

| | | |
|--|--------------|----------------|
| Product Specification [产品规格书]: | Document No. | PS-HRS-1004-01 |
| Subject [主题]: | Date Issued | 2021/03/29 |
| 1.00mm Pitch HRS-1004 Series Connector Specification | Date Revised | 2024/06/28 |
| | Version | A3 |

This specification is referred to the 1.00mm series wire to board connector

索引【INDEX】

1. 适用范围【Scope】
2. 规格与料号【Spec and Part number】
3. 材质与表面处理【Material & Surface Treatment】
4. 额定等级&适用电线【Ratings and applicable wires】
5. 性能【Performance】
 - 5-1. 电气的性能【Electrical Performance】
 - 5-2. 机械的性能【Mechanical Performance】
 - 5-3. 环境性能及其它【Environmental Performance and Others】
6. 综合插入力及拔出力【Insertion/Withdrawal Force of Connector】
7. SMT回流条件【SMT Reflow Condition】
8. 产品图示

| | | |
|--|--------------|----------------|
| Product Specification [产品规格书]: | Document No. | PS-HRS-1004-01 |
| Subject [主题]: | Date Issued | 2021/03/29 |
| 1.00mm Pitch HRS-1004 Series Connector Specification | Date Revised | 2024/06/28 |
| | Version | A3 |

【1.适用范围 Scope】

此种规格包括 1.00mm Pitch HRS-1004 Series 连接器规格说明。

This Specification Covers the 1.00mm Pitch HRS-1004 Series Connector Specification.

【2.规格与料号 Spec and Part number】

| 规格内容 Specification | 产品料号 Product No. | 产品图示 Picture of Product |
|-----------------------|--|---|
| 端子/Terminal | HRS-1004T-PXXX |  |
| 胶壳/Housing | HRS-1004H-XXX-N0NC | |
| 针座/Wafer | HRS-1004WRS-XXX-XXXXXXX HRS-1004WVS-XXX-XXXXXXX | |

【3.材质与表面处理 Material & Surface Treatment】

| 规格内容 Specification | 材质 Materials | 表面处理 Disposal of Surface |
|-----------------------|---------------------------|--|
| 端子/Terminal | 磷铜(C5191)/Phosphor Bronze | See Drawing |
| 胶壳/Housing | PA66 | UL 94V-0 |
| 针座/Wafer | Base | PA4T |
| | PIN | 磷铜(C5191)/ Phosphor Bronze |
| | Solder tab | 黄铜(C2680)/Brass |
| | | Nickel Plated: 50u" Min Matte Tin Plated: 100u" Min |

(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】

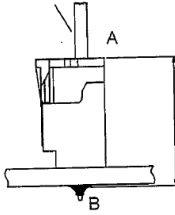
| 项目【Item】 | 规格【Standard】 |
|--|--|
| 4-1. 额定电压 Rated Voltage (Max.) | 100V |
| 4-2. 额定电流 Rated Current (Max.) | AWG#28 1A |
| | AWG#30 1A |
| | AWG#32 0.8A |
| 4-3. 使用温度范围 Ambient temperature Range | -40°C~+105°C |
| 4-4. 适用线径 Applicable wire insulation AWG(mm ²) | AWG#28~32 绝缘Ø O.D : 0.6~0.8mm(Max.) |

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

| | | |
|--|--------------|----------------|
| Product Specification [产品规格书]: | Document No. | PS-HRS-1004-01 |
| Subject [主题]: | Date Issued | 2021/03/29 |
| 1.00mm Pitch HRS-1004 Series Connector Specification | Date Revised | 2024/06/28 |
| | Version | A3 |

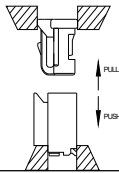
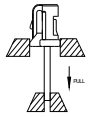
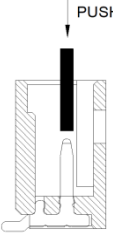
【5.性能 PERFORMANCE】

5-1. 电气的性能 Electrical Performance.

