力时公母座不可有损坏, 当 20-40N 力时母座不可有损坏)

7.4 ENVIRONMENTAL (环境)

ITEM	DESCRIPTION (类型)	TEST CONDITION (测试条件)	REQUIREMENT (要求)
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1	Thermal Shock (冷热冲击)	EIA 364-32 10 cycles of: a) -55° C for 30 minutes b) +85° C for 30 minutes (将连接器焊在 PCB 上后将其暴露在下列环境长件中循环 10 次: 置于-55° C± 3° C 温度中 30 分钟, 再转换至+85° C± 2° C 下 30 分钟, 再换至标准温度条件 10-15 分钟)	Appearance: No Damage (外观无损坏) No functional failures allowed. (不可有功能故障)
2	Humidity Life (耐湿性)	EIA 364-31 Test Condition A Method III 168 Hours minimum (seven complete cycles). (测试条件 A 方法 III, 至少 168 小时 (7 个工作日))	Appearance: No Damage (外观无损坏) No functional failures allowed. (不可有功能故障)
3	Solder ability (可焊性)	Immerse the solder pin of the connector in solder bath at 245±5°C for 3±0.5sec. After dipped the pin in the flux 5sec. (将端子脚浸入助焊剂中 5 秒, 然后将端子脚浸入 245±5°C 的锡炉中 3±0.5 秒)	Solder wetting: 95% of immersed area must show voids, Pin holes. (锡附着面积应超过浸入表面积的 95%以上)
4	Salt Spray (盐雾)	EIA 364-26 Connectors to 35+/-2°C. Humidity:85%(R.H). PH value:6.5~7.2 and 5+/-1% salt condition for 12 hours. After test, rinse the sample with water and recondition the room temperature for 1 hour test CR and IR. (将连接器放置在 35±2°C, 温度为 85% PH 值 6.5~7.2 和 5%浓度的实验箱内测试 12 小时, 测试后用水清洗样品, 放置室温 1 小时测试接触阻抗与绝缘阻抗)	Appearance: No Damage (外观无损坏) No functional failures allowed. (不可有功能故障)

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5	Resistance to Soldering heat (焊锡耐热性)	The contact of terminal shall be tested resistance to soldering heat in the following conditions. After Resistance to soldering heat test Contact Resistance. (端子应在下列条件下做耐吃锡性试验, 焊锡耐热性后试接触阻抗) In case of solder iron (2 time) 电烙铁(两次) Temperature 温度: ≤350℃ Time 时间: 5s+/-1s	Should not have any flaw scratch and crack. (无任何裂痕、刮伤和破裂)
6	IR-reflow (回流焊)	MIL-STD-202G method 210F Peak temperature time 260℃ Max, 10 sec or more. (峰值温度时间最高 260℃, 10 秒或以上) Duration : 2 cycles (过炉 2 次) Lead-Free Solder (无铅锡膏): Sn96.5Ag3Cu0.5 Refer to section 9 (请参阅第 9 条)	Should not have any flaw scratch and crack (无任何裂痕、刮伤和破裂) No visual damage to insulator. (绝缘体不得有严重变形)

8. Product Qualification and TEST GROUP (产品验证和测试分组)

XB Connectivity TEST ITEM (测试项目)		TEST GROUP (测试分组)						
		A	B	C	D	E	F	G
		TEST SEQUENCE						
1	Appearance (外观)	1,10	1,11	1,9	1,4	1,4	1,4	1,3
2	Low Level Contact Resistance (接触电阻)	3,9	3,10					
3	Insulation Resistance (绝缘电阻)			3,7				
4	Dielectric Withstanding Voltage (耐电压)			4,8				
5	Insertion Force (插入力)	4,7	4,8					
6	Withdrawal Force (拔出力)	5,8	5,9					
7	Durability (寿命测试)	6						
8	Random Vibration (任意振动)		6					

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9	Mechanical Shock (机械冲击)		7					
10	Peel Strength (剥离强度)				3			
11	Wrenching Strength (扭力强度试验)					3		
12	Thermal Shock (冷热冲击)			5				
13	Humidity Life (耐湿性)			6				
14	Solder ability (可焊性)						2	
15	Salt Spray (盐雾)							2
16	Reflow Soldering Heat Resistance (焊锡耐热性)						3	
17	IR-reflow (回流焊)	2	2	2	2	2		
	Number of Samples Required (所需样本数目)	5						

9. SOLDERING 焊接：

9.1. Wave soldering (波峰焊) : DIP Suggestions solder temperature at 260°C(500°F)

max.5 seconds . DIP 型推荐焊接焊锡温度为 260°C (500°F) 最多 5 秒

9.2. Hand soldering (手焊) : Use a soldering iron of 30 watts controlled at 350°C

approximately 5 seconds. while applying solder.

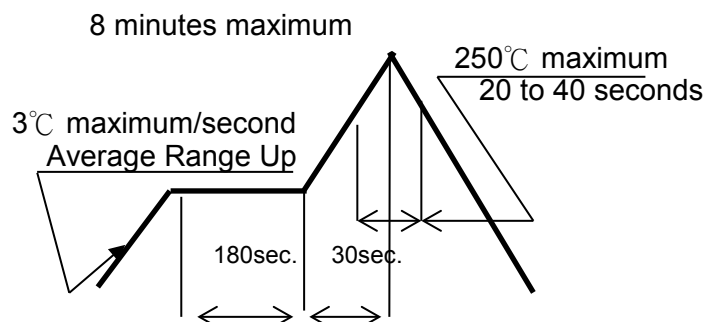
使用 30W 烙铁控制温度在 350°C,焊接时长约 5 秒

9.3. Reflow soldering profile (回流焊) :When the maximum temperature of the reflow furnace is 260 °C and the temperature is 260 °c. 10 seconds MAX. (reference) SMT 型回流炉最高温度为 260°C , 温度为 260°C 时, 最长时间不超过 10 秒 (如图)

260°C maximum (Peak Temperature)



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(Preheat Temperature 预热温度: 150~200°C Maximum.)

Temperature Condition Graph. 温度状态图

(Temperature on Board Pattern Side)

Requirement 要求: No physical damaged or plastic melting.: 无物理损伤或塑料熔化

Rev.	Description	Date revised	Created/ Revised by
01	New Release	2021/07/30	Josephine Lin