

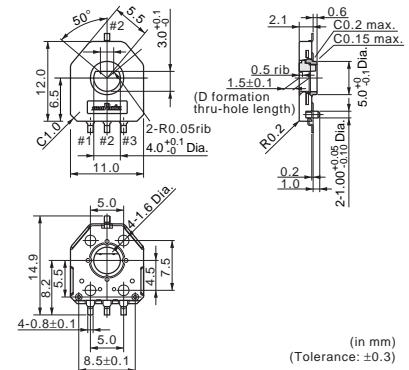
Trimmer Potentiometers



Angle Sensing Potentiometer SMD Dust-proof Type 12mm Size PVS1 Series

■ Features

1. Dust-proof construction protects the internal from dust, which maintains stable characteristics.
2. Compliant to high peak temperature reflow soldering.
3. Excellent resistance materials and high reliability wiper achieves 1M cycles.
4. D formatin thru-hole rotor enables to select any kind of gear shape.
5. Leaded terminal type is available.
6. Ultra-thin size. (2.1mm height)
7. Au plated terminals without Lead.

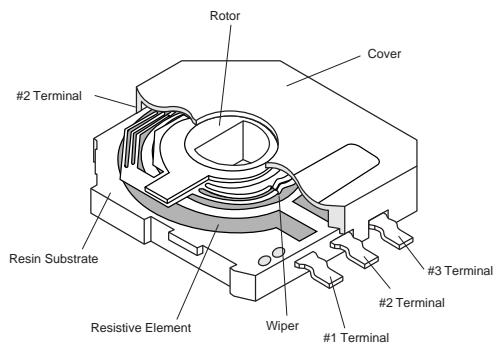


■ Applications

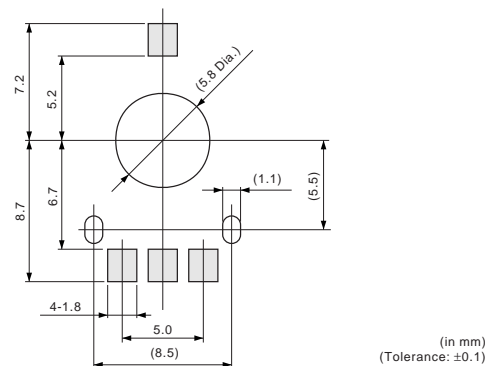
1. Animal robot
2. Switch for automotive
3. Motor drive unit
4. Radio control equipment
5. Electric motor-driven bicycle

| Part Number | Total Resistance Value (k ohm) | Linearity (%) | Effective Rotational Angle | TCR | Rotational Life |
|-------------|--------------------------------|---------------|----------------------------|------------|-----------------|
| PVS1A103A01 | 10 ±30% | ±2 | 333.3° (Ref.) | ±500ppm/°C | 1M cycles |

■ Construction



■ Standard Land Pattern



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■ Characteristics

| | | |
|--------------------------------------|-------------|------------|
| Temperature Cycle (Thermal Shock) | Δ TR | $\pm 20\%$ |
| | Linearity | $\pm 3\%$ |
| Humidity | Δ TR | $\pm 20\%$ |
| | Linearity | $\pm 3\%$ |
| Vibration | Δ TR | $\pm 10\%$ |
| | Linearity | $\pm 3\%$ |
| Shock (20G) | Δ TR | $\pm 10\%$ |
| | Linearity | $\pm 3\%$ |
| Humidity Load Life | Δ TR | $\pm 20\%$ |
| | Linearity | $\pm 3\%$ |
| High Temperature Exposure | Δ TR | +5/-30% |
| | Linearity | $\pm 3\%$ |
| Low Temperature Exposure | Δ TR | $\pm 20\%$ |
| | Linearity | $\pm 3\%$ |
| Rotational Life (1M cycles) | Δ TR | $\pm 20\%$ |
| | Linearity | $\pm 3\%$ |

Δ TR: Total Resistance Change

PVS1 Series Notice

■ Notice (Operating and Storage Conditions)

