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| Product Specification [产品规格书]: | Document No | PS-HRS-4001-01 |
| Subject [主题]: 4.00mm Pitch HRS-4001 Series Connector Specification | Date Issued | 2014/06/30 |
| | Date Revised | 2020/03/23 |
| | Version | B |

This specification is referred to the 4.00mm series board to board connector

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【1.适用范围 Scope】

此种规格包括 4.00mm Pitch HRS-4001 Series 连接器规格说明.

This Specification Covers the 4.00mm Pitch HRS-4001 Series Connector Specification.

【2.规格与料号 Spec and Part number】

| 规格内容 Specification | 产品料号 Production No. | 产品图示 Picture of Product |
|-----------------------|------------------------|----------------------------|
| 针座母端/Wafer Female | HRS-4001WF-02-LPSN | N/A |
| 针座公端/Wafer Male | HRS-4001WM-02-LPSN | N/A |

【3.材质与表面处理 Disposal of Material and surface】

| 规格内容 Specification | 材 质 Materials | 表面处理 Disposal of Surface |
|-----------------------|------------------|---------------------------------------|
| 针座/Wafer | Base | High Temperature Plastic |
| | PIN | 磷铜/Phosphor Bronze |
| | Solder tab | 黄铜/Brass |
| | | UL 94V-0 |
| | | Over Tin 70μ" Plated Over 30μ" Nickel |
| | | Over Tin 70μ" Plated Over 30μ" Nickel |

(上述参数请以工程图为准/Please Refer to the Project drawing for the above Specification)

【4. 额定等级 Ratings and applicable wires】

| 项 目【Item】 | 规 格【Standard】 | |
|----------------------------------|---------------|---------|
| 额定电压 Rated Voltage (Max.) | 300V | [AC/DC] |
| 额定电流 Rated Current (Max.) | 3.0A | |
| 使用温度范围 Ambient temperature Range | -55℃~+105℃ | |

【*升温时含端子.Including terminal temperature rise.

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【5.性能 PERFORMANCE】
5-1. 电气的性能 Electrical Performance.

| 项 目 【Item】 | | 条 件 【Test Condition】 | 规 格 【Requirement】 |
|---------------|----------------------------------|--|---|
| 5-1-1 | 接触阻抗 Contact Resistance | 公母配合,开放电压 20mV 以下,电流 10mA 检测连接器 A~B 区. Mate connectors, measure by dry circuit, 20mV MAX, 10mA. (Based upon EIA-364-06A). | Initial: 20 milliohms Max. After Test: 40 milliohms Max. |
| 5-1-2 | 绝缘阻抗 Insulation Resistance | 公母配合,在相邻端子,端子与地片之间,使用 500V 的直流电,检测连接器. Mate connectors, apply 500V DC between adjacent terminal or ground. (Based upon EIA-364-21B / MIL-STD-202 Method 302 Cond.B) | 1000 Megohms Min. |
| 5-1-3 | 耐电压 Dielectric Strength | 公母配合,在相邻端子,端子与地片之间,使用 1700V 的交流电 1 分锺,检测连接器. Mate connectors, apply 1700V AC for 1 minute between adjacent terminal or ground. (Based upon EIA-364-20A / MIL-STD-202 Method 301) | 不出现中断等情况 No Breakdown and Flashover |

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5-2. 机械的性能 Mechanical Performance.

| 项 目 【Item】 | | 条 件 【Test Condition】 | 规 格 【Requirement】 | |
|---------------|---------------------------------------|--|---------------------------------|--|
| 5-2-1 | 插拔力 Insertion & Retention Force | 以每分钟 25.4±3mm 的速率插入和拔出。 Insert and withdraw Connectors at the speed rate of 25.4±3mm/minute. | 参照第 6 项 Refer to paragraph 6 | |
| 5-2-2 | Pin 针保持力 Pin Retention Force | 以每分 25.4±3mm 的速率,将 PIN 针从 Wafer 内轴向推 出的力量.Apply axial push force at the speed rate of 25.4±3mm/minute. | 1.96N {0.20kgf} Min. | |

