



Product Specification 【产品规格书】	Document No.	PS-2513-02
Product Name 【产品名称】： 2.50mm Pitch 2513 Series Connector	Date Issued	2020/12/07
	Date Revised	2021/08/05
	Version	B

This specification is only referred to the 2513 series connector

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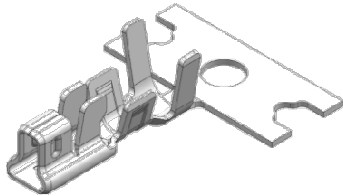
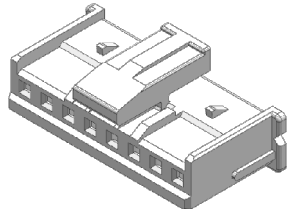
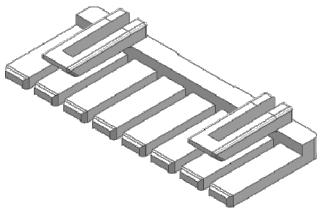
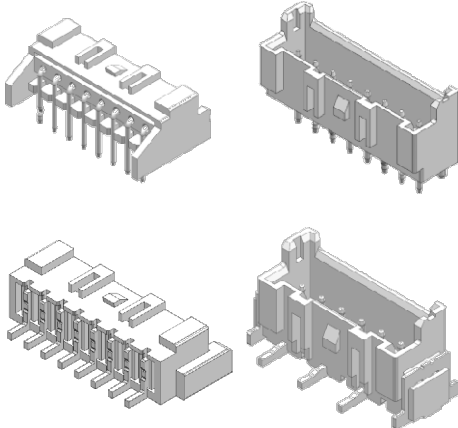
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### 【1.适用范围 Scope】

此规格包括 2.50mm Pitch 2513 Series 连接器规格说明。

This Specification includes the 2.50mm Pitch 2513 Series Connector Specification.

### 【2.产品型号描述 Product Description】

产品名称 Part Name	产品料号 Part No.	产品图示 Picture
端子/Terminal	2513TX-HXX	
胶壳/Housing	2513H-XX-XXXX	
二次锁/TPA	C2513-XX-XXXX	
针座/Header	2508WR-XXX-9TXXX 2508WV-XXX-9TXXX 2508WRS-XXX-9TXXX 2508WVS-XXX-9TXXX	



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

规格内容 Specification	材质 Materials	颜色/表面处理 Color/Surface treatment
端子/Terminal	高导电铜/High conductivity copper	Top plating: Sn (1~3um) overall
胶壳/Housing	PA66(UL 94V-0)	本色(白色) Natural(White)
二次锁/TPA	PBT-GF15(UL 94V-0)	白色 White
针座 Header	Housing	PA9T (UL 94V-0)
	Pin	黄铜/Brass
	Solder tab	黄铜/Brass
		Underplated: Ni (1~3μm)overall; Top plating: Sn (2~5μm) overall
		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 Specification
额定电压 Rated Voltage	50V
额定电流 Rated Current	2.5A 0.22mm <sup>2</sup> 3A 0.35~0.5mm <sup>2</sup>
使用温度范围 Ambient Temperature Range	-40°C~+125°C



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## 【5.性能 Performance】

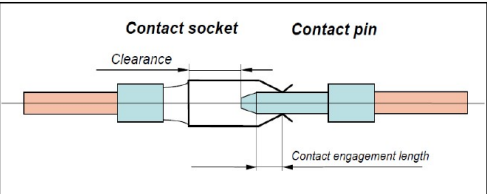
### 5-1. 电气性能 Electrical Performance.

测试内容 Item	测试方法 Test Condition	判定要求 Requirement
5-1-1 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. (USCAR-2 5.5.1)	100 Megohm Min.
5-1-2 耐电压 Dielectric Strength	公母配合,在相邻端子,端子与地片之间,施加 1000V 60hz 的有效值电压. Apply an AC rms voltage of 1000V at 60 Hz across each adjacent cavity and between the terminals to ground	没有击穿或出现电火花 No Breakdown and Flashover
5-1-3 电压降落 Voltage Drop	测试回路电压 $12 \pm 1V$ , 加载电流 $1 \pm 0.05A$ , 测量 75 或 100mm 的测试点的电压计算总电阻, 然后减去导线电阻。 At 75 or 100 mm points, the measured measure drops to $12 \pm 1V$ in the 75 or 100 mm short circuit. Subtract the wire resistance from the total resistance.	10mV/A Max
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.

测试内容 Item		测试方法 Test Condition	判定要求 Requirement			
5-2-1	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 40N {4.08kgf} Min.			
5-2-2	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.			
5-2-3	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# (0.5mm <sup>2</sup> )	22# (0.35mm <sup>2</sup> )	24# (0.22mm <sup>2</sup> )
			Spec Min. N	60N	50N	40N
5-2-4	Lock 保持力 Lock Retention Force	不带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			
5-2-5	端子对配深度 Terminal Matching Depth	线束正确对配, 对线束端子及塑壳区域灌胶 - 使用磨削设备对样品进行研磨,直至露出对配的端子剖面, 量取 "Clearance" 和 "Contact engagement length" 	Clearance > 0 mm			
			Contact engagement length > 1mm			
5-2-6	插拔力 Insertion & Retention Force	以每分钟 50mm/min 的速率插入和拔出. Insert and withdraw Connectors at the speed rate of 50mm/minute. (USCAR-2 5.4.2)	≤75N {7.75kgf}			



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测试内容 Item	测试方法 Test Condition	判定要求 Requirement
5-2-7 Pin 针保持力 Pin Retention Force	在相对湿度 95~98%和 40℃ 环境下潮湿样品并保持 6 小时, 然后拔出。 The samples were kept moist at 95~98% relative humidity and 40℃ for 6 hours before being pulled out(USCAR-2 5.7.1)	15N {1.53kgf} Min.

