

Product Specification [产品规格书]:	Document No	PS-HRS-2543-01
Subject [主题]: 2.54mm Pitch HRS-2543 Series Connector Specification	Date Issued	2021/06/30
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This specification is referred to the 2.54mm series wire to board connector

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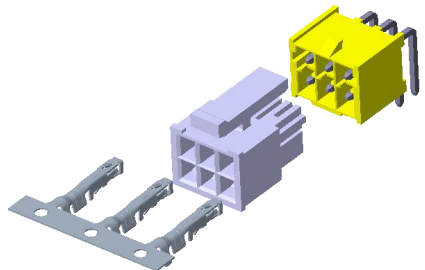
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【1.适用范围 Scope】

此种规格包括 2.54mm Pitch HRS-2543 Series 连接器规格说明.

This Specification Covers the 2.54mm Pitch HRS-2543 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-2543TF-PXXX	
塑胶/Housing	HRS-2543HM-2*XXN0HFBK	
针座/Wafer	HRS-2543WR-2*XX-LPXXXBG HRS-2543WVS-2*XX-LPXXXBG	

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

规格内容 Specification	材 质 Materials	表面处理 Disposal of Surface
端子/Terminal	磷铜(C5191)/Phosphor Bronze	Nickel Plated: 50u" Min ,Bright Tin Plated: 100u" Min.
塑胶/Housing	PA66	UL 94V-0
针座/Wafer	Base LCP	UL 94V-0
	PIN 黄铜(C2600)/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】	
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℃~+125℃	
适用线径 Applicable wire insulation AWG(mm²)	AWG #20~22	Insulation O.D. 1.55mm(Max.)

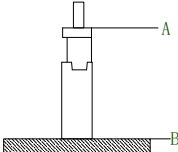
【 *升温时含端子.Including terminal temperature rise. 】

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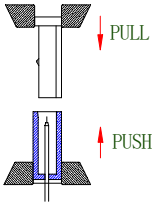
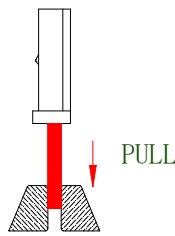
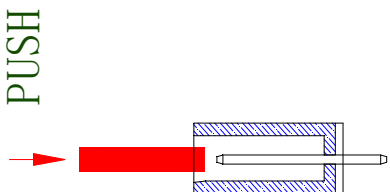
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【5.性能 PERFORMANCE】
5-1. 电气的性能 Electrical Performance.

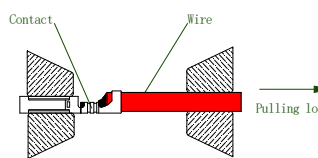
项 目 【Item】		条 件 【Test Condition】	规 格 【Requirement】
5-1-1	接触阻抗 Contact Resistance	公母配合,开放电压 20mV 以下,电流 10mA 检测连接器 A~B 区. Mate connectors, measure by dry circuit, 20mV MAX, 10mA. (Based upon EIA-364-06A). 	Initial: 20 milliohms Max. After Test: 40 milliohms Max.
5-1-2	绝缘阻抗 Insulation Resistance	公母配合,在相邻端子,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)	1000 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 1000V 的交流电 1 分锺,检测连接器. Mate connectors, apply 1000V 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.	10 milliohms 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 & Retention Force	以每分钟 $50\pm 3\text{mm}$ 的速率插入和拔出。 Insert and withdraw Connectors at the speed rate of $50\pm 3\text{mm/minute}$. 	参照第 6 项 Refer to paragraph 6
5-2-2	端子保持力 Terminal/Housing Retention Force	以每分 $50\pm 3\text{mm}$ 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 $50\pm 3\text{mm/minute}$ on the terminal assembled in the housing. 	$19.6\text{N} \{2.0\text{kgf}\}$ 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.	$9.8\text{N} \{1.0\text{kgf}\}$ Max.
5-2-4	Pin 针保持力 Pin Retention Force	以每分 $100\pm 3\text{mm}$ 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 $100\pm 3\text{mm/minute}$. 	$14.7\text{N} \{1.5\text{kgf}\}$ 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	#22
		Spec.			
		.kgf. Min.	5.0	4.0	
			Note> As for unspecified wire sizes in this specification define values with clients		

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（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℃ Max.
5-3-3	正弦振动 Vibration	低压电压：12V 工作电流：每个引脚电流不低于 1A 振幅：2.4mm P-P 时间：10~25~500 HZ in 1 minute 持续时间：每轴向 8 小时 加速度：6G 测试过程中伴随环境温度变化，低温-40℃，高温 85℃（见第 7 项温度曲线）	外观 Appearance	无异状 No Damage
			接触阻抗 Contact Resistance	无变化
			瞬断 Discontinuity	1 micro-second Max.
	随机振动 Vibration	低压电压：12V 工作电流：每个引脚电流不低于 1A X、Y、Z 3 轴，每个轴 22 小时 加速度：9.86G 频率范围：10~2000HZ（见第 8 项随机振动频率范围） 测试过程中伴随环境温度变化，低温-40℃，高温 85℃（见第 7 项温度曲线）	外观 Appearance	无异状 No Damage
			接触阻抗 Contact Resistance	无变化
			瞬断 Discontinuity	1 micro-second Max.

