



# 浙江珠城科技股份有限公司

ZHEJIANG ZUCH TECHNOLOGY CO., LTD

产品系列  
Product Series

1.5 间距 W/B 连接器

文件名称  
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产品规格书  
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## 1.5 间距 W/B 连接器

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## 1、范围 scope

本产品规格书适用于浙江珠城科技股份有限公司生产的 1.5 间距 W/B 连接器

This Specification covers the 1.5 space W/B connector made by ZHEJIANG ZUCH TECHNOLOGY CO., LTD.

## 2、产品描述 Product Description

产品名称 Product name	规格型号 Part No.	材质 Material	阻燃等级 Flame Rating	压接范围 Applicable Wire Size	备注 Remark
簧端子 Socket Terminal	TP1501M-8	Copper alloy	/	24~26AWG	Tin plated
孔座 Plug Housing	HP1501M-nY	PBT	UL 94V-0	/	
卧式针座 Horizontal Header	HWT1501M-nWA	PA10T Copper alloy	UL 94V-0	/	
立式针座 Vertical Header	HWT1501M-nVA	PA10T Copper alloy	UL 94V-0	/	

## 3、相关标准 Related Standards

注：本规格书为系列产品通用，当规格书参数要求与产品图纸发生冲突时，以产品图纸中的要求为准，当规格书参数与参考标准内容冲突时，以本规格书中的要求为准。

Note: This specification is for one full series normal version. If this specification has any conflicting items with products drawings, should take product drawings as right one. If any parameter is this specification conflict with reference standard, should take the parameter in this specification as right one.

### 参考文件：Reference standard.

GB/T 2421	电工电子产品环境试验 第一部分 总则 Testing Method for Environmental of Electrical Connectors Class 1: General Principles
GB/T 2423	电工电子产品环境试验方法 Testing Method for Environmental of Electrical Connectors
GB/T 2424	电工电子产品环境试验导则 Testing Method for Environmental of Electrical Connectors
GB/T 5095	电子设备机电元件基本试验规程及测量方法 Testing procedure/Method for components of electric equipment
QC/T 1067.1/2017	汽车电线束和电气设备用连接器第一部分：定义、试验方法和一般性能要求 Connector used in automobile wire harness and electrical device Part 1:Definition、test method and requirement



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UL-498 连接插头和插座安全性 UL 标准  
Standard For Safety Attachment Plugs and Receptacles

#### 4、参数范围 Parameter Ratings

额定电压 Rated Voltage	100V AC/DC
额定电流 Rated Current	2A AC/DC(使用 AWG24 线时) When using AWG24 wire
温度范围 Operation temperature range	-40°C~105°C (含通电温度升值) Including temperature rise
适用线型 Applicable wires	AWG 24#~22# (0.22mm <sup>2</sup> ~0.25mm <sup>2</sup> )

#### 5、产品性能 Performance Specification

产品应满足电气,机械和环境性能要求, 测试方法及判断标准如 5.1、5.2、5.3

The product shall be designed to meet the electrical, mechanical and environmental performance requirements specified in 5.1,5.2 and 5.3.

所有测试在室温进行,除非另有说明.

All tests shall be performed in the room temperature, unless otherwise specified.



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## 5.1 电气特性 Electrical Requirements

序号 COD	项目 Test project	测试方法及条件 Test methods and conditions	标准规格 standard
5.1.1	外观 Appearance	目测 Checking by eye 视力 Eyesight: >1.0 照明 Lamp: (200-300) lx 目测距离 Space: 0.3-0.5m GB/T 5095.2 Method 1a	a) 塑料件应无明显疤痕、凹陷、开裂、变色及影响使用的变形。 Plastic parts shall not be no obvious scar, dent, crack, discoloration, deformation and other bad effects on use and test b) 金属件应无锈蚀氧化、无明显的机械损伤及电镀层脱落等。 Metal parts should no rust and oxidation, no obvious mechanical damage and plating off.
5.1.2	接触电阻 Contact resistance	公母端子对配后, 通过 10mA 电流, 20mV 以下电压, 测试公母端接触电阻。 Mate connectors: apply a Maximum voltage of 20 mV at rated current of 10mA. GB/T 5095.2 Method 2a / EIA-364-23B	20mΩ Max.(初始值) 20mΩ Max. (Initial value) 40mΩ Max.(实验后) 40mΩ Max.(After experiment)
5.1.3	耐电压 Withstand voltage	相邻接触件之间或地线之间施加如下电压 500V AC(初始有效值), 漏电流 1mA 的电压作用, 时间 1min.。 The voltage applied to leakage current 1mA between adjacent contacts or ground wires is 500AC for 1minute. GB/T 5095.2 Method 4a / EIA-364-20B	外观: 无击穿和飞弧现象 no breakdown and flashover
5.1.4	绝缘电阻 Insulation resistance	在相邻的接触件或地线之间施加 250V DC 电压, 持续时间 1min.。 250V DC shall be applied a voltage of between adjacent contacts of a mated specimen to measure insulation resistance for one minute. GB/T 5095.2 Method 3a / EIA-364-21C	初始: 500MΩ Min. Initial: 500MΩ Min. 实验后: 500MΩ Min. After experiment: 500MΩ Min.



