Product Specification [产品规格书]:	Document No	PS-HRS-2554-01
Subject [主题]: 2.54mmPitch HRS-2554 Series Connector Specification	Date Issued	2023/2/25
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This specification is only referred to the HRS-2554 series connector

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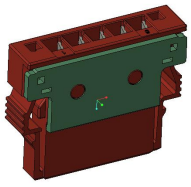
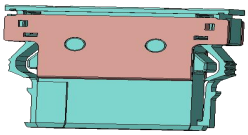
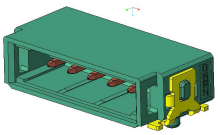
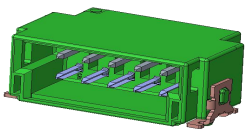
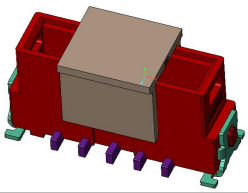
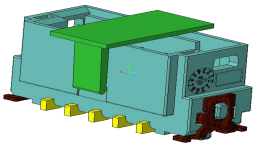
【1.适用范围 Scope】

此种规格包括 2.54mm Pitch HRS-2554 Series 连接器规格说明.

This Specification Covers the 2.54mm Pitch HRS-2554 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-2554A-XXX-N0XX	
	HRS-2554A-2xXXX-N0XX	
针座/Wafer	HRS-2554WRS-XXX-LPGW01XR	
	HRS-2554WRS-2*XXX-LPGW01XR	
	HRS-2554WVS-XXX-LPGW01XC	
	HRS-2554WVS-2*XXX-LPGW01XC	

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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
端子/Terminal		高导铜 High Conductivity Copper	Underplated: Ni (1~3μm)overall; Contact area:Gold Flash The welding zone: Sn (2~5μm)
二次锁扣/TPA		Nylon	黑色 Black
胶壳/Housing		Nylon	黑色 Black
后盖/Cover		Nylon	黑色 Black
针座/Wafer	Base	LCP	黑色 Black
	PIN	黄铜/Brass	Underplated: Ni (1~3μm)overall; Contact area:Gold Flash The welding zone: Sn (2~5μm)
	Solder tab	磷铜/Phosphor Bronze	Underplated: Ni (1~3μm)overall; Top plating: Sn (2~5μm overall

（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.)	500V		[AC/DC]
额定电流 Rated Current (Max.)	AWG#18	12.0A	
	AWG #20	10.0A	
	AWG#22	8.0A	
	AWG#24	6.0A	
	AWG#26	3.0A	
使用温度范围 Ambient temperature Range	-40℃~125℃		
适用线径 Applicable wire insulation O.D	AWG #18(0.85mm^2)、AWG #20(0.50mm^2)、AWG#22(0.35mm^2)、AWG#24(0.22mm^2)、AWG#26(0.15mm^2) Insulation O.D. φ1.80mm(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	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.7 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.7 5.3.3
5-1-3	电流循环 Current Cycling	1.测试电流为最大试验电流; Test current is maximum test current capacity 2.任何端子温升不超过 55℃ The temperature rise must not exceed 55 ℃ at any time during the test for any terminal . 3. 干电路电阻<10mΩ Dry circuit resistance is less than 10mΩ	USCAR-2 Rev.7 5.3.4

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项目 【Item】		条件 【Test Condition】	规格 【Requirement】
5-1-4	电压降 Voltage	≤50mVΩ(Final)	USCAR-2 Rev.7 5.3.2
5-1-5	干电路电阻 Dry Circuit Resistance	在环境后<20mΩ Final<20mΩ	USCAR-2 Rev.7 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.7 5.1.9
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：> 1000 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 > 1000 MΩ	USCAR-2 Rev.7 5.5.1

5-2. 机械的性能 Mechanical Performance.

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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.7 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.7 5.2.1
5-2-3	端子耐弯曲 Terminal Bend Resistance	将端子分别旋转 180°和 90°并对它施加 4N 力，然后释放,端子表面无撕裂、裂缝。 Rotate terminal 90°/180° from the initial position and apply 4	USCAR-2 Rev.7 5.2.2
5-2-4	端子至连接器的插入/保持力 Terminal-Connector Insertion/Retention Force	端子插入力 F<15N Terminal Insertion Force F<15N 端子保持力 F>30N Terminal Retention Force F>30N） 端子拔出 F>60N（耐湿后）Terminal Retention Force F>60N(after Moisture Conditioning)	USCAR-2 Rev.7 5.4.1
5-2-5	连接器至连接器的配合/分离力（无机械辅助） Connector-Connector Mating/Unmating/Retention Forces (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 连接器的一次自锁机构是完全啮合的，拔出力≥100N。 Retention Force ≧100 N with the primary connector lock fully engaged.	USCAR-2 Rev.7 5.4.2

