

PRODUCT SPECIFICATION (产品规格书)

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| | | | | Sheet : (页次) | 1 OF 11 |

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| | 产品料号 Part No. | 产品型号规格 Description |
|--------------|--------------------|------------------------|
| 包括但不限于右边所列产品 | 3720MXXX022XXXXXX | 0.5BTB-NPin 公座H2.2 |
| | 3720MXXX012XXXXXX | P型0.5BTB-NPin 公座H1.23 |
| | 3720MXXX037XXXXXX | 0.5BTB-NPin 公座H3.7 |
| | 3723-MXXX008XXXXXX | 0.5BTB-NPin 双槽型 公座H3.7 |
| | 3723-MXXX010XXXXXX | 0.5BTB-NPin 双槽型 公座H1.0 |
| | 3723-MXXX013XXXXXX | 0.5BTB-NPin 双槽型 公座H1.3 |
| | 3723-MXXX020XXXXXX | 0.5BTB-NPin 双槽型 公座H2.0 |
| | 3720FXXX013XXXXXX | 0.5BTB-NPin 母座H1.32 |
| | 3720FXXX023XXXXXX | 0.5BTB-NPin 母座H2.3 |
| | 3720FXXX043XXXXXX | 0.5BTB-NPin 母座H4.3 |
| | 3720FXXX018XXXXXX | P型0.5BTB-NPin 母座H1.85 |
| | 3723-FXXX022XXXXXX | 0.5BTB-NPin 双槽型 母座H2.2 |
| | 3723-FXXX030XXXXXX | 0.5BTB-NPin 双槽型 母座H3.0 |
| | 3723-FXXX035XXXXXX | 0.5BTB-NPin 双槽型 母座H3.5 |
| | 3723-FXXX040XXXXXX | 0.5BTB-NPin 双槽型 母座H4.0 |
| | 3723-FXXX045XXXXXX | 0.5BTB-NPin 双槽型 母座H4.5 |

1. SCOPE (适用范围)

This product specification defines the product performance and the test methods to ascertain the performance of the (0.5mm Board To Board) Connector ,which si designed and manufactured by JILN Electronic Co.,Ltd.This product specification is applicable but not only for those part numbers which be shown in the cover page.

本产品规格书规定了由锦凌电子有限公司设计生产的(0.5mm板对板)型连接器,产品的特性及产品的测试方法。本产品规格书适用于但不局限于封面所显示的产品料号

2. REFERENCE DOCUMENTS 参考文件

| | |
|--------------|---|
| MIL-STD-1344 | Test method for electrical connector 电子连接器方法 |
| MIL-STD-202 | Test method for electrical connectors 电子零件测试方法 |
| EIA364 | Test method for electrical connectors 电子零件测试方法 |
| JIS C 0051 | Test method for electrical connectors 电子零件测试方法 |
| MIL-G-45204C | Specification for gold plating 镀金规格 |
| 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 |
| MIL-P-81728A | Specification for tin/lead plating 镀锡规格 |
| MIL-T-10727B | Specification for tin plating 镀锡规格 |
| UL498 | UL standard for safety of attachment plug and receptacle UL安规要求标准 |
| IEC62321 | Determination of total lead &cadmium content 总铅和总镉含量测定 |
| IEC62321 | Determination of total lead &cadmium content 总铅和总镉含量测定 |
| IEC62321 | Determination of heavy metals content 重金属含量测定 |
| IEC62321 | Determination of total lead &cadmium content 总铅和总镉含量测定 |

3. FEATURE & DIMENSIONS 特征及特性

3.1. PRODUCT DIMENSION (产品尺寸)

These connectors shall have the dimensions as shown in drawing.

本产品的相关尺寸参见图面.

3.2. PCB/panel layout (印刷电路板布局)

The recommended PCB layout is shown in drawing.

本产品适用的 PCB layout 参见图面.

3.3. BILL OF MATERIAL (材料清单)

Harmful material controlling follows the requirements of RoHS. The bill of material is described in drawing.

有害物質控制符合RoHS指令要求。本产品使用的材料参见图面。

3.4. MECHANICAL & ELECTRICAL CHARACTERISTIC (机械及电器特性)

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

本产品的机械及电器特性参见下方附表一(测试要求与方法)。

3.5. PACKAGING (包装)

Products shall be packaged according to requirements specified in purchase order for safe delivery, connector container and the packaging method are shown in package specification.

产品可依照客户指定要求包装, 包装材料与包装方式参见产品包装规范。

3.6. RATING CURRENT AND RATING VOLTAGE (额定电流与额定电压)

Rating current is (0.5)A, rating voltage is (50)V DC/AC RMS.

额定电流: (0.5) A, 额定电压 (50) V DC/AC RMS.

