

1代板端3焊角规格书

(A-IPEX1-1.25A)

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1. SCOPE (范围)

This product specification defines the product performance and the test methods to ascertain the performance of the RF coaxial connector, which is designed and manufactured by TREASURE ADVANCE ENTERPRISES LIMITED.

本产品规格书规定了由设计生产的 RF 同轴连接器产品的特性及测试方法.

2. REFERENCE DOCUMENTS (参考文件)

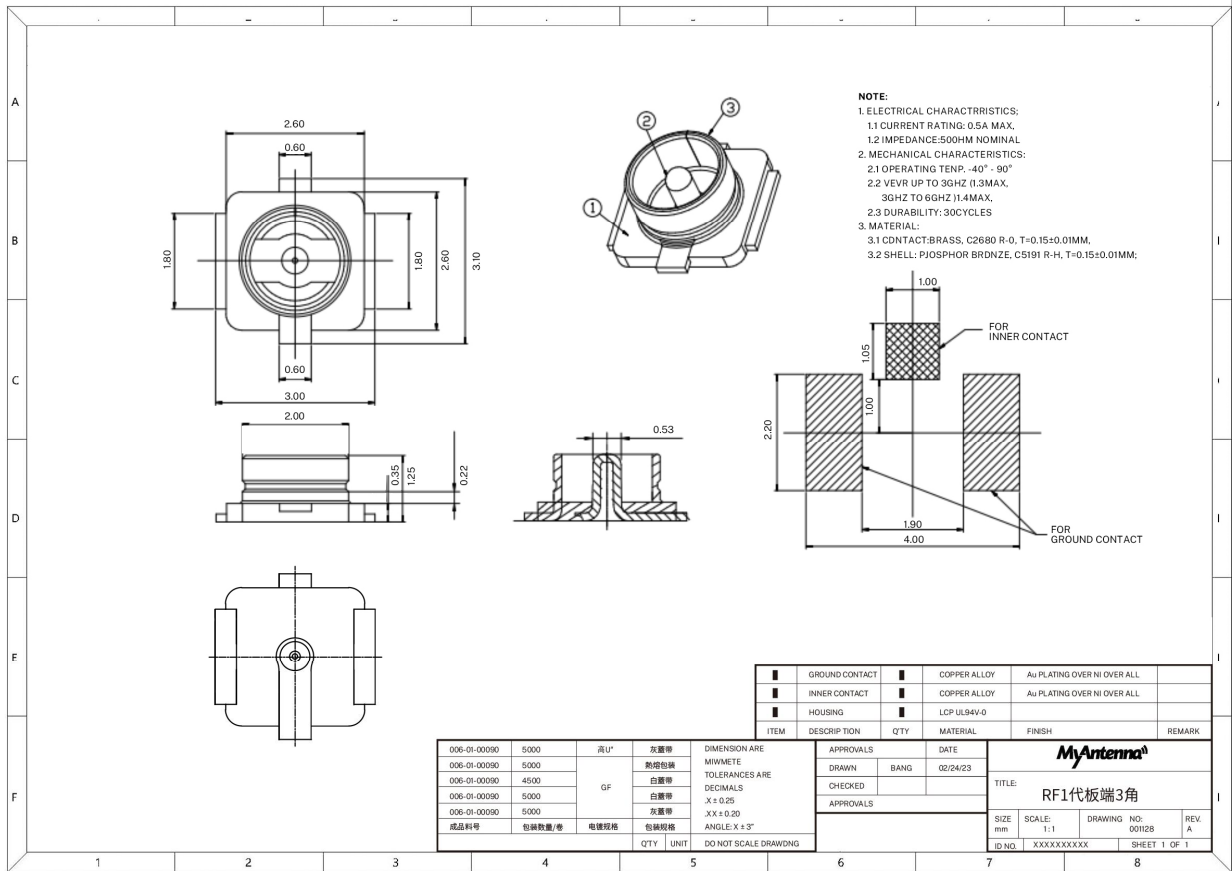
MIL-STD-1344A	Test method for electrical connector (电子连接器测试方法)
MIL-STD-202F	Test method for electrical components (电子零件测试方法)
EIA364	Test method for electrical components (电子零件测试方法)
JIS C 0051	Test method for electrical components (电子零件测试方法)
IEC-512-3	IEC standard for current carrying capacity tests (IEC电流测试标准)
QQ-N-290A	Specification for nickel plating (镀镍规格)
UL498	UL standard for safety of attachment plug and receptacle (UL安规要求标准)
EN/ISO5961	Determination of total lead & cadmium content (总铅和总镉含量测定)
EN1122	Determination of total lead & cadmium content (总铅和总镉含量测定)
EN13346	Determination of heavy metals content (重金属含量测定)
EPA3052	Determination of total lead & cadmium content (总铅和总镉含量测定)

3. FEATURE & DIMENSIONS (特征及尺寸)

3.1. PRODUCT DIMENSION (产品尺寸)

These connectors shall have the dimensions is shown in drawing.

本产品的相关尺寸参见产品图面。



3.2. BILL OF MATERIAL (材料清单)

Harmful material control follow the requirement of ROHS. The bill of material and product number is described in customer drawing.

有害物质控制符合RoSH指令要求。本产品使用的材料参见产品客户图面。

3.3. MECHANICAL & ELECTRICAL CHARACTERISTIC (机械及电气特性)

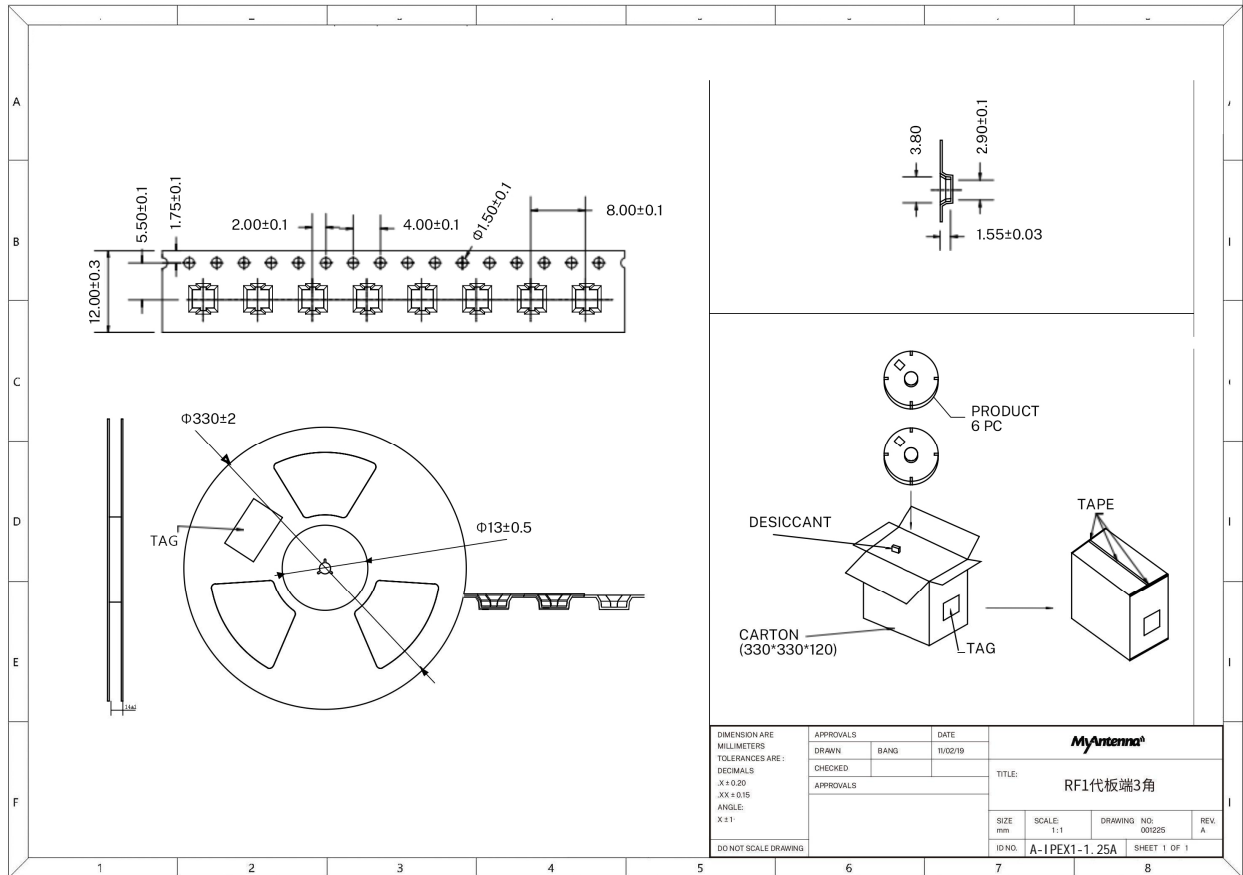
The connector shall have the mechanical and electrical performance is described in customer drawing.

