GI2 系列

目录
Index

1.范围 Scope

2.产品描述 Product Description

3.相关标准 Related Standards

4.参数范围 Parameter Ratings

5.产品性能 Performance Specification

6.测试分组 Test Sequences

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1	2024/5/14	新编制 First release	覃丽	A00
2	2024/8/10	新增编带针座	覃丽	A01
3	2024/11/21	调整插针保持力标准	刘方园	A02
4	2024/12/18	新增空空对接插座	蓝心怡	A03
5	2025/3/6	实验顺序笔误修改	刘方园	A04
6	2025/6/20	新增防压锁片	刘方园	A05
7	2026/5/12	新增卧式针座	刘方园	B01
8	2026/8/5	新增簧端子高脚	刘方园	B02

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 2517 系列连接器

This Specification covers the 2517 series 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	压接范围 Applicable Wire Size	备注 Remarks
簧端子 Socket Terminal	TP2517G-1301	磷青铜 Phosphor Bronze	/	AWG 26#-22#	镀锡 Tin-plating
簧端子高脚 Socket Terminal	TP2517G-1303	磷青铜 Phosphor Bronze	/	AWG 24#+24#	镀锡 Tin-plating
孔座 Plug Housing	HP2517G-nY/****	PA66 GWT	UL94V-0	/	
插座 Receptacle Housing	HR2517G-nYN/****	PA66 GWT	UL94V-0	/	
锁片 Retainer	HC2517G-nS/****	PA66 GWT	UL94V-0	/	适配 HP2517G-nY Matched Plug Housing
防压锁片 Anti-Crush Retainer	HC2517A-nS/****	PA66 GWT	UL94V-0	/	适配 HP2517G-nY Matched Plug Housing
锁片 Retainer	HC2517G-R-nS/****	PA66 GWT	UL94V-0	/	适配 HR2517G-nYN Matched Receptacle Housing
标准版直针针座 Standard Header(Top Entry Type)	HW2517G-D-nAm/****	PA66 GWT 黄铜 Brass	UL94V-0	/	镀锡 Tin-plating
标准版弯针针座 Standard Header(Side Entry Type)	HW2517G-nQAm/****	PA66 GWT 黄铜 Brass	UL94V-0	/	镀锡 Tin-plating

标准版编带针座 Standard header with tape	HW2517G-L-nAm/****	PA66 GWT 黄铜 Brass	UL94V-0	/	镀锡 Tin-plating
加高版编带针座 Higher header with tape	HW2517G-HL-nAm/****	PA66 GWT 黄铜 Brass	UL94V-0	/	镀锡 Tin-plating
备注：n 表示孔位总数，m 表示接触件数，****表示制造码 Note: 'n' represents the total number of positions, 'm' represents the number of contacts, '****' represents the manufacturing code.					

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	电子设备用机电元件基本试验规程及测量方法 Testing procedure/Method for components of electric equipment

4、 参数范围 Parameter Ratings

额定电压 Rated Voltage	125V AC/DC Max.（2.5mm 间距） 400V AC/DC Max.（5.0mm 间距）
额定电流 Rated Current	3A(AWG22#时)
使用温度范围 Operation temperature range	-30℃～105℃ (含通电温度上升值) Including temperature rise
存储条件 Storage conditions	温度 temperature：（-5~30）℃ 相对湿度 relative humidity≤70%
适用线型 Applicable wires	26#-22# AWG（0.15mm² ~0.32mm² ） 24#+24# AWG（0.2mm² +0.2mm² ）
适用线路板厚度 Applicable PCB thickness	1.6mm

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，所有测试在室温进行,除非另有说明.

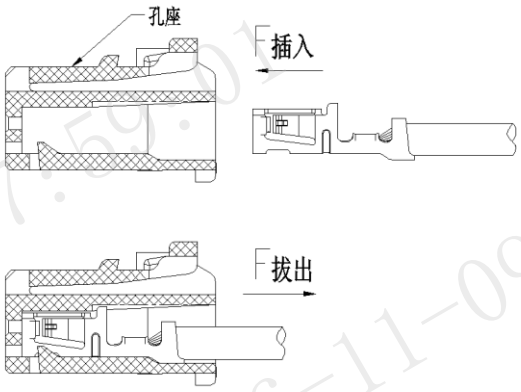
The product shall be designed to meet the electrical, mechanical and environmental performance requirements specified in 5.1,5.2 and 5.3. All tests shall be performed in the room temperature, unless otherwise specified.

