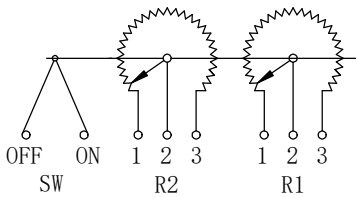
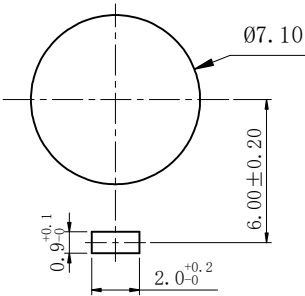


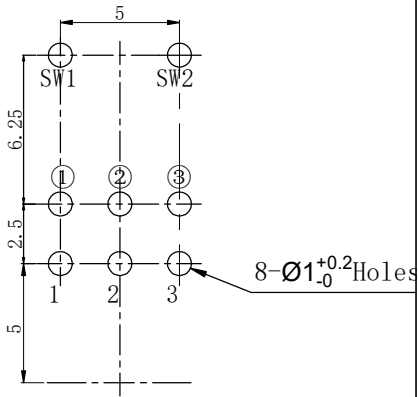
W	5
L	F
15	7



CIRCUIT:GS

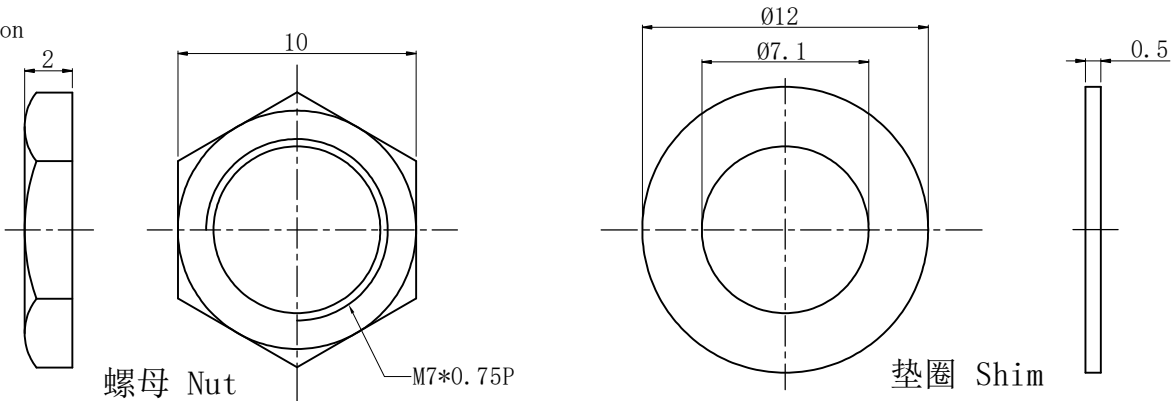


Panel layout



P. C. B MOUNTING DETAIL

可选件 Option

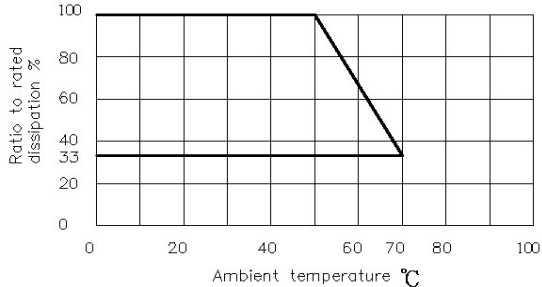


VERSION	<div><div><div></div><div></div></div><div>深圳市亚特联科技有限公司 SHENZHEN YATELIAN TECHNOLOGY CO., LTD</div></div>		MODEL: YSX-DWQ-P097-0548/B503GSA0V00AD15F7			DRAW	SCALE
A0			DRAWING NO:DWQ-P097-005			宋工	
. ISSU.	DATE	REVISION	Design	TOL. UNLESS OTHERWISE SPEC.		CHKD	UNIT
00	2024. 12. 28	Original		BASIC DIMENSIONS	TOL.	严工	
01				L≤10	±0. 3		APPD
02				10<L	±0. 5		
03				100≤L	±0. 8		洪工
04				ANGLE	±5°	第 1 页	

