

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: $-10\sim+70^{\circ}\text{C}$

1.3 保存溫度範圍 Storage temperature range: $-30\sim+70^{\circ}\text{C}$

1.4 試驗狀態：若無特別規定限制，則以溫度 $5\sim35^{\circ}\text{C}$ ，相對濕度 $45\sim85\%$ ，氣壓 $860\sim1060\text{mbar}$ 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 $20\pm 2^{\circ}\text{C}$ ，相對濕度 $65\pm 5\%$ ，氣壓 $860\sim1060\text{mbar}$)為準測定。

Test conditions: the standard test conditions shall be $5\sim35^{\circ}\text{C}$ in temperature, $45\sim85\% \text{RH}$ and $860\sim1060\text{mbar}$ in atmospheric, should any doubt arise in judgement, tests shall be conducted at $20\pm 2^{\circ}\text{C}$, $65\pm 5\% \text{RH}$ and $860\sim1060\text{mbar}$.

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.	$R < 250\text{K}\Omega$ 許容差 $\pm 20\%$ $R \geq 250\text{K}\Omega$ 許容差 $\pm 30\%$ $R < 250\text{K}\Omega$ Tolerance $\pm 20\%$ $R \geq 250\text{K}\Omega$ Tolerance $\pm 30\%$ 10KΩ
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. :	
								12PLWSD1VBF-D-20K-1B10K-004/06-6H(H)	
					Terry	Terry	Ken	VERSION :	A
								PAGE :	1 OF 7
SYMB	DATE	APPD	CHKD	DSGD	2019.7.22	2019.7.22	2019.7.22	DRAWING NO.:	12P-044

120 單軸單連回轉式可變電阻器製品規格書

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3-5	阻抗變化特性	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	$\frac{V1-2}{V1-3}$	$\frac{V2-3}{V1-3}$	
		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.				
		公稱全阻抗值(KΩ) Nominal total resistance (KΩ)				
		$R \leq 10$	20Ω MAX. 20Ω 以下			
		$10 < R < 50$	30Ω MAX. 30Ω 以下			
		$50 \leq R \leq 1000$	全阻值的0.1% 以下 0.1% MAX of nominal 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.			
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.			

					APPD.	CHKD.	DSGD.	DOCUMENT NO.	
					Terry	Terry	Ken	12PLWSD1VBF-D-20K-1B10K-004 / 06-6H(H)	
				VERSION :				A	
				PAGE :				2 OF 7	
SYMB	DATE	APPD	CHKD	DSGD	2019.7.22	2019.7.22	2019.7.22	DRAWING NO.:	12P-044

可正欣有限公司
TOP-UP INDUSTRY CORP.

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NO.	項目 Item	試驗條件 Test conditions	規格 Specifications
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, 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 .	10~80 gf-cm						
4-3	軸迴轉止動強度 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 3Kgt-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	請參照DIP錫錫條件。 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 <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <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> <tr> <td>手焊溫度 Manual solder temperature</td> <td>350°C±5°C, 3秒以內。 350°C±5°C, Within 3 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.	手焊溫度 Manual solder temperature	350°C±5°C, 3秒以內。 350°C±5°C, Within 3 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.								
手焊溫度 Manual solder temperature	350°C±5°C, 3秒以內。 350°C±5°C, Within 3 sec								

					APPD.	CHKD.	DSGD.	DOCUMENT NO. :	
								12PLWSD1VBF-D-20K-1B10K-004/06-6H(H)	
					Terry	Terry	Ken	VERSION :	A
								PAGE :	3 OF 7
SYMB	DATE	APPD	CHKD	DSGD	2019.7.22	2019.7.22	2019.7.22	DRAWING NO.:	12P-044

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

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10Kgf-cm以下使用 10Kgf-cm MIN. Don't over 10Kgf-cm when operating .
4-6	軸之張力壓力 強度 Shaft push-pull strength	在軸之方向加壓力或張力之靜負荷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 .
4-7	軸 松 動 Shaft wobble	在軸前端施加500gf-cm之撓矩 (L=固定面至測定點之距離) A side thrust of 500gf-cm at the and of shaft shall be applied (Distance L is between mounting surface to test point)	0.7xL/30mmP-P 以下 0.7xL/30mmP-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 .