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	项目 【Item】	条件 【Test Condition】	规格 【Requirement】
5-2-6	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.7 5.4.4
5-2-7	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.7 5.4.5
5-2-8	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 60-1200HZ 12.1grms 没有任何端子对的电阻在 1 微秒内超过 7.0Ω 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 60-1200 HZ 12.1grms Does not occur when the resistance of any terminal pair exceeds 7.0Ω within 1 microsecond. .	USCAR-2 Rev.7 5.4.6

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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	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.7 5.4.7
5-3-2	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.7 5.4.8
5-3-3	板端插针保持力 Header Pin Retention	保持力≥15N Retention force ≥15 N	USCAR-2 Rev.7 5.7.1

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项目 【Item】		条件 【Test Condition】	规格 【Requirement】
5-3-4	端子/型腔极性测试 Terminal/Cavity Polarization Test	将端子以正常力 1.5 倍或者 15N（以较大的为准）的力从错误的方向插入塑胶，不能安装且不会对端子以及连接器造成任何可见损坏 Insert the force of the terminal at 1.5 times normal force or 15 N(whichever is greater) into the plastic in the wrong direction be installed and will not cause any courseware damage to the terminal and connector	USCAR-2 Rev.7 5.4.10
5-3-5	模腔损坏系数 Cavity Damage Susceptibility	当力被完全施加时，TPA 不能处于其最终位置，并且终端保持必须满足大于 60N 的力 When the force is fully applied, the TPA must not seat in its final position and terminal retention must meet the forces >60N	not seat in its final position and terminal retention must meet the forces >60N USCAR-2 Rev.7 5.4.9
5-3-6	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.7 5.6.1

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项目 【Item】		条件 【Test Condition】	规格 【Requirement】	
5-3-7	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.7 5.6.2	
5-3-8	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.7 5.6.3	
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	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℃. 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	焊接时间: 5~10 秒. 焊接温度: 255+5/-5℃. Soldering time:5~10 sec solder. Temperature:255+5/-5℃. (Based upon EIA-364-56A)	外观 Appearance	无异状 No Damage

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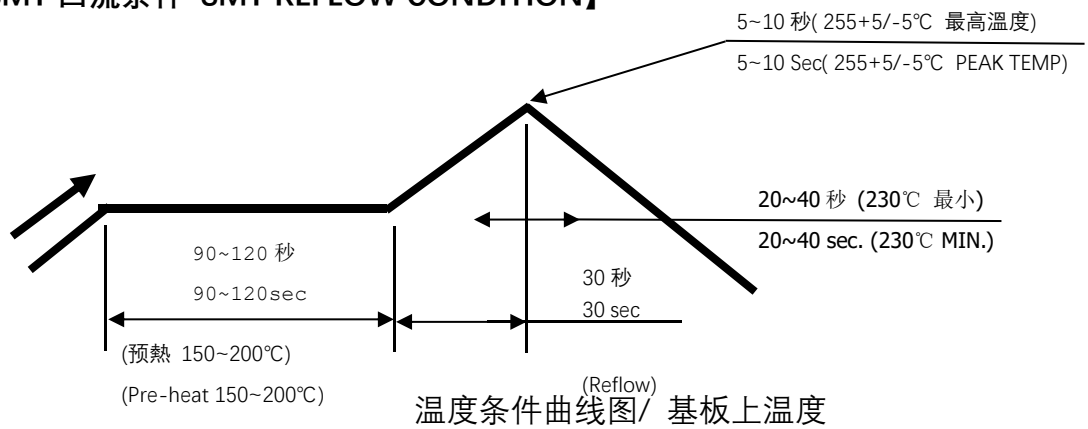
【6. SMT 回流条件 SMT REFLOW CONDITION】



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.

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USCA	序号 ID	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
	测试样品数量 Quantity of test samples	10	15	10	15	16	15	15	10	18	5	10	10	10	10	10	10	5	5	5
5.1.8	外观检查 Visual Examination	1,3	1,3	1,5	1,3	1,3	1,3	1,3	1,3	1,3	1,3	1,3	1,3	1,7	1,7	1,8	1,7	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																		
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5.3.3	最大试验电流能力 Maximum test current capacity			3																
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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	极化特征效果 Polarization Feature								2											
5.4.5	混合部件的啮合/分离力 Miscellaneous Component Engage/Disengage Force					2														
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5.3.1	干式电路电阻 Dry Circuit Resistance													3,5	3,5	3,5	3,5			
5.3.2	电压降 Voltage													6	6	6	6			
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5.6.3	高温暴露 High Temperature Exposure																4			
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	焊锡耐热性 Solder- Resistance																			2