

120 單軸單連回轉式可變電阻器製品規格書

120 SINGLE SHAFT SINGLE UNIT ROTARY POTENTIOMETERS SPECIFICATIONS

1. 一般事項 General

1.1 適用範圍：此規範適用於電子機器之可變電阻器。

Application: This specification is applied to potentiometers used for electronic equipment.

1.2 使用溫度範圍 Operating temperature: -10~+70°C

1.3 保存溫度範圍 Storage temperature range : -30°C to +70°C

1.4 試驗狀態：若無特別規定限制，則以溫度5~35°C，相對濕度45~85%，氣壓860~1060mbar之標準狀態測之。
但對此標準狀態之測定值發生判定疑問或有特別要求則以基準狀態(溫度20±2°C,相對濕度65±5%,氣壓860~1060mbar)為準測定。

Test conditions : the standard test conditions shall be 5~35°C in temperature ,45~85%RH and 860~1060mbar in atmospheric , should any doubt arise in judgement , tests shall be conducted at 20±2°C , 65±5%RH and 860~1060mbar .

1.5 保管條件:為避免保管場所的環境引起端子變色,未到使用之前,請勿拆封,端子變色保證期限出貨後3個月內

Please have the products keep in close status and the storage time is 90 days guaranty after delivering the goods at most

2. 構造、尺寸 Construction and dimensions 依組立圖 Refer to attached drawing

3. 電氣性能 Electrical characteristics

NO.	項目 Item	試驗條件 Test conditions	規格 Specifications
3-1	全阻抗值 Total resistance	軸置于端子1或3終端,測定端子1-3間的阻抗值 Measurement shall be made by the resistance between terminal 1 and 3 with shaft setted at terminal 1 or 3 .	R<250KΩ 許容差±20% R≥250KΩ 許容差±30% R<250KΩ Tolerance ±20% R≥250KΩ Tolerance ±30%
3-2	額定電力 Power rating	端子1和3間所能連續負荷之最大電力 Power rating is based on continuous full load operation at the maximum voltage between terminal 1 and terminal 3 .	0.05W
3-3	額定電壓 Rated voltage	額定電壓 Rated voltage $E=\sqrt{PR}$ (V) 額定電力 P: Power rating (W) 公稱全阻抗值R: Nominal total resistance (Ω) 當額定電壓超過最高使用電壓的時候, 最高使用電壓即為額定電壓。 When the rated voltage exceeds the maximum operating voltage , the maximum operating voltage shall be the rated voltage .	
3-4	最高使用電壓 Max operating voltage		A.C 50V D.C 10V

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3-5	阻抗變化特性 Taper	電壓法測定(*記號表示第3端子測起) Measurement shall be made by the resistance law method. (*With respect to terminal 3)				詳細曲線請參照變化特性一覽表 Detailing resistance taper to see resistance Taper list			
		變化特性 taper	測定位置 test point	$\frac{V1-2}{V1-3}$	$\frac{V2-3}{V1-3}$				
		10A	150°	✓	—	6~15%			
		15A	150°	✓	—	10~25%			
		25A	150°	✓	—	18~34%			
		1B,2B	150°	✓	—	40~60%			
		4B	90 ±5°	✓	—	5~15%			
			150°	✓	—	40~60%			
			210 ±5°	✓	—	85~95%			
		10C	*150°	—	✓	6~15%			
		15C	*150°	—	✓	10~25%			
		25C	*150°	—	✓	18~34%			
3-6	殘留阻抗 Residual resistance	滑動子置于全回轉角度的終端時, 端子1-2間, 端子2-3間的阻抗值測定。 The resistances at each end of the mechanical rotation between terminal 1 and 2, terminal 2 and 3 shall be measured.				單位 Unit : Ω 20以下 MAX. 30以下 MAX. 全阻值的0.1%以下 0.1%MAX of nominal total resistance			
		公稱全阻抗值(KΩ) Nominal total resistance (KΩ)							
		$R \leq 10$							
		$10 < R < 50$							
		$50 \leq R \leq 1000$							
3-7	旋轉雜音 Rotational noise	端子1-3間印加直流電壓20V(額定電壓20V以下時, 則印加此額定電壓), 以30回/分的轉速所測定之雜音。 Applying 20V D.C between the terminals 1 and 3 (When the rated voltage is small than the 20V D.C, it shall be applied the rated voltage.) And then the noise shall be measured by the specified speed 30 cycles / min.				100mV 以下 100mV MAX.			
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3-8	絕緣阻抗 Insulation resistance	施加 250V 之直流電壓, 1 分鐘後測試。 測試位置: 端子和固定板間 Test voltage : 250V D.C measure after 1 min Test position : Between terminal and Attaching plate.	100MΩ 以上 100MΩ MIN.
3-9	耐電壓 Voltage proof	以 300V 之交流電壓, 測試 1 分鐘 測試位置: 端子和固定板間 Applying 300V A.C measure for 1 min . Applied position : Between terminal and Attaching plate.	不可有損傷, 電弧, 絕緣, 破壞 Without damage to parts arcing or breakdown .