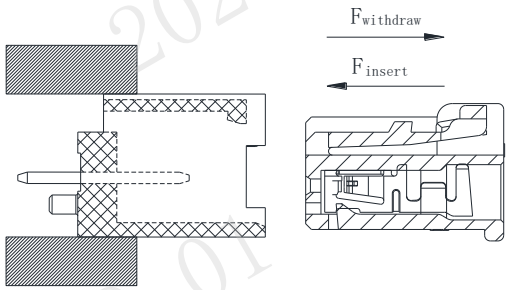
5.1 电气特性 Electrical Requirements

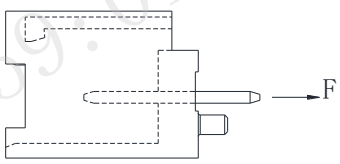
序号 COD	项 目 Test project	测试方法及条件 Test methods and conditions	标 准 规 格 Standard
5.1.1	外观 Appearance	目测 Checking by eye 视力 Eyesight：＞1.0 照明 Lamp：（200-300）1x 目测距离 Space：0.3-0.5m **GB/T 5095.2 Method 1a**	a. 塑料件应无明显疤痕、凹陷、开裂、变色及影响使用的变形。 Plastic parts shall not be no obvious scar, dent, crack, discoloration, 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 100mA 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 100mA. **GB/T 5095.2 Method 2a / EIA-364-23B**	10mΩ Max.(初始值) 10mΩ Max. (Initial value) 20mΩ Max(实验后) 20mΩ 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表电压(初始有效值)，漏电流 1mA 的电压作用，时间 1min。 The following voltage applied to leakage current 1mA between adjacent contacts or ground wires is for 1minute. 1250V AC/DC Max.（2.5mm 间距） 1800V AC/DC Max.（5.0mm 间距） **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	在相邻的接触件这间或地线之间施加 500V DC 电压，持续时间 1min。 500V 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**	1000MΩ Min (初始值) 1000MΩ Min (initial value) 500 MΩ Min (实验后) 500 MΩ Min (After experiment)
5.1.5	温升 Temperature Rise	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。 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. 导线规格(AWG) 额定电流(Rated current) 22# AWG 3A 24# AWG 2.5A 26# AWG 2.0A **GB/T 5095.3 Method 5a / EIA-364-70A**	Δ30 ℃ Max.（Δ30 K Max）

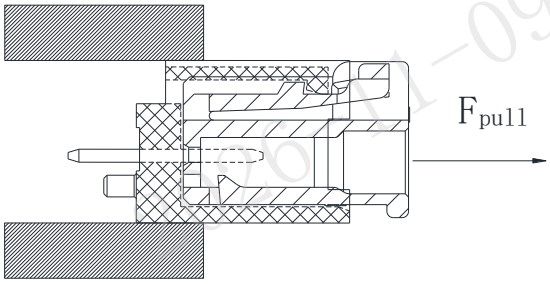
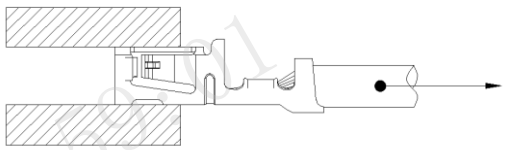
5.2 机械特性 Mechanical Requirements

5.2.1	端子与塑壳插入力和保持力 Contact insertion force and retention force	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。 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. **GB/T 5095.8 Method 15d / EIA-364-29B** 	插入力:7N Max Insertion force:7N Max 带锁保持力:30N Min Retention force:30N Min 去锁保持力:15N Min Retention force:15N Min

<table>
<tr>
<td>5.2.</td>
<td>成品插拔力（去锁）
Insertion and withdraw force (remove lock)</td>
<td>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.
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.
GB/T 5095.7 Method 13b / EIA-364-13B
 