5-3. 环境性能及其它 Environmental Performance and Others.

| 项 目 【Item】 | | 条 件 【Test Condition】 | 规 格 【Requirement】 | |
|---------------|--|---|----------------------------|-------------------------|
| 5-3-1 | 重复插拔 Repeated Insertion/ Withdrawal | 以每分钟不超过 10 次的速率,将公母插拔 30 次。 When mated up to 30 cycles repeatedly by the rate of 10 cycles per minute. | 接触阻抗 Contact Resistance | 40 milliohms Max. |
| 5-3-2 | 温升测试 Temperature Rise | 公母连接器配合后,加载额定电流直到温度上升到稳定 状态,然后再测量温升 (EIA364-70,Method 1) Mating connectors shall be energized at rating current until thermal stability is achieved, and then measured the temperature rise. (EIA364-70,Method 1) | 温升测试 Temperature rise | 30℃ Max. |
| 5-3-3 | 耐振动性 Vibration | 振幅: 1.5mm P-P 时间: 20~200~20 Hz in 3minute 持续时间: 每轴向 3 小时 加速度: 44m/S ² 开放电压: 20mV 以下 开放电流: 10mA 以下 Amplitude: 1.5mm P-P Sweep time: 20~200~20 Hz in 3 minute Duration: 3 hours in each X.Y.Z axials. (Based upon EIA-364-28B/MIL-STD-202 Method 213B Cond.A) | 外观 Appearance | 无异状 No Damage |
| | | | 接触阻抗 Contact Resistance | 40 milliohms Max. |
| | | | 瞬断 Discontinuity | 1 micro- second Max. |

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| 5-3-4 | 耐冲击性 Shock | 在 X.Y.Z 上 6 个方向上,以 490m/s ² (50g 的力量)冲击下各 3 回.490m/s ² {50G}, 3 strokes in each X.Y.Z. axes. (Based upon EIA-364-27B/MIL-STD-202 Method 213B Cond.A) | 外观 Appearance | 无异状 No Damage |
| | | | 接触阻抗 Contact Resistance | 40 milliohms Max. |
| | | | 瞬断 Discontinuity | 1 micro-second Max. |
| 5-3-5 | 耐热性 Heat Resistance | 105±2℃,96 hours. (Based upon MIL-STD-202 Method 108A Cond.A) | 外观 Appearance | 无异状 No Damage |
| | | | 接触阻抗 Contact Resistance | 40 milliohms Max. |
| 5-3-6 | 耐寒性 Cold Resistance | -55±5℃,96 hours. (Based upon EIA-364-105) | 外观 Appearance | 无异状 No Damage |
| | | | 接触阻抗 Contact Resistance | 40 milliohms Max. |

| 项 目 【Item】 | | 条 件 【Test Condition】 | 规 格 【Requirement】 | |
|---------------|-----------------------------|---|-------------------------------|-------------------|
| 5-3-7 | 耐湿性 Humidity | 温度: 40±2℃ 湿度: 90~95%(RH) 持续时间: 96 hours Temperature: 40±2℃ Relative Humidity: 90~95% Duration: 96 hours (Based upon EIA-364-31A/MIL-STD-202 Method 103B Cond.B) | 外观 Appearance | 无异状 No Damage |
| | | | 接触阻抗 Contact Resistance | 40 milliohms Max. |
| | | | 耐电压 Dielectric Strength | Must meet 5-1-3 |
| | | | 绝缘阻抗 Insulation Resistance | 500 Megohms Min. |
| 5-3-8 | 温度变化 Temperature Cycling | 从-55℃持续 30 分钟升至+105℃持续 30 分钟,循环 5 次. 5 cycles of: a) -55℃ 30 minutes. b) +85℃ 30 minutes. (Based upon EIA-364-32B) | 外观 Appearance | 无异状 No Damage |
| | | | 接触阻抗 Contact Resistance | 40 milliohms Max. |
| 5-3-9 | 盐水喷雾 Salt Spray | 在温度 35±2℃,盐水浓度 5±1%下,盐水喷雾 24±1 小时. 24±1 hours exposure to a salt spray from the 5±1% solution at 35±2℃. (Based upon EIA-364-26B/MIL-STD-202 Method 101D Cond.B). | 外观 Appearance | 无异状 No Damage |
| | | | 接触阻抗 Contact Resistance | 40 milliohms Max. |