					APPD.	CHKD.	DSGD.	DOCUMENT NO. :	
								12PLWSD1VBF-D-20K-1B10K-004/06-6H(H)	
					Terry	Terry	Ken	VERSION :	A
								PAGE :	4 OF 7
SYMB	DATE	APPD	CHKD	DSGD	2019.7.22	2019.7.22	2019.7.22	DRAWING NO.:	12P-044

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

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
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 mO 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	端子與固定板間 100MO以上 Between individual terminals and attaching plate:100MO 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.360V2 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)	蕪損傷,變形或絕緣破壞現象。 Without damage to parts arcing or breakdown

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 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

					APPD.	CHKD.	DSGD.	DOCUMENT NO. :	
								12PLWSD1VBF-D-20K-1B10K-004 / 06-6H(H)	
					Terry	Terry	Ken	VERSION :	A
								PAGE :	5 OF 7
SYMB	DATE	APPD	CHKD	DSGD	2019.7.22	2019.7.22	2019.7.22	DRAWING NO.:	12P-044

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

NO.	項目 Item	試驗條件 Test conditions	規格 Specifications
7.4	開關作動力 Switch strength		450 ±200 gf

8.開關耐久性能 Switch Endurance characteristics

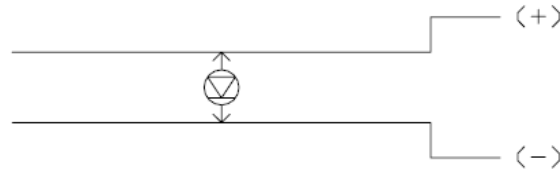
NO.	項目 Item	試驗條件 Test conditions	規格 Specifications
8.1	操作壽命 Operating life	<p>無負荷狀態下動作 20,000 回。</p> <p>The shaft of switch shall be 20,000 times without electronically load, after which measurements shall be made.</p>	<p>接觸阻抗：200mΩ以下</p> <p>開關作動力：滿足初期規格值 之+10%/-30%。</p> <p>其它項目均需滿足初期規格值 Switch contact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

					APPD.	CHKD.	DSGD.	DOCUMENT NO. :	
					Terry	Terry	Ken	12PLWSD1VBF-D-20K-1B10K-004/06-6H(H)	
				VERSION :				A	
				PAGE :				6 OF 7	
SYMB	DATE	APPD	CHKD	DSGD	2019.7.22	2019.7.22	2019.7.22	DRAWING NO.:	12P-044