本产品的机械及电气特性参见产品客户图面。

3.4. PACKAGING (包装)

Products shall be packaged according to requirements specified in purchase order for safe delivery. Products required tray or carrier tape should meet the proper specification per purchase order. Connector container and the packaging specification is shown in package drawing.

产品包装可依客户指定要求。本产品采用编带包装，具体规格参见客户包装图面。



3.5. MARKING (标识)

Manufacturer's name, industry recognized logo, or customer approved marks.

标示制造商的名称，标识或客户认可的相关标志。

Note: (注)

The green cresset is the mark of lead free processing.

绿色灯号是无铅制程标识。

3.6 TRANSPORTATION (运输)

Any vehicle can be adopted for the transportation, but moisture-proof and no mechanical damage.

可采用任何运输工具运输，勿淋湿及机械性损伤。

3.7 STORAGE (存贮)

Temperature: $-10^{\circ}\text{C}\sim+60^{\circ}\text{C}$, Relative humidity: $\leq 80\%$, Not to storage in corrosive environments

A re-qualification test shall be conducted immediately while the storage duration exceed 6 months.

湿度: $-10^{\circ}\text{C}\sim+40^{\circ}\text{C}$;相对湿度: $\leq 80\%$; 勿贮存于腐蚀环境内。

贮存期超过6个月后需重新进行品质确认。

4. PERFORMANCE AND TEST DESCRIPTION (性能及测试)

4.1. REQUIREMENT (要求)

Product is designed to meet electrical, mechanical, and environmental performance requirements specified in Table I.

本产品设计符合附表一所列的机械, 电气及环境要求.

4.2. TEST CONDITION (测试条件)

Unless otherwise specified, all tests shall be performed at ambient environmental conditions.

除非特别注明, 所有测试在室温条件下完成;

4.3. SAMPLE SELECTION (样品选择)

Test samples shall be selected at random from current production. No test samples shall be reused. Samples are pre-conditioned with 10cycles of durability. Each group shall be containing 5 test samples.

测试样品从现生产的产品中随机抽取, 所有测试过的样品不得重复使用. 样品已预先插拔5次, 每组测

试有5个样品;

4.4. TEST SEQUENCE (测试顺序)

Products qualification test sequence as shown in Table II.

产品品质测试顺序见附表二.

5. QUALITY ASSURANCE PROVISIONS (品质保证)

TREASURE ADVANCE is responsible for the quality of the part as it is delivered to customer. failing lots will be return or other supplier corrective action.

对交付客户的所有产品品质负责, 不良批次的产品退回或由供应商做矫正;

Table I: Performance Requirements

Items	Requirements	Test Methods
1. Examination of Product 产品检测	Product shall be conforming to the requirements of applicable product drawing. 产品必须满足相关文件的规定	Visually, dimensions and functionally inspected per applicable product drawing. 目视, 尺寸及功能依产品图面检查。
2. Contact Resistance (Low Level) 接触阻抗	20 mΩ Max. initial 20 mΩ 最大初态	Subject mated contacts assembled in housing to closed circuit of 10 mA max. at open circuit voltage of 20 mV max. 所述固定在外壳里的端子联结到一个封闭回路中 测试: 电流 1mA, 电压 20 mV max.。
3. Insulation Resistance 绝缘阻抗	500 MΩ Min. 500 MΩ 最小	Measure by applying test potential between the adjacent contacts, and between the contacts and ground in the mated connector. MIL-STD-202, Method 302, Condition B (100 V DC±10%). 测试产品端子间以及端子与接地间的电阻, 适用: MIL-STD-202,方法 302, 条件 B (100V DC±10%)。
4. Dielectric Strength 耐电压	Connector must withstand test potential of 100 VAC for 1 minute. Current leakage must be 0.5 mA max.. 样品必须承受测试电 100VAC, 时间一分钟, 漏电流不大于 2 mA.	Measure by applying test potential between the adjacent contacts, and between the contacts and ground in the mated connector. MIL-STD-202, Method 301. 测试产品端子间以及端子与接地间的电压, 适用: MIL-STD-202, 方法 301。
5. Unmating Force 拨出力	Total unmate force: Initial 5N min. after 30 cycles 3N min. 综合拨出力: 初始 5N 以上, 插拔 30 次以后 3N 以上	Unmate the receptacle at a speed 25±3mm/m by the push-on/pull-off machine 以每分钟 25±3mm 速度在插拔力测试机进行插拔。
6. Durability (Repeated Mating/Unmating) 耐久力	Contact Resistance: 30mΩ Max. after testing 完成插拔测试后接触阻抗不大于 30 mΩ	Mate and unmate connector for 30 cycle . 同配合产品进行 30 次插拔。

<p>7. Crimp strength 引张强度</p>	<p>10N min 10N 以上</p>	<p>Pull the cable as shown at a speed 25±3mm/m by tensile strength machine. 通过引张试验设备以每分钟 25±3mm/m 的速度拉线材部分。</p>
<p>8. Vibration Sinusoidal Low Frequency 低频正弦振动</p>	<p>No electrical discontinuity greater than 1 µsec (s) shall occur. Contact resistance:30 mΩ max. 不允许出现超过 1 µsec (s) 的瞬间断开, 接触阻抗: 30 mΩ 最大;</p>	<p>Subject mated connector to 10-55-10 Hz traversed in 1 minute at 1.5 mm amplitude 2 hours each of 3 mutually perpendicular plane, 10 mA applied MIL-STD-202, Method 201. 对测试样品, 在频率变化每分钟从 10-55-10 Hz , 振幅 1.5 mm 条件下, 在互相垂直的三个面上, 每个面 2 小时下测量, 电流 10 mA; 适用: MIL-STD-202, 方法 201。</p>
<p>9. Thermal shock 热冲击</p>	<p>No damage, Contact Resistance (Low Level) (Final) 30 mΩ max. 产品无损坏, 接触阻抗: 30 mΩ 最大</p>	<p>Temperature range from -55°C to +85°C .Start from -55°C,after 30 min. change to +85°C;change time is no more than 30 seconds. Total 5 cycles. MIL-STD-202, Method 107D,condition A. 温度变化范围: -55°C~ +85°C; 从 -55°C 开始, 30 分钟后换到+85°C; 转换时间不超过 30 秒; 共 5 个循环。适用: MIL-STD-202, 方法 107D, 条件 A。</p>
<p>10 Humidity 恒温恒湿</p>	<p>No damage, Contact Resistance (Low Level) (Final) 30 mΩ max.. Dielectric Strength should be OK, Insulation Resistance should be 200 MΩ min. 产品无损坏, 接触阻抗: 30mΩ 最大; 耐电压测试 OK, 绝缘阻抗 100MΩ 最小;</p>	<p>Temperature :40±2°C 96 hours. Relative Humidity : 90-95%; Duration :96 Hours. MIL-STD-202, Method 103, 温度: 40±2°C 96 小时; 相对湿度 : 90-95% ; 时间 : 96 小时 ; MIL-STD-202, 方法 103。</p>

<p>11. Salt Spray 盐雾</p>	<p>Contact Resistance (Low Level) (Final)100 mΩmax. 接触阻抗(末态) 100 mΩmax.</p>	<p>5±1% salt concentration 48±4 hours 35±2°C MIL-STD-202, Method 101 Condition B. 盐水浓度 (重量比) 5±1%, 时间 48 小时, 温度 35±2°C; MIL-STD-202 , 方法 101, 条件 B.</p>
<p>12. High temperature 高温</p>	<p>Contact resistance: 100 mΩmax. 接触阻抗 100 mΩmax.</p>	<p>Subject product to 85±2°C for 96 hours continuously. MIL-STD-202, Method 108. 产品置于 85±2°C 连续 96 小时 , 适用 MIL-STD-202, 方法 108.</p>
<p>13. VSWR 驻波比</p>	<p>在 0.1GHz~3GHz 之间, 驻波比最大 1.3;在 3GHz~6GHz 之间, 驻波比最大 1.5. 1.3max. at 0.1GHz~3GHz; 1.5max. at 3GHz~6GHz</p>	<p>以网络分析仪测量驻波比, 分析频率: 100MHZ~6GHZ Measure the VSWR as shown by the network, analyzer Frequency: 100MHz~6GHz</p>

