

# Fully Sealed Potentiometer Cermet or Conductive Plastic



## DESIGN SUPPORT TOOLS AVAILABLE



## FEATURES

- PRV6S high power rating 1.5 W at 70 °C (cermet)
- PRV6A 0.75 W at 70 °C (conductive plastic)
- Tests according to CECC 41000 or IEC 60393-1
- Low cost
- Fully sealed and panel sealed
- Compatible RV6 (MIL R 94)
- Mechanical endurance 50 000 cycles
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)

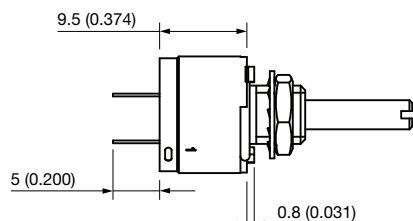

**RoHS**  
COMPLIANT

## QUICK REFERENCE DATA

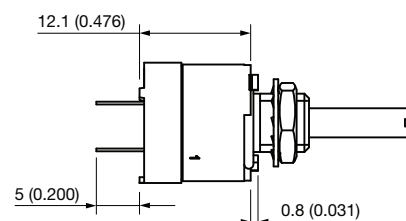
|                         |                                                   |
|-------------------------|---------------------------------------------------|
| Multiple module         | No                                                |
| Switch module           | n/a                                               |
| Detent module           | n/a                                               |
| Special electrical laws | A: linear, L: logarithmic, F: reverse logarithmic |
| Sealing level           | IP 67                                             |
| Lifespan                | 50K cycles                                        |

## DIMENSIONS in millimeters (inches) ± 0.5 mm (± 0.02")

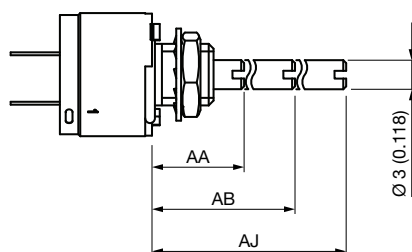
### PRV6 STYLE A AND S



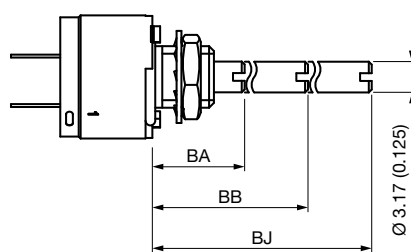
### PRV6 STYLE B AND C



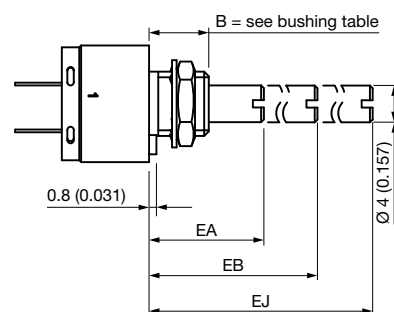
### SHAFT DIAMETER 3 mm (0.118") BUSHING A-B-C



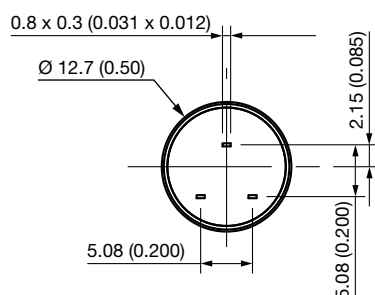
### SHAFT DIAMETER 3.17 mm (0.125") BUSHING A-B-C



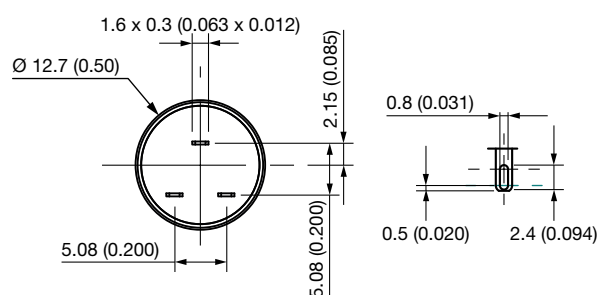
### SHAFT DIAMETER 4 mm (0.157") BUSHING H-I (not panel sealed)