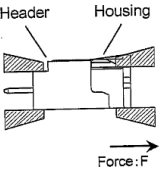
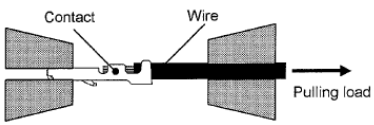
| 项 目 【Item】 | 条 件 【Test Condition】 | 规 格 【Requirement】 |
|---|--|---|
| 5-1-1 接触阻抗 Contact Resistance | 公母配合,开放电压 20mV 以下,电流 10mA 检测连接器 A~B 区. Mate connectors, measure by dry circuit, 20mV MAX, 10mA. (Based upon EIA-364-06A).  | Initial: 20 milliohms Max. After Test: 40 milliohms Max. |
| 5-1-2 绝缘阻抗 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) | 100 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 300V 的交流电 1 分钟,检测连接器. Mate connectors, apply 300V AC for 1 minute between adjacent terminal or ground. (Based upon EIA-364-20A / MIL-STD-202 Method 301) | 外观无损伤, 无打火花 No Breakdown and Flashover |
| 5-1-4 铆线后端子接触阻抗 Contact resistance on crimped portion | 铆线后之端子,开放电压 20mV 以下,电流 10mA 检测连接器. Crimp the applicable wire on to the terminal measure by dry circuit 20mV MAX, 10mA. | 5.0 milliohms Max. |

| | | |
|--|--------------|----------------|
| Product Specification [产品规格书]: | Document No. | PS-HRS-1004-01 |
| Subject [主题]: | Date Issued | 2021/03/29 |
| 1.00mm Pitch HRS-1004 Series Connector Specification | Date Revised | 2024/06/28 |
| | Version | A3 |

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 & Withdraw Force | 以每分钟 $25.4\pm 3\text{mm}$ 的速率插入和拔出。 Insert and withdraw Connectors at the speed rate of $25.4\pm 3\text{mm/minute}$.  | 参照第 6 项 Refer to paragraph 6 |
| 5-2-2 | 端子保持力 Terminal/Housing Retention Force | 以每分钟 $25.4\pm 3\text{mm}$ 的速率,将端子从 Housing 内轴向拔出的力量。 Apply axial pull out force at the speed rate of $25.4\pm 3\text{mm/minute}$ on the terminal assembled in the housing.  | 4.9N {0.5kgf} Min. |
| 5-2-3 | 端子插入力 Terminal Insertion Force | 铆线后之端子插入 Housing 所需最大力量。 Insert the crimped terminal into the housing. | 4.9N {0.5kgf} Max. |
| 5-2-4 | 端子到端子的啮合力 Terminal To Terminal Engage Force | 以每分钟 $25.4\pm 3\text{mm}$ 的速率,将单个公端子与母端子配合的力量。 The force to mate a single male terminal with a female terminal at a rate of $25.4\pm 3\text{ mm per minute}$. | 8N Max. |
| 5-2-5 | 端子到端子的分离力 Terminal To Terminal Disengage Force | 以每分钟 $25.4\pm 3\text{mm}$ 的速率,将已配对的单个公端子与母端子分离的力量。 The force separating the mated single male terminal from the female terminal at a rate of $25.4\pm 3\text{ mm per minute}$. | 1N Min(Plating Sn) 0.2N Min(Plating Au) |
| 5-2-6 | Pin 针保持力 Pin Retention Force | 以每分钟 $25.4\pm 3\text{mm}$ 的速率,将 PIN 针从 Wafer 内轴向拔出的力量。 Apply axial push force at the speed rate of $25.4\pm 3\text{mm/minute}$.  | 3.0N {0.3kgf}Min. |

| | | |
|--|--------------|----------------|
| Product Specification [产品规格书]: | Document No. | PS-HRS-1004-01 |
| Subject [主题]: | Date Issued | 2021/03/29 |
| 1.00mm Pitch HRS-1004 Series Connector Specification | Date Revised | 2024/06/28 |
| | Version | A3 |