### 5-3. 环境性能及特殊要求 Environmental Performance and Special Requirments.

测试内容 Item	测试方法 Test Condition	判定要求 Requirement
5-3-1 重复插拔 Repeated Insertion/ Withdrawal	以每分锺不超过 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℃ Max.
5-3-3 耐振动性 Vibration	将插头对配, 在线束两端距端子压接 75mm 处接线, 前后均测试电阻 (减去导线电阻), 按以下条件测试 TC:0min/20℃; 60min/-40℃; 150min/-40℃; 300min/120℃; 420min/120℃; 480min/20℃. 20h per axis RMS value of ac-celeration 27.8m/s <sup>2</sup> (VW75174, TG17)	瞬断 Discontinuity 1 micro-second Max.
		接触阻抗 Contact Resistance 30 milliohms Max.
5-3-4 耐冲击性 Shock	在X.Y.Z上6个方向上,以29.43m/s <sup>2</sup> (30g的力量)冲击各6000回。 作用时间: 6ms With mounted to equipment and mated connectors, subject to the following shock conditions: Peak value: 29.43m/s <sup>2</sup> (30G) No.of shocks:6000 in each X, Y, Z axes. T=6ms sinusoidal half-wave (VW75174, TG17)	外观 Appearance 无异状 No Damage
		瞬断 Discontinuity 1 micro-second Max.
		接触阻抗 Contact Resistance 30 milliohms Max.



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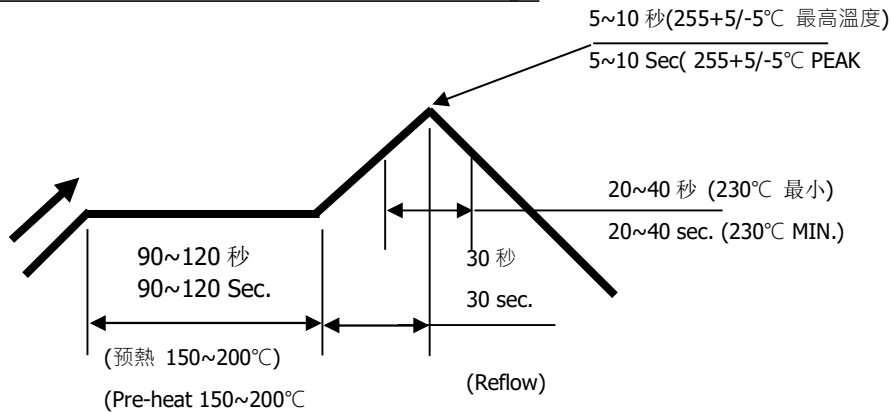
测试内容 Item		测试方法 Test Condition	判定要求 Requirement	
5-3-5	耐热性 Heat Resistance	130±2°C, 120 hours. (VW75174, PG20)	外观 Appearance	无异状 No Damage
			接触阻抗 Contact Resistance	20 milliohms Max.
5-3-6	耐寒性 Cold Resistance	-40±3°C, 120 hours. (Based upon EIA-364-105)	外观 Appearance	无异状 No Damage
			接触阻抗 Contact Resistance	20 milliohms Max.
5-3-7	耐湿性 Humidity	温度: 60±2°C 湿度: 90~95%(RH) 持续时间: 96 hours Temperature: 60±2°C 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 5-1-2
			绝缘阻抗 Insulation Resistance	500 Megohm Min.
5-3-8	冷热冲击 Temperature Cycling	从-40°C持续 30 分钟升至+125°C持续 30 分钟,循环 5 次. 5 cycles of: a) -40°C 30 minutes. b) +125°C 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
			公母座带卡扣保持力 Housing/Header Retention Force	满足 5-2-4 Must meet 5-2-4
			端子与 HSG 保持力 Terminal/Housing Retention Force	满足 5-2-1 Must meet 5-2-1



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测试内容 Item		测试方法 Test Condition	判定要求 Requirement	
5-3-9	焊锡性 Solder-Resistance	焊接时间: 3~5 秒. 焊接温度: 245±5°C. Soldering time: 3~5sec solder. Temperature: 245±5°C.	浸锡性 Solder Wetting	浸渍面积需 90% 以上 90% of immersed area must show no voids, pin holes.
5-3-10	焊锡耐热性 Resistance to Soldering Heat	将恒温铬铁温度调整至 350±5°C, 将熔融状态的锡焊料按压在 PIN 脚 3 秒。 Press the solder trowel of 350±5°C for 3sec	外观 Appearance	无异状 No Damage
			接触阻抗 Contact Resistance	20milliohms Max.

**【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.