### LEADS X = PCB PINS



### LEADS Y = SOLDER LUGS





| ELECTRICAL SPECIFICATIONS                    |                        |                          |
|----------------------------------------------|------------------------|--------------------------|
|                                              | PRV6S, PRV6B           | PRV6A, PRV6C             |
| Resistive element                            | cermet                 | conductive plastic       |
| Electrical travel                            | 270° ± 15°             |                          |
| Resistance range                             | linear taper (A)       | 20 Ω to 10 MΩ            |
|                                              | non-linear taper (F-L) | 470 Ω to 1 MΩ            |
|                                              |                        | 1 kΩ to 1 MΩ             |
|                                              |                        | 470 Ω to 500 kΩ (± 20 %) |
| Taper                                        |                        |                          |
| Tolerance                                    | standard               | ± 20 %                   |
|                                              | on request             | ± 10 %, ± 5 %            |
| Circuit diagram                              |                        |                          |
| Power rating at 70 °C                        | linear                 | 1.5 W at 70 °C           |
|                                              | other tapers           | 0.75 W                   |
|                                              |                        | 0.75 W at 70 °C          |
|                                              |                        | 0.4 W                    |
| Power rating chart                           |                        |                          |
| Temperature coefficient (typical)            | ± 150 ppm/°C           | ± 500 ppm/°C             |
| Limiting element voltage                     | 350 V                  |                          |
| Contact resistance variation (CRV)           | 2 % or 3 Ω             |                          |
| End resistance (typical)                     | 1 Ω                    |                          |
| Dielectric strength (RMS)                    | 1750 V <sub>RMS</sub>  |                          |
| Insulation resistance (500 V <sub>DC</sub> ) | 10 <sup>6</sup> MΩ     |                          |

**MECHANICAL SPECIFICATIONS**

|                                       |                     |
|---------------------------------------|---------------------|
| Mechanical travel                     | 300° ± 5°           |
| Operating torque (Ncm (oz.in.))       | 0.5 to 2 (0.7 to 3) |
| End stop torque (max. Ncm (lb.in.))   | 35 (3)              |
| Tightening torque (max. Ncm (lb.in.)) | 150 (13)            |

**ENVIRONMENTAL SPECIFICATIONS**

|                   |                                               |                     |
|-------------------|-----------------------------------------------|---------------------|
|                   | <b>PRV6S, PRV6B</b>                           | <b>PRV6A, PRV6C</b> |
| Temperature range | -55 °C to +125 °C                             | -40 °C to +125 °C   |
| Climatic category | 55/125/56                                     | 40/125/56           |
| Sealing           | Fully sealed container; IP67 and panel sealed |                     |

**PERFORMANCES**

| TESTS                   | CONDITIONS                                                                                        | TYPICAL VALUES AND DRIFTS |                              |                                             |
|-------------------------|---------------------------------------------------------------------------------------------------|---------------------------|------------------------------|---------------------------------------------|
|                         |                                                                                                   | $\Delta R_T/R_T$ (%)      | $\Delta R_{1-2}/R_{1-2}$ (%) | OTHER                                       |
| Electrical endurance    | 1000 h at rated power<br>90°/30° - temperature 70 °C                                              | ± 1 %                     |                              | CRV < 3 % Rn                                |
| Climatic sequence       | Phase A dry heat 100 °C<br>Phase B damp heat<br>Phase C cold -55 °C<br>Phase D damp heat 5 cycles | ± 0.5 %                   | ± 1 %                        |                                             |
| Damp heat, steady state | 56 days                                                                                           | ± 0.5 %                   | ± 1 %                        | Insulation resistance: > 10 <sup>4</sup> MΩ |
| Change of temperature   | 5 cycles, -55 °C to +125 °C                                                                       | ± 0.5 %                   |                              |                                             |
| Mechanical endurance    | 50 000 cycles                                                                                     | ± 3 %                     |                              | CRV < 2 % Rn                                |
| Shock                   | 50 g at 11 ms<br>3 successive shocks<br>in 3 directions                                           | ± 0.1 %                   | ± 0.2 %                      |                                             |
| Vibration               | 10 Hz to 55 Hz<br>0.75 mm or 10 g during 6 h                                                      | ± 0.1 %                   | ± 0.2 %                      |                                             |

**Note**

- Nothing stated herein shall be construed as a guarantee of quality or durability