Table II: Product Qualification Test Sequence

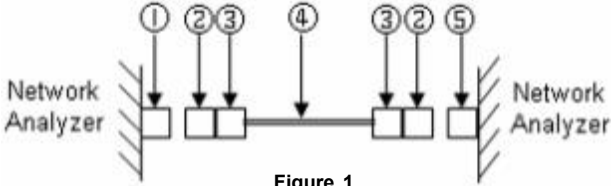
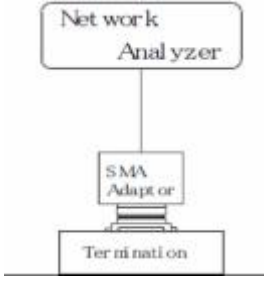
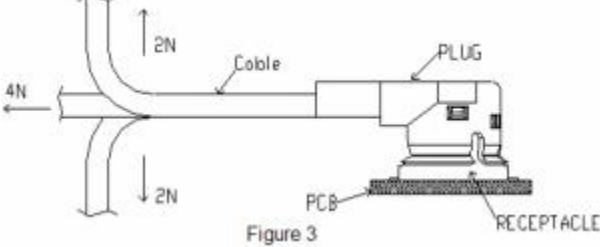
Test Description	Test Group										
	A	B	C	D	E	F	G	H	I	J	K
1. Examination of Product 产品检查	1,3	1,3	1,5	1,5	1,5	1,5	1,9	1,9	1.4	1.7	1.3
2. Contact Resistance (Low Level) 接触阻抗	2		2,4	2,4	2,4	2,4	2.8	2.8	2.5	2.5	
3. Insulation Resistance 绝缘阻抗							3.6	3.6		3.6	
4. Dielectric Strength 耐电压							4.7	4.7			
5. Unmating Force 拨出力		2									
6. Durability 耐久力			3								
7. Crimp strength 引张强度				3							2
8. Vibration Sinusoidal Low Frequency 低频正弦振动					3						
9. Thermal shock 热冲击						3	5				
10. Humidity 恒温恒湿								5			
11. Salt Spray 盐雾									3		
12. High temperature 高温										4	
13. VSWR 驻波比											1

盐水喷雾 Salt spray									3					
温度寿命 Temperature life										4				
热冲击 Thermal shock							4							
耐湿性 Humidity								4						
*可焊性 *Solder ability													2	
*耐焊接热 *Resistance to reflowsolder heat														2
每组样品数 Specimen size per test group	5	5	5	5	5	5	5	5	5	5	5	5	5	5

备注 Note: 标有“*”检测项目仅针对板端 (* The test item only for receptacles)

5. 测试方法 TEST METHOD




项目 Item	测试项目 Test Description	测试方法 Test Method	执行标准 Perform Standard
1	外观检查 Examination of Visual	依据品质检查计划外观检查 Visual according to applicable quality inspection plan.	EIA/ECA-364-18B
2	低电平接触电阻 Low level contact resistance	公母端连接器配合后使用最大 20mV 开路电压，以最大 10mA 电流进行测试。 Mated connectors: apply the level condition of 20mV maximum for the open circuit voltage and 10mA test current maximum.	MIL-STD-202H Method 307
3	绝缘电阻 Insulation resistance	使用直流 100V, 保持 1 分钟, 测试端子与外壳间。 100V DC is applied for one minute between Inner contact and Ground contact.	MIL-STD-202H Method 302
4	耐电压 Dielectric withstanding voltage	使用交流 200V, 保持 1 分钟, 测试端子与外壳间。 200V AC is applied for one minute between Inner contact and Ground contact.	MIL-STD-202H Method 301
5	拔去力 Unmating force	沿着插入相反方向，以每分钟 25±3mm 的速度将样品(公头)从母座中拔出。 Along the reverse direction of mating, un-mating the plug connectors from the receptacle connector at a speed of 25 ± 3mm per minute.	EIA-364-13E
6	耐久性 Durability	将母座焊接在板上，用公座以每分钟 25±3mm 的速度插拔 30 次。 Solder the receptacle connector to the test board and mating and un-mating the receptacle connector and the plug for 30 cycles at a speed of 25 ± 3mm per minute.	产品规范 Product Specification

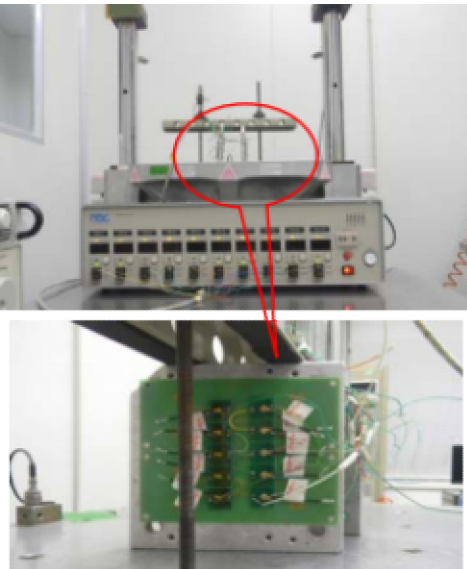

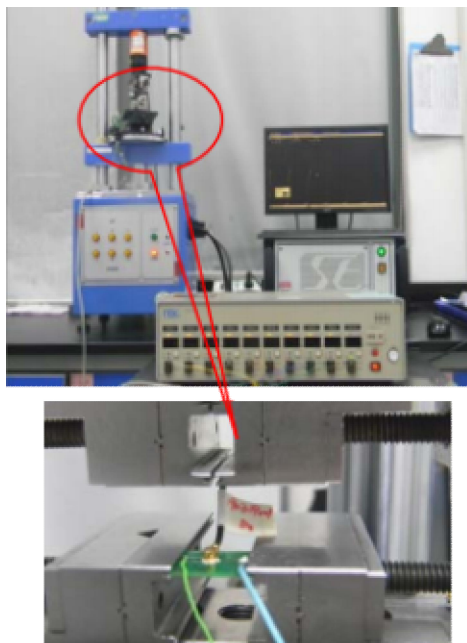
7	驻波比 V.S.W.R	<p>线端: 频率: DC0.1~6GHz; 测试方法如 Figure 1 所示: Plug + Cable: Frequency: DC0.1~6GHz; Method of measurement as shown in Figure 1:</p>  <p>Figure 1</p> <p>①: Port 1 ; ②: SMA; ③: 7.000AC-000-1RB(Plug +Cable) ④: Cable ; ⑤: Port 4</p>	产品规范 Product Specification
8	引张强度 Crimp strength	<p>板端: 频率: DC0.1~6GHz; 测试方法如 Figure 2 所示: Receptacle: Frequency: DC0.1~6GHz; Method of measurement as shown in Figure 2:</p>  <p>Figure 2</p>	产品规范 Product Specification
9	线材保持力 Cable retention force	<p>施力于 Figure 3 方向, 测试期间工作电流 100mADC, 检查瞬间电流中断。</p>  <p>Figure 3</p> <p>Apply force on the cable as shown in Figure 3, During the testing, run 100mADC to check electrical discontinuity.</p>	产品规范 Product Specification
10	振动 Vibration	<p>配对的连接器固定在振动仪上, 15 分钟内振动频率为 10-100-10 Hz, 振幅 1.5mm 或加速度 59 m/s²(6G), 三个相互垂直的方向进行振动, 各方向振动 5 次(共 75 分钟), 测试过程中加载 100mA 直流电。</p> <p>Mated connectors are fixed on the vibration tester's 3 mutually perpendicular planes. Vibration frequency traverse from 10Hz to 100Hz, then return to 10Hz in 15 minute at 1.5mm amplitude or 59m/s²(6G) peak. Test duration for each plane is 5 cycles (approx 75min). 100mA DC shall be carried to all contacts during the test with an electrical discontinuity monitor.</p>	EIA-364-28F EIA-364-46C