DWQ-P097 SPECIFICATIONS 电位器规格书

适用机种 APPLICABLE MODELS: YSX-DWQ-P097-0548/B503GSA0V00AD15F7

一. ELECTRICAL CHARACTERISTICS 电气特性

序号 NO	项 目 ITEM	性 能 PERFORMANCE	测试条件 TEST CONDITIONS
1.1	Total resistance 全阻值	<u>50K Ω</u>	Between terminal 1 and terminal 3. 1-3 端子间.
1.2	TOTAL RESISTANCE TOLERANCE 全阻值允差	<u>$\pm 20\%$</u>	
1.3	Resistance taper 阻抗特性型式	“Resistance taper characteristics”. 见所附“阻型特性图”.	It should be tested at the position of 50% of the effective use angle. Percentage of the voltage of (C、E、RD type terminal 2-3 and other type terminal 1-2) to the voltage of terminal 1-3. 在有效使用角度的 50%的位置测定, (C、E、RD 阻型其端子 2-3 脚, 其它阻型其端子 1-2 脚)电压对端子 1-3 脚电压的百分比。
1.4	Rated power 额定功率	Single unit: <input type="checkbox"/> Linear taper B: 0.05W <input type="checkbox"/> Other taper 0.025W Dual unit: <input checked="" type="checkbox"/> Linear taper B: 0.05W <input type="checkbox"/> Other tapers : 0.025W 单联: <input type="checkbox"/> B 型: 0.05W <input type="checkbox"/> 其它阻型: 0.025W 双联: <input checked="" type="checkbox"/> B 型: 0.05W <input type="checkbox"/> 其它阻型: 0.025W	The rated power should be changed according to the following chart when the ambient temperature changed. 它与环境温度按以下曲线变化。 DERATING CURVE OF RATED DISSIPATION  DISSIPATION
1.5	Rated voltage 额定电压	<input checked="" type="checkbox"/> Linear taper B: AC50V、DC10V <input type="checkbox"/> Other tapers : AC25V、DC10V <input checked="" type="checkbox"/> B 型: AC50V、DC10V <input type="checkbox"/> 其它阻型: AC25V、DC10V	E: 额定电压 Rated voltage (V) P: 额定电力 Rated power (W) R: 公称阻值 Normal total resistance (Ω) The rated voltage is calculated by above formula. When the rated voltage exceeds the maximum operating voltage, the maximum operating voltage should be the rated voltage. 额定电压按以上公式计算, 当额定电压超过最大工作电压时, 最大工作电压即为额定电压。
1.6	Sliding noise 噪声	Less than 100mV 小于 100mV	
1.7	Insulation resistance 绝缘阻抗	More than 100M Ω 100M Ω 以上	Measure insulation resistances between the individual terminals and metallic bushing with a DC250V insulation resistance tester. 金属轴套与端子间加 DC250V 电压测定。
1.8	Withstand voltage 耐电压特性	Without arcing or breakdown 无损坏或弧光	Apply AC 500V (50~60HZ) between specified terminals and metallic bushing for 1 minute. 在特定端子与金属轴套间加 AC500V (50~60HZ) 电压 1 分钟。
1.9	Residual Resistance 残留电阻值	Less than 20 Ω 小于 20 Ω	Resistance between terminal 1-2 and terminal 2-3 in full CW rotation and full CCW rotation. 轴以逆时针方向和顺时针方向旋转到底时 1-2 与 2-3 脚之阻值。

1. 10	Gang Error (Dual Unit) 同步误差(双联)	-40dB~_0dB_4dB	<p>It should be tested at the following drawing: 按下图之方式测试之:</p>
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二. MECHANICAL CHARACTERISTICS 机械特性