</td>
<td colspan="4">
<table>
<tr><td rowspan="2">孔位
（n）</td><td>插入力
I.F.N
Max</td><td colspan="2">拔出力
W.F.N Min</td></tr>
<tr><td>首次
Initial</td><td>首次
Initial</td><td>30 次
At 30th</td></tr>
<tr><td>2</td><td>8</td><td>1.0</td><td>0.4</td></tr>
<tr><td>3</td><td>12</td><td>1.5</td><td>0.6</td></tr>
<tr><td>4</td><td>16</td><td>2.0</td><td>0.8</td></tr>
<tr><td>5</td><td>20</td><td>2.5</td><td>1.0</td></tr>
<tr><td>6</td><td>24</td><td>3.0</td><td>1.2</td></tr>
<tr><td>7</td><td>28</td><td>3.5</td><td>1.4</td></tr>
<tr><td>8</td><td>32</td><td>4.0</td><td>1.6</td></tr>
</table>
</td>
</tr>
<tr>
<td>5.2.3</td>
<td>插针保持力
Pin resistance force</td>
<td>将针座水平固定，由顶端对插针施加两相反方向的力，测插针与壳体之间发生位移所需的力。
The header is fixed, from the top of pin thrust between the pin and the shell, displacement of the required thrust.
GB/T 5095.8 Method 15a / EIA-364-29B
 

</td>
<td colspan="4">保持力：20N Min.
Retention force: 20N Min.</td>
</tr>
</table>

5.2.4	胶壳锁扣强度 Lock strength	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. Mated connector (Only for plastic part), apply axial pull out force at the speed rate of 25mm/min. 	锁扣强度 Lock strength 2 pin ~3pin:20N Min 4 pin ~8pin:30N Min	
5.2.5	机械寿命 Durability	将插头和插座进行 30 次插拔。 The plug and socket is mated and unmated for 30 times **GB/T 5095.5 Method 9a / EIA-364-09C**	外观：无损伤 Appearance: No Damage 接触电阻 20mΩ Max Contact resistance: 20mΩ Max.	
5.2.6	压着抗张强度 Crimp tensile strength	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 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. **GB/T5095.8 Method 16d / EIA-364-08B** 	适用电线 Wire Size	抗张强度 Tensile Strength
			22AWG	40N Min.
			24AWG	30N Min.
			26AWG	20N Min.

5.2.7	振动 Vibration	插合连接器，串联在一直流电源上,电流100mA;并模拟正常工作状态；振频为（10～100～10）Hz，每个循环时间为 1 分钟，振幅1.52mm。沿 XYZ 三轴正反方向各循环 2h Mated connectors subjected to following vibration conditions, for a period of 2 hours in each of 3 mutually perpendicular axes, 100 mA current shall be applied. Frequency: (10~100～10）HZ/min. Amplitude: 1.52mm **GB/T 5095.4 Method 6d / EIA-364-28D**	外观：无损伤 Appearance: No Damage 接触电阻 20mΩ Max Contact resistance: 20mΩ Max. 电路瞬断：1μsec Max. Instantaneous break: 1μsec Max.
5.2.8	机械冲击 Mechanical shock	插合连接器，串联在直流电源上，允许电流100mA；在冲击试验台上，模拟正常工作状态，在三个互相垂直方向的每一方向连续施加三次冲击，即共 18 次，冲击加速度为 980m/s2（100G），脉冲持续时间为 6ms，施加波形为半正弦波。 The plug-in connector is connected in series with the DC power source and allows the current 100mA; the normal working state is simulated on the impact test platform, and the three is in the two Three shocks are applied continuously in each direction, i.e., 18 times, the impact acceleration is 980m/s2 (100G), and the pulse duration is constant Time is 6ms, and the waveform is half sine wave. Test equipment should be installed in the test, the instantaneous opening time should not exceed 1 s. **GB/T 5095.4 Method 6c / EIA-364-27B**	外观：无损伤 Appearance: No Damage 接触电阻 20mΩ Max Contact resistance: 20mΩ Max. 电路瞬断：1μsec Max. Instantaneous break: 1μsec Max.