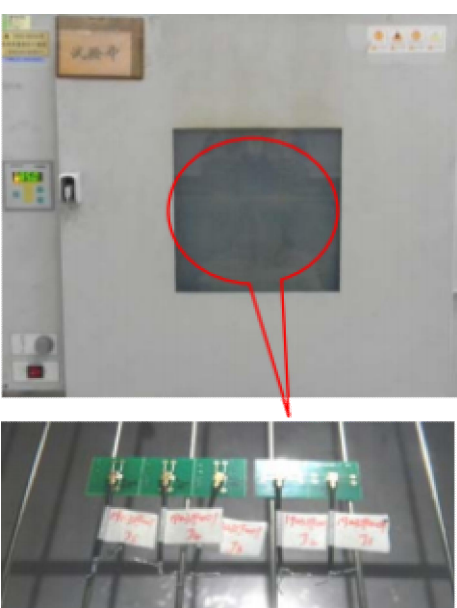
11	机械冲击 Mechanical shock	<p>配对的连接器固定在冲击试验机上，以 75gn 的加速度、半正弦冲击波的波形和 11 毫秒的冲击时间进行测试。冲击次数：正反三个相互垂直方向各冲击 3 次，共 18 次。测试过程中加载 100mA 直流电。</p> <p>Mated connectors are fixed on the shock tester's 3 mutually perpendicular planes. Dropping 3 times each to normal and reversed 3 mutually perpendicular planes (total of 18 times). The test condition: acceleration 75gn max., duration of the plus: 11 ms .100mA DC shall be carried to all contacts during the test with an electrical discontinuity monitor.</p>	EIA-364-27C EIA-364-46C
12	盐水喷雾 Salt spray	<p>配对的连接器暴露在以下条件测试48小时。条件如下： 1)温度： 35±2℃ 2)盐水浓度： 5±1%（重量比）</p> <p>The mated connectors shall be exposed to the following condition for 48 hours:</p> <p>1) temperature: 35±2℃ 2) salt water density by weight : 5±1%</p>	MIL-STD-202H Method 101 Condition B
13	热冲击 Thermal shock	<p>配对的连接器暴露在以下条件测试5个循环。一个循环条件如下： 1)-40℃ 测试30分钟； 2)+5~+35℃最大测试5分钟； 3)+90℃ 测试30分钟； 4)+5~+35℃最大测试5分钟。</p> <p>The mated connectors shall be exposed to the following condition for 5 cycles.</p> <p>1 cycle: 1) -40℃ for 30 minutes 2) +5~+35℃ for 5 minutes Max.; 3) +90℃ for 30 minutes; 4) +5~+35℃ for 5minutes Max.</p>	EIA-364-32G
14	温度寿命 Temperature life	<p>配对的连接器暴露在温度为 90℃±2℃的条件下测试 96 小时。</p> <p>The mated connectors are exposed to the temperature of 90℃±2℃ for 96 hours.</p>	EIA-364-17C
15	耐湿性 Humidity	<p>配对的连接器暴露在温度为 40±2℃，相对湿度为 90~95%的条件下测试 96 小时。</p> <p>The mated connectors are exposed to the temperature of 40±2℃,90~95% relative humidity for 96 hours.</p>	MIL-STD-202H Method 103 Condition B
16	*可焊性 *Solder ability	<p>将焊锡部位浸入温度为 245℃±5℃的锡炉中保持 10±0.5 秒。</p> <p>Immerse the solder part of the connectors in the solder bath at 245℃±5℃ for 10±0.5 seconds.</p>	产品规范 Product Specification

17	*耐焊接热 *Resistance to reflow solder heat	<p>将连接器放置在 PCB 上, 依以下条件过回焊炉 2 次:</p> <p>1.预热: 130~200°C, 60~120秒;</p> <p>2.回流: 230°C 以上, 40~50秒;</p> <p>3.峰值温度: 260+0/-5°C。</p> <p>Place the connector on the P.C. Board and apply the following condition to the reflow oven 2times:</p> <p>1.Preheat: 130~200°C for 60~120 seconds;</p> <p>2.Reflow: Over 230°C for 40~50seconds;</p> <p>3.Peak temperature: 260+0/-5°C.</p>	产品规范 Product Specification
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6. 测试设备 TEST EQUIPMENT

测试项目 Test Description	测试设备 Test equipments	
低电平接触电阻 Low level contact resistance		<p>测试设备: 毫欧姆表 型号: 16502 最近校准日期: 2022.05.27 下次校准日期: 2023.05.26</p> <p>Test equipment used: Milliohm meter Model: 16502 Date of latest calibration: 2022.05.27 Date of next calibration: 2023.05.26</p>
绝缘电阻 耐电压 Insulation resistance Dielectric withstanding voltage		<p>测试设备: 电气安规分析仪 型号: 19032 最近校准日期: 2022.03.21 下次校准日期: 2023.03.20</p> <p>Test equipment used: Electrical safety analyzer Model: 19032 Date of latest calibration: 2022.03.21 Date of next calibration: 2023.03.20</p>
振动 Vibration		<p>测试设备: 电磁式高频振动仪/瞬断仪 型号: EM-600F3K-40N120 / NM-11A 最近校准日期: 2022.03.21 / 2022.05.25 下次校准日期: 2023.03.20/2023.05.24</p> <p>Test equipment used: Electromagnetism high frequency vibration tester / Electrical discontinuity monitor Model: EM-600F3K-40N120 /NM-11A Date of latest calibration: 2022.03.21/2022.05.25 Date of next calibration: 2023.03.20/2023.05.24</p>

<p>机械冲击 Mechanical shock</p>		<p>测试设备：冲击弹跳试验机/瞬断仪 型 号： DP-201-450 / NM-11A 最近校准日期： 2021.11.27/ 2022.05.25下 次校准日期： 2023.11.26 / 2023.05.24</p> <p>Test equipment used: Shock bump tester / Electrical discontinuity monitor Model: DP-201-450 / NM-11A Date of latest calibration: 2021.11.27/ 2022.05.25 Date of next calibration: 2022.11.26 / 2023.05.24</p>
<p>引张强度 拔去力 Crimp strength Unmating force</p>		<p>测试设备：插拔力试验机 型 号： 1220S 最近校准日期： 2022.05.27 下次校准日期： 2023.05.26</p> <p>Test equipment used: Insert / withdrawal force tester Model: 1220S Date of latest calibration: 2022.05.27 Date of next calibration: 2023.05.26</p>
<p>线材保持力 Cable retention force</p>		<p>测试设备：插拔力试验机//瞬断仪 型 号： 1220S / NM-11A 最近校准日期： 2021.05.27/ 2022.05.25 下次校准日期： 2022.05.26/2023.05.24</p> <p>Test equipment used: Insert / withdrawal force tester / Electrical discontinuity monitor Model: 1220S / NM-11A Date of latest calibration: 2021.05.27/ 2022.05.25 Date of next calibration: 2022.05.26/ 2023.05.24</p>

<p>热冲击 Thermal shock</p>		<p>测试设备：冷热冲击试验机 型号：H-TS-501 最近校准日期： 2022.05.27 下次校准日期： 2023.05.26</p> <hr/> <p>Test equipment used: Thermal shock tester Model: H-TS-501 Date of latest calibration: 2022.05.27 Date of next calibration: 2023.05.26</p>
<p>耐湿性 Humidity</p>		<p>测试设备：恒温恒湿试验机 型号：KTHA-715TBS 最近校准日期： 2022.05.27 下次校准日期： 2023.05.26</p> <hr/> <p>Test equipment used: temperature & humidity tester Model: KTHA-715TBS Date of latest calibration: 2022.05.27 Date of next calibration: 2023.05.26</p>
<p>温度寿命 Temperature life</p>		<p>测试设备：烤箱 型号：DGG-9203A 最近校准日期： 2022.03.19 下次校准日期： 2023.03.18</p> <hr/> <p>Test equipment used: Oven Model: DGG-9203A Date of latest calibration: 2022.3.19 Date of next calibration: 2023.03.18</p>

<p>驻波比 V.S.W.R</p>	   <p>PLUG+CABLE RECEPTACLE</p>	<p>测试设备：网络分析仪 型 号： N5230C 最近校准日期： 2022.03.22 下次校准日期： 2023.03.21</p> <hr/> <p>Test equipment used: Network analyzer Model: N5230C Date of latest calibration: 2022.03.22 Date of next calibration: 2023.03.21</p>
<p>盐水喷雾 Salt spray</p>		<p>测试设备：盐水喷雾 型 号： H-SST-60 最近校准日期： 2022.05.27 下次校准日期： 2023.05.26</p> <hr/> <p>Test equipment used: Salt spray Model: H-SST-60 Date of latest calibration: 2022.05.27 Date of next calibration: 2023.05.26</p>
<p>可焊性 Solder ability</p>		<p>测试设备：锡炉 型 号： TXD-S030 最近校准日期： 2022.05.27 下次校准日期： 2023.05.26</p> <hr/> <p>Test equipment used: Tin Stove Model: TXD-S030 Date of latest calibration: 2022.05.27 Date of next calibration: 2023.05.26</p>
<p>*耐焊接热 *Resistance to reflowsolder heat</p>		<p>测试设备：回流焊炉 型 号： FL-VP1060 最近校准日期： 2022.03.19 下次校准日期： 2023.03.18</p> <hr/> <p>Test equipment used: Reflow Solder Oven Model: FL-VP1060 Date of latest calibration: 2022.03.19 Date of next calibration: 2023.03.18</p>

7. 测试结果 TEST RESULT

GROUP A:

测试项目 Test Description	要求 Requirement	测试结果 Test result						评定 Rate
		Sample	1	2	3	4	5	
1.外观检查 Examination of visual	符合产品要求 Meet the requirements of product	Result	OK	OK	OK	OK	OK	合格 Pass
2.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: 2mAMax.	Visual	No flash over	No flash over	No flash over	No flash over	No flash over	合格 Pass
		Current leakage	0.007 mA	0.009 mA	0.009 mA	0.009 mA	0.009 mA	
3.外观检查 Examination of visual	符合产品要求 Meet the requirements of product	Result	OK	OK	OK	OK	OK	合格 Pass

GROUP B:

测试项目 Test Description	要求 Requirement	测试结果 Test result									评定 Rate
		Sample	1	2	3	4	5	Max.	Min.	Avg.	
1.外观检查 Examination of visual	符合产品要求 Meet the requirements of product	Result	OK	OK	OK	OK	OK	/	/	/	合格 Pass
2.拔去力 Unmating force	综合拔去力: 初回拔去力最小 8N。 中心导体: 初回拔去力最小 0.15N。	Total unmate force	12.82	16.81	12.82	13.25	13.64	16.81	12.82	13.87	合格 Pass
	Total un-mate force: Initial 8N Min. Inner contact Un-mate force: Initial 0.15N Min.	Inner contact unmate force	1.31	1.60	1.32	0.82	0.94	1.60	0.82	1.20	合格 Pass
	30 次插拔后, 综合拔去力: 终回拔去力最小 5N。 中心导体: 终回拔去力最小 0.1N。 After 30 cycles durability test	Total un-mate force	10.45	9.64	5.91	7.23	10.35	10.45	5.91	8.72	合格 Pass
	Total un-mate force: Final 5N Min. Inner contact Un-mate force : Final 0.1N Min.	Inner contact unmate force	0.42	0.63	0.65	0.25	0.41	0.65	0.25	0.47	合格 Pass
3.外观检查 Examination of visual	符合产品要求 Meet the requirements of product	Result	OK	OK	OK	OK	OK	/	/	/	合格 Pass

GROUP C:

测试项目 Test Description	要求 Requirement	测试结果 Test result									评定 Rate
		Sample	1	2	3	4	5	Max.	Min.	Avg.	
1.外观检查 Examination of visual	符合产品要求 Meet the requirements of product	Result	OK	OK	OK	OK	OK	/	/	/	合格 Pass
2.低电平接触电阻 Low level contact resistance	中心导体: 初值最大 20mΩ 外部导体: 初值最大 10mΩ Inner contact: 20mΩ Max. Initial Ground contact: 10mΩ Max. Initial	Inner contact	8.4	7.4	7.2	8.7	8.3	8.7	7.2	8.0	合格 Pass
		Ground contact	4.5	4.3	4.8	4.9	4.5	4.9	4.3	4.6	
3.耐久性 Durability	30 次插拔后无损坏 After 30 cycles durability test, No damage.	Result	No damage	No damage	No damage	No damage	No damage	/	/	/	合格 Pass
4. 低电平接触电阻 Low level contact resistance	中心导体: 终值最大 25mΩ 外部导体: 终值最大 15mΩ Inner contact: 25mΩ Max. Final Ground contact: 15mΩ Max. Final	Inner contact	10.2	7.1	9.7	8.5	8.5	10.2	7.1	8.8	合格 Pass
		Ground contact	3.8	3.6	3.1	3.3	3.5	3.8	3.1	3.5	
5.外观检查 Examination of visual	符合产品要求 Meet the requirements of product	Result	OK	OK	OK	OK	OK	/	/	/	合格 Pass

GROUP D:

测试项目 Test Description	要求 Requirement	测试结果 Test result									评定 Rate
		Sample	1	2	3	4	5	Max.	Min.	Avg.	
1.外观检查 Examination of visual	符合产品要求 Meet the requirements of product	Result	OK	OK	OK	OK	OK	/	/	/	合格 Pass
2. 低电平接触电阻 Low level contact resistance	中心导体: 初值最大 20mΩ 外部导体: 初值最大 10mΩ Inner contact: 20mΩ Max. Initial Ground contact: 10mΩ Max. Initial	Inner contact	9.0	10.1	8.9	8.1	9.1	10.1	8.1	9.0	合格 Pass
		Ground contact	3.3	4.4	1.6	5.1	4.8	5.1	1.6	3.8	
3.线材保持力 Cable retention force	瞬断时间小于 1 微妙 Electrical discontinuity < 1μs.	Visual	No damage	No damage	No damage	No damage	No damage	/	/	/	合格 Pass
		Discontinuity	<1 μs	<1 μs	<1 μs	<1 μs	<1 μs	/	/	/	
4. 低电平接触电阻 Low level contact resistance	中心导体: 终值最大 25mΩ 外部导体: 终值最大 15mΩ Inner contact: 25mΩ Max. Final Ground contact: 15mΩ Max. Final	Inner contact	10.0	9.0	9.6	9.8	9.0	10.0	9.0	9.5	合格 Pass
		Ground contact	3.5	3.6	2.0	2.7	3.7	3.7	2.0	3.1	
5.外观检查 Examination of visual	符合产品要求 Meet the requirements of product	Result	OK	OK	OK	OK	OK	/	/	/	合格 Pass

GROUP E:

测试项目 Test Description	要求 Requirement	测试结果 Test result									评定 Rate
		Sample	1	2	3	4	5	Max.	Min.	Avg.	
1.外观检查 Examination of visual	符合产品要求 Meet the requirements of product	Result	OK	OK	OK	OK	OK	/	/	/	合格 Pass
2. 低电平接触电阻 Low level contact resistance	中心导体: 初值最大 20mΩ 外部导体: 初值最大 10mΩ Inner contact: 20mΩ Max. Initial Ground contact: 10mΩ Max. Initial	Inner contact	8.3	8.5	7.7	8.2	8.5	8.5	7.7	8.2	合格 Pass
		Ground contact	3.1	4.1	4.2	3.6	4.4	4.4	3.1	3.9	
3.振动 Vibration	瞬断时间小于 1 微妙 Electrical discontinuity < 1μs.	Visual	No damage	No damage	No damage	No damage	No damage	/	/	/	合格 Pass
		Discontinuity	<1 μs	<1 μs	<1 μs	<1 μs	<1 μs	/	/	/	
4. 低电平接触电阻 Low level contact resistance	中心导体: 终值最大 25mΩ 外部导体: 终值最大 15mΩ Inner contact: 25mΩ Max. Final Ground contact: 15mΩ Max. Final	Inner contact	8.6	8.6	10.3	8.9	9.3	10.3	8.6	9.1	合格 Pass
		Ground contact	3.4	3.9	3.6	3.3	2.7	3.9	2.7	3.4	
5.外观检查 Examination of visual	符合产品要求 Meet the requirements of product	Result	OK	OK	OK	OK	OK	/	/	/	合格 Pass

GROUP F:

测试项目 Test Description	要求 Requirement	测试结果 Test result									评定 Rate
		Sample	1	2	3	4	5	Max.	Min.	Avg.	
1.外观检查 Examination of visual	符合产品要求 Meet the requirements of product	Result	OK	OK	OK	OK	OK	/	/	/	合格 Pass
2. 低电平接触电阻 Low level contact resistance	中心导体: 初值最大 20mΩ 外部导体: 初值最大 10mΩ Inner contact: 20mΩ Max. Initial Ground contact: 10mΩ Max. Initial	Inner contact	9.5	8.7	7.3	8.8	9.0	9.5	7.3	8.7	合格 Pass
		Ground contact	3.7	3.1	3.2	2.3	4.8	4.8	2.3	3.4	
3.机械冲击 Mechanical shock	瞬断时间小于 1 微妙 Electrical discontinuity < 1μs.	Visual	No damage	No damage	No damage	No damage	No damage	/	/	/	合格 Pass
		Discontinuity	<1 μs	<1 μs	<1 μs	<1 μs	<1 μs	/	/	/	
4. 低电平接触电阻 Low level contact resistance	中心导体: 终值最大 25mΩ 外部导体: 终值最大 15mΩ Inner contact: 25mΩ Max. Final Ground contact: 15mΩ Max. Final	Inner contact	10.7	9.9	8.5	8.9	9.4	10.7	8.5	9.5	合格 Pass
		Ground contact	2.8	3.7	3.6	3.1	3.0	3.7	2.8	3.2	

5.外观检查 Examination of visual	符合产品要求 Meet the requirements of product	Result	OK	OK	OK	OK	OK	OK	/	/	/	合格 Pass
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GROUP G:

测试项目 Test Description	要求 Requirement	测试结果 Test result									评定 Rate	
		Sample	1	2	3	4	5	Max.	Min.	Avg.		
1.外观检查 Examination of visual	符合产品要求 Meet the requirements of product	Result	OK	OK	OK	OK	OK	OK	/	/	/	合格 Pass
2. 低电平接触电阻 Low level contact resistance	中心导体: 初值最大 20mΩ 外部导体: 初值最大 10mΩ Inner contact: 20mΩ Max. Initial Ground contact: 10mΩ Max. Initial	Inner contact	8.6	7.9	10.0	7.5	8.2	10.0	7.5	8.4	合格 Pass	
		Ground contact	3.7	3.5	4.5	3.1	3.2	4.5	3.1	3.7		
3.绝缘电阻 Insulation resistance	最小 500 MΩ 500MΩ Min. Initial	Result	> 50 GΩ	> 50 GΩ	> 50 GΩ	> 50 GΩ	> 50 GΩ	/	/	/	合格 Pass	
4.热冲击 Thermal shock	无损坏 No damage	Result	No damage	No damage	No damage	No damage	No damage	/	/	/	合格 Pass	
5. 低电平接触电阻 Low level contact resistance	中心导体: 终值最大 25mΩ 外部导体: 终值最大 15mΩ Inner contact: 25mΩ Max. Final Ground contact: 15mΩ Max. Final	Inner contact	9.3	8.1	9.2	8.6	8.5	9.3	8.1	8.7	合格 Pass	
		Ground contact	4.4	3.9	4.2	3.6	2.4	4.4	2.4	3.7		
6.绝缘电阻 Insulation resistance	最小 100 MΩ 100MΩ Min. Final	Result	> 50 GΩ	> 50 GΩ	> 50 GΩ	> 50 GΩ	> 50 GΩ	/	/	/	合格 Pass	
7.外观检查 Examination of visual	符合产品要求 Meet the requirements of product	Result	OK	OK	OK	OK	OK	OK	/	/	/	合格 Pass

