

Product Specification [产品规格书]:	Document No	PS-HRS-1278-01
Subject [主题]: 1.27mmPitch HRS-1278 Series Connector Specification	Date Issued	2022/11/28
	Date Revised	2023/2/25
	Version	A0

This specification is only referred to the HRS-1278 series connector

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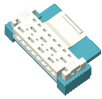
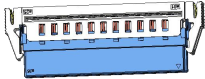
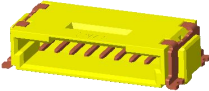
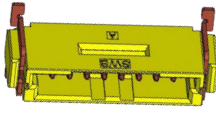
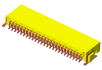
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【1.适用范围 Scope】

此种规格包括 1.27mm Pitch HRS-1278 Series 连接器规格说明.

This Specification Covers the 1.27mm Pitch HRS-1278 Series Connector Specification.

【2.产品型号描述 Product Description】

产品名称 Part Name	产品料号 Production No.	产品图示 Picture of Product
胶壳/Housing	HRS-1278HI-XXX-LPGWXXBT HRS- 1278HI-XXXF-LPGWXXBT	
	HRS-1278HI-XXX-LPGWXXBTR HRS-1278HI-XXXF-LPGWXXBTR	
	HRS-1278HI-2*XXX-LPGWXXBT	
针座/Wafer	HRS-1278WRS-XXX-LPGWXXBRS	
	HRS-1278WRS-2*XX-LPGWXXBRS	
	HRS-1278WRS-2*XX-LPGWXXBRS	

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	HRS-1278WVS-2*XX-LPGWXXBCS	
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【3.材质与表面处理 Material and surface treatment】

规格内容 Specification		材 质 Materials	表面处理 Disposal of Surface
胶壳/Housing	主体 Housing	LCP	UL94 V-0
	盖子 Cap	尼龙 Nylon 46/尼龙 Nylon 66	UL94 V-0
	端子 Pin	高导电铜/High conductivity copper	接触区:镀金; 焊接区:镀镍底,雾锡 Contact area: gold; Welding area: nickel bottom, matte tin plated
针座/Wafer	胶壳 Base	LCP	UL94 V-0
	端子 Pin	磷铜 Phosphor Bronze	接触区:镀金; 焊接区:镀镍底,雾锡 Contact area: gold; Welding area: nickel bottom, matte tin plated
	定位片 Solder tab	磷铜 Phosphor Bronze	镀镍底, 雾锡 Nickel bottom, matte tin plated

(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】		
额定电流 Rated Current (Max.) 单排 Single Row	AWG#22~26	3A-1.5A	[AC/DC]
额定电流 Rated Current (Max.) 双排 Double Row	AWG#30	1.7A	
使用温度范围 Ambient temperature Range	-40℃~+125℃		

【 *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	产品外观检查 Visual Examination	借助 10 倍放大镜对每一个试验样品进行检查, 详细记录所有制造或材料的瑕疵, 如: 裂缝, 脱色、毛刺等。 Inspect each sample with a 10x magnification, recording all defects in all process or material defects such as cracks,discoloration,burrs,etc.	USCAR-2 Rev.6 5.1.8
5-1-2	最大试验电流能力 Maximum test current capacity	在无风的封闭场所内搭建一个电路。 Create a circuit in a draft free environment . 温度: 23±5℃(室温)中。 Temperature :23±5℃(room temperature) 距离: 30-60 厘米。 Distance :30-60 cm. 时间: 等待 15 分钟 (电流在输出时, 电路的温度达到稳定) Time: Wait at least 15 minutes for the circuit temperature	USCAR-2 Rev.6 5.3.3
5-1-3	电流循环 Current Cycling	1.测试电流为最大试验电流 90% (测试项 5-2-4) 2.通电 45 分钟, 断电 15 分钟, 完成 1008 个循环 3.任何端子温升不超过 55℃ 4.干电路电阻≤25mΩ 1.The test current is 90% of the maximum test current (Item:5-2-4) 2.45 minutes of power on ,15 minutes of power off ,and 1008 cycles are completed. 3.The temperature rise must not exceed 55℃ at any time during the test for any terminal 4.Dry circuit resistance is less than or equal 25mΩ	USCAR-2 Rev.6 5.3.4
5-1-4	电压降 Voltage	≤50mVΩ(Final)	USCAR-2 Rev.6 5.3.2
5-1-5	干电路电阻 Dry Circuit Resistance	在环境后<25mΩ Final<25mΩ	USCAR-2 Rev.6 5.3.2
5-1-6	电路连贯性监控 Circuit Continuity Monitoring	任何端子电阻超过 7 欧的时间大于 1us 的情况不允许发生 There must be no instance in which the resistance of any terminal pair exceeds 7.0 Ω for more than 1 micro second	USCAR-2 Rev.6 5.1.9