5.3 环境特性 Environmental Requirements

5.3.1	热冲击 Heat Shock	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： a) 在(105+3/-0)℃的恒温条件下放置 30min； b) 在+25℃常温条件下放置不超过 5max, c) 在(-30+0/-3)℃的恒温条件下放置 30min； d) 在+25℃常温条件下放置不超过 5max, 从 a)到 d)为一个循环周期，共进行 25 个循环,恢复 1~2h。 The male and female terminals of the terminal are inserted into the experimental device to be tested in circulation, Temperature ℃ Duration (Minutes) a 105+3/-0 30 b +25 5Max. c -30+0/-3 30 d +25 5Max. Step a to d is one cycle, 25 cycles shall be tested. Recovery time 1~2 hours. **GB/T 5095.6 method 11d / EIA-364-32C**	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 绝缘电阻：500MΩMin Insulation resistance: 500Ω Min 耐电压：满足 5.1.3 Withstand voltage: meet 5.1.3
5.3.2	高温测试 Heat Resistance	将嵌合状态下的插头与插座在温度为 105±5℃的高温环境中连续放置 240 小时，然后测量其两端接触电阻。 The plug and socket in the embedded state are continuously placed in the high temperature environment with a temperature of 105±5 ℃ for about 240 hours, and then the contact resistance is measured. **GB/T 5095.6 Method 11i / EIA-364-17B**	外观：无损伤 Appearance: No Damage 接触电阻 20mΩ Max Contact resistance: 20mΩ Max.
5.3.3	低温测试 Cold Resistance	将样品放进温度为-40℃的低温箱存放 96 小时后，在试验箱中按压锁扣。 The sample is placed in a low temperature box with a temperature of -40 ℃ for 96 hours, and then press the lock in the test chamber. **GB/T 5095.6 Method 11j**	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

5.3.4	耐湿性 Humidity	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**	外观：无损伤 Appearance: No Damage 接触电阻：20mΩ Max Contact Resistance：20mΩ Max 绝缘电阻：500MΩMin Insulation resistance: 500Ω Min 耐电压：满足 5.1.3 Withstand voltage: meet 5.1.3
5.3.5	盐水喷雾 Salt spray	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**	外观：无露出底金属的严重锈蚀 Appearance：No erosion with material exposed is acceptable) 接触电阻：20mΩ Max Contact Resistance：20mΩ Max
5.3.6	可焊性 Solderability test	把试验样品需要焊接的部位蘸助焊剂，再浸入焊锡炉中,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 in flux into the tin solder furnace at a temperature of (245±5) ℃.Time 2~3s, take out and cool, check the solder dip condition of connector welding end. **GB/T 5095.6 Method 12a / EIA-364-52**	上锡率 95%以上 Tin coverage ≥95%
5.3.7	耐焊接性 Resistance to soldering heat	1.把试验样品需要焊接的部位浸入焊锡炉中，锡炉温度（270±3）℃；时间（10±1）s 后，室温下恢复 1h。 Dip solder tails into the molten solder(held at (270±3) ℃ for (10±1) sec., Recovery time 1 hours **GB/T 5095.6 Method 12d / EIA-364-56A**	外观：无影响使用的物理损伤 Appearance: No damage

5、 测试分组 Test Sequences

实验项目 Test projects		A	B	C	D	E	F	G	H
5.1.1	外观 Appearance	1,8	1,8	1	1	1	1	1	1
5.1.2	接触电阻 contact resistance	2,7	2,6				2		
5.1.3	耐电压 Withstand voltage			3,7					
5.1.4	绝缘电阻 Insulation resistance			4,8					
5.1.5	温升 Temperature Rise		3（插拔10次后测） 7						
5.2.1	端子与塑壳插入力和保持力 Contact insertion force and retention force			2插入 9拔出					
5.2.2	成品插拔力 Insertion and withdraw force	3							
5.2.3	插针保持力 Pin resistance force				3				
5.2.4	胶壳锁扣强度 Lock strength			10					
5.2.5	机械寿命 Durability	4							
5.2.6	压着抗张强度 Crimp tensile strength					2			
5.2.7	振动 Vibration	5							
5.2.8	机械冲击 Mechanical shock	6							
5.3.1	热冲击 Heat Shock			5					
5.3.2	高温测试 Heat Resistance		5						
5.3.3	低温测试 Cold Resistance								2
5.3.4	耐湿性 Humidity		4	6					
5.3.5	盐水喷雾 Salt spray						3		
5.3.6	可焊性 Solderability test							2	
5.3.7	耐焊接性 Resistance to soldering heat				2				