序号 NO	项 目 ITEM	性 能 PERFORMANCE	测试条件 TEST CONDITIONS
2. 1	Total Rotation angle 全回转角度	300° ±10°	Angle from end 1 to end 3 从 1 端到 3 端的角度
2. 2	Rotational Torque 旋转力矩	10~80 gf.cm	Rotational speed 60° /sec 回转速度: 60° /秒
2. 3	Number of detents (click) 旋转段位数目	□1C(Center Detent 中段功能) □6C, □11C, □21C, □41C	For with-detent type. 加中段功能机种使用
2. 4	Click torque 段位推动力	50~ 250 gf.cm	For with-detent type. 加中段功能机种使用
2. 5	Rotation Stopper Strength 旋转止动强度	There should be no visual damage when maximum 4.0 Kgf.cm of torque are applied. 当其承受最大 4.0Kgf.cm 之扭力时, 无明显破坏及损伤	Test duration: rotate to terminal 1 and terminal 3 specifically for 5±1 sec. 测试时间: 旋转至 1 脚端和 3 脚端各 5±1 秒.
2. 6	Push-Pull Strength of Shaft 轴心推拔承受强度	There should be no broken when Maximally 8.0 Kgf of push strength and 5.0 Kgf pull strength are applied. 应用 8Kgf 的推力及 8Kgf 的拉力, 无损伤	Test duration: 10 sec. of push force immediately followed by 20 sec. of pull force should be applied. Test point and direction: The strength should be applied to the top end of the shaft in axial direction. 测试时间: 应用推力 10 秒钟后立即应用拉力为 20 秒钟; 测试点及方向: 测试点为轴心顶部, 方向为轴向。
2. 7	Shaft play in axial direction 轴向间隙	0.4mm Max. 最大为 0.4mm	Apply 0.5kgf of force to the shaft in axial direction. 沿轴心轴向方向施加 0.5kgf 拉拔力。
2. 8	Shaft Wobble 轴心晃动	0.6XL/20mm Max. L—Shaft length L—轴心长度	0.6XL/20mm Max. L—Shaft length L—轴心长度
2. 9	Bushing nut tighten Strength 轴套螺母紧固强度	5.0 Kgf.cm MAX 最大为 5.0 Kgf.cm	
2. 9	Waterproof grade 防水 等级	□IP65 □IP67	Between shaft core and shaft sleeve 轴芯与轴套之间

三. ENDURANCE CHARACTERISTICS 耐久性能

序号 NO	项 目 ITEM	性 能 PERFORMANCE	测试条件 TEST CONDITIONS
3.1	Dry heat 耐热性	Variation of total resistance should be within +5% - 30%. To be operated mechanically. 全阻值变化要在+5% - 30%以内，机械方面能动作。	Test temperature:70±2℃ Test duration:240±8h Exposure to room temperature: 1h to 2h. 测试温度 70±2℃， 时间 240±8 小时， 室温保持 1 至 2 小时。
3.2	Cold 耐寒性	The total resistance change should be within ±20%. To be operated mechanically. 全阻值变化要在±20%以内，机械方面能动作	The switch shall be stored at a temperature of -40±3℃ for 96±4H in a thermostatic chamber, And then the switch . Shall be subjected to standard atmospheric conditions for 1.5H, After which measurements shall be made. 测试温度-40±3℃，无负载， 时间 96±4 小时，室温保持 1 至 2 小时后测试
3.3	Damp heat 耐湿性	The total resistance change should be within 20%. To be operated mechanically. 全阻值变化要在±20%以内。机械方面能动作。	The change in resistance shall not exceed ±10% after cycle no for 1.5 hours off 0.5 hours, being repeated in a chamber at 40 ±2℃ . 90 to 95 % R.H for 96 ± 2consecu-tive, hours under rated voltage .subsequently being left for 5 hours and over at room temperature and humidity. 温度 40±2℃,湿度 90~95%之恒温恒湿槽加上 1.5 小时额定电压后切 0.5 小时,如此循环连续重复做，96±2 小时后,在常温常湿之室内,以无负载放置 5 小时之后。
3.4	Change of temperature 温度循环	The total resistance change should be within 10%. To be operated mechanically. 全阻值变化要在±10%以内。机械方面能动作。	温度 temperature 放置时间 1 -25±3℃ 30 分钟 2 常温 10to15 分钟 3 70±2℃ 30 分钟 4 常温 10to15 分钟 5 -25±3℃ 30 分钟 依上表连续循环 5 回,去除表面水分在室温中置放 1 小时后测试。
3.5	Salt mist 盐雾试验	No apparent rust and discoloration 无明显锈迹,无变色	Test should be made with temperature of 35±2℃ and concentration of 5±1% (by weight) for 8 h. Then clean with water. 在温度为 35±2℃,浓度(重量比)为 5±1%的条件下,进行 8 小时连续喷雾后取出水洗。
3.6	Solder ability 焊锡性	Not less than 3/4 of the surface dipped shall be covered with new solder. 浸锡部分表面最少 3/4 被新锡覆盖。	Temperature of solder: 260±5℃duration:3±0.5s. 焊锡温度 260±5℃，浸锡时间 3±0.5 秒。
3.7	Resistance to soldering heat 焊锡耐热性	Variation of total resistance shall be within ±5%, and terminals shall not work loose to injure electric contact, after test. 全阻值变化±5%以内,测试后无端子松动,不会损坏电气接点。	Preheating condition: Surface temperature of the substrate shall be settled within 100℃ in one min. 预热: 基板表面温度 100℃以下, 1 分钟内。 Solder temperature 260±5℃for 5 sec. 焊锡温度 260±5℃，5 秒。 Manual soldering. 手焊 温度 350℃以下,时间 3 秒以内。 Bit temperature of soldering iron:350℃less than application time of soldering iron:within 3S