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| 5-3-10 | 焊锡附着性 Solder-ability | 焊接时间: 3~5 秒. 焊接温度: 245±5℃. Soldering Time: 3~5second. Solder Temperature: 245±5℃. (Based upon EIA-364-52) | Solder Wetting | 浸渍面积需 95% 以上 95% of immersed area must show no voids, pin holes. |
| 5-3-11 | 焊锡耐热性 Solder- Resistance (By Reflow Soldering) | 焊接时间: 5~10 秒. 焊接温度: 260+0/-5℃. Soldering time:5~10 sec solder. Temperature:260+0/-5℃. | 外观 Appearance | 无异状 No Damage |
| | 焊锡耐热性 Solder- Resistance (By Soldering iron) | 焊接时间: 3 秒. 焊接温度: 350℃. Soldering time:3 sec solder. Temperature:350℃. | 外观 Appearance | 无异状 No Damage |

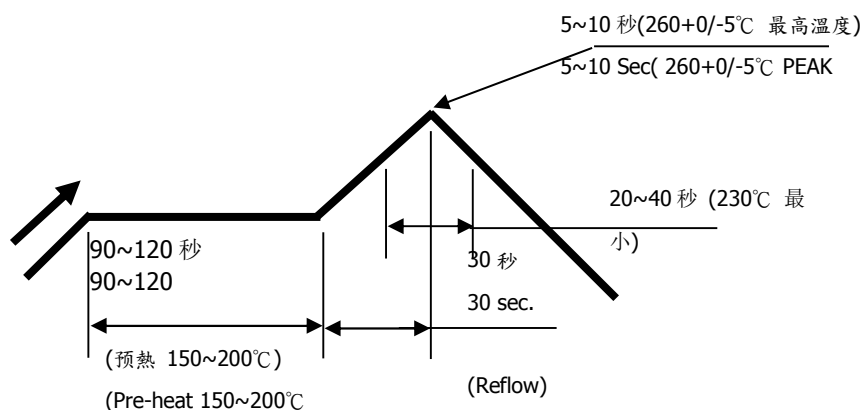
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【6.综合插入力及拔出力 INSERTION/WITHDRAWAL FORCE】 <Connector mating force>

| PIN 数 No. of CKT | 初次插入力(最大值) First Insertion (kgf Max.) | 30 次拔出力(最小值) 30 th Withdrawal (kgf Min.) | PIN 数 No. of CKT | 初次插入力(最大值) First Insertion (kgf Max.) | 30 次拔出力(最小值) 30 th Withdrawal (kgf Min.) |
|------------------------|---|---|------------------------|---|---|
| 02 | 1.50 | 0.05 | | | |

注：以上插拔次数为 30 次

Note: Insertion and Withdrawal for 30Cycles

【7. SMT 红外线回流条件 SMT INFRARED REFLOW CONDITION】


温度条件曲线图/ 基板上温度

TEMPERATURE CONDITION GRAPH/ (TEMPERATURE ON BOARD PATTERN SIDE)

注记：由于 P.C 板等焊接装置改变条件,所以请预先用自己的装置检查回流焊的条件。

Notes: Please check the reflow soldering condition by your own devices beforehand. Because the condition changes by the soldering devices, P.C. boards, and so on.