3.7. STORAGE AND OPERATING TEMPERATURE (存储与使用温度)

Temperature range:-(40)°C ~ +(105)°C, including terminal temperature rise for rating current. 温度范围: -(40)°C ~ +(105)°C, 包含接触端子的额定电流温升

4. Environmental (环境温度)

4.1.SOLDERABILITY (可焊性)

Connectors meet solder-ability to MIL-STD-202,and shall be free of contaminants.

(产品可焊性符合MIL-STD-202标准规定的相关要求, 表面不得有污染物。)

4.2.INFRARED REFLOW (红外线回流焊)

Each cycle consists of three consecutive

(每个焊接周期包括三个连续阶段, 见附表三)

1. Preheat 预热

Increase in temperature not to exceed 3°C per second.

(温度增加速度不超过 3°C /秒)

2. Soldering (焊接)

Maximum allowable time above reflow temperature of 150°C is 370 seconds. Maximum temperature in this interval is 260°C, duration is 20~40 seconds.

(回流焊温度在150°C以上的时间最长不超过370秒。最高温度260°C时间20~40秒。)

3. Cool Down (冷却)

Cool down shall not exceed 6°C per second.

(冷却速度不超过6°C/秒.)

4.3. RESISTANCE TO SOLDER HEAT (耐焊接热)

WAVE SOLDER (波峰焊接)

Each cycle consists of three consecutive phases.

(每个焊接周期包括三个连续阶段.)

1. Preheat (预热)

The steady temperature of the preheat zone is 90~125°C .

预热区最终温度控制在90~125°C.

2. Soldering (焊接)

To avoid the secondary tin-melting, the temperature on PCB upper surface is 160°C Max. for products with lead, or 200°C Max. for lead-free products. The temperature of the PCB bottom surface shall not be exceed 100°C more than the temperature of the PCB upper surface. The peak temperature is during 230~250°C for products with lead, or 255~265°C for lead-free products. The tin dip time is duration for 3~5 seconds.

(有铅产品板面温度不得超过160°C，无铅产品板面温度不的超过200°C，以防止贴片零件二次熔锡。板面温度与板底的温度温差不得超过100°C。板下温度峰值有铅产品维持在230~250°C，无铅产品控制在260~270°C.浸锡时间控制在3~10秒.)

3. Cool Down (冷却)

Cool down shall not exceed 6°C per second.

(冷却速度不超过每秒6°C)

Note:说明

Device temperature measurements are referenced from the top-center of the package outer surface.

(设备温度量测时以从顶部中间位置测量为准.)

PERFORMANCE AND TEST DESCRIPTION (性能测试)

REQUIREMENT (要求)

Product is designed to meet electrical,mechanical,and environmental performance requirements specified in Table 1

(本产品设计符合附表一所述的机械，电器及环境要求)

TEST CONDITION (测试条件)

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

(除非特别注明，所有测试的室温条件下完成)

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。样品以预先插拔10次，每组测试至少有5个样品.)

5.4. TEST SEQUENCE (测试顺序)

Product qualification test sequence as shown in Table II.

(产品品质测试顺序见附表二)

Table I: Test Requirements and Test Methods

附表一：测试要求和测试方法

| Items (项目) | Requirements (要求) | Test Methods (测试方法) |
|--|--|--|
| 1. Confirmation of Product (产品确认) | Product shall be conforming to the requirements of applicable product drawing 产品必须符合相关产品图面的要求 | Visually dimensions and functionally inspected per applicable product drawing. 依照产品相关图面，检查产品的外观 尺寸及功能 |
| 2. Contact Resistance (接触抗阻) | 30 mΩ Max.Inital 初始状态最大30 mΩ | Subject mated contacts assembled in housing to closed circuit of 100 mA max.20 mV max. 所述固定在外壳里的端子连接到一个封闭回路中 测试：电流100mA max,电压20 mV max. 适用：MIL-STD-202，方法 307。 |
| 3. Insulation Resistance (绝缘阻抗) | 500 MΩ Min 最小 500 MΩ | 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 (500 V DC±10%). 测试产品相邻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 (500V DC±10%) |
| 4. Dielectric Withstanding Strength (耐电压) | Connector must withstand test potential of 200 VAC RMS for 1 minute, current leakage must be 0.3mA Max. 产品必须承受测试电压 200 VAC RMS，时间 1 分钟，漏电流不大于 0.3 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. 测试端子间以及端子与接地间的电压 适用：MIL-STD-202，方法 301。 |