3.8	Rotational life 旋转寿命	Standard life 标准寿命: Variation of total resistance should be within $\pm 20\%$, 全阻值变化 $\pm 20\%$ 以内.	测试速度 600 次/小时, 15000 次以上。 Test speed 600 times/hour, over 15000 times
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四、Rotary switch specifications 旋转开关规格

☒YES☐NO

序号 NO	项 目 ITEM	性 能 PERFORMANCE	测试条件 TEST CONDITIONS
4.1	Contact resistance of switch. 开关接触电阻	Less than 100 m Ω 小于 100m Ω	Tested by contact resistance tester when switch is ON (1KHZ, 10mV, 5~50mA). 开关处于 ON 状态时, 以 (1KHZ, 10mV, 5~50mA) 微电流接触阻抗计测定.
4.2	Switch Rated Power 开关额定功率	1.0A at DC 12V	Within 70℃ 小于 70℃
4.3	Insulation resistance 绝缘阻抗	More than 100 M Ω 100 M Ω 以上	Measure insulation resistances between the individual terminals and metallic bushing with a DC250V insulation resistance tester. 金属轴套与端子间加 DC250V 电压测定.
4.4	Withstand voltage 耐电压特性	Without arcing or breakdown 无损坏或弧光	Apply AC 300V (50~60HZ) between specified terminals and metallic bushing for 1 minute. 在特定端子与金属轴套间加 AC250V (50~60HZ) 电压 1 分钟.
4.5	Switch rotation angle 开关回转角度	50° \pm 10°	Angle from OFF to ON 从 OFF 到 ON 之间的角度
4.6	Switch action 开关作用力	150~350gf.cm	Torque from OFF to ON 从 OFF 到 ON 之间的扭力
4.7	Number of cycles 开关耐久次数	Contact resistance 1 Ω Max, To be operated mechanically. 接触阻抗最大 1 Ω , 机械方面能动作.	测试速度 600 次/小时, 15000 次以上。 Test speed 600 times/hour, over 15000 times