**STANDARD RESISTANCE ELEMENT DATA**

| STANDARD<br>RESISTANCE<br>VALUES | PRV6S AND PRV6B WITH LINEAR TAPER |                            |                          | PRV6S AND PRV6B WITH NON-LINEAR TAPER |                            |                          |
|----------------------------------|-----------------------------------|----------------------------|--------------------------|---------------------------------------|----------------------------|--------------------------|
|                                  | MAX.<br>POWER<br>AT 70 °C         | MAX.<br>WORKING<br>VOLTAGE | MAX.<br>WIPER<br>CURRENT | MAX.<br>POWER<br>AT 70 °C             | MAX.<br>WORKING<br>VOLTAGE | MAX.<br>WIPER<br>CURRENT |
| Ω                                | W                                 | V                          | mA                       | W                                     | V                          | mA                       |
| 20                               | 1.5                               | 5.48                       | 274                      |                                       |                            |                          |
| 50                               | 1.5                               | 8.66                       | 173                      |                                       |                            |                          |
| 100                              | 1.5                               | 12.2                       | 122                      |                                       |                            |                          |
| 200                              | 1.5                               | 17.3                       | 87                       |                                       |                            |                          |
| 500                              | 1.5                               | 27.4                       | 55                       | 0.75                                  | 19.4                       | 39                       |
| 1K                               | 1.5                               | 38.7                       | 38.7                     | 0.75                                  | 27.3                       | 27.4                     |
| 2K                               | 1.5                               | 54.8                       | 27.4                     | 0.75                                  | 38.2                       | 19.3                     |
| 5K                               | 1.5                               | 86.6                       | 17.3                     | 0.75                                  | 61.2                       | 12.2                     |
| 10K                              | 1.5                               | 122.5                      | 12.2                     | 0.75                                  | 87                         | 8.7                      |
| 20K                              | 1.5                               | 173                        | 8.26                     | 0.75                                  | 122                        | 6.1                      |
| 50K                              | 1.5                               | 274                        | 5.65                     | 0.75                                  | 194                        | 3.9                      |
| 100K                             | 1.22                              | 350                        | 3.5                      | 0.75                                  | 273                        | 2.74                     |
| 220K                             | 0.61                              | 350                        | 1.75                     | 0.61                                  | 350                        | 1.75                     |
| 500K                             | 0.25                              | 350                        | 0.70                     | 0.25                                  | 350                        | 0.7                      |
| 1M                               | 0.12                              | 350                        | 0.35                     | 0.12                                  | 350                        | 0.35                     |
| 2M                               | 0.06                              | 350                        | 0.17                     |                                       |                            |                          |
| 5M                               | 0.025                             | 350                        | 0.070                    |                                       |                            |                          |
| 10M                              | 0.012                             | 350                        | 0.035                    |                                       |                            |                          |

## MARKING

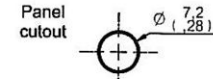
- Vishay trademark
- Part number
- Manufacturing date code
- Terminal: 1

## PACKAGING

- Box of 15, 20, 25, or 50 pieces, code B12, B15, B17, or B25, depending of body and shaft construction

## OPTIONS

### SPECIAL FEATURES

|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Panel sealing | Except for dia. 4 mm shaft, an O.ring is supplied with the potentiometer. This O.ring should be placed into the groove of the body and ensures the panel sealing.<br>For dia. 4 mm shaft please see note "P" in ordering information.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Shaft locking | <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p><b>Bushing E</b></p>  </div> <div style="text-align: center;"> <p><b>Bushing D</b></p>  </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;"> <p><b>Bushing S no panel sealed (61QH)</b></p>  </div> <div style="text-align: center;"> <p><b>Bushing S panel sealed (61QPH)</b></p>  </div> </div>                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Shafts        | Shaft lengths are measured from the mounting face to the free end of the shaft. Special shafts are available if the customer supplies a drawing. The shaft slot is aligned to the wiper within $\pm 10^\circ$ .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Hardware      | Nuts, washer and O.ring are separately supplied (not mounted on the potentiometer), in a small bag placed in the packaging.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Locating peg  | <p>Except for dia. 4 mm shaft, the potentiometers are delivered with 2 opposite locating pegs orientated at <math>45^\circ</math>. These 2 pegs can be easily broken-off by the customer. On request, the orientation of the pegs can be at <math>30^\circ</math> instead of <math>45^\circ</math>.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p><b>Locating Peg A</b><br/>Bushing: A-B-C-D-E</p>  </div> <div style="text-align: center;"> <p><b>Locating Peg R</b><br/>Bushing: H-I-S (locking shaft, not panel sealed)</p>  </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;"> <p><b>Locating Peg L</b><br/>Bushing: A-B-C-D-E</p>  </div> <div style="text-align: center;"> <p><b>Without Locating Peg</b><br/>Panel sealed bushing:</p>  </div> </div> |

