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: 此規範適用于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℃

1.3 保存溫度範圍 Storage temperature range: -30~+70℃

1.4 試驗狀態: 若無特別規定限制, 則以溫度5~35℃, 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℃,相對濕度65 ±5%,氣壓860~1060mbar)為準測定 .

Test conditions : the standard test conditions shall be 5~35℃ in temperature ,45~85%RH and 860~1060mba i atmospheric , should any doubt arise in judgement , tests shall be conducted at 20±2℃ , 65±5%RH and 860~106

1.5 試驗狀態:為避免保管場所環境引起端子變色, 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<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=√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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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 respcct to torminal 3				
		變化特性 taper	測定位置 test point	V1-2 / V1-3	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.				
		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≦1000				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.

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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: 端子和固定板之間 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.	50gf-cm以下 (MAX)
4–3	軸松動 Shaft wobble	在固定狀態，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	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.
4–5	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 l 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
4–6	軸承固定強度 Nut tightening strength		10Kgf-cm 以上, 在10Kgf-cm以下使用 10Kgf-cm MIN. Don't over 10Kgf-cm when operating.

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NO.	項目 Item	試驗條件 Test conditions		規格 Specifications
4-7	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		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℃以下,2分鐘以內。(Surface temperature of mounting side) 100℃ MAX Within 2 MIN.	
		焊錫溫度 Solder temperature	260℃±5℃，5秒以內。 260℃±5℃, Within 5 sec.	
		手焊溫度 Manual solder temperature	350℃±5℃，3秒以內。 350℃±5℃, Within 3 sec.	
		2.以上工程1回通過即可。 Please use the above process only one times.		

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30,000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: 30,000 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 .

6.開關電氣性能 Switch Electrical characteristics

NO.	項目 Item	試驗條件 Test conditions	規格 Specifications
6–1	定格容量 (抵抗負荷) Switch rating (Resistor load)		D.C.5V 10mA

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NO.	項 目 Item	試驗條件 Test conditions	規 格 Specifications
6–2	接觸阻抗 Contact resistance	以D.C.定電流電壓降下法測定之。 Measured by decides the electric current D.C. voltage drop method.	100 mΩ以下 (MAX)
6–3	絕緣阻抗 insulation resistance	外加D.C. 250V 於端子與固定板間。 Measurement shall be made under the condition which a voltage of 250V D.C. is applied between individual terminals and attaching plate.	端子與固定板間100MΩ以上 Between individual terminals and attaching plate：100MΩ MIN.
6–4	耐電壓 Dielectric strength	端子與固定板間外加A.C. 300V 1分鐘或外加A.C.360V 2秒鐘測定。(Leak電流：1mA) A voltage of 300V A.C. shall be applied for 1 min or a voltage of 360V A.C. shall be applied for 2 sec between individual terminals and attaching plate. (Leak current：1mA)	無損傷，變形或絕緣破壞現象。 Without damage to parts arcing or breakdown.

備註：軸與開關端子間絕緣。
Note：Shaft is insulated from switch terminal.

7.開關機械性能 Switch Mechanical characteristics

NO.	項 目 Item	試驗條件 Test conditions	規 格 Specifications
7–1	操作方式 Switch operating method		推壓型 Push type
7–2	開關回路, 接點數 Switch contact arrangement		單極單投（PUSH ON） S.P.S.T (PUSH ON)
7–3	開關移動量 Switching stroke		0.3 (±0.15) mm
7–4	開關作動力 Switch strength		450±200 gf

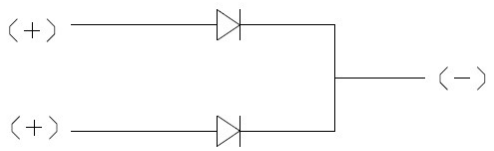
8.開關耐久性能 Switch Endurance characteristics

NO.	項 目 Item	試驗條件 Test conditions	規 格 Specifications
8–5	操作壽命 Operating life	無負荷狀態下動作20,000回。 The shaft of switch shall be 20,000 times without electronically load, after which measurements shall be made.	接觸阻抗: 200mΩ以下 開關作動力：滿足初期規格值之+10%/-30%。 其它項目均需滿足初期規格值 Switch contact resistance：200mΩ MAX. Switch strength： Relative to the previously specified value +10%/-30%. Except above items Specification in clause 6.1~4 and 7.1~4 shall be satisfied.

L. E. D. 共通規格書

L. E. D. COMMON SPECIFICATIONS

一. 回路: Circuit:



二. LED 特性

LED Characteristic

1. 反轉電壓 Reverse Voltage: 5V

2

發光色 Emitted color		功率消耗 Power dissipation	直流正向電流 DC Forward Current	試驗條件 Test conditions IF=20 mA 直流順電壓 Forward voltage(V)	
				標准值 Typ	以下 MAX
藍色/橙色 Blue /Orange	藍色 Blue	105mW	30mA	3.3	4
	橙色 Orange	75mW	30mA	2.1	2.5
綠色/紅色 Green / Red	綠色 Green	120mW	30mA	3.2	4
	紅色 Red	75mW	30mA	1.95	2.5
藍色/綠色 Blue/Green	藍色 Blue	120mW	30mA	3.3	4
	綠色 Green	120mW	30mA	3.2	4
紅色/綠色 Red /Green	紅色 Red	75mW	30mA	1.95	2.5
	綠色 Green	120mW	30mA	3.2	4
綠色/橙色 Green /Orange	綠色 Green	102.5mW	25mA	3.3	4.1
	橙色 Orange	75mW	30mA	2.1	2.5
藍色/紅色 Blue/ Red	藍色 Blue	120mW	30mA	3.3	4
	紅色 Red	75mW	30mA	1.95	2.5
白色/紅色 White/ Red	白色 White	120mW	30mA	3.3	4
	紅色 Red	75mW	30mA	1.95	2.5

ROHS COMPLIANCE

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