



**Description :** Rotary Potentiometer With Switch

**Part No :** GN-S-RA16K1-B100K-L:20F/R/SW=K1/±10%/M9-N6/6A

## 1. General

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

### 1.2 Standard atmospheric conditions:

Unless otherwise specified, the standard range of atmospheric conditions for making measurements and test is per the following limits:

Ambient temperature : 15°C to 35°C

Relative humidity : 25% to 75%

Air pressure : 86 kpa to 106 kpa

1.3 Operating temperature range : -20°C to +50°C

1.4 Storage temperature range : -15°C to +70°C

1.5 Suggested storage period : About 6 months

## 2. Electronic Specification :

	Item	Conditions	Specifications
2.1	Total resistance	Measurement shall be made by the resistance between terminal 1 and 3 with lever settled at terminal 1 or 3.	100K Ω
2.2	Total resistance tolerance		±10%
2.3	Resistance taper	Measurement shall be made by the resistance law method. Measurement shall be made at the position of right diagram from the edge at the side of terminal 1. When based on terminal 3. from the edge at the side of terminal 3.  $\frac{\text{Out voltage between terminals 1 and 2}}{\text{Applied voltage between terminals 1 and 3}} \times 100\%$	B
2.4	Residual Resistance		10Ω
2.5	Rate Power	Power rating is based on continuous full load operation at the maximum voltage between 1 and 3. Power rating vs .ambient temperature shall be denoted on the following graph.  	0.125W



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## 2. Electronic Specification :

	Item	Conditions	Specifications
2.6	Rated voltage	Rated voltage $E = \sqrt{P \cdot R}$ (V) P: power rating R: nominal total resistance When the rated voltage exceeds the maximum operating voltage, the maximum operating voltage shall be the rated voltage	AC 200 V
2.7	Rotational noise	Dc 20V, when the rated voltage is 20v or less, its rated voltage shall be applied to the terminals between 1 and 3. And then the Procedures, refer to IEC 393-1-4.15 Traveling speed: 20=/sec	Less than 47 mV
2.8	Insulation resistance	A voltage of 500V AC shall be applied for 1min, after which measurement shall be made	100 MΩ or more
2.9	Withstand voltage	Trip curr ant: 2mA Measuring frequency: 50/60Hz 500V AC for 1min.	Without damage to parts, Arcing or breakdown etc
2.10	Switch Rating		AC 125V 6A
2.11	Switch contact resistance		Less than 50mΩ

## 3. Mechanical Specification :

	Item	Conditions	Specifications
3.1	Total rotation angle		300° ± 10°
3.2	Rotation torque		20~200gf.cm
3.3	Rotation stop strength		5kgf.cm Max
3.4	Push-pull strength		8kgf Max
3.5	Rotation life		15,000 Cycles Min
3.6	Switch working angle		50° ± 10°
3.7	Switch working torque		150~300gf.cm

## 4. Soldering conditions

### 4.1 Manual soldering :

Temperature of soldering iron : 300°C or less.

Application time of soldering iron : within 3s.

### 4.2 Dip Soldering

Printed wiring board: Single-sided copper clad laminate board with thickness of 1.6mm .



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**Flux:**

Specific gravity: 0.82 or more.

Flux shall be applied to the board using a bubble foaming type fluxer.

The board shall be soaked in the flux bubble only to the middle of its thickness.

Flux shall not come into contact with the component side surface.

**Preheating:**

Surface temperature of board: 100°C or less.

Preheating time : Within 2 min.

**Soldering:**

Solder temperature : 260°C less.

Immersion time: Within 3 s.

4.3 Apply the above soldering process for 1 or 2 times.

## 5. Matters needing attention

5.1 High temperature high humidity or corrosive gases are prohibited in storage.

5.2 Keep the principle of “first come, first use”.

5.3 The best way is to use the potentiometer as a four-terminal element for adjusting voltage of voltage divider. For wiring, you’d better choose terminal “1”for grounding and R1 (The load resistance of The potentiometer) should be not smaller than ten times as  $R_t$  (See figure 2A).

Except for special design requirement, the potentiometer shouldn’t be used as a two-terminal rheostat. The contact resistance between the resistor and the contact piece will hinder the passing of big electric current, at the same time, the current at the moving contact may be too big since only part of the effective travel is in function and lead to local over loading then failure of the unit.(See figure 2B).

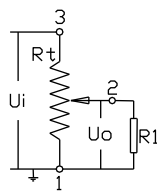


Figure 2A

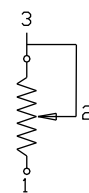


Figure 2B

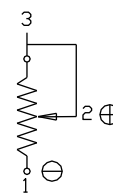


Figure 3C

5.4 When the potentiometer is used as current regulator in DC circuit, DC current will pass the sliding arm thus resistance value will rise abnormally because of anodic oxidation. In this case, In this case, it is recommended to connect the leading-out terminal of the resistor to the cathode and that of the sliding arm to anode.(See figure3C)

[Correspond to JIS C-6443]



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## 6. Drawings (尺寸圖) :