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5.1.5	温升 Temperature Rise	<p>插合连接器，通导线对应最大电流，测量端子与导线连接处的温升值。</p> <p>Put the product in series in the rated voltage and current circuit, and measure the temperature rise at the connection between the terminal and the wire.</p> <p>导线规格(AWG)      额定电流(Rated current)</p> <p>24# AWG                      2.0A</p> <p>22# AWG                      2.5A</p> <p><b>GB/T 5095.3 Method 5a / EIA-364-70A</b></p>	$\Delta 30\text{ }^{\circ}\text{C Max.}$ ( $\Delta 30\text{ K Max.}$ )
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## 5.2 机械特性 Mechanical Requirements

5.2.1	端子与塑壳插入力和保持力 Contact insertion force and retention force	<p>沿端子轴向插入端子和拉伸导线，测定端子与插入塑壳的力和脱出时的拉力。</p> <p>Insert the terminal and the stretching wire along the terminal axially, and measure the insertion force and retention force between the terminal and the housing.</p> <p><b>GB/T 5095.8 Method 15d / EIA-364-29B</b></p>	<p>插入力:10N Max. Insertion force:10N Max.</p> <p>保持力:10N Min. Retention force:10N Min.</p>
5.2.2	机械寿命 Mechanical life	<p>将插头和插座进行 30 次插拔后，测定其接触电阻。</p> <p>The plug and socket 30 times after the plug, the contact resistance.</p> <p><b>GB/T 5095.5 Method 9a / EIA-364-09C</b></p>	<p>接触电阻：<math>\leq 40\text{m}\Omega</math> Contact resistance:<math>\leq 40\text{m}\Omega</math></p>
5.2.3	振动 Vibration	<p>插合连接器，串联在一直流电源上，电流 10mA；电压 10mV，并模拟正常工作状态；振频为 (10~55~10)Hz，每个循环时间为 3 分钟，沿 XYZ 三轴正反方向各循环 2h</p> <p>振幅：1.52mm P-P</p> <p>Mated connectors subjected to following vibration conditions, for a period of 2 hours in each of 3 mutually perpendicular axes, 10 mA current, 10mV voltage shall be applied.</p> <p>Frequency: (10~55~10) HZ in 3min</p> <p>Amplitude:1.52mm P-P</p> <p><b>GB/T 5095.4 Method 6d / QC/T 1067.1</b></p>	<p>外观：无功能损伤 Appearance: No Damage on Function</p> <p>接触电阻：<math>\leq 40\text{m}\Omega</math> Contact resistance: <math>\leq 40\text{m}\Omega</math></p> <p>电路瞬断：1<math>\mu\text{sec}</math> Max. Instantaneous break: 1<math>\mu\text{sec}</math> Max.</p>



