

# Trimmer Potentiometers



## SMD Sealed Type Multi-turn PVG5 Series

### ■ Features

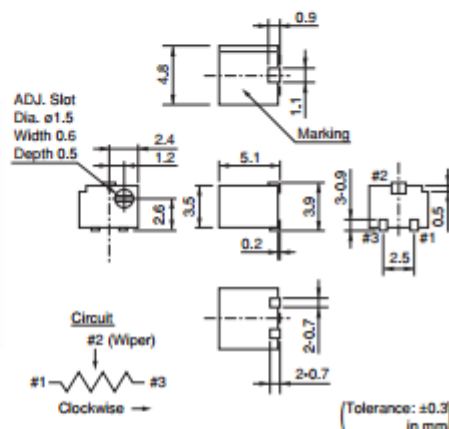
1. Sealed construction protects the interior from dust and liquid, which achieves stable performance.
2. Available with reflow soldering method
3. Available for ultrasonic cleaning after soldering.
4. Clutch mechanism prevents excessive wiper rotation.
5. Both top and side adjustment directions.
6. Much smaller volume (1/5-1/2) than leaded multi-turn potentiometer.
7. Complies with RoHS directive by new Cd free cermet resistive material. Pb free terminals with Sn plating.

### ■ Applications

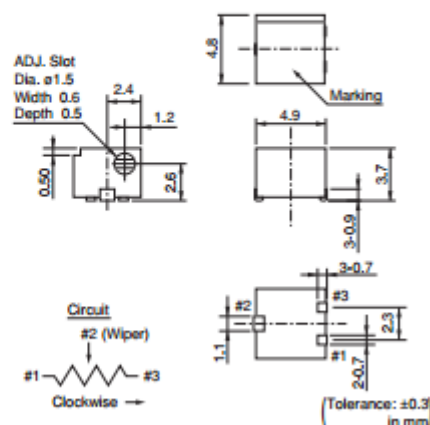
1. Measuring instruments
2. OA equipment
3. Medical equipment
4. Power supply
5. Sensors
6. Base station for cellular phones



PVG5A



PVG5H



### Top Adjustment

Part Number	Power Rating (W)	Number of Turns (Effective Rotation Angle)	Total Resistance Value	TCR (ppm/°C)
PVG5A100C03	0.25(70°C)	11	10ohm±10%	±150
PVG5A200C03	0.25(70°C)	11	20ohm±10%	±150
PVG5A500C03	0.25(70°C)	11	50ohm±10%	±150
PVG5A101C03	0.25(70°C)	11	100ohm±10%	±150
PVG5A201C03	0.25(70°C)	11	200ohm±10%	±150
PVG5A501C03	0.25(70°C)	11	500ohm±10%	±150
PVG5A102C03	0.25(70°C)	11	1k ohm±10%	±150
PVG5A202C03	0.25(70°C)	11	2k ohm±10%	±150
PVG5A502C03	0.25(70°C)	11	5k ohm±10%	±150
PVG5A103C03	0.25(70°C)	11	10k ohm±10%	±150
PVG5A203C03	0.25(70°C)	11	20k ohm±10%	±150
PVG5A503C03	0.25(70°C)	11	50k ohm±10%	±150
PVG5A104C03	0.25(70°C)	11	100k ohm±10%	±150
PVG5A204C03	0.25(70°C)	11	200k ohm±10%	±150
PVG5A504C03	0.25(70°C)	11	500k ohm±10%	±150
PVG5A105C03	0.25(70°C)	11	1M ohm±10%	±150
PVG5A205C03	0.25(70°C)	11	2M ohm±10%	±150

Operating Temperature Range: -55 to 125 °C

Soldering Method: Reflow/Soldering Iron

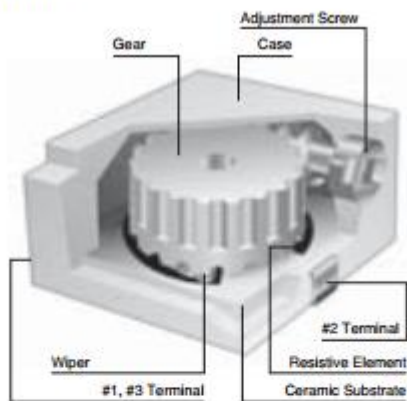
## Side Adjustment

Part Number	Power Rating (W)	Number of Turns (Effective Rotation Angle)	Total Resistance Value	TCR (ppm/°C)
PVG5H100C03	0.25(70°C)	11	10ohm±10%	±150
PVG5H200C03	0.25(70°C)	11	20ohm±10%	±150
PVG5H500C03	0.25(70°C)	11	50ohm±10%	±150
PVG5H101C03	0.25(70°C)	11	100ohm±10%	±150
PVG5H201C03	0.25(70°C)	11	200ohm±10%	±150
PVG5H501C03	0.25(70°C)	11	500ohm±10%	±150
PVG5H102C03	0.25(70°C)	11	1k ohm±10%	±150
PVG5H202C03	0.25(70°C)	11	2k ohm±10%	±150
PVG5H502C03	0.25(70°C)	11	5k ohm±10%	±150
PVG5H103C03	0.25(70°C)	11	10k ohm±10%	±150
PVG5H203C03	0.25(70°C)	11	20k ohm±10%	±150
PVG5H503C03	0.25(70°C)	11	50k ohm±10%	±150
PVG5H104C03	0.25(70°C)	11	100k ohm±10%	±150
PVG5H204C03	0.25(70°C)	11	200k ohm±10%	±150
PVG5H504C03	0.25(70°C)	11	500k ohm±10%	±150
PVG5H105C03	0.25(70°C)	11	1M ohm±10%	±150
PVG5H205C03	0.25(70°C)	11	2M ohm±10%	±150

