

12Ø 單軸單連回轉式可變電阻器制品規格書

12Ø 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 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 .

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	軸置於端子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<250KΩTolerance ±20% R≥250KΩTolerance ±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

					APPD.	CHKD.	DSGD.	DOCUMENT NO. :			
					Ailsa	Nicole	余倩	12P1VBF-D- -001-6H			
								VERSION :	A		
								PAGE :	1 OF 4		
SYMB	DATE	APPD	CHKD	DSGD	2012.8.20	2012.8.20	2012.8.20	DRAWING NO.: 12P-018			

12Ø 單軸單連回轉式可變電阻器制品規格書
12Ø SINGLE SHAFT SINGLE UNIT ROTARY POTENTIOMETERS SPECIFICATIONS

NO.	項目 Item	試驗條件 Test conditions				規格 Specifications
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)				
		變化特性 taper	測定位置 test point	V1-2 V1-3	V2-3 V1-3	
		05A	150°	~	—	0~10%
		10A	150°	~	—	6~15%
		15A	150°	~	—	10~25%
		25A	150°	~	—	18~34%
		30A	150°	~	—	25~35%
		1B,2B,3B	150°	~	—	40~60%
		4B	90±5°	~	—	5~15%
			150°	~	—	40~60%
			210±5°	~	—	85~95%
		05C	*150°	—	~	0~10%
		10C	*150°	—	~	6~15%
		15C	*150°	—	~	10~25%
		25C	*150°	—	~	18~34%
		30C	*150°	—	~	25~35%
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 .				
		公稱全阻抗值(KΩ) Nominal total resistance (KΩ)				
		R≤10				20Ω MAX. 20Ω 以下
		10<R<50				30Ω MAX. 30Ω 以下
		50≤R				全阻值的0.1% 以下 0.1% MAX of total resistance
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.

					APPD.	CHKD.	DSGD.	DOCUMENT NO.
					Ailsa	Nicole	余倩	12P1VBF-D- -001-6H
								VERSION : A
								PAGE : 2 OF 4
SYMB	DATE	APPD	CHKD	DSGD	2012.8.20	2012.8.20	2012.8.20	DRAWING NO.: 12P-018

可正欣有限公司
TOP-UP INDUSTRY CORP.

12Ø 單軸單連回轉式可變電阻器制品規格書
12Ø SINGLE SHAFT SINGLE UNIT ROTARY POTENTIOMETERS SPECIFICATIONS

NO.	項目 Item	試驗條件 Test conditions	規格 Specifications
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: 端子和外蓋之間 Test voltage : 250V D.C measure after 1 min Test position : Between terminal and cover.	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: 端子和外蓋間 Applying 300V A.C measure for 1 min . Applied position : Between terminal and cover.	不可有損傷, 電弧, 絶緣, 破壞 Without damage to parts arching 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	軸止動強度 Shaft stopper 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 .				
4-4	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"> <tr> <td>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松動 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.						

					APPD.	CHKD.	DSGD.	DOCUMENT NO.:	
					Ailsa	Nicole	余倩	12P1VBF-D- -001-6H	
								VERSION : A	
								PAGE : 3 OF 4	
SYMB	DATE	APPD	CHKD	DSGD	2012.8.20	2012.8.20	2012.8.20	DRAWING NO.:	12P-018

12Ø 單軸單連回轉式可變電阻器制品規格書

12Ø SINGLE SHAFT SINGLE UNIT ROTARY POTENTIOMETERS SPECIFICATIONS

NO.	項目 Item	試驗條件 Test conditions	規格 Specifications
4-5	軸承螺絲固定 強度 Bushing mount strength		10Kgf-cm 以上, 在12Kgf-cm以下使用 10Kgf-cm MIN. Don't over 12Kgf-cm when operating .
4-6	軸之擠壓引張 強度 Shaft push-pull strength	在軸之方向加壓力或張力之靜負荷8Kgf 3秒 Push and pull static load 8Kgf shall be applied in the shaft direction for 3 sec .	電氣性能須滿足 Electrical characteristics shall be satisfied .
4-7	軸橫擠壓強度 Shaft against side push strength	在固定狀態,於軸垂直方向施加 3Kgf-cm 3秒鐘。 The potentiometer is fixed condition a torsion moment of 3Kgf-cm shall be applied in a direction perpendicular to the axial direction for 3 sec.	不可有軸鬆動, 破損, 回轉轉矩異常發生, 電氣性能須足。 Without damage to or play in shaft No abnormality in rotational torque electrical characteristics shall be satisfied.
4-8	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/20mmP-P 以下 0.7xL/20mmP-P MAX

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 from 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 .		
				APPD.	CHKD.	DSGD.	DOCUMENT NO. :	
				Ailsa	Nicole	余倩	12P1VBF-D- -001-6H	
							VERSION : A	
							PAGE : 4 OF 4	
SYMB	DATE	APPD	CHKD	DSGD	2012.8.20	2012.8.20	DRAWING NO.:	12P-018