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| Product Specification [产品规格书]: | Document No | PS-2019-01 |
| Subject [主题]: 2.00mm Pitch 2019 Series Connector Specification | Date Issued | 2019/06/09 |
| | Date Revised | 2018/05/26 |
| | Version | A0 |

This specification is referred to the 2.00mm series wire to board connector

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【1.适用范围 Scope】

此种规格包括 2.00mm Pitch 2019 Series 连接器规格说明。

This Specification Covers the 2.00mm Pitch 2019 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 |
|-----------------------|--|----------------------------|
| 端子/Terminal | 2019T-XXXSX-02Q | |
| 胶壳/Housing | 2019H-1xXX-N0XBR01Q | |
| 后塞/Retainer | C2019-1xXX-XXXBR01Q | |
| 针座/Header | 2000WVS-XXX-9TSW-S 2000WRS-XXX-9TSW-S | |

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

| 规格内容 Specification | 材质 Materials | 表面处理 Surface treatment |
|-----------------------|---|--|
| 端子/Terminal | 磷铜/Phosphor Bronze 镍硅青铜/ C7025 | Tin Plated: 2~5um(80~200u") Nickel Plated: 1~3 um(40~120u") |
| 胶壳/Housing | PA66(UL 94V-0) | / |
| 锁扣/Retainer | C2019-1x02~05:PBT/(UL 94V-0) C2019-1x06~15:PA4T/(UL 94V-0) | / |
| 针座/ Header | Body | PA9T (UL 94V-0) |
| | PIN | 黄铜(C2680)/Brass |
| | Solder tab | 黄铜(C2680)/Brass |

(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.) | 250V | [AC/DC] |
| 额定电流 Rated Current (Max.) | 3A | |
| 使用温度范围 Ambient temperature Range | -40℃~+105℃ (Phosphor Bronze) /-40℃~+125℃ (C7025) | |
| 适用线径 Applicable wire insulation O.D | 20~24AWG(0.22~0.50mm ²)/ Insulation O.D. 1.60mm(Max.) | |

【*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: 10 milliohms Max. After Test: 20 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 Meg ohm 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 800V 的交流电 1 分钟,检测连接器. Mate connectors, apply 800V 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 |
| 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. | 10 milliohms Max. |
| 5-1-5 | 电压降落 Voltage Drop | 在 75 或 100 毫米的点上,测量的量测值下降到 $12 \pm 1V$, 在 75 或 100 毫米的短电路中。从总电阻中减去导线电阻。 Measure voltage drop by $12 \pm 1V$ of open circuit and $1 \pm 0.05A$ of short circuit at the 75 or 100mm of point from crimped section. Subtract wire conductor resistance from total resistance. | 10mV/A Max |



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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 & withdraw Force | 以每分钟 50mm 的速率插入和拔出。 Insert and withdraw Connectors at the speed rate of 50mm/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 50mm 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 50mm/minute on the terminal assembled in the housing. | Primary Lock : 20N {2.04kgf} Min. |
| | | | Primary + Secondary Lock 50N {5.05kgf} 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. | 9.8N {1.0kgf} Max. |
| 5-2-4 | Pin 针保持力 Pin Retention Force | 以每分 100mm 的速率,将 PIN 针从 Header 内轴向拔出 的力量。 Apply axial push force at the speed rate of 100mm/minute. | 30N {3.06kgf} min. |



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| 项 目 【Item】 | | 条 件 【Test Condition】 | 规 格 【Requirement】 | | | |
|---------------|---|--|--|-------------------------------|-------------------------------|----------------------------|
| 5-2-5 | 端子压着强度 Tensile strength (Crimped connections) | 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# | 20# (0.50mm ²) | 22# (0.35mm ²) | 24# 0.22mm ² |
| | | | Spec Min. N | 50N (75N) ^{a)} | 50N (75N) ^{a)} | 50N |
| | | | a) If for production reasons, the conductor pull-out strength is measured with insulation crimp, the values in parentheses apply. (Refer to VW60330) | | | |
| 5-2-6 | Lock 保持力 Lock Retention Force | 将插好端子的公母座含卡扣以每分钟 50mm 的速度拔出所需要力量。 Mate connectors and apply pull-out force at the speed rate of 50mm/min .This Test should be done with positive lock locked. | 2-Circuit product 40N MIN 3 to 6-Circuit product 50N MIN 7~15P-Circuit product 60N 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 | 20 milliohms Max. |
| 5-3-2 | 温升测试 Temperature Rise | 公母对插后,在通过额定电流下,所测定的温度。 Carrying rated current load. (UL 1977) | 温升测试 Temperature rise | 30°C 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 axial. (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 | 20 milliohms Max. |
| | | | 电压降落 Voltage Drop | 20mV/A 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 981m/s ² (100G 的力量)冲击下各 3 回. 作用时间: 6ms 981m/s ² {100G}, 3 strokes in each X.Y.Z. axes. Operation time:6ms (Based upon EIA-364-27B/MIL-STD-202 Method 213B Cond. A) | 外观 Appearance | 无异状 No Damage |
| | | | 瞬断 Discontinuity | 1 micro-second Max. |

