

## MICRO USB 5Pin CONNECTOR

### 1. 适用范围 SCOPE

本技术规范适用于 MICRO USB 5Pin(3.097A\*-005-\*R0)电连接器, 其中包括产品性能, 品质要求和测试方法

The specification covers performance, tests and quality requirements for MICRO USB 5Pin CONNECTOR(3.097A\*-005-7R0).

### 2. 参考文件 APPLICABLE DOCUMENT

以下参考文件有 MIL-STD-202, EIA-364, UL-498, JIS C0020

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.

MIL-STD-202, EIA-364, JIS C0020.

### 3. 产品构成/材料 CONSTRUCTION AND MATERIAL

#### 3.1 线端构成/材料

塑胶主体 HOUSING : 热塑性塑胶 (THERMOPLASTIC), PA9T;

塑胶后盖 COVER : 热塑性塑胶 (THERMOPLASTIC), LCP E130I;

接触端子 CONTACT : 铜合金 (COPPER ALLOY), C5210

外壳 SHELL : 不锈钢 (STEEL), SUS301;

卡钩 LACTH : 不锈钢 (STEEL), SUS301;

#### 3.2 板端构成/材料

塑胶主体 HOUSING : 热塑性塑胶 (THERMOPLASTIC), PA10T R630;

接触端子 CONTACT : 镍铜 (NICKEL AND COPPER), C7025-TM02;

铁片 PLATE : 不锈钢 (STEEL), SUS 304;

外壳 SHELL : 不锈钢 (STEEL), SUS 304;

### 4. 额定值 Ratings

A. 使用温度 Operating temperature: -30°C to 60°C

使用湿度 Operating Humidity Range: 20%~85%

B. 额定电流 Current Rating: Power (Pin1and5): 1.8A max /PIN.  
Signal (Pin 2, 3 and 4): 1A max/PIN.

C. 额定电压 Voltage Rating: 30VAC

D. 保存温度 Storage Temperature Range: -25°C to 85°C

保存湿度 Storage Humidity Range: 30%~70%

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## 5. 产品性能及测试要求和规范 PERFORMANCE, TEST REQUIREMENT AND PROCEDURES

### SUMMARY

项目 ITEM	规格 STANDARD	测试规范 PROCEDURES
<b>电性能 ELECTRICAL</b>		
接触阻抗(低功率) Termination resistance (Low Level)	初值最大 30mΩ 30mΩ Max Initial 终值最大 40mΩ 40mΩ Max. Final.	公母端连接器配合后使用最大 20 mV 电压, 开路最大 100mA 电流进行测试. 参考 EIA 364-23B Mated connector, 20 mV Max. Open circuit at 100 mA Max. EIA 364-23B
耐电压 Dielectric withstanding Voltage	不能有电火花产生, 漏电流不能超过 2mA. No creeping discharge or flash over shall occur, Current leakage: 2mA Max.	使用交流 100V, 保持 1 分钟, 测试两相连间之端子. 参考 EIA 364-20B 100V AC 1 minute. Test between adjacent circuits and contact. EIA 364-20B
绝缘阻抗 Insulation Resistance	至少 500 MΩ 500 MΩ Min	使用直流电 100V, 保持 1 分钟, 测试两相连间端子. 参考 EIA 364-21C 100V DC for 1 minute. Test between adjacent circuits and contact. EIA 364-21C
<b>机械性能 MECHANICAL</b>		
可焊性 Solderability.	焊锡表面浸渍超过 95%. Wet solder coverage: 95%Min	焊锡温度: 240°C±5°C 焊锡时间: 3 秒 参考 MIL-STD-202G 方法 208H Solderability temperature: 240°C±5°C. Immersion duration: 3 seconds. MIL-STD-202G Method 208H
振动 Vibration	不得有超过 1 微秒的漏电流产生, 低功率接触阻抗初始不得大于 30mΩ, 振动后再测试低功率接触阻抗不得大于 40mΩ No discontinuities 1 microsecond Or longer duration. Terminal Resistance: 30mΩ Max Initial and 40mΩ Max Final	公母端连接器配合, 1 分钟内振动频率为 10-55-10 Hz, 振幅 1.5mm, 三个相互垂直的方向进行振动, 共 2 小时, 测试过程加载直流电 5mA. 参考 MIL-STD-202, 方法 201, 条件 A Subject mated connectors to 10-55-10 Hz traversed in 1 minute at 1.52 mm amplitude 2 hours each of 3 mutually perpendicular planes, passing DC 5mA current during the test. MIL-STD-202, Method 201, Condition A

<p>机械冲击 Physical shock</p>	<p>不得有超过 1 微秒的漏电流产生, 低功率接触阻抗初始不得大于 30mΩ, 冲击后再测试低功率接触阻抗不得大于 40mΩ. No discontinuities 1 microsecond or longer duration. Terminal Resistance: 30 mΩ Max Initial 40mΩ Max Final</p>	<p>加速度: 50g 波形: 半正弦冲击波 时间: 11 毫秒 冲击次数: 正反三个相互垂直方向和冲击 3 次, 共 18 次, 测试过程加载直流电 100mA. 参考 MIL-STD-202, 方法 213B, 条件 A Accelerated Velocity: 490 m/s<sup>2</sup> (50g) waveform: half-sine shock pulse Duration: 11msec. Number of Drops: 3 drops each to normal and reversed directions of X, Y and Z axes, totally 18 drops, passing DC 100mA current during the test. MIL-STD-202, Method 213B, Condition A</p>
<p>插拔耐久性 Durability</p>	<p>低功率接触阻抗初始不得大于 30mΩ, 插拔耐久后再测试低功率接触阻抗不得大于 40mΩ. Terminal Resistance: 30mΩ Max Initial 40mΩ Max Final</p>	<p>用手插拔公母连接器 10000 次, 速度为每分种 10 次. 参考 EIA-364-09C Manually mate and unmate samples for 10000 cycles at a speed of 10 times/min. EIA-364-09C</p>
<p>插拔力 Mating and Unmating Force</p>	<p>插入力: 20 N 最大 Mating Force: 20N Max 拔出力: 8-20N 耐久 10000 次后拔出力: 8-20N Unmating Force: 8-20N After 10000 Cycles: 8N Min</p>	<p>插拔公母连接器, 速度 25±3mm/分钟 Measure the force required to mate and unmate the connector. Speed: 25±3mm/minute.</p>