GROUP H:

测试项目 Test Description	要求 Requirement	测试结果 Test result									评定 Rate	
		Sample	1	2	3	4	5	Max.	Min.	Avg.		
1.外观检查 Examination of visual	符合产品要求 Meet the requirements of product	Result	OK	OK	OK	OK	OK	OK	/	/	/	合格 Pass
2. 低电平接触电阻 Low level contact resistance	中心导体: 初值最大 20mΩ 外部导体: 初值最大 10mΩ Inner contact: 20mΩ Max. Initial Ground contact: 10mΩ Max. Initial	Inner contact	8.3	9.1	10.2	8.8	8.2	10.2	8.2	8.9	合格 Pass	
		Ground contact	3.5	3.6	4.1	4.1	3.5	4.1	3.5	3.8		

3.绝缘电阻 Insulation resistance	最小 500 MΩ 500MΩ Min. Initial	Result	> 50 GΩ	> 50 GΩ	> 50 GΩ	> 50 GΩ	> 50 GΩ	/	/	/	合格 Pass
4.耐湿性 Humidity	无损坏 No damage	Result	No damage	No damage	No damage	No damage	No damage	/	/	/	合格 Pass
5. 低电平接触电阻 Low level contact resistance	中心导体: 终值最大 25mΩ 外部导体: 终值最大 15mΩ Inner contact: 25mΩ Max. Final Ground contact: 15mΩ Max. Final	Inner contact	8.8	10.3	8.8	9.5	8.3	10.3	8.3	9.1	合格 Pass
		Ground contact	3.7	4.3	3.0	2.4	3.6	4.3	2.4	3.4	
6.绝缘电阻 Insulation resistance	最小 100 MΩ 100MΩ Min. Final	Result	> 50 GΩ	> 50 GΩ	> 50 GΩ	> 50 GΩ	> 50 GΩ	/	/	/	合格 Pass
7.外观检查 Examination of visual	符合产品要求 Meet the requirements of product	Result	OK	OK	OK	OK	OK	/	/	/	合格 Pass

GROUP I:

测试项目 Test Description	要求 Requirement	测试结果 Test result									评定 Rate
		Sample	1	2	3	4	5	Max.	Min.	Avg.	
1.外观检查 Examination of visual	符合产品要求 Meet the requirements of product	Result	OK	OK	OK	OK	OK	/	/	/	合格 Pass
2. 低电平接触电阻 Low level contact resistance	中心导体: 初值最大 20mΩ 外部导体: 初值最大 10mΩ Inner contact: 20mΩ Max. Initial Ground contact: 10mΩ Max. Initial	Inner contact	7.4	8.8	8.4	8.9	9.2	9.2	7.4	8.5	合格 Pass
		Ground contact	4.1	3.7	3.4	2.5	3.8	4.1	2.5	3.5	
3.盐水喷雾 Salt spray	镀金区域无明显腐蚀 No evident corrosion in Au plating area	Result	No corrosion	No corrosion	No corrosion	No corrosion	No corrosion	/	/	/	合格 Pass
4. 低电平接触电阻 Low level contact resistance	中心导体: 终值最大 25mΩ 外部导体: 终值最大 15mΩ Inner contact: 25mΩ Max. Final Ground contact: 15mΩ Max. Final	Inner contact	10.7	11.3	7.6	9.9	9.5	11.3	7.6	9.8	合格 Pass
		Ground contact	3.7	4.6	2.7	3.4	3.6	4.6	2.7	3.6	
5.外观检查 Examination of visual	符合产品要求 Meet the requirements of product	Result	OK	OK	OK	OK	OK	/	/	/	合格 Pass

GROUP J:

测试项目 Test Description	要求 Requirement	测试结果 Test result									评定 Rate
		Sample	1	2	3	4	5	Max.	Min.	Avg.	

1.外观检查 Examination of visual	符合产品要求 Meet the requirements of product	Result	OK	OK	OK	OK	OK	OK	/	/	/	合格 Pass
2. 低电平接触电阻 Low level contact resistance	中心导体: 初值最大 20mΩ 外部导体: 初值最大 10mΩ Inner contact: 20mΩ Max. Initial Ground contact: 10mΩ Max. Initial	Inner contact	8.7	8.0	8.3	8.5	7.7	8.7	7.7	8.2	合格 Pass	
		Ground contact	3.8	3.3	3.5	2.7	3.6	3.8	2.7	3.4		
3.绝缘电阻 Insulation resistance	最小 500 MΩ 500MΩ Min. Initial	Result	> 50 GΩ	> 50 GΩ	> 50 GΩ	> 50 GΩ	> 50 GΩ	> 50 GΩ	/	/	/	合格 Pass
4.温度寿命 Temperature life	无损坏 No damage	Result	No damage	No damage	No damage	No damage	No damage	No damage	/	/	/	合格 Pass
5. 低电平接触电阻 Low level contact resistance	中心导体: 终值最大 25mΩ 外部导体: 终值最大 15mΩ Inner contact: 25mΩ Max. Final Ground contact: 15mΩ Max. Final	Inner contact	8.7	8.7	11.6	10.1	9.9	11.6	8.7	9.8	合格 Pass	
		Ground contact	4.3	3.1	4.7	3.5	3.4	4.7	3.1	3.8		
6.绝缘电阻 Insulation resistance	最小 100 MΩ 100MΩ Min. Final	Result	> 50 GΩ	> 50 GΩ	> 50 GΩ	> 50 GΩ	> 50 GΩ	> 50 GΩ	/	/	/	合格 Pass
7.外观检查 Examination of visual	符合产品要求 Meet the requirements of product	Result	OK	OK	OK	OK	OK	OK	/	/	/	合格 Pass

GROUP K:

测试项目 Test Description	要求 Requirement	测试结果 Test result									评定 Rate	
		Sample	1	2	3	4	5	Max.	Min.	Avg.		
1.外观检查 Examination of visual	符合产品要求 Meet the requirements of product	Result	OK	OK	OK	OK	OK	OK	/	/	/	合格 Pass
2.引张强度 Crimp strength	最小 25N (单位: 牛顿) 25N Min. (Unit: N)	Result	30.81	27.60	29.10	28.72	28.30	30.81	27.60	28.91	合格 Pass	

GROUP L:

测试项目 Test Description	要求 Requirement	测试结果 Test result									评定 Rate	
		Sample	1	2	3	4	5	Max.	Min.	Avg.		
1.外观检查 Examination of visual	符合产品要求 Meet the requirements of product	Result	OK	OK	OK	OK	OK	OK	/	/	/	合格 Pass
2.驻波比 V.S.W.R	线端: (0.1~3) GHz: 最大 1.3; (3~6) GHz: 最大 1.5。	(0.1~3) GHz	1.089	1.049	1.072	1.056	1.062	1.089	1.049	1.066	合格 Pass	

	Plug + Cable : 1.3Max. at (0.1~3)GHz; 1.5Max. at (3~6)GHz.	(3~6) GHz	1.294	1.209	1.219	1.210	1.176	1.294	1.176	1.222	合格 Pass
	板端: (0.1~3) GHz: 最大 1.3; (3~6) GHz: 最大 1.4。	(0.1~3) GHz	1.206	1.210	1.216	1.234	1.221	1.234	1.206	1.217	
	Receptacle : 1.3Max. at (0.1~3)GHz; 1.4Max. at (3~6)GHz.	(3~6) GHz	1.314	1.307	1.298	1.305	1.294	1.314	1.294	1.304	
3.外观检查 Examination of visual	符合产品要求 Meet the requirements of product	Result	OK	OK	OK	OK	OK	/	/	/	合格 Pass

GROUP M:

测试项目 Test Description	要求 Requirement	测试结果 Test result					评定 Rate	
		Sample	1	2	3	4		5
1.产品检查 Examination of product	符合产品要求 Meet the requirements of product	Result	OK	OK	OK	OK	OK	合格 Pass
2. *可焊性 *Solder ability	焊锡部位表面粘锡面积至 少占总面积的 95%。 Wet solder coverage: 95% Min.	Result	>95%	>95%	>95%	>95%	>95%	合格 Pass
3.产品检查 Examination of product	符合产品要求 Meet the requirements of product	Result	OK	OK	OK	OK	OK	合格 Pass

GROUP N:

测试项目 Test Description	要求 Requirement	测试结果 Test result					评定 Rate	
		Sample	1	2	3	4		5
1.产品检查 Examination of product	符合产品要求 Meet the requirements of product	Result	OK	OK	OK	OK	OK	合格 Pass
2. *耐焊接热 *Resistance to reflowsolder heat	无损坏 No damage.	Result	No damage	No damage	No damage	No damage	No damage	合格 Pass
3.产品检查 Examination of product	符合产品要求 Meet the requirements of product	Result	OK	OK	OK	OK	OK	合格 Pass

8. 其它说明 OTHER EXPLANATION

Max.、Min.和 Avg.分别表示最大值、最小值和平均值。

Max., Min. and Avg. indicate the maximum, minimum and average.