| 项目 【Item】 | | 条件 【Test Condition】 | 规格 【Requirement】 | |
|--------------|-----------------------------|---|-------------------------------|-------------------|
| 5-3-5 | 耐热性 Heat Resistance | 105±2℃,96 hours. (Phosphor Bronze) 125±2℃,96 hours. (C7025) (Based upon MIL-STD-202 Method 108A Cond. A) | 外观 Appearance | 无异状 No Damage |
| | | | 接触阻抗 Contact Resistance | 20 milliohms Max. |
| 5-3-6 | 耐寒性 Cold Resistance | -40±3℃,96 hours. (Based upon EIA-364-105) | 外观 Appearance | 无异状 No Damage |
| | | | 接触阻抗 Contact Resistance | 20 milliohms Max. |
| 5-3-7 | 耐湿性 Humidity | 温度: 60±2℃ 湿度: 90~95%(RH) 持续时间: 96 hours Temperature: 60±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 | 20 milliohms Max. |
| | | | 耐电压 Dielectric Strength | Must meet 5-1-3 |
| | | | 绝缘阻抗 Insulation Resistance | 500 Megohm Min. |
| 5-3-8 | 温度变化 Temperature Cycling | 从-40℃持续 30 分钟升至+105℃ (Phosphor Bronze) /+125℃(C7025)持续 30 分钟,循环 5 次. 1000 cycles of: a) -40℃ 30 minutes. b) +105℃ (Phosphor Bronze) /+125℃(C7025) 30 minutes. (Based upon EIA-364-32B) | 外观 Appearance | 无异状 No Damage |
| | | | 接触阻抗 Contact Resistance | 20 milliohms Max. |
| | | | 电压降落 Voltage Drop | 20mV/A Max |



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|--------|---------------------------------------|---|---|---|
| | | | 公母座带卡扣保持力 Housing/Header Retention Force | 满足 5-2-6 Must meet 5-2-6 |
| | | | 端子与 HSG 保持力 Terminal/Housing Retention Force | 满足 5-2-2 Must meet 5-2-2 |
| 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 48±1 小时。 48±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 | 20 milliohms Max. |
| 5-3-10 | 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℃, 亚硫酸浓度在 50±5ppm 环境中放置 24 小时。 24 Hours exposure to 50±5ppm SO ₂ gas at 40±2℃ | 外观 Appearance | 无异状 No Damage |
| | | | 接触阻抗 Contact Resistance | 20 milliohms Max. |
| 5-3-11 | 焊锡性 Solder- Resistance | 焊接时间: 3~5 秒。 焊接温度: 245±5℃。 Soldering time: 3~5sec solder. Temperature: 245±5℃. | 浸锡性 Solder Wetting | 浸渍面积需 90% 以上 90% of immersed area must show no voids, pin holes. |
| 5-3-12 | 焊锡耐热性 Resistance to Soldering Heat | 将恒温烙铁温度调整至 350±5℃, 将熔融状态的锡焊料按压在 PIN 脚 3 秒。 Press the solder trowel of 350±5℃ for 3sec | 外观 Appearance | 无异状 No Damage |
| | | | 接触阻抗 Contact Resistance | 20 milliohms Max. |



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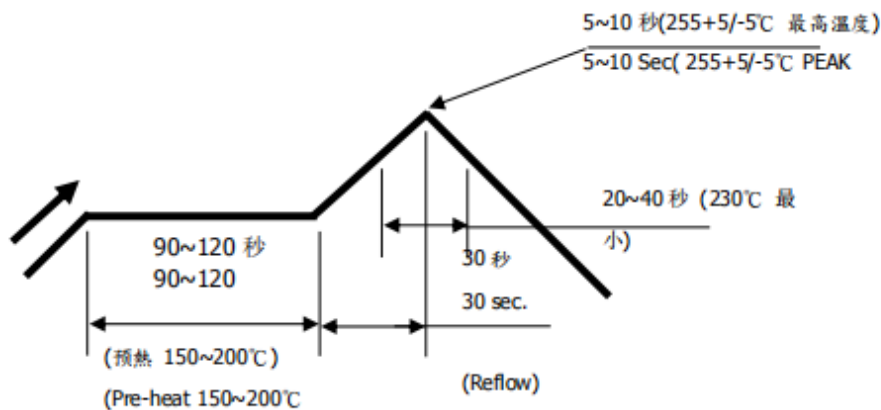
【6.综合插入力及拔出力 INSERTION/WITHDRAWAL FORCE】 <Connector mating force>

| 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.) |
|------------------------|---|---|------------------------|---|---|
| Single | / | / | 09 | 4.4 | 0.90 |
| 02 | 1.5 | 0.20 | 10 | 4.7 | 1.00 |
| 03 | 2.0 | 0.30 | 11 | 5.0 | 1.10 |
| 04 | 2.5 | 0.40 | 12 | 5.3 | 1.20 |
| 05 | 3.0 | 0.50 | 13 | 5.6 | 1.30 |
| 06 | 3.5 | 0.60 | 14 | 6.0 | 1.40 |
| 07 | 3.8 | 0.70 | 15 | 6.4 | 1.50 |
| 08 | 4.1 | 0.80 | 16 | 6.8 | 1.60 |

注: 以上插拔次数为 30 次

Note: Insertion and Withdrawal for 30Cycles

【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.