五、Push switch specifications 按压开关规格

☐YES☒NO

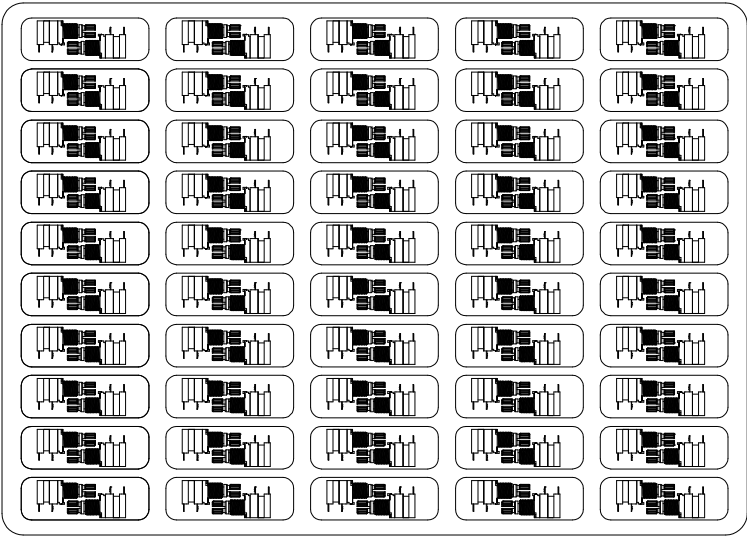
序号 NO	项 目 ITEM	性 能 PERFORMANCE	测试条件 TEST CONDITIONS
5.1	Contact resistance of switch. 开关接触电阻	Less than 100 m Ω 小于 100m Ω	Tested by contact resistance tester when switch is ON (1KHZ, 10mV, 5~50mA). 开关处于 ON 状态时, 以 (1KHZ, 10mV, 5~50mA) 微电流接触阻抗计测定.
5.2	Switch Rated Power 开关额定功率	1.0A at DC 12V	Within 70℃ 小于 70℃
5.3	Insulation resistance 绝缘阻抗	More than 100 M Ω 100 M Ω 以上	Measure insulation resistances between the individual terminals and metallic bushing with a DC250V insulation resistance tester. 金属轴套与端子间加 DC250V 电压测定.
5.4	Withstand voltage 耐电压特性	Without arcing or breakdown 无损坏或弧光	Apply AC 300V (50~60HZ) between specified terminals and metallic bushing for 1 minute. 在特定端子与金属轴套间加 AC250V (50~60HZ) 电压 1 分钟.
5.5	Switch stroke 开关行程	0.5 \pm 0.3mm	Distance from OFF to ON 从 OFF 到 ON 之间的的距离
5.6	Switch action 开关按压力	500 \pm 100gf	Vertical downward pressure 垂直向下按压力

5.7	Number of cycles 开关耐久次数	Contact resistance 1Ω Max, To be operated mechanically. 接触阻抗最大1Ω, 机械方面能动作.	测试速度 600 次/小时, 15000 次以上。 Test speed 600 times/hour, over 15000 times
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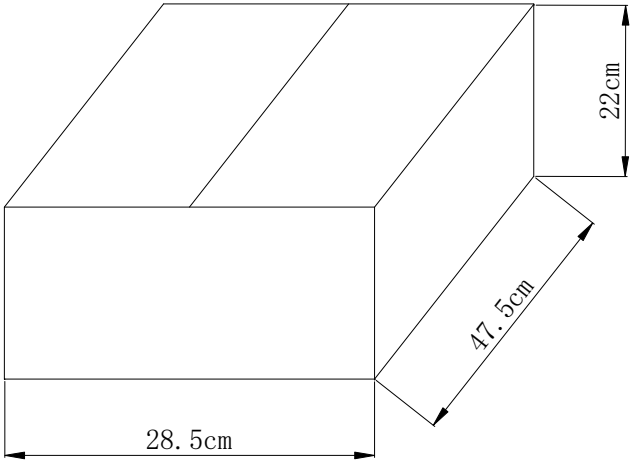
六. Packing Portion 包装部分

序号 NO	项 目 ITEM	性 能 PERFORMANCE	测试条件 TEST CONDITIONS
6.1	包装方式 Packing	使用吸塑盒和纸箱包装 Use plastic box and carton packaging.	每盒 100PCS, 每箱 30 盒 共计:3000PCS/箱 Put 100PCS products into foamed plastic plate, then pack 30plates into a carton, total 3000PCS/carton