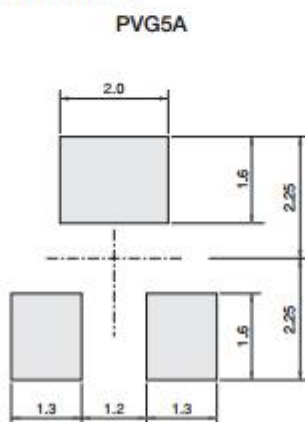
Operating Temperature Range: -55 to 125 °C

Soldering Method: Reflow/Soldering Iron

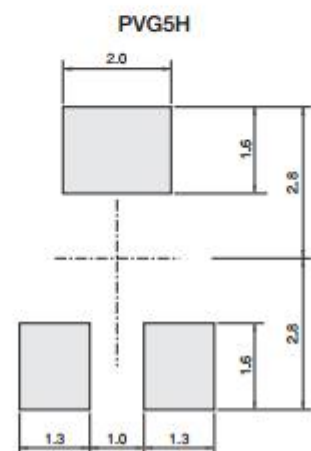
## Construction



## Standard Land Pattern



(Tolerance: ±0.1 in mm)



(Tolerance: ±0.1 in mm)

## ■ Characteristics

Temperature Cycle	$\Delta TR$ : $\pm 2\%$ $\Delta V.S.S.$ : $\pm 1\%$
Humidity	$\Delta TR$ : $\pm 2\%$ IR : 10M ohm min.
Vibration (20G)	$\Delta TR$ : $\pm 1\%$ $\Delta V.S.S.$ : $\pm 1\%$
Shock (100G)	$\Delta TR$ : $\pm 1\%$ $\Delta V.S.S.$ : $\pm 1\%$
Temperature Load Life	$\Delta TR$ : $\pm 3\%$ or 3 ohm max., whichever is greater $\Delta V.S.S.$ : $\pm 1\%$
Low Temperature Exposure	$\Delta TR$ : $\pm 1\%$ $\Delta V.S.S.$ : $\pm 1\%$
High Temperature Exposure	$\Delta TR$ : $\pm 2\%$ $\Delta V.S.S.$ : $\pm 1\%$
Rotational Life	$\Delta TR$ : $\pm 3\%$ or 3 ohm max., whichever is greater (100 cycles)

$\Delta TR$  : Total Resistance Change

$\Delta V.S.S.$  : Voltage Setting Stability

IR : Insulation Resistance

## ■ Notice (Operating and Storage Conditions)

1. Store in temperatures of -10 to +40°C and relative humidity of 30-85%.
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. If you use the trimmer potentiometer in an environment other than listed at right, please consult with a Murata factory representative prior to using.

The trimmer potentiometer should not be used under the following environmental conditions:

- (1) Corrosive gaseous atmosphere  
(Ex. Chlorine gas, Hydrogen sulfide gas, Ammonia gas, Sulfuric acid gas, Nitric oxide gas, etc.)
- (2) In liquid  
(Ex. Oil, Medical liquid, Organic solvent, etc.)
- (3) Dusty/dirty atmosphere
- (4) Direct sunlight
- (5) Static voltage or electric/magnetic fields
- (6) Direct sea breeze
- (7) Other variations of the above

## ■ Notice (Rating)

1. When using with partial load (rheostat), minimize the power depending on the resistance value.
2. The maximum input voltage to a trimmer potentiometer should not exceed  $(P \cdot R)^{1/2}$  or the maximum operating voltage, whichever is smaller.

## ■ Notice (Soldering and Mounting)

### 1. Soldering

#### (1) Soldering conditions

Refer to the temperature profile.

If the soldering conditions are not suitable, e.g., excessive time and/or excessive temperature, the trimmer capacitor may deviate from the specified characteristics.

#### (2) This product cannot be soldered using the flow soldering method. If you use the flow soldering method, the trimmer potentiometer may not function.

#### (3) The soldering iron should not come in contact with the case of the trimmer potentiometer. If such contact does occur, the trimmer potentiometer may be damaged.

#### (4) Insufficient amounts of solder can lead to insufficient soldering strength on PCB. Excessive amounts of solder may cause bridging between the terminals.

### 2. Mounting

#### (1) Use our standard land dimension. Excessive land area causes displacement due to the effect of the surface tension of the solder. Insufficient land area leads to insufficient soldering strength of the chip.

#### (2) Do not apply excessive force, preferably 9.8N max. (Ref. 1kgf) when the trimmer potentiometer is mounted to the PCB.

#### (3) Do not warp and/or bend the PC board to protect trimmer potentiometer from breakage.

#### (4) In chip placers, the recommended size of the cylindrical pick-up nozzle should be outer dimension 4.0mm dia. and inner dimension 2.0mm dia.

### 3. Cleaning

Isopropyl alcohol and ethyl alcohol are applicable solvents for cleaning. If you use any other types of solvents, please consult with a Murata factory representative prior to using.