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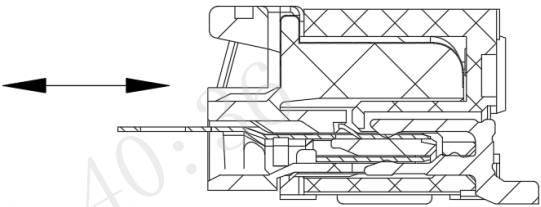
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5.2.4	压着抗张强度 Crimp tensile strength	<p>在实验装置夹头上固定实验样品，以 25 ±6mm/分钟的速度沿连接的轴线方向施加拉力</p> <p>The experimental sample is fixed on the chuck of the experimental device, and the tension is applied along the axis direction of 25 ±6mm/ min.</p> <p>GB/T5095.8 Method 16d / EIA-364-08B</p>	适用电线 Wire Size	抗张强度 Tensile Strength	
			24AWG	30N Min.	
			26AWG	20N Min. (A02)	
5.2.5	插针保持力 Pin Retention Force	<p>固定针座，由顶端对插针施加推力，测试插针与壳体之间发生位移所需的推力。</p> <p>The header is fixed, from the top of pin thrust between the pin and the shell, displacement of the required thrust.</p> <p>GB/T 5095.8 Method 15a / EIA-364-29B</p>	<p>保持力：8N Min. Retention force: 8N Min. 焊接后：5N Min. After weld: 5N Min. (A01)</p>		
5.2.6	锁扣强度 Lock strength	<p>固定连接器（仅塑件）和测力计，在轴线方向将一端拔出，速度不大于 25 ±3mm/min.</p> <p>Mated connector (Only for plastic part), apply axial pull out force at the speed rate of 25mm/min.</p>	<p>锁扣保持力：30Min. Retention force: 30N Min.</p>		
5.2.7	成品插拔力(去锁) Insertion and withdraw force (remove the lock)	<p>固定针座，将孔座从针座顶端轴线方向插入和拔出；速度不大于 25mm/min.</p> <p>The header is fixed the housing with crimped contacts shall be mated and unmated on mating axis at a rate less than 25 mm/min.</p> <p>GB/T 5095.7 Method 13b / EIA-364-13B</p> 	位数 PIN	插入力 I.F.N Max.	拔出力（去锁） W.F.M Min. (Remove the lock)
			2	6.5N	1.0N
			3	10N	1.2N
			4	13N	1.5N
			5	16N	1.8N
			6	19N	2.0N
			7	23N	2.2N
			8	26N	2.4N
			9	29N	2.6N



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5.2.8	机械冲击 Mechanical Shock	<p>配接连接器并服从下列冲击条件。在试验过程中，3 个冲击应沿着 3 个相互垂直的轴施加冲击，并通 1mA 的直流电。 (共 18 次冲击) 测试脉冲：半正弦 高峰值：490 m/s<sup>2</sup> (50 G) 持续时间：11 ms Mate connectors and subject to the following shock conditions. 3 shocks shall be applied along 3 mutually perpendicular axes, passing DC 1 mA current during the test. (Total of 18 shocks) Test pulse：Half Sine Peak value：490 m/s<sup>2</sup> {50 G} Duration：11 ms  GB/T 2423. 5-1995</p>	<p>外观：无功能损伤 Appearance: No Damage on Function 接触电阻：≤40mΩ Contact resistance: ≤40mΩ  电路瞬断：1μsec Max. Instantaneous break: 1μsec Max.</p>
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### 5.3 环境特性 Environmental Requirements

5.3.1	热冲击 Heat Shock	<p>端子公母端插接后置于实验装置中进行循环测试，按下列步骤调试温度：</p> <p>a) 在(105+2/-2)°C的恒温条件下放置 30min； b) 在+25°C常温条件下放置不超过 5min， c) 在(-40+3/-3)°C的恒温条件下放置 30min； d) 在+25°C常温条件下放置不超过 5min， 从 a)到 d)为一个循环周期，共进行 50 个循环，恢复 1~2h。</p> <p>The male and female terminals of the terminal are inserted into the experimental device to be tested in circulation,</p> <table border="1"> <thead> <tr> <th>Temperature °C</th> <th>Duration (Minutes)</th> </tr> </thead> <tbody> <tr> <td>a 105+2/-2</td> <td>30</td> </tr> <tr> <td>b +25</td> <td>5Max.</td> </tr> <tr> <td>c -40+/-3</td> <td>30</td> </tr> <tr> <td>d +25</td> <td>5Max.</td> </tr> </tbody> </table> <p>Step a to d is one cycle, 100 cycles shall be tested. Recovery time 1~2 hours. GB/T 5095.6 method 11d / EIA-364-32C</p>	Temperature °C	Duration (Minutes)	a 105+2/-2	30	b +25	5Max.	c -40+/-3	30	d +25	5Max.	<p>外观：无功能损伤 Appearance: No Damage on Function</p> <p>接触电阻：40mΩ Max. Contact Resistance: 40mΩ Max.</p> <p>耐电压：满足 5.1.3 Withstand voltage: Meet 5.1.3</p> <p>端子与塑壳保持力：15N Min. Terminal/Housing Retention Force:15N Min.</p>
Temperature °C	Duration (Minutes)												
a 105+2/-2	30												
b +25	5Max.												
c -40+/-3	30												
d +25	5Max.												
5.3.2	高温测试 Heat Resistance	<p>将嵌合状态下的插头与插座在温度为 105±5°C 的高温环境中连续放置 96 小时，然后测量其两端接触电阻。</p> <p>The plug and socket in the embedded state are continuously placed in the high temperature environment with a temperature of 105±5 DEG C for about 96 hours, and then the contact resistance is measured.</p> <p>GB/T 5095.6 Method 11i / EIA-364-17B</p>	<p>外观：无功能损伤 Appearance: No Damage on Function</p> <p>接触电阻：40mΩ Max. Contact resistance: 40mΩ Max.</p>										
5.3.3	低温测试 Cold Resistance	<p>将样品放进温度为-40±5°C的低温箱存放 96 小时后待其恢复到室温。</p> <p>The sample is placed in a low temperature box with a temperature of -40±5 DEG C for 96 hours, and then it is returned to the room temperature.</p> <p>GB/T 5095.6 Method 11j</p>	<p>外观：无明显变形、开裂等对使用有影响的缺陷。 Appearance: No obvious deformation, cracking and other defects affecting the use</p> <p>接触电阻：:40mΩ Max. Contact resistance: 40mΩ Max.</p>										