内包装



外箱



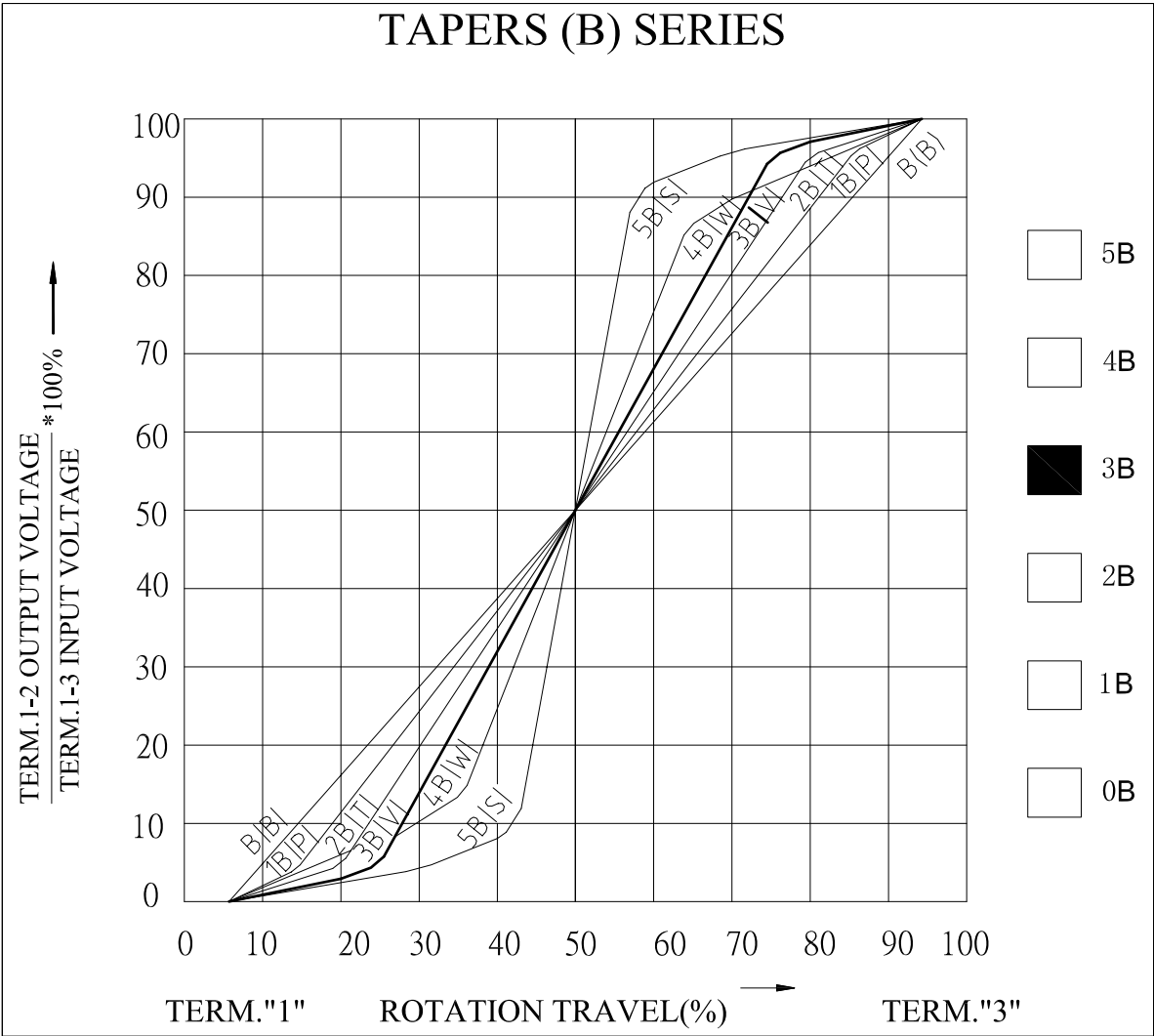
七、General 一般事项

序号 NO	项 目 ITEM	
7.1	Unless otherwise specified, test and measurement should be carried out in following condition: 如无特殊要求, 试验与测试将按以下条件进行:	
	Ambient temperature 温度	15℃～ 35℃
	Relative humidity 相对湿度	25%～75%
	Air pressure 气压	86 KPa ～106 KPa
7.2	Operating temperature range 使用温度范围	-10℃～+70℃
7.3	Storage temperature range 储存温度范围	-25℃～+80℃
经 办 者 Design Dept		审 查 Q.I.Department
宋工		严工
		核 准 Approved
		洪工