| | | |
|---|--|--|
| <p>5.Durability (Repeated Mating/Un-mating) 耐久性</p> | <p>Contact Resistance:50 mΩ Max.after testing. 测试后接触阻抗最大 50mΩ</p> | <p>Repeat mate and unmated for connector 500 cycles,At a speed of 300 mm/minute 重复进行配合产品500次插拔，以300mm/分钟的速度测试。</p> |
| <p>6.Connector Pin Mating/Un-mating Force 插入力/拔出力</p> | <p>Mating force:(60)gf/Pin Max. Un-mating force:(10)gf/Pin Min. 插入力最大 (60) gf/Pin 拔出力最小 (10) gf/Pin</p> | <p>At a speed of 25±3 mm/minute,apply axial insert the mating part into fully or pull out from the subject product. 以25±3mm/分钟的速度，轴向完全插入对配插件到被测产品中或从被测产品中拔出。</p> |
| <p>7.Contact Retention Force (端子保持力)</p> | <p>(0.20)kgf/Pin Min. 最小 (0.20)kgf/Pin</p> | <p>Apply axial pull out force at a 25±3mm/minute On the contact assembled in the housing. 以25±3mm/分钟的速度施加轴向拉力从塑胶本体上拔出端子。</p> |
| <p>8. Thermal shock (热冲击)</p> | <p>After testing, no damage,Contact Resistance 35 mΩ max.. Dielectric Strength should be OK,Insulation Resistance should be 500 MΩ min. (测试后,产品无损坏，接触阻抗：35 mΩ最大；耐电压测试 OK, 绝缘阻抗 500MΩ最小;)</p> | <p>is no more than 30 seconds. Total 5 cycles. MIL-STD-202, Method 107D, condition A. (温度变化范围： -55℃ ~ +85℃；从 -55℃ 开始，30 分钟后切换到+85℃；转换时间不超过 30 秒；共 10个循环。 适用：MIL-STD-202，方法 107，条件 A.)</p> |
| <p>9. Humidity (恒温恒湿)</p> | <p>After testing, no damage,Contact Resistance 35mΩ max.. Dielectric Strength should be OK,Insulation Resistance should be 500MΩmin. 测试后,产品无损坏，接触阻抗：35 mΩ最大；耐电压测试 OK, 绝缘阻抗 500MΩ最小;</p> | <p>Temperature: 40±2°C. Relative Humidity: 90-95%. Duration: 96 Hours. MIL-STD-202, Method 103, condition B. 温度：40±2°C。 相对湿度：90-95%。 持续时间：96 小时。 适用：MIL-STD-202，方法 103，条件 B。</p> |
| <p>10. Solder ability (可焊性)</p> | <p>giving a magnification of 10 X for any damage such as pinholes, void or rough surface. 样品在测试完成后，在放大倍数为 10 倍的显微镜下，检查外观损坏如：小孔，空焊，外观粗糙度；)</p> | <p>Soldering time: 4 to 6 seconds. Temperature: 260±5°C. MIL-STD-202, Method 208. 焊接时间：4~6 秒。 温度：260±5°C。 焊锡面积：95%以上 适用：MIL-STD-202，方法 208。</p> |

| | | |
|-------------------------------------|---|--|
| <p>11. Humidity (恒温恒湿)</p> | <p>After testing, no damage,Contact Resistance 35mΩ max.. Dielectric Strength should be OK,Insulation Resistance should be 500MΩ min. 测试后,产品无损坏, 接触阻抗: 35 mΩ最大; 耐电压测试 OK, 绝缘阻抗 500MΩ最小;</p> | <p>Temperature: 40±2°C. Relative Humidity: 90-95%. Duration: 96 Hours. MIL-STD-202, Method 103, condition B. 温度: 40±2°C。 相对湿度: 90-95%。 持续时间: 96 小时。 适用: MIL-STD-202, 方法 103, 条件 B。</p> |
| <p>12. Solder ability (可焊性)</p> | <p>giving a magnification of 10 X for any damage such as pinholes, void or rough surface. 样品在测试完成后, 在放大倍数为 10 倍的显微镜下, 检查外观损坏如: 小孔, 空焊, 外观粗糙度;)</p> | <p>Soldering time: 4 to 6 seconds. Temperature: 260±5°C. MIL-STD-202, Method 208. 焊接时间: 4~6 秒。 温度: 260±5°C。 焊锡面积: 95%以上 适用: MIL-STD-202, 方法 208。</p> |