| 项 目 【Item】 | | 条 件 【Test Condition】 | 规 格 【Requirement】 | | | |
|---------------|----------------------------------|--|--|-------------------|-------------------|------------|
| 5-2-7 | Lock 保持力 Lock Retention Force | 将 Housing 与 Wafer 匹配后, 将 Housing 从 Wafer 内轴向拔出的力量, 看其卡扣的承受力量 A housing and a header shall be mated , Pulling load shall be applied them, the load to make them come off each other shall be measured  | 内锁型, 6-15P Inner Lock, 6-15P 19.6N {2.0kgf} min. | | | |
| | | | Outer Lock 外锁型, 3-5P | | | |
| | | | 3PIN | 4PIN | 5PIN | |
| | | | 9.8N{1 kgf} MIN. | 19.6N{2 kgf} MIN. | 19.6N{2 kgf} MIN. | |
| 5-2-8 | 端子压着强度 Crimped contact | 固定铆线后的端子, 使电线与端子分离时所需的最小力量. Fix the crimped terminal, apply axial pull out force on the wire. (Do not crimp insulation part).  | AWG 线号 | AWG#28 | AWG#30 | AWG# 32 |
| | | | Spec.kgf. Min. | 1.0 {9.8N} | 0.5 {4.9N} | 0.3 {3.0N} |
| | | | Note> As for unspecified wire sizes in this specification define values with customer. | | | |

| | | |
|--|--------------|----------------|
| Product Specification [产品规格书]: | Document No. | PS-HRS-1004-01 |
| Subject [主题]: | Date Issued | 2021/03/29 |
| 1.00mm Pitch HRS-1004 Series Connector Specification | Date Revised | 2024/06/28 |
| | Version | A3 |

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。 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°C Max. |
| 5-3-3 | 振动测试 Vibration test | 振幅: 1.52mm P-P 时间: 10~55~10 Hz in 1minute 持续时间: 每轴向 2 小时 加速度: 44m/S ² 开放电压: 20mV 以下 开放电流: 10mA 以下 Amplitude: 1.52mm P-P Sweep time: 10~55~10 Hz in 1 minute Duration: 2 hours in each X.Y.Z axials. (Based upon EIA-364-28B/MIL-STD-202 Method 201) | 外观 Appearance | 无异状 No Damage |
| | | | 接触阻抗 Contact Resistance | 40 milliohms Max. |
| | | | 瞬断 Discontinuity | 1 micro-second Max. |
| 5-3-4 | 冲击测试 Shock test | 在 X.Y.Z 上 6 个方向上,以 490m/s ² (50G 的力量)冲击下各 3 回. 作用时间: 11ms 490m/s ² {50G}, 3 strokes in each X.Y.Z. axes. Operation time:11ms (Based upon EIA-364-27B/MIL-STD-202 Method 213) | 外观 Appearance | 无异状 No Damage |
| | | | 接触阻抗 Contact Resistance | 40 milliohms Max. |
| | | | 瞬断 Discontinuity | 1 micro-second Max. |

| | | |
|--|--------------|----------------|
| Product Specification [产品规格书]: | Document No. | PS-HRS-1004-01 |
| Subject [主题]: | Date Issued | 2021/03/29 |
| 1.00mm Pitch HRS-1004 Series Connector Specification | Date Revised | 2024/06/28 |
| | Version | A3 |