4. 機械性能: Mechanical characteristics

NO.	項 目 Item	試 驗 條 件 Test conditions	規 格 Specifications				
4-1	全回轉角度 Total rotational angle		300° ±5°				
4-2	回轉轉矩 Operating torque	回轉速度 60° /秒, 但指針之瞬間下滑不計 Rotational speed 60° /sec, but torque meter indicator dropping in an instant shall be excepted .	10~100 gf-cm				
4-3	軸 松 動 Shaft wobble	在固定狀態下, 軸前端加上 500gf-cm 之力矩。 The potentiometer is fixed condition a torsion moment of 500gf-cm shall be applied at the end of shaft.	0.7xL/30 mm p-p 以下 (MAX) L : 軸受固定面至施力點之距離 L : measurement point from mounting surface of bushing.				
4-4	焊錫耐熱 Resistance to soldering heat	※DIP 焊錫條件: Condition of DIP soldering : 1. 浸漬焊錫處理時, 請確保在下列條件下作業 Soldering shall be certified with following condition. <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">預熱溫度 Preheat temperature</td> <td>(印刷基板之 RV 固定面溫度) 100°C 以下 .2 分鐘以內。(Surface temperature of mounting side) 100°C MAX Within 2 MIN.</td> </tr> <tr> <td>焊錫溫度 Solder temperature</td> <td>260°C ±5°C , 5 秒以內。 260°C ±5°C , Within 5 sec.</td> </tr> </table> 2. 以上工程 1 回通過即可。 Please use the above process only one times.	預熱溫度 Preheat temperature	(印刷基板之 RV 固定面溫度) 100°C 以下 .2 分鐘以內。(Surface temperature of mounting side) 100°C MAX Within 2 MIN.	焊錫溫度 Solder temperature	260°C ±5°C , 5 秒以內。 260°C ±5°C , Within 5 sec.	全阻抗值變化在初期的 ±5% 以內, 端子不可有接觸不良或明顯鬆動 Change in total resistance is relative to the value before test ±5% . Without excessive looseness of terminals and failure contact .
預熱溫度 Preheat temperature	(印刷基板之 RV 固定面溫度) 100°C 以下 .2 分鐘以內。(Surface temperature of mounting side) 100°C MAX Within 2 MIN.						
焊錫溫度 Solder temperature	260°C ±5°C , 5 秒以內。 260°C ±5°C , Within 5 sec.						

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4-5	軸擠壓引張 強度 Shaft push-pull strength	在軸的擠壓和引張方向各施加 8Kgf 10 秒。 Push and pull static load 8Kgf shall be applied in the shaft direction for 10 sec .	電氣性能須滿足 Electrical characteristics shall be satisfied .
4-6	軸回轉止動強度 Shaft end stop Strength	在1端子側或3端子側施加回轉力矩 3Kgf-cm,1秒鐘。 A torsion moment of 3Kgf-cm shall be applied at shaft in terminal 1 or terminal 3 for 1 sec.	操作部和關連部不可有變形、破損 Without deformation or breaks in the operating part and contact part.
4-7	軸承固定強度 Nut tightening strength		10Kgf-cm以上 (MIN) (在10Kgf-cm 以下使用。)(Don t over 10Kgf-cm when operating.)

5. 耐久性能 Endurance

NO.	項 目 Item	試 驗 條 件 Test conditions	規 格 Specifications
5-1	回 轉 壽 命 Rotational life	無負荷狀態, 軸回轉速度600回/小時, 有效 回轉角度的90%以上, 總次數15,000回以上。 The moving contact without electrical load, shall be rotated form one end stop to the other end returned to its original position extend over 90% or more effective angle . Rotation speed: 600 cycle / hour Total cycles: 15,000 cycles	全阻抗值的變化為初期值±15%以內 旋轉雜音: 150mV以下 其它須滿足(3項) (4項) Change in total resistance is relative to the value before test ±15% . Noise : 150mV MAX Clause (3), (4) shall be satisfied .

ROHS COMPLIANCE

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