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5-1-7	绝缘电阻 Insulation Resistance	将试验样品的所有接端交错连接成两组,再施加规定的试验电压, 测量绝缘电阻.测量电压: 500V DC 绝缘电阻: > 100 MΩ Apply 500V DC voltage (desiccation bound:) between all contacts connected together and a metal foil surrounding the housing. In addition, apply the voltage a different test sample to every two adjacent contacts. Insulation resistance > 100 MΩ	USCAR-2 Rev.6 5.5.1
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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 连接器/端子循环 Connector and/or Terminal Cycling	完成每一对端子和连接器 10 次插拔 Completely mate and un-mate each connector or terminal pair 10 times	USCAR-2 Rev.6 5.1.7
5-2-2 端子到端子啮合/分离力 Terminal to Terminal Engage/Disengage Force	以不超过 50mm/min 的均匀速度插入对配端子, Engage the mating terminals at a uniform rate not to exceed 50 mm/min 接触面无破损, 未暴露基材 No base material should be exposed	USCAR-2 Rev.6 5.2.1
5-2-3 连接器至连接器的配合/分离力 (无机械辅助) Connector-Connector or Mating/Unmating/Retenti (non-assist)	连接器的一次自锁机构是完全分离/松开的, 拔出力 ≤ 75 N。 Unmating Force ≤ 75 N with the primary connector lock completely disengaged/disabled	USCAR-2 Rev.6 5.4.2
5-2-4 极性特征有效性 Polarization Feature	以错误的方向将公连接器插入母连接器,公母端子间不通电 Insert the male connector into the female	USCAR-2 Rev.6 5.4.4

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5-2-5	混合组件的啮合分离力 Miscellaneous Component Engage/Disengage Force	啮合力 < 60N; engaging force < 60N; 分离力 > 25N Separation force >25 N	USCAR-2 Rev.6 5.4.5
5-2-6	震动/机械冲击 Vibration/Mechanical Shock	冲击: 1.加速度 35g、脉宽 10ms、半正弦; 2.每轴 10/次、6 个轴向。 振动: 三个相互垂直的轴中各进行 8 小时振动测试, 使用 5-1000HZ 1.81grms 没有任何端子对的电阻在 1 微秒内超过 7.0 Ω 的情况发生 shock : 1. acceleration 35 g, pulse width 10 ms,semi sine; 2. each axis 10/times ,6 axes. Vibration : 8 hours of vibration test in each of the three vertical axes, using 5-1000 HZ 1.81grms Does not occur when the resistance of any terminal pair exceeds 7.0 Ω within 1 microsecond.	USCAR-2 Rev.6 5.4.6