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5-3-4	耐冲击性 Shock	低压电压: 12V 工作电流: 每个引脚电流不低于 1A 加速度: 50G 冲击波形半正弦, 单次冲击持续时间 6ms, $\pm X$, $\pm Y$, $\pm Z$ 六个方向, 各 1000 次, 共 6000 次	外观 Appearance	无异状 No Damage
			接触阻抗 Contact Resistance	无变化
			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	40 milliohms Max.
5-3-6	耐寒性 Cold Resistance	-40±5℃,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: 40±2℃ 湿度: 90~95%(RH) 持续时间: 96 hours Temperature: 40±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	40 milliohms Max.
			耐电压 Dielectric Strength	Must meet 5-1-3
			绝缘阻抗 Insulation Resistance	500 Megohms 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	40 milliohms Max.
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.

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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: 3~5second. Solder Temperature: 245±5°C. (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.
WRITTEN BY: <u>Bin</u> APPROVED BY: <u>Robing</u> Sheet: 7 of 9				

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项 目 【Item】		条 件 【Test Condition】	规 格 【Requirement】	
5-3-11	焊锡耐热性 Solder-Resistance	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

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

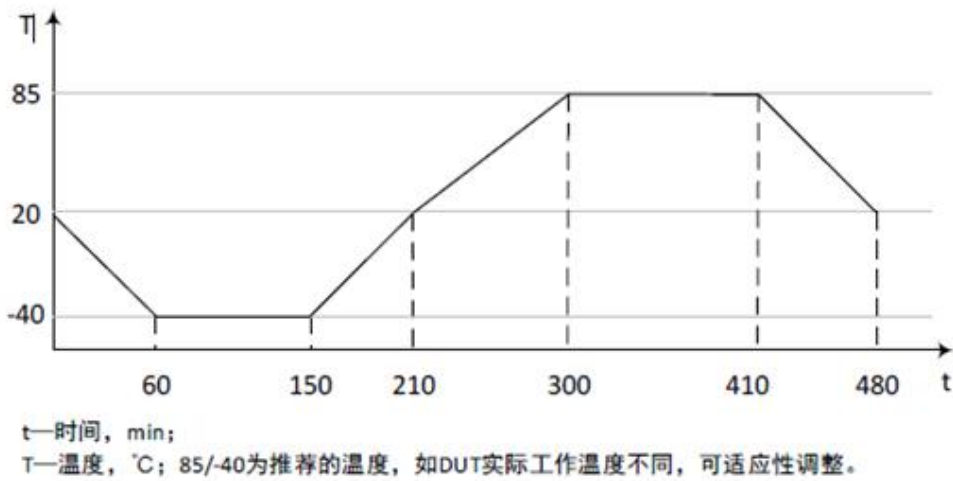
PIN 数 No. of CKT	初次插入力(最大值) First Insertion (kgf Max.)	30 次拔出力(最小值) 30 th Withdrawal (kgf Min.)	PIN 数 No. of CKT	初次插入力(最大值) First Insertion (kgf Max.)	30 次拔出力(最小值) 30 th Withdrawal (kgf Min.)
2*02	3.2	1.00	2*08	12.8	4.00
2*03	4.8	1.50	2*09	14.4	4.50
2*04	6.4	2.00	2*10	16.0	5.00
2*05	8.0	2.50	2*11	17.6	5.50
2*06	9.6	3.00	2*12	19.2	6.00
2*07	11.2	3.50	2*13	20.8	6.50
			2*14	22.4	7.00

注：以上插拔次数为 30 次

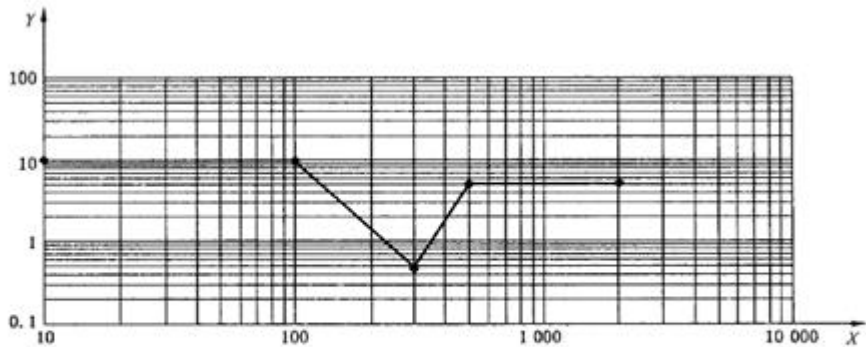
Note: Insertion and Withdrawal for 30Cycles

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【7.振动过程温度变化】



【8.随机振动频率范围】



其中： ,
X——频率, Hz;
Y——PSD, (m/s²)²/Hz。

图 5 PSD 与频率

表 5 PSD 与频率

频率 Hz	PSD (m/s²)²/Hz
10	10
100	10
300	0.51
500	5
2 000	5