| 项 目 【Item】 | | 条 件 【Test Condition】 | 规 格 【Requirement】 | |
|---------------|-----------------------------|---|-------------------------------|---|
| 5-3-5 | 耐热性 Heat Resistance | 105±2°C,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 | -40±3°C,96 hours. (Based upon EIA-364-105) | 外观 Appearance | 无异状 No Damage |
| | | | 接触阻抗 Contact Resistance | 40 milliohms Max. |
| 5-3-7 | 耐湿性 Humidity | 温度: 60±2°C 湿度: 90~95%(RH) 持续时间: 96 hours Temperature: 60±2°C 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 | 10 Megohms Min. |
| 5-3-8 | 温度变化 Temperature Cycling | 从-40°C持续 30 分钟升至+105°C持续 30 分钟,循环 5 次. 5 cycles of: a) -40°C 30 minutes. b) +105°C 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°C,盐水浓度 5±1%下,盐水喷雾 48±4 小时. 48±4 hours exposure to a salt spray from the 5±1% solution at 35±2°C. (Based upon EIA-364-26A/MIL-STD-202 Method 101D Cond.B). | 外观 Appearance | 无异状 No Damage |
| | | | 接触阻抗 Contact Resistance | 40 milliohms Max. |
| 5-3-10 | 焊锡附着性 Solder-ability | 焊接时间: 3~5 秒. 焊接温度: 245±5°C. Soldering time: 3~5sec solder. Temperature: 245±5°C. | Solder Wetting | 沾锡面积需 95% 以上 95% of immersed area must show no voids, pin holes. |

| | | |
|--|--------------|----------------|
| Product Specification [产品规格书]: | Document No. | PS-HRS-1004-01 |
| Subject [主题]: | Date Issued | 2021/03/29 |
| 1.00mm Pitch HRS-1004 Series Connector Specification | Date Revised | 2024/06/28 |
| | Version | A3 |

| 项 目 【Item】 | | 条 件 【Test Condition】 | 规 格 【Requirement】 | |
|---------------|--|---|----------------------------|--------------------------------|
| 5-3-11 | 焊锡耐热性 Resistance to Soldering Heat | 焊接时间: 5~10 秒. 焊接温度: 255+5/-5°C. Soldering time:5~10 sec solder. Temperature:255+5/-5°C. (Based upon EIA-364-56A) | 外观 Appearance | 无异状 No Damage |
| | | Reflow by Manual Soldering iron : Using a soldering iron (370~400° C for 3 ± 1 seconds) heat up the area 0.2mm from the tip of the solder tails and fitting nails. However, do not apply excessive pressure to either the terminals or fitting nails. | 外观 Appearance | 无异状 No Damage |
| 5-3-12 | 耐亚硫酸腐蚀性 SO ₂ gas | 将公母对插好的样品放入温度 40±2°C，亚硫酸浓度在 50±5ppm 环境中放置 24 小时。 Mated connectors and expose to the conditions of 50 ± 5ppm SO ₂ gas ambient temperature 40 ± 2° C for 24 hours. | 外观 Appearance | 功能无损坏 No Damage on function |
| | | | 接触阻抗 Contact Resistance | 40 milliohms Max. |
| 5-3-13 | 耐氨性 NH ₃ Gas | 将公母对插好的样品，在浓度为 28%的氨水的容器中放置 40 分钟。(1L 与 25ml 的比例) Mated connectors and expose to the conditions of NH ₃ gas evaporating from 28% NH ₃ solution for 40 minutes. (Rate is 25ml per 1L) | 外观 Appearance | 功能无损坏 No Damage on function |
| | | | 接触阻抗 Contact Resistance | 40 milliohms Max. |

| | | |
|--|--------------|----------------|
| Product Specification [产品规格书]: | Document No. | PS-HRS-1004-01 |
| Subject [主题]: | Date Issued | 2021/03/29 |
| 1.00mm Pitch HRS-1004 Series Connector Specification | Date Revised | 2024/06/28 |
| | Version | A3 |