**环境性能 ENVIRONMENTAL**

<p>热冲击 Thermal shock</p>	<p>低功率接触阻抗初始不得大于 30mΩ, 热冲击后再测试低功率接触阻抗不得大于 40mΩ.</p> <p>Terminal Resistance 30 mΩ Max Initial 40mΩ Max Final</p>	<p>公母配合后测试, 温度从-55℃到 85℃, 共 5 次循环.</p> <p>参考 MIL-STD-202G 条件 A 或 EIA 364-32C 条件 I</p> <p>Subject mated samples to 5 cycles between -55℃ and 85℃</p> <p>MIL-STD-202G, Condition A EIA 364-32C Condition I</p>
<p>盐雾腐蚀 Salt Spray</p>	<p>无明显的腐蚀产生, 低功率接触阻抗初始不得大于 30mΩ, 盐雾腐蚀后再测试低功率接触阻抗不得大于 40mΩ.</p> <p>No evident corrosion. Terminal Resistance 30mΩMax Initial 40mΩ Max Final</p>	<p>公母配合, 测试温度 35℃±2℃, 盐雾浓度 5+1%, 时间 48 小时. 参考 EIA 364-26B, 条件 B</p> <p>Subject mated samples. 35℃±2℃, 5+1% Salt condition, 48 hours</p> <p>EIA 364-26B condition B</p>
<p>耐湿性能 Humidity</p>	<p>低功率接触阻抗初始不得大于 30mΩ, 耐温测试后再测试低功率接触阻抗不得大于 40mΩ. 绝缘阻抗不得小于 100MΩ, 并且耐电压性能完好.</p> <p>Terminal Resistance: 30 mΩ Max Initial 40mΩ Max Final</p> <p>Insulation Resistance:100MΩ Min Dielectric Strength: test ok</p>	<p>公母配合, 测试条件如下:</p> <p>温度: 60℃ 相对湿度: 90~95% 时间: 96 小时.</p> <p>参考 MIL-STD-202 方法 103B, 条件 B</p> <p>Mated connectors shall be subjected to the following condition.</p> <p>Temperature: 60℃ Relative humidity: 90~95% Duration: 96h</p> <p>MIL-STD-202      Method      103B Condition B</p>

耐低温性能 Cold Resistance	<p>低功率接触阻抗初始不得大于 30mΩ, 低温测试后再测试低功率接触阻抗不得大于 40mΩ, 绝缘阻抗不得小于 100MΩ</p> <p>Terminal Resistance: 30 mΩ Max Initial 40mΩ Max Final</p> <p>Insulation Resistance: 100MΩ Min.</p>	<p>公母配合后测试, 条件如下: -25°C±2°C, 保持 2 小时, 然后在标况下放置 2 小时再测试其他项目. 参考 JIS C0020</p> <p>Mated connector. -25°C±2°C, 2 Hours.</p> <p>After test, recondition under standard atmospheric condition for 2 hours. JIS C0020</p>
温度寿命 Temperature Life	<p>低功率接触阻抗初始不得大于 30mΩ, 高温测试后再测试低功率接触阻抗不得大于 40mΩ</p> <p>Terminal Resistance: 30 mΩ Max Initial 40mΩ Max Final</p>	<p>公母配合后测试, 在 85°C 高温下保持 96 小时. 参考 EIA 364-17B, 条件 A</p> <p>Subject mated samples to temperature life at 85°C for 96 hours. EIA 364-17B Condition A</p>

## 6. 产品认定和测试群组 PRPRODUCT QUALIFICATION AND TEST SEQUENCE

Test of Examination	测试群组 Test Group									
	A	B	C	D	E	F	G	H	I	J
	测试序列 Test Sequence									
产品检查 Examination of product	1,5	1,7	1,9	1,3	1,6	1,5	1,3	1,5	1,7	1,7
接触阻抗(低功率) Termination resistance (Low Level)	2,4		2,8		2,5	2,4		2,4	2,5	2,5
绝缘阻抗 Insulation resistance		2,5							3,6	3,6
耐电压 Dielectric Withstanding Voltage		3,6								
可焊性 Solderability.				2						
振动 Vibration					3					
机械冲击 Physical shock					4					
插拔耐久性 Durability			5							
插入力 Mating Force			3,6							

拔出力 Unmating Force			4,7							
热冲击 Thermal shock						3				
盐雾腐蚀 Salt Spray								3		
耐湿性能 Humidity	3	4								
耐低温性能 Cold Resistance									4	
温度寿命 Temperature Life										4

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A	N/A	RELEASED	2015.05.15	