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5-2-7	连接器到连机器可听见咔哒响 Connector-to-Connector Audible Click	环境噪音等级在 30 和 50dB (A) 之间 The ambient noise level must be between 30 and 50dB(A) 声音测量装置应放在与连接器 600+/-50mm 的距离 Locate the sound measuring device 600+/-50mm from the connector 手动配对连接器组 1 和组 2, 测量当锁啮合时的 dB(A)等级 Mate the connectors in both group 1 and 2 by hand and measure the dB(A) level of the sound generated as the lock engages 新样品 Group1:new samples 经过 6 个小时湿度 95-98%RH, 温度 40oC 的环境测试 Group2:by exposing to 95-98% Relative Humidity at 40oC for 6 hours	USCAR-2 Rev.6 5.4.7
5-2-8	连接器跌落测试 Connector Drop Test	1.将样品分为 6 组, X/Y/Z 轴向每组 3 个样品, Divide samples in to 6 groups of 3 samples each for testing X,Y,and Z axis orientation 2. 从至少 1 米的高度, 将每个样品仅跌落一次至混凝土地面 For each group,drop one sample at a time once and only once on to a horizontal concrete surface from a height of at least 1 meter 3. 样品的组件不应出现脱离原位置的现象 Components shall not be displaced from their intended	USCAR-2 Rev.6 5.4.8
5-2-9	PIN 保持力 PIN Retention Force	以每分钟 30±3mm 的速度; 拔出的力量 10N Min。 Mate connectors, pull the at a rate of 30 ±3mm per minute 10N Min。	USCAR-2 Rev.6 5.7.1

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

项目 【Item】		条件 【Test Condition】	规格 【Requirement】
5-3-1	热冲击 Thermal Shock	低温-40℃， 高温+125℃ Min.temperature:-40℃, Max.temperature:+125℃ 低温保持 30 分钟， 高温保持 30 分钟,高低温转换小于 30 秒,100 次循环 Cold soak for 30 min,Heat soak for 30 min,Transfer time <30s,Cycles100times 不能有任何端子对的电阻在 1 微秒内超过 7.0 Ω的情况发生 There must be no instance in which the resistance of any terminal pair exceeds 7.0 Ω for more than 1 micro second	USCAR-2 Rev.6 5.6.1
5-3-2	温湿度循环 Temperature/Humidity Cycling	温度变化幅度: -40℃ to 125 ℃ temperature range :-40℃ to 125℃ 时间: 温室内 5 小时内不能进行泄漏) Time: No leakage within 5 hours of greenhouse (s) 湿度: (80-100)% Humidity :(80-100%)	USCAR-2 Rev.6 5.6.2
5-3-3	高温暴露 High Temperature Exposure	时间: 1008H time: 1008H 温度: 125℃ Temperature :125℃ 量程 500 VDC 时, 试验部件中任何两个相邻端子之间的电阻值须 > 100 MΩ When measuring range 500 VDC, the resistance between any two adjacent terminals in the test part shall be >100 MΩ	USCAR-2 Rev.6 5.6.3

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5-3-4	焊接性能 Solderability	连接器端子在焊接前浸入 1/3 环保助焊剂，再浸入温度在 $240\pm5^{\circ}\text{C}$ 的锡槽中，历时 $3.0\pm0.5\text{S}$ 后取出 Before the immersion in the solder connector 1/3 of the economic environment to help welding, and then immersed in a temperature $240\pm5^{\circ}\text{C}$ tin bath, after the last $3.0\pm0.5\text{S}$	可焊区域至少覆盖 95% Solderable area shall have a minimum of 95% solder coverage
5-3-5	焊锡耐热性 SMT/THT Resistance to soldering heat	焊接时间: 5~10 秒. 焊接温度: $255+5/-5^{\circ}\text{C}$. Soldering time:5~10 sec solder. Temperature: $255+5/-5^{\circ}\text{C}$.	EIA-364-56