Electrical Characteristics

Resistance Taper Characteristics

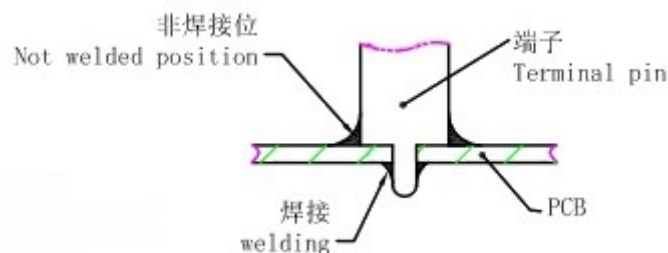
Resistance Taper Characteristics	Test Point Rotation (%)	$\frac{V_{1-2}}{V_{1-3}} \times 100\%$	$\frac{V_{2-3}}{V_{1-3}} \times 100\%$
A	60	15 ~ 30	—————
B	50	40 ~ 60	—————
C	60(Started From 3T)	—————	15 ~ 30
D	50	2 ~ 15	—————
E	50	—————	15 ~ 35
W	30(± 5-Degree)	5 ~ 15	—————
	50	40 ~ 60	—————
	70(± 5-Degree)	85 ~ 95	—————



产品使用注意事项

Product usage precautions

1. 因绝缘型轴上取用了聚碳酸酯等合成树脂, 请避免在氨、胺类、硷溶液、芳香族炭化氢、丙酮类、酯类、卤化炭化氢等的环境, 特别是强气体环境使用。Due to the use of synthetic resins such as polycarbonate on insulated shafts, please avoid using them in environments with ammonia, amines, alkaline solutions, aromatic hydrocarbons, acetone, esters, halogenated hydrocarbons, etc., especially in strong gas environments.
2. 避免结露: 产品表面应避免结露或有水滴存在, 以避免绝缘劣化或造成短路。Avoid condensation: The surface of the product should avoid condensation or the presence of water droplets to prevent insulation degradation or short circuits.
3. 关于焊接的条件设定, 请依据本公司规格书焊锡耐热性指标进行, 若有特别要求请与本公司联络; Regarding the setting of welding conditions, please refer to our company's specifications for solder heat resistance indicators. If there are any special requirements, please contact our company;
4. 拧紧安装螺母类或组装套钮时, 需在规定的强度要求(详见规格书中的机械性能指标), 且螺纹安装面需紧贴机壳或支承物, 否则, 可能会造成锁紧固定机构被破坏。When tightening installation nuts or assembling knobs, it is necessary to meet the specified strength requirements (see mechanical performance indicators in the specifications), and the threaded installation surface should be tightly attached to the casing or support, otherwise it may cause damage to the locking and fixing mechanism.
5. 安装时, 请将产品本体插入至规定的安装面为止, 并使其达到水平状态, 否则, 将可能会导致性能不良; When installing, please insert the product body into the designated installation surface and make it level, otherwise it may cause poor performance.
6. 上锡法如右图, 应尽量避免在PCB板上面非焊接位焊接, 否则加焊时易将焊锡流至产品 塑胶位造成松动或接触不良, As shown in the figure on the right, it is advisable to avoid soldering on non soldering positions on the PCB board as much as possible. Otherwise, during soldering, the solder may flow to the plastic position of the product, causing looseness or poor contact.



7. 保存方法 Save method

- ①. 产品以交货时的状态在常温、常湿, 不受阳光直射照射, 不产生腐蚀性气体的场所保管, 自交货起6个月内使用为佳: The product should be stored in a place where it is delivered at room temperature, humidity, not exposed to direct sunlight, and does not produce corrosive gases. It is recommended to use it within 6 months from the date of delivery
- ②. 包装被打开后未使用完的产品使用聚乙烯袋与空气隔断, 最好放置干燥剂(例如: 使用密封袋将其密封)请在①环境下保管与尽快使用 For products that have not been fully used after opening the packaging, use polyethylene bags to isolate them from the air. It is best to place desiccants (such as using sealed bags to seal them). Please store them in the environment and use them as soon as possible.