# 100 mm 單連滑動式可變電阻器製品規格書

## 100 mm 1 UNIT SLIDE 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℃

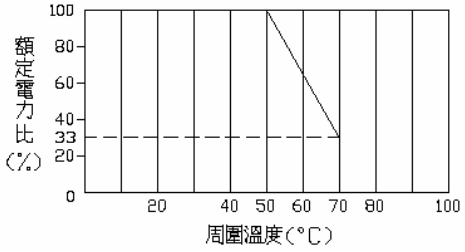
1.3 保存溫度範圍 Storage temperature：-30~+70℃

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 860~1060mbar in atmospheric , should any doubt arise in judgement , tests shall be conducted at 20±2℃ , 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<br>Item | 試 驗 條 件<br>Test conditions | 規 格<br>Specifications |
|---|---|---|---|
| 3–1 | 全 阻 抗 值<br>Total resistance | 把柄置于端子1或3終端, 測定端子1-3間的阻抗值<br>Measurement shall be made by the resistance between terminal 1 and 3 with lever setted at terminal 1 or 3. | 10KΩ±20% |
| 3–2 | 額 定 電 力<br>Power rating | 端子1和3間所能連續負荷之最大電力<br>Power rating is based on continuous full load operation at the maximum voltage between terminal 1 and terminal 3.<br>周圍溫度對額定電力影響之曲線如下圖<br>Power rating vs. ambient temperature shall be denoted on the following graph.<br>  | 15A taper：0.25W |
| 3–3 | 額 定 電 壓<br>Rated voltage | 額定電壓 Rated voltage $E=\sqrt{PR}$ (V)<br>額定電力 P: Power rating (W)<br>公稱全阻抗值 R: Nominal total resistance (Ω)<br>當額定電壓超過最高使用電壓的時候,最高使用 | |

| | | | | | APPD. | CHKD. | DSGD. | DOCUMENT NO. : | |
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| | | | | | Terry | Eddie | 余 倩 | M100AN1B-D-9-2M9.2-15A10K-6H | |
| | | | | | | | | VERSION : | A |
| | | | | | | | | PAGE : | 1 OF 4 |
| SYMB | DATE | APPD | CHKD | DSGD | 2015.10.29 | 2015.10.29 | 2015.10.29 | DRAWING NO. : | M100AM-003 |

# 100 mm 單連滑動式可變電阻器製品規格書

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| NO. | 項 目<br>Item | 試 驗 條 件<br>Test conditions | | | | 規 格<br>Specifications |
|---|---|---|---|---|---|---|
| 3–3 | 額 定 電 壓<br>Rated voltage | 電壓即為額定電壓.<br>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<br>Max operating voltage | | | | | 150V A.C |
| 3–5 | 阻抗變化特性<br>Taper | 電壓法測定<br>Measurement shall be made by the resistance law method. | | | | 請參照特性曲線一覽表<br>Resistance taper list |
| | | 變化特性<br>taper | 測定位置<br>test point (mm) | V1-2 / V1-3 | V2-3 / V1-3 | |
| | R1 track | 15A | 50 | ∨ | — | 10~25% |
| 3–6 | 絕緣阻抗<br>Insulation resistance | 施加250V之直流電壓, 1分鐘後測試<br>測試位置: 端子和外框間<br>Test voltage : 250V D.C measure after 1 min<br>Test position : Between terminal and frame. | | | | 100MΩ 以上 (MIN) |
| 3–7 | 耐 電 壓<br>Voltage proof | 以250V之交流電壓,測試1分鐘<br>測試位置: 端子和外框間<br>Applying 250V A.C measure for 1 min.<br>Applied position : Between terminal and frame. | | | | 不可有損傷,電弧,絕緣,破壞<br>Without damage to parts arcing or breakdown. |
| 3–8 | 最大衰減量<br>Attenuation | 把柄置於1 端子終點<br>With the lever place at the end of terminal 1 | | | | 100dB 以上 (MIN) |
| 3–9 | 插入損失<br>Insertion loss | 把柄置於3 端子終點<br>With the lever place at the end of terminal 3 | | | | 0.1dB 以下 (MAX) |
| 3–10 | 滑動雜音<br>Slider 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20mm/秒的移動速度所測定之雜音<br>Applying 20V D.C between the terminals 1 and 3.<br>(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 20 mm/sec. | | | | 47mV以下 (MAX) |

| | | | | | APPD. | CHKD. | DSGD. | DOCUMENT NO. : | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | M100AN1B-D-9-2M9.2-15A10K-6H | |
| | | | | | Terry | Eddie | 余 倩 | VERSION : | A |
| | | | | | | | | PAGE : | 2 OF 4 |
| SYMB | DATE | APPD | CHKD | DSGD | 2015.10.29 | 2015.10.29 | 2015.10.29 | DRAWING NO. : | M100AM-003 |