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6. 测试组 Test Group

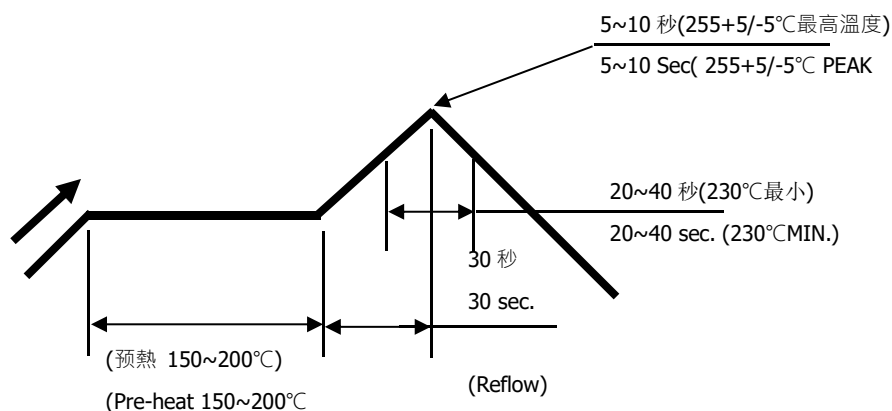
流程图 Flow Chart		端子机械测试 Terminal mechanical test	电气性能 Electrical Performance	连接器机械测试 Mechanical testing of connectors					
测试项目 Test Item	测试描述 Test Description	端子至端子的啮合/分离力 Terminal to Terminal Engage/Disengage Force	最大电流/电流循环 Maximum current /Current Cycling	混合部件的啮合/分离力 Miscellaneous Component Engage/Disengage Force	听得见声响 Hear the sound	连接器至连接器的配合/分离力 Connector-Connector Mating/Unmating/Retenti	极性特征 Polarization Feature	跌落 Drop Test	板端插针保持力 Header Pin Retention
USCA	序列 Sequence ID	A	B	C	D	E	F	G	H
R-2	测试样品数量 Quantity of test samples	10	10	10	16	15	10	18	10
5.1.8	外观检查 Visual Examination	1,3	1,5	1,3	1,3	1,3	1,3	1,3	1,3
5.2.1	端子至端子的啮合/分离力 Terminal to Terminal Engage/Disengage Force	2							
5.2.9	PIN 保持力 PIN Retention Force								2
5.3.3	最大试验电流能力 Maximum test current capacity		3						
5.3.4	电流循环 Current Cycling		4						
5.4.2	连接器至连接器的配合/分离力（无机械辅助） Connector-Connector Mating/Unmating/Retenti					2			
5.4.4	极性特征效果 Polarization Feature						2		
5.4.5	混合部件的啮合/分离力 Miscellaneous Component Engage/Disengage Force			2					
5.4.7	连接器至连接器匹配时卡塔声响 Connector-to-Connector Audible Click				2				
5.4.8	跌落试验 Connector Drop Test							2	

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5.1.7	连接器端子循环 Connector and/or Terminal Cycling		2						
说明 Description: 准备的样品应与适用于生产的说明一致，应随机从当前生产选取 Samples prepared shall be in accordance with instructions applicable to production and shall be randomly selected from current production									

参考标准	测试序列 Test Sequence	振动冲击 Vibration shock	热冲击 Thermal Shock	温湿度循环 Temperature/Humidity Cycling	高温暴露 High Temperature Exposure
USCAR-2	序列 Sequence ID	I	J	K	L
	测试样品数量 Quantity of test samples	10	10	10	10
5.1.8	外观检查 Visual Examination	1,7	1,7	1,8	1,7
5.2.9	外观检查 Visual Examination				
5.1.7	连接器端子循环 Connector and/or Terminal Cycling	2	2	2	2
5.1.9	电路连贯性监控 Circuit Continuity Monitoring	4	4		
5.3.2	电压降 Voltage	6	6	6	6
5.4.6	振动/机械冲击 Vibration/Mechanical Shock	4			
5.5.1	绝缘电阻 Insulation Resistance			7	
5.6.1	热冲击 Thermal Shock		4		
5.6.2	温度/湿度循环 Temperature/Humidity Cycling			4	
5.6.3	高温暴露 High Temperature Exposure				4
	盐水喷雾 Salt Spray				
	焊接性能 Solderability				

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	焊锡耐热性 SMT/THT Resistance to soldering heat				
注释 Comments: (1) 环境温度等级 T3: -40℃ to 125 °C Ambient temperature grade T3: -40 ° C to 125 ° C (2) 振动等级 V1 Vibration grade V1 (3) 本产品适用于线缆选用单排 22 ~26AWG;双排 30AWG/7 , This product is suitable for cable Single row22 ~26AWG/7;Double row30AWG/7					

7. 回流焊条件 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.