Table II: Product Qualification Test Sequence

附表二：产品测试顺序

| Test Description 测试描述 | TestGroup 测试分组 | | | | | | |
|---|----------------|-----|-----|-----|-----|-----|-----|
| | A | B | C | D | E | F | G |
| 1. Conformation of Product 产品确认 | 1,7 | 1,4 | 1,9 | 1,9 | 1,3 | 1,9 | 1,9 |
| 2. Contact Resistance 接触阻抗 | 2,6 | | 2,6 | 2,6 | | 2,6 | 2,6 |
| 3. Insulation Resistance 绝缘阻抗 | 3 | | 3,7 | 3,7 | | 3,7 | 3,7 |
| 4. Dielectric Withstanding Voltage 耐电压 | 4 | | 4,8 | 4,8 | | 4,8 | 4,8 |
| 5. Durability (Repeated Mating/Un-mating) 耐久性 | 5 | | | | | | |
| 6. Connector Pin Mating/Un-mating Force 单支端子插入/拔出力 | | 2 | | | | | |
| 7. Contact Retention Force 端子保持力 | | 3 | | | | | |
| 8. Thermal Shock 热冲击 | | | 5 | | | | |
| 9. Humidity (Steady State) 恒温恒湿 | | | | 5 | | | |
| 10. Solder-ability 可焊性 | | | | | 2 | | |
| 11. Salt Spray 盐雾 | | | | | | 5 | |
| 12. High Temperature Life 高温老化 | | | | | | | 5 |

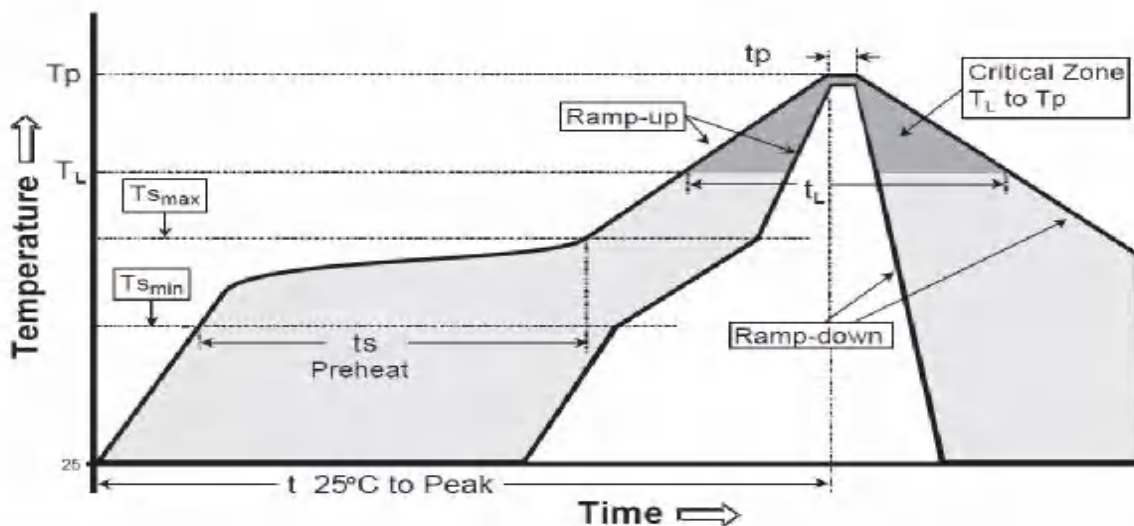
Table III: Reflow Soldering Profile

附表三：回流焊接曲线图

Lead-free reflow profile requirements:

无铅回流焊接曲线：

| Parameter 参数 | Reference 参考 | Specification 规格 |
|--|-------------------|---------------------|
| 升温区 Ramp-up | 25°C ~ 150°C | 3°C /S Max |
| 预热区(Pre-heating) Temperature Min(Tsmin) Temperature Max(Tsmax) Time(Tsmin to tsmax) | 150°C~200°C | 60~180sec |
| Time maintained above(保持时间) Temperature(TL) Time(tL) | 217°C | 60~150sec |
| Time within 5°C of actual peak Temperature(tp) | 260-/+5°C | 20~40sec |
| 冷却区 Cooling | Ramp-Down Rate | 6°C /S(Max) |
| Time 25°C to Peak Temperature | 25°C ~ Peak Temp. | 8 minutes maximum |



This profile is the minimum requirement for evaluating soldering heat resistance of components. Heat transfer method used for reflow soldering is hot air convection. The actual air temperatures used to achieve the specified profile largely dependent on the reflow equipment.

这个曲线图是评估元件器件焊接抗热的基本要求。应用在对焊接中的热传递方式是热气对流。达到特定曲线图地实际温度主要依赖与回流焊接设备。

5. 包装存储运输要求

- 5.1 物料的包装对物料有一定的保护作用和密封作用，保证物料在运输过程中不会受到损坏。
- 5.2 包装箱应满足防潮，防振、防压和防霉等要求。
- 5.3 最小包装单元的标识必须有厂家商标、产品型号、名称、物料编码和数量。
- 5.4 包装成箱的产品，应在环境温度为-10℃ ~ +40℃，相对湿度在80%以下，周围空气中无酸性，碱性或其它腐蚀性气体的库房里贮存，在上述条件下，自生产日期能够半年贮存期，在这半年内物料仍为合格品。