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

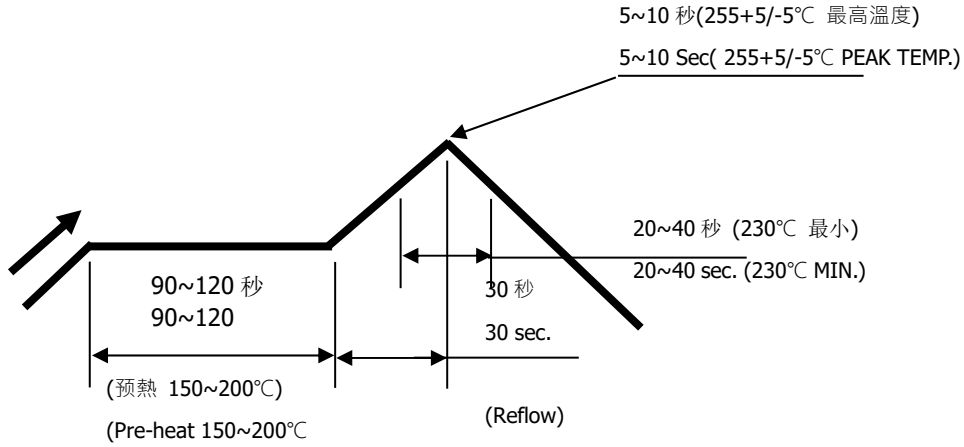
| PIN 数 No. of CKT | 初次插入力(最大值) First Insertion (kgf Max.) | 30 次拔出力(最小值) 30 th Withdrawal (kgf Min.) | PIN 数 No. of CKT | 初次插入力(最大值) First Insertion (kgf Max.) | 30 次拔出力(最小值) 30 th Withdrawal (kgf Min.) |
|------------------------|---|---|------------------------|---|---|
| Inner Lock 内锁型 | | | | | |
| Single | / | / | 09 | 2.02{19.8N} | 0.13{1.3N} |
| 02 | 1.45{14.2N} | 0.13{1.3N} | 10 | 2.24{22.0N} | 0.14{1.4N} |
| 03 | 1.67{16.4N} | 0.14{1.4N} | 11 | 2.47{24.2N} | 0.16{1.5N} |
| 04 | 1.9{18.6N} | 0.16{1.6N} | 12 | 2.69{26.4N} | 0.17{1.7N} |
| 05 | 2.12{20.8N} | 0.17{1.7N} | 13 | 2.92{28.6N} | 0.19{1.8N} |
| 06 | 1.35{13.2N} | 0.09{0.8N} | 14 | 3.14{30.8N} | 0.20{2.0N} |
| 07 | 1.57{15.4N} | 0.10{1.0N} | 15 | 3.37{33.0N} | 0.21{2.1N} |
| 08 | 1.80{17.6N} | 0.11{1.1N} | | | |
| Outer Lock 外锁型 | | | | | |
| Single | / | / | 05 | 1.12 {11N} | 0.07 {0.67N} |
| 03 | 0.67 {6.6N} | 0.04 {0.4N} | | | |
| 04 | 0.89 {8.8N} | 0.05 {0.53N} | | | |

注：以上插拔次数为 30 次

Note: Insertion and Withdrawal for 30Cycles

| | | |
|--|--------------|----------------|
| Product Specification [产品规格书]: | Document No. | PS-HRS-1004-01 |
| Subject [主题]: | Date Issued | 2021/03/29 |
| 1.00mm Pitch HRS-1004 Series Connector Specification | Date Revised | 2024/06/28 |
| | Version | A3 |

[7. SMT 回流条件 SMT REFLOW CONDITION]



