

Product Specification [产品规格书]:	Document No:	PS-HRS-2019-01
Subject [主题]:	Date Issued	2019/07/27
2.00mm Pitch HRS-2019 Series Connector Specification	Date Revised	2022/09/02
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This specification is referred to the 2.00mm series wire to board connector

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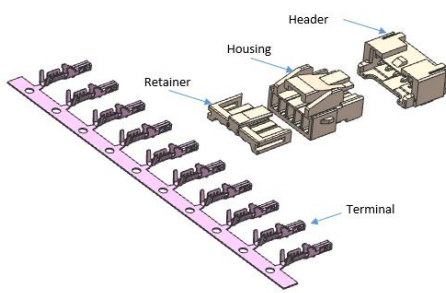
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【1.适用范围 Scope】

此种规格包括 2.00mm Pitch HRS-2019 Series 连接器规格说明.

This Specification Covers the 2.00mm Pitch HRS-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	HRS-2019T-XXXSX-XXQ	
胶壳/Housing	HRS-2019H-1xXX-N0XBR01Q	
后塞/Retainer	HRS-C2019-1xXX-XXXBR01Q	
针座/Header	HRS-2000WVS-XXX-9TSW-S HRS-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 高导电铜/High Conductivity Copper	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/Brass Tin Plated: 2~5um(80~200u") Nickel Plated: 1~3 um(40~120u")
	Solder tab	黄铜/Brass Tin Plated: 2~5um(80~200u") Nickel Plated: 1~3 um(40~120u")

(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 Max	[AC/DC]
额定电流 Rated Current (Max.)	3A Max	
使用温度范围 Ambient temperature Range	-40℃~+105℃（Phosphor Bronze）/-40℃~+125℃（High Conductivity Copper）	
适用线径 Applicable wire insulation O.D	20~24AWG(0.22~0.50mm²)/ 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)	没有击穿和电火花 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.	10 milliohms Max.
5-1-5	电压降落 Voltage Drop	在 75 或 100 毫米的点上,测量 $12 \pm 1V$ 开路和 $1 \pm 0.05A$ 短路的电压降,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 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 45N {4.59kgf} 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,(绝缘铆爪打开). Fix the crimped terminal, apply axial pull out force on the wire. (Measure without insulation crimp).	AWG# (FLR)	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 6p-Circuit product 50N MIN 7 to 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°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.

WRITTEN BY: Alan qin

APPROVED BY: Kim Huang

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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	125±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	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+125℃持续 30 分钟,循环 5 次. 5 cycles of: a) -40℃ 30 minutes. b) +125℃ 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	将恒温铬铁温度调整至 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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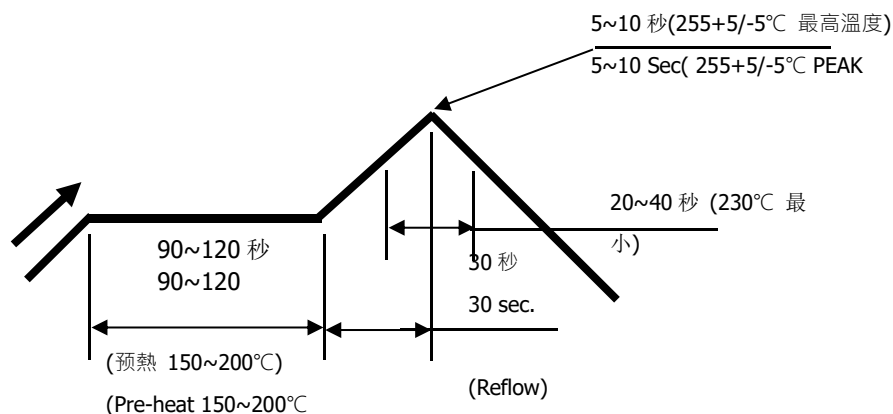
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【6.综合插入力及拔出力 INSERTION/WITHDRAWAL FORCE】<Connector mating force>

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.