--- 报告内容结束 ---

--- The end ---

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product name	SUMIKASUPER LCP POWDER
Available grade	E4000, E5000, E6000, E7000A, S4000, S6000, S7000, B4000, B6000, B7000, E6000HF, S6000HF
Chemical name	Aromatic polyester resin
General use	Electronic parts
Manufacturer	Sumitomo Chemical Co., Ltd. ELECTRONIC MATERIALS DIV. 27-1, Shinkawa 2-chome, Chuo-ku, Tokyo 104-8260 Japan TEL +81-3-5543-5845 FAX +81-3-5543-5939
Emergency Contact	Sumitomo Chemical Co., Ltd. ELECTRONIC MATERIALS DIV. TEL +81-3-5543-5845 FAX +81-3-5543-5939

2. COMPOSITION / INFORMATION ON INGREDIENTS

Components	CAS No.	wt. %	OSHA PEL	ACGIH TLV
Aromatic polyester resin	60088-52-0	>99.5%	N/E	N/E

(N/E Not Established)

3. HAZARDS IDENTIFICATION

Emergency overview

White ~ yellowish white powder and the properties of this material have not been fully investigated. Avoid contact with skin and eyes. Avoid release to the environment.

Potential Health Effects

Inhalation	Not known.
Eye contact	Not known. May cause scratch the surface of eyes.
Skin contact	Not known. Prolonged or repeated contact may cause skin irritation.
Ingestion	Not known.
Chronic/ Carcinogenicity	Not known.

4. FIRST AID MEASURES

First aid Procedures

Inhalation	Remove to fresh air. Give the victim rest. Get immediate medical attention. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Never give anything by mouth to an unconscious person.
Eye contact	Rinse immediately with plenty of water for at least 15

	minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Remove contact lenses if easily. Get medical attention if irritation develops or persists.
Skin contact	Remove contaminated clothing. Wash skin with soap and water immediately. Get medical attention if irritation develops or persists.
Ingestion	Immediately induce vomiting and rinse mouth with plenty of water. Get medical attention. Never give anything by mouth and induce vomiting in unconscious or confused persons.
Medical treatment	Symptomatic treatment is advised.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	Use carbon dioxide or dry chemical for small fires, universal foam or water spray for large fires.
Hazardous combustion products	May generate CO when heated to burning.
Fire-fighting instructions	Wear self-contained breathing apparatus. Dike area to prevent runoff from entering sewer or water sources. Evacuate personnel to a safe area. Keep personnel removed and upwind of fire.
Special protective equipment for fire-fighters	Wear self-contained breathing apparatus. Wear suitable protective clothing. See also Section 8.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	For personal protection (see section 8) when cleaning spill.
Environmental precautions	Avoid runoff into storm sewers and ditches, which lead to waterways.
Methods for cleaning up	In case of spill, vacuum or sweep up material and place in a disposal container immediately. Reduce airborne dust and prevent scattering by moistening with water. Scrub contaminated area with detergent and water. Dispose of as waste following local regulations.

7. HANDLING AND STORAGE

Handling	Use with adequate personal protections. Avoid contact with eyes and skin. Avoid inhaling dust or gases from heated material. Wash thoroughly after handling. Keep away from all ignition sources. Ground and bond
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containers when transferring material.

Storage Store in a cool, well-ventilated place away from sources of heat, sources of ignition and direct sunlight. Keep container tightly closed in a well-ventilated place. Keep only in the original container.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure limits	<p>OSHA PEL (2003)</p> <p>Particles Not Otherwise Specified [PNOS]</p> <p>5 mg/m³ (Respirable fraction)</p> <p>15 mg/m³ (Total dust)</p> <p>ACGIH TLV (2003)</p> <p>Particles Not Otherwise Specified [PNOS]</p> <p>3 mg/m³ (respirable particles)</p> <p>10 mg/m³ (inhalable particles)</p>
Engineering controls	Use local ventilation at places where vapour can be released into the workplace air. Always clean protective equipment and workplace. Keep container tightly closed.
Personal protective equipment	
Respiratory protection	A respirator is recommended for prolonged handling or exposure.
Hand protection	Wear chemical resistant gloves.
Eye protection	Wear safety goggles or equivalent eye protection.
Skin protection	Wear appropriate protective clothing to avoid skin contact.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	White ~ yellowish white powder
Odor	Odorless
Physical state	Solid
pH	Not applicable.
Boiling point	Not applicable.
Melting point	280-390°C
Flash point	Not available.
Explosive properties	Not available.
Oxidising properties	Not available.
Vapor pressure	Not available.
Relative density	ca.1.4
Solubility in water	Insoluble
Solubility in other solvents	Not available.
Partition coefficient (octanol / water)	Not available.
Viscosity	Not available.
Vapor density	Not available.
Decomposing point	>500°C

10. STABILITY AND REACTIVITY

Conditions to avoid	Direct sunlight, source of heat, open flames, sparks and high temperature
Materials to avoid	No information available.
Hazardous decomposition products	May generate CO when heated to burning.
Hazardous polymerization	Will not occur.

11. TOXICOLOGICAL INFORMATION

Eye effects	Mildly irritating. (rabbits)
Skin effects	Non-irritating. (rabbits)

12. ECOLOGICAL INFORMATION

No data available.

13. DISPOSAL CONSIDERATIONS

Waste must be disposed in accordance with federal, state and local environmental control regulations. Empty containers must be handed with care due to material residue.

14. TRANSPORT INFORMATION (not meant to be all-inclusive)

UN Class	Not classified.
UN number	None

15. REGULATORY INFORMATION (not meant to be all-inclusive)

U.S.A	All components are listed on TSCA Inventory.
Europe Union	All components are listed on EINECS.

16. OTHER INFORMATION

MSDS Status	Newly prepared.
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This information only concerns the above-mentioned product and does not need to be valid if used with other(s) or in any process. The information is, to our best present knowledge, correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

(This is the last page of this MSDS.)

Component - Plastics

E249884

SUMITOMO CHEMICAL CO LTD

ELECTRONIC MATERIALS DIV, TOKYO SUMITOMO TWIN BLDG, 27-1 SHINKAWA 2-CHOME, CHUO-KU TOKYO 104-8260 JP

E6808UHF(i)

Liquid Crystal Polymer (LCP), "SUMIKASUPER", furnished as pellets

Color	Min Thk (mm)	Flame Class	HWM	HAI	RTI Elec	RTI Imp	RTI Str
ALL	0.3	V-0	-	-	130	130	130

Comparative Tracking Index (CTI): -

Inclined Plane Tracking (IPT): -

Dielectric Strength (kV/mm): -

Volume Resistivity (10^X ohm-cm) : -

High-Voltage Arc Tracking Rate (HVTR): -

High Volt, Low Current Arc Resis (D495): -

Dimensional Stability (%): -

(i) - Virgin and regrind up to 50% by weight incl. have the same flammability characteristics. No other properties have been evaluated.

ANSI/UL 94 small-scale test data does not pertain to building materials, furnishings and related contents. ANSI/UL 94 small-scale test data is intended solely for determining the flammability of plastic materials used in the components and parts of end-product devices and appliances, where the acceptability of the combination is determined by UL.