温度条件曲线图/ 基板上温度

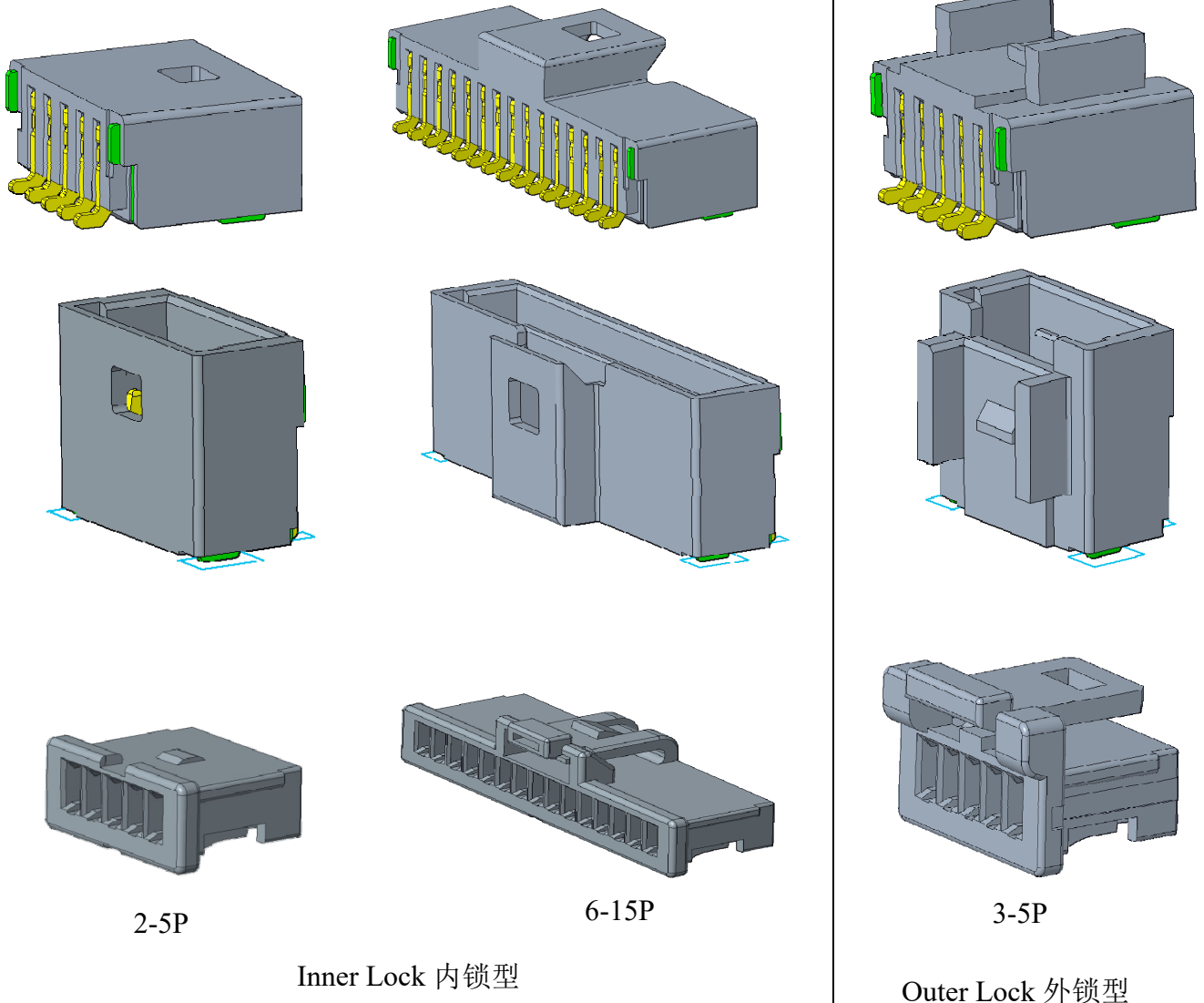
TEMPERATURE CONDITION GRAPH/ (TEMPERATURE ON BOARD PATTERN SIDE)

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.

| | | |
|--|--------------|----------------|
| Product Specification [产品规格书]: | Document No. | PS-HRS-1004-01 |
| Subject [主题]: | Date Issued | 2021/03/29 |
| 1.00mm Pitch HRS-1004 Series Connector Specification | Date Revised | 2024/06/28 |
| | Version | A3 |

【8. 产品图示 PRODUCT PICTURE】



| | | |
|---------|------------|--|
| A3 | 2024/06/28 | Updated Mechanical Performance Specification |
| A2 | 2022/11/30 | Updated version |
| A1 | 2021/03/49 | First release |
| version | Date | Description |