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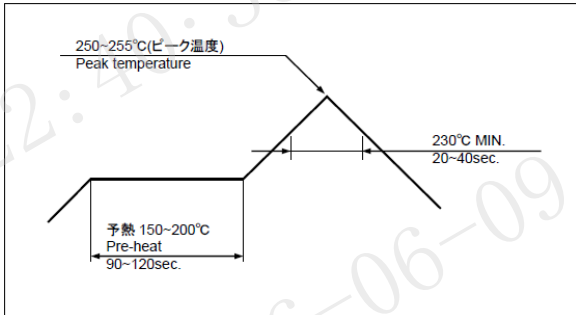
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5.3.4	耐湿性 Humidity	<p>端子公母端插接后置于实验装置中进行测试            温度: 60±2℃            相对湿度: 90-95%            持续时间: 96 小时            The male and female terminals shall be placed in the experimental device to be tested.            Temperature: 60±2℃            Humidity: 90-95%            Duration: 96 hours            GB/T 5095.6 Method 11c /EIA-364-31B</p>	<p>外观: 无功能损伤            Appearance: No Damage on Function</p> <p>接触电阻: 40mΩ Max.            Contact Resistance: 40mΩ Max.</p> <p>绝缘电阻: 500MΩMin.            Insulation resistance: 500Ω Min.</p> <p>耐电压: 满足 5.1.3            Withstand voltage: meet 5.1.3</p>
5.3.5	盐水喷雾 Salt spray	<p>端子公母端插接后置于实验装置中进行测试            盐水浓度: 5%            温度: 35±2℃            持续时间: 48 小时            The male and female terminals shall be placed into the experimental device to be tested.            Salt concentration:5%            Temperature: 35±2℃            Duration: 48 hours            GB/T 5095.6 Method 11f /EIA-364-26B</p>	<p>外观: 无露出底金属的严重锈蚀            Appearance: No erosion with material exposed is acceptable)</p> <p>接触电阻: 40mΩ Max.            Contact Resistance: 40mΩ Max.</p>
5.3.6	可焊性 Welding test	<p>把试验品需要焊接的部位浸入焊锡炉中, 锡炉温度 245±5℃; 时间 2-3s, 取出冷却后, 检查连接器焊接端蘸锡情况。            Dip the welding part of the test sample into the tin solder furnace at a temperature of (245±5) °C .Time 2~3s, take out and cool, check the solder dip condition of connector welding end.</p>	<p>上锡率 95%以上            Tin coverage ≥95%</p>
5.3.7	耐焊性 Resistance to soldering heat	<p>样品放入回流焊机中, 温度曲线如下设定。            Put the sample into the reflow welder,and set the temperature curve as follows.            EIA-364-56A</p> 	<p>外观:            1. 无鼓起, 平整度符合图面要求            2. 端子未移动, 松脱            Appearance:            1. No bulge,flatness meets the requirements of drawing.            2. The terminal is no moved and loosed.</p>