1. Store that the temperature is -10 to +40deg. C and the relative humidity is 30-85%RH.
2. Do not store in or near corrosive gases.
3. Use within six months after delivery.
4. Open the package just before using.
5. Do not store under direct sunlight.
6. Do not use the rotary position sensor under the following environmental conditions. If you use the rotary position sensor in an environment other than these listed below, please consult with Murata factory representative prior to using.
 - (1) Corrosive gasses atmosphere.
(Ex. Chlorine gas, Hydrogen sulfide gas, Ammonia gas, Sulfuric acid gas, Nitric oxide gas, etc.)
 - (2) In liquid.
(Ex. Water, Oil, Medical liquid, Organic solvent, etc.)
 - (3) Dusty/dirty atmosphere.
 - (4) Direct sunlight.
 - (5) Static voltage nor electric/magnetic fields.
 - (6) Direct sea breeze.
 - (7) Other variations of the above.

■ Notice (Soldering and Mounting)

1. Soldering

- (1) PVS1 series can be soldered by reflow soldering method and soldering iron. Do not use flow soldering method (dipping).
- (2) The dimension of land pattern should be used Murata's standard land pattern at reflow soldering. Excessive land area may cause displacement due to effect of the surface tension of the solder. Insufficient land area may cause insufficient soldering strength on PCB.
- (3) Standard soldering condition
 - (a) Reflow soldering : Refer to the standard temperature profile.
 - (b) Soldering iron:
 - >Temperature of tip 360deg. C max.
 - >Soldering time 3sec. max./1 terminal
 - >Diameter 3mm max.
 - >Wattage of iron 30W max.

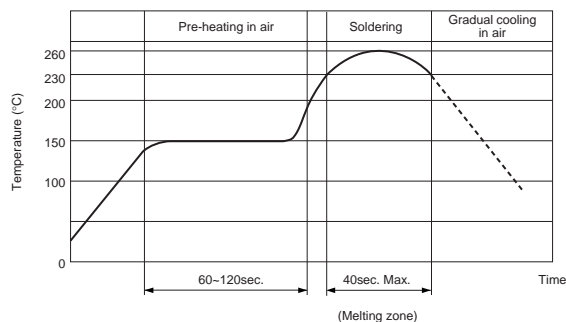
Before using other soldering conditions than those listed above, please consult with Murata factory representative prior to using. If the soldering conditions are not suitable, e.g., excessive time and/or excessive temperature, the rotary position sensor may deviate from the specified characteristics.

- (4) The amount of solder is critical. Insufficient amounts of solder can lead to insufficient soldering strength on PCB. Excessive amounts of solder may cause the bridging between the terminals.
- (5) The soldering iron should not come in contact with the cover of the rotary position sensor. If such contact does occur, the rotary position sensor may be damaged.

2. Cleaning

Can not be cleaned because of open construction.

■ Reflow Soldering Standard Profile



PVS1 Series Notice

■ Notice (Handling)

1. Do not warp and/or bend PCB to prevent rotary position sensor from breakage.
2. In case that load to the product except rotor and/or excessive force except rotational action to the rotor are applied to the product, the change of the electrical characteristics, increase in torque and mechanical damage may occur. Therefore, please pay attention to the fixing method and holding method of the shaft to avoid the foregoing.

■ Notice (Other)

1. Please make sure the connecting impedance is not to be less than 1M ohm. The rotary position sensor is designed to connect the output terminal and A/D port of the microprocessor directly. Therefore, connecting impedance presuppose certain M ohm and the contact resistance is set high.
2. To minimize the processing error and noise influence which occur in rare cases, when data is installed through the product, please note the following items and program your software.
 - (1) Data install should be done plural times and applied the mean value.
 - (2) Data considered as error should be invalid.
 - (3) Data should be re-installed if quere occurs.
3. Before using rotary position sensor, please test after assembly in your particular mass production system.
4. MURATA cannot guarantee rotary position sensor integrity when used under conditions other than those specified in this document.