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: 5V
Reverse Voltage: 5V

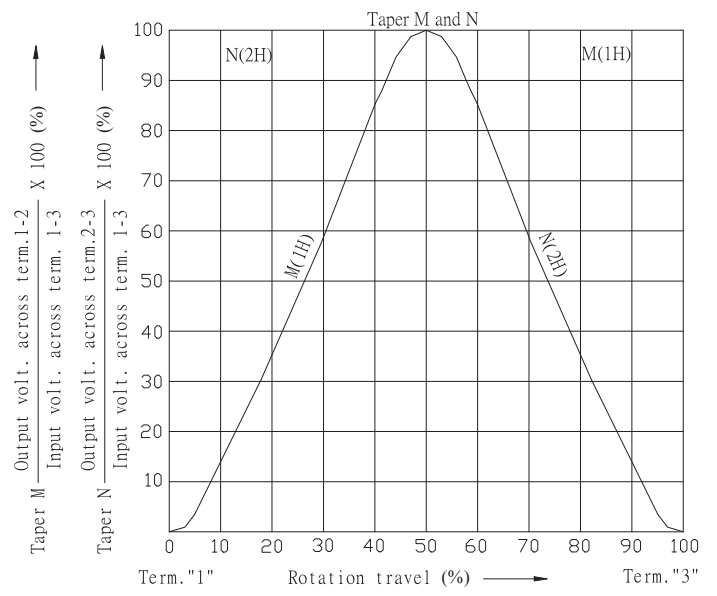
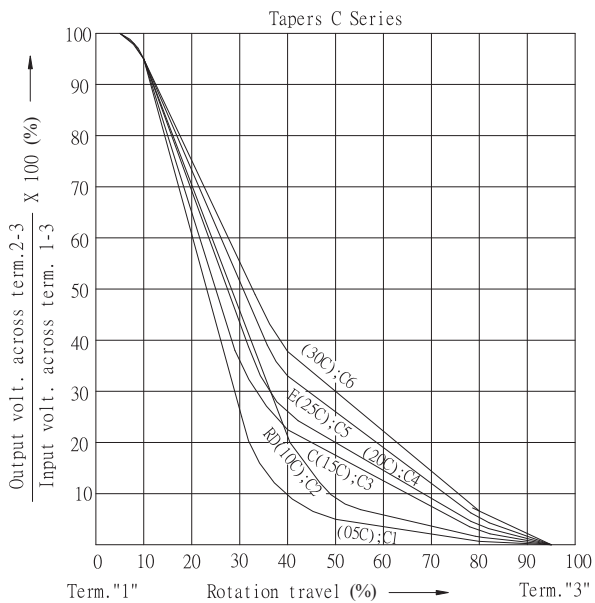
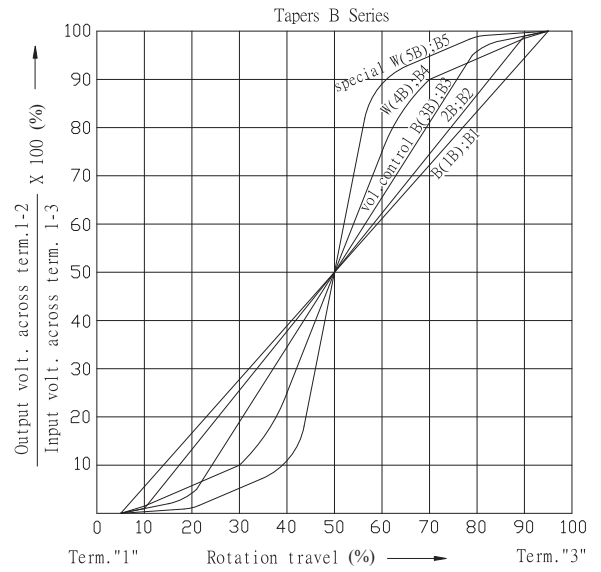
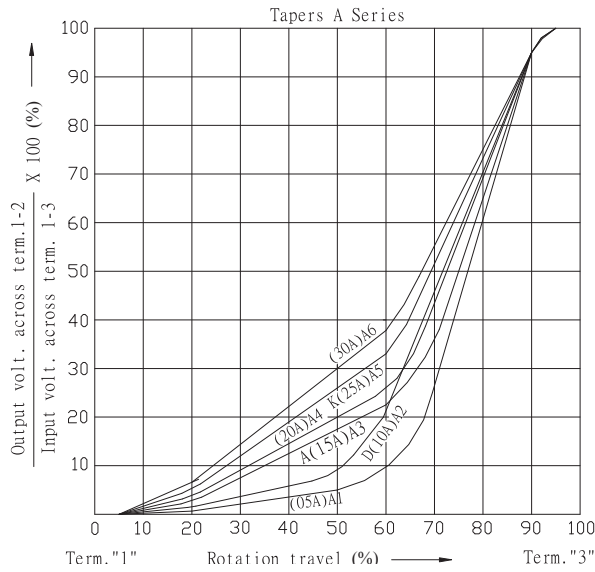
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發光色 Emitted color	功率消耗 Power dissipation (mW)	直流正向電流 DC Forward Current(mA)	Vf(V) (@IF=20mA)	
			Surafce-mount type	
			Max.	Typ.
紅色 Red color	60	30	2.6	1.8
草綠色 Lawngreen	100	30	2.6	2
藍色 Blue color	72	20	3.6	3.2
橘色 Orange color	100	30	2.6	2.1
白色 White Color	72	20	3.6	3.2
綠色 Green color	72	20	3.6	3.2
深橙色 Darkorange	100	30	2.6	2.1

ROHS COMPLIANCE

SYMB	DATE	APPD	CHKD	DSGD	APPD.	CHKD.	DSGD.	DOCUMENT NO. : 12PLWSD1VBF-D-20K-1B10K-004/06-6H(H)	
					Terry	Terry	Ken	VERSION :	A
								PAGE :	7 OF 7
					2019.7.22	2019.7.22	2019.7.22	DRAWING	12P-044

A		B		C		MN	
Taper	Ink	Taper	Ink	Taper	Ink	Taper	Ink
05A	A1	1B	B1	05C	C1	M	M
10A	D	2B	B2	10C	RD	N	N
15A	A	3B	B3	15C	C		
20A	A4	4B	W	20C	C4		
25A	K			25C	E		
30A	A6			30C	C6		



NOTE: Resistance characteristic of curve N is plotted with respect to terminal "3"