Report Date: 2004-02-11

Last Revised: 2012-04-13

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**IEC and ISO Test Methods**

Test Name	Test Method	Units	Thickness Tested (mm)	Value
Flammability	IEC 60695-11-10	Class (color)	0.3	V-0 (ALL)
Glow-Wire Flammability (GWF)	IEC 60695-2-12	C	-	-
Glow-Wire Ignition (GWIT)	IEC 60695-2-13	C	-	-
IEC Comparative Tracking Index	IEC 60112	Volts (Max)	-	-
IEC Ball Pressure	IEC 60695-10-2	C	-	-
ISO Heat Deflection (1.80 MPa)	ISO 75-2	C	-	-
ISO Tensile Strength	ISO 527-2	MPa	-	-
ISO Flexural Strength	ISO 178	MPa	-	-
ISO Tensile Impact	ISO 8256	kJ/m ²	-	-
ISO Izod Impact	ISO 180	kJ/m ²	-	-
ISO Charpy Impact	ISO 179-2	kJ/m ²	-	-

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The materials covered in this database are incomplete in certain constructional features or restricted in performance capabilities and are intended for use as components of complete equipment submitted for investigation rather than for direct separate installation in the field. THE FINAL ACCEPTANCE OF THE COMPONENT IS DEPENDENT UPON ITS INSTALLATION AND USE IN COMPLETE PRODUCTS SUBMITTED TO UNDERWRITERS LABORATORIES.

MSDS物质安全数据表

一、物品与厂商资料

物品名称：黄铜带H65
供货商名称：江西云泰铜业有限公司
供货商地址：江西省贵溪市罗河工业园区
联络电话：0701-3339133 传真电话：0701-3339028

二、成分辨识资料

产品成分：含量%
铜Cu：63.5~68.5%，锌Zn：余量
铅Pb=0.01%、铁Fe=0.05%
有害物质成分（成分百分比）：无

三、危害辨识数据

最 重 要 危 害 效 应	健康危害效应：不可食用，易碰伤身体
	环境影响：无
	物理性及化学性危害：金属性固体，易碰伤身体
	特殊危害：目前没有发现有特殊危害
物品危害分类：无	

四、急救措施

不同暴露途径之急救方法： ·吸入：不适用。 ·皮肤接触：无影响，及时洗手。薄铜片可能会引起手部割伤，所以尽量戴手套防护。 ·眼睛接触：铜粉进入眼睛，用水冲洗，不可手揉。 ·食入：立即就医
最重要症状及危害效应： 丢弃会对环境、河流、海洋造成影响
对急救人员之防护：按正常程序处理
对医师之提示：按正常程序处理

五、灭火措施

适用灭火剂：水、二氧化碳、干粉灭火器
灭火时可能遭遇之特殊危害：无
特殊灭火程序：消防人员应配防高湿服，适用灭火剂灭火。
消防人员之特殊防护设备：按正常程序处理

六、泄露处理方法

个人应注意事项：掉地上可能会扎破脚。

环境注意事项：不适用。

清理方法：尽可能回收利用

七、安全处置与储存方法

处置：

- 1、避免接触高温热源，防止氧化及金属燃烧。
- 2、移动时，注意包装，避免日光直晒及其他油污。

储存：阴凉干燥通风处保存，温度 $\leq 40^{\circ}\text{C}$ ，相对湿度 $\leq 70\% \text{RH}$

八、暴露预防措施

工程控制：不适用。

控制参数：

- 八小时日时量平均容许浓度/短时间时量平均容许浓度/最高容许浓度：不适用
- 生物指标：不适用。

个人防护设备：不适用。

- 呼吸防护：不适用。
- 手部防护：不适用。防铜带割伤，尽量戴手套操作。
- 眼睛防护：不适用。
- 皮肤和身体防护：避免接触。

卫生设施：不适用

九、物理及化学性质

物理状态：	固体
形态：	长行卷料或板料
颜色：	具有黄色光泽的金属
气味：	无
熔点：	905 $^{\circ}\text{C}$
密度：	8.53g/cm ³
热膨胀系数：(20 $^{\circ}\text{C}$) $\times 10^{-6}/^{\circ}\text{C}$	20.3
热导率：(20 $^{\circ}\text{C}$) W/(m·k)	117
电阻率：(20 $^{\circ}\text{C}$) $\mu\Omega\text{m}$	0.0639
导电率：%IACS	27
纵弹性系数：KN/MM ²	103
溶解性：	不溶于水，溶于硝酸、硫酸

十、安定性及反应性

安定性： 很好
特殊状况下可能之危害反应： 燃烧反应。
应避免之状况： 避免高温热源。
应避免之物质： 酸，碱
危害分解物： 铜化合物。

十一、毒性资料

急毒性： 不适用。
局部效应： 不适用。
致敏感性： 不适用。
慢毒性或长期毒性： 不适用。
特殊效应： 不适用。

十二、生态资料

可能之环境影响/环境流布： 丢弃会对环境、河流、海洋造成影响，其氧化物及硫酸盐会对水源造成影响。
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十三、废弃处置方法

废弃处置方法： 可回收再利用。

十四、运送资料

国际运送规定： 普通货物运输
联合国编号：
国内运送规定： 普通运输。
特殊运送方法及注意事项： 做好防潮处理，勿接触水份。

十五：法规资料

适用法规： 普通货物运输相关法规。

十六、其他数据

参考文献	无		
制表单位	名称：江西云泰铜业有限公司		
	地址/电话：江西省贵溪市罗河工业园区 0701-3339026		
制表人	职称：质量管理员	姓名（签章）	陈 聪
制表日期	2022.01.09		



MSDS物质安全数据表

一、物品与厂商资料

物品名称：C5191青铜带
供货商名称：贵溪奥泰铜业有限公司
供货商地址：江西省贵溪市罗河工业园区
联络电话：0701-3339133 传真电话：0701-3339028

二、成分辨识资料

产品成分：含量%
铜：余量
锡：5.5~7.0%、磷0.1~0.2%
有害物质成分（成分百分比）：无

三、危害辨识数据

最 重 要 危 害 效 应	健康危害效应：不可食用
	环境影响：无
	物理性及化学性危害：无
	特殊危害：目前没有发现有特殊危害
物品危害分类：无	

四、急救措施

不同暴露途径之急救方法： · 吸入：不适用。 · 皮肤接触：无影响，及时洗手。 · 眼睛接触：铜粉进入眼睛，用水冲洗，不可手揉。 · 食入：立即就医
最重要症状及危害效应： 丢弃会对环境、河流、海洋造成影响
对急救人员之防护：按正常程序处理
对医师之提示：按正常程序处理

五、灭火措施

适用灭火剂：水、二氧化碳、干粉灭火器
灭火时可能遭遇之特殊危害：无
特殊灭火程序：消防人员应配防高湿服，适用灭火剂灭火。
消防人员之特殊防护设备：按正常程序处理

六、泄露处理方法

个人应注意事项：掉地上可能会扎破脚。薄铜片可能会引起手部割伤，所以尽量戴手套防护。
环境注意事项：不适用。
清理方法：尽可能回收利用

七、安全处置与储存方法

<p>处置：</p> <ol style="list-style-type: none"> 1、避免接触高温热源，防止氧化及金属燃烧。 2、移动时，注意包装，避免日光直晒及其他油污。
<p>储存：阴凉干燥通风处保存</p>

八、暴露预防措施

工程控制：不适用。
<p>控制参数：</p> <ul style="list-style-type: none"> • 八小时时时量平均容许浓度/短时间时量平均容许浓度/最高容许浓度：不适用 • 生物指标：不适用。
<p>个人防护设备：不适用。</p> <ul style="list-style-type: none"> • 呼吸防护：不适用。 • 手部防护：不适用。 • 眼睛防护：不适用。 • 皮肤和身体防护：避免接触。
卫生设施：不适用

九、物理及化学性质

物理状态：	固体
形态：	长行卷料或板料
颜色：	具有青紫色光泽的金属
气味：	无
熔点：	1045℃
密度：	8.83g/cm ³
热膨胀系数：(20℃) ×10 ⁻⁶ /℃	18
热导率：(20℃) W/(m·k)	67
电阻率：(20℃) μΩ m	0.00133
导电率：%IACS	13
纵弹性系数：KN/MM ²	105
溶解性：	不溶于水，溶于硝酸、硫酸

十、安定性及反应性

安定性： 很好
特殊状况下可能之危害反应： 燃烧反应。
应避免之状况： 避免高温热源。
应避免之物质： 酸，碱
危害分解物： 铜化合物。

十一、毒性资料

急毒性： 不适用。
局部效应： 不适用。
致敏感性： 不适用。
慢毒性或长期毒性： 不适用。
特殊效应： 不适用。

十二、生态资料

可能之环境影响/环境流布： 丢弃会对环境、河流、海洋造成影响，其氧化物及硫酸盐会对水源造成影响。
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十三、废弃处置方法

废弃处置方法： 可回收再利用。

十四、运送资料

国际运送规定： 普通货物运输
联合国编号：
国内运送规定： 普通运输, 防潮防雨。
特殊运送方法及注意事项： 无。

十五、法规资料

适用法规： 普通货物运输相关法规。

十六、其他数据

参考文献	无		
制表单位	名称： 贵溪奥泰铜业有限公司		
	地址/电话： 江西省贵溪市罗河工业园区 0701-3339028		
制表人	职称： 质量管理员	姓名（签章）	程翠莲
制表日期	2022. 1. 10		