# 100 mm 單連滑動式可變電阻器製品規格書

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### 4 . 機械性能 Mechanical characteristice

| NO. | 項 目<br>Item | 試 驗 條 件<br>Test conditions | 規 格<br>Specifications |
|---|---|---|---|
| 4–1 | 把柄移動距離<br>Lever travel | | 100±1mm |
| 4–2 | 動作力<br>Operating force | 移動速度：20mm/秒<br>操作位置：把柄前端處<br>Traveling speed : 20mm / sec .<br>Operating position :tip of the lever. | 10~30gf |
| | 始動力<br>Starting force | 移動速度：20mm/秒<br>操作位置：把柄前端處<br>Traveling speed : 20mm / sec .<br>Operating position : tip of the lever. | 動作力 + 100gf 以下<br>Operating force + 100gf MAX |
| 4–3 | 把柄止動強度<br>Lever travel stop strength | 把柄置于兩末端, 外框上面起5mm位置施加5Kgf靜負荷10秒鐘 .<br>A static load of 5Kgf shall be applied at the point 5mm form top surface of the case for both ends in the direction of lever travel for 10 sec . | 不可產生接觸不良和明顯之松動<br>Without excessive paly or poor contact . |
| 4–4 | 把柄橫擠壓強度<br>Side thrust of the lever | 固定本體, 外框上面起5mm的位置, 于把柄移動之垂直方向施加2Kgf靜負荷10秒鐘 .<br>A static load of 2Kgf shall be applied at the point 5mm form top surface of the case in a direction perpendicular to the axial direcation for 10 sec . with the potentiometer mounted in assembly conditions . | 操作部和關連部不可有變形, 破損<br>Without deformation or breaks in the sliding part and contact part . |
| 4–5 | 把柄擠壓引張強度 Thrust and tensile lever | 把柄的擠壓方向和引張方向施加5Kgf靜負荷10秒鐘 .<br>Thrust and tensile static load of 5Kgf shall be applied to the potentiometer in the lever direction for 10 sec . | 不可產生破損, 滑動不平順, 電氣性能需滿足 .<br>Without damage such as bed sliding and breaking or play in the lever .<br>Electrical characteristics shall be satisfied . |
| 4–6 | 把柄橫振幅<br>Displacement of lever | 在把柄移動方向的垂直方向施加250gf-cm,在把柄的前端測定 .<br>A torsion mornent of 250gf-cm shall be applied at the lever in a direction perpendicular to the axial direction and then the displacement shall be measured . | 2 (2 × L/20) mm p-p 以下<br>L = 把柄長度<br>2 (2 × L/20) mm p-p MAX<br>L = Length of lever |

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|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | M100AN1B-D-9-2M9.2-15A10K-6H | |
| | | | | | Terry | Eddie | 余 倩 | VERSION : | A |
| | | | | | | | | PAGE : | 3 OF 4 |
| SYMB | DATE | APPD | CHKD | DSGD | 2015.10.29 | 2015.10.29 | 2015.10.29 | DRAWING NO. : | M100AM-003 |

# 100 mm 單連滑動式可變電阻器製品規格書

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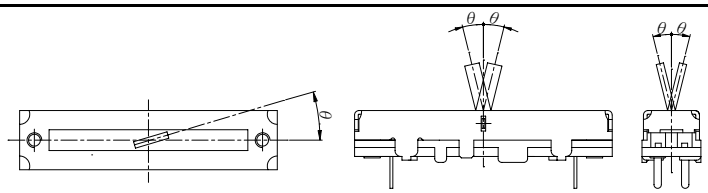
|---|---|---|---|
| 4–7 | 把柄之傾斜及扭曲<br>Lever inclination and torsion |  | θ：2°以下,扭轉後需回復原來位置<br>θ：2° MAX<br>Return to the same position after torsion. |
| 4–8 | 把柄偏心<br>Lever deviation | 相對于螺絲孔中心,測定把柄的中心到螺絲孔中心的距離<br>After sliding lever as far as it will go in each direction, the distance from the center of the lever to the middle of the mounting screw hole shall be measured at the both ends. | 單側0.5mm 以下<br>0.5mm MAX on each end |
| 4–9 | 焊錫耐熱<br>Resistance tosoldering heat | 在300±5℃，3±0.5秒或260±5℃，5±0.5秒後於常溫常濕中放1小時後測定。<br>At 300±5℃ for 3±0.5 sec or 260±5℃ for 5±0.5 sec. Then the potentiometer shall be maintained atstandard at mospheric for 1 hour after which measurement shall be made. | 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<br>Change in total resistance is relative to the value before test ± 5%.<br>Without excessive looseness of terminals and failure contact. |

## 5. 耐久性能 Endurance

| NO. | 項 目<br>Item | 試 驗 條 件<br>Test conditions | 規 格<br>Specifications |
|---|---|---|---|
| 5–1 | 滑動壽命<br>Sliding life | 無負荷狀態,把柄滑動速度600回/小時,有效回移動距離的90%以上,總次數50,000回以上.<br>The moving contact, without electrical load, shall be slided form one end stop to the other end returned to its original position extend over 90% or more effective distance.<br>Slide speed: 600 cycle / hour.<br>Total cycles: 50,000 cycles. | 1. 全阻抗值的變化為初期值±15%以內.<br>2. 滑動雜音：150mV 以下<br>3.殘留阻抗：1-2T：30Ω以下<br>2-3T：50Ω以下<br>4. 其它需滿足(3項) (4項)<br>1. Change in total resistance is relative to the value before test ±15%.<br>2. Noise: 150mV MAX<br>3.Residual resistance：<br>1-2T：30Ω MAX.<br>2-3T：50ΩMAX.<br>4. Clause (3) (4) shall be satisfied. |

| | | | | | APPD. | CHKD. | DSGD. | DOCUMENT NO.: | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | M100AN1B-D-9-2M9.2-15A10K-6H | |
| | | | | | Terry | Eddie | 余 倩 | VERSION: | A |
| | | | | | | | | PAGE: | 4 OF 4 |
| SYMB | DATE | APPD | CHKD | DSGD | 2015.10.29 | 2015.10.29 | 2015.10.29 | DRAWING NO.: | M100AM-003 |