**LOCATING PEG CODE**

| BUSHING | OLD CODE | A | L | R | O                |
|---------|----------|---|---|---|------------------|
| A       | 6        | x | x |   | x <sup>(1)</sup> |
| B       | 61       | x | x |   | x <sup>(1)</sup> |
| C       | 62       | x | x |   | x <sup>(1)</sup> |
| D       | 61H      | x | x |   | x <sup>(1)</sup> |
| E       | 62H      | x | x |   | x <sup>(1)</sup> |
| H       | 6Q       |   |   | x |                  |
| I       | 61Q      |   |   | x |                  |
| J       | 6QP      |   |   |   | x                |
| K       | 61QP     |   |   |   | x                |
| S       | 61QH     |   |   | x |                  |
| S       | 61QPH    |   |   |   | x                |

**Note**
<sup>(1)</sup> Not standard, special manufacturing

**ORDERING INFORMATION** (part number)

| P     | R                                                                         | V       | 6   | B   | B         | A                                                                                     | B               | G            | X    | B         | 1                                            | 7                                                                                                                         | 5                                                                                                                                                                                                                               | 0 | 2 | M | A |
|-------|---------------------------------------------------------------------------|---------|-----|-----|-----------|---------------------------------------------------------------------------------------|-----------------|--------------|------|-----------|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|
| MODEL | STYLE                                                                     | BUSHING |     |     |           | LOCATING PEG                                                                          | SHAFT           |              |      |           | LEADS                                        | PACKAGING                                                                                                                 | RESISTANCE CODE/ TOLERANCE/ TAPER OR SPECIAL                                                                                                                                                                                    |   |   |   |   |
| PRV6  | S = standard<br>A = audio<br>B = body length<br>C = audio and body length |         | Ø   | L   | Old codes | 0 = without<br>A = 45°<br>L = 30°<br>R = 180° round<br>(see locating peg table above) |                 | Ø            | L    | Old codes | X = PCB pins (old code W)<br>Y = solder lugs | Depending of body and shaft construction:<br>B12 = box 15 pcs<br>B15 = box 20 pcs<br>B17 = box 25 pcs<br>B25 = box 50 pcs | Resistance:<br>from<br>200 = 20 Ω to<br>106 = 10 MΩ<br>for<br>linear cermet<br><br>Tolerance:<br>standard<br>M = 20 %<br>on request<br>K = 10 % or<br>J = 5 %<br><br>Taper: A, L, F<br>or<br>special code<br>given by<br>Vishay |   |   |   |   |
|       |                                                                           | A       | 1/4 | 1/4 | 6         |                                                                                       | AA              | 3            | 9.5  | K         |                                              |                                                                                                                           |                                                                                                                                                                                                                                 |   |   |   |   |
|       |                                                                           | B       | 1/4 | 3/8 | 61        |                                                                                       | AB              | 3            | 12.5 | M         |                                              |                                                                                                                           |                                                                                                                                                                                                                                 |   |   |   |   |
|       |                                                                           | C       | 1/4 | 1/2 | 62        |                                                                                       | AJ              | 3            | 22   | R         |                                              |                                                                                                                           |                                                                                                                                                                                                                                 |   |   |   |   |
|       |                                                                           | D       | 1/4 | 3/8 | 61H       |                                                                                       | BA              | 1/8          | 9.5  | CK        |                                              |                                                                                                                           |                                                                                                                                                                                                                                 |   |   |   |   |
|       |                                                                           | E       | 1/4 | 1/2 | 62H       |                                                                                       | BB              | 1/8          | 12.5 | CM        |                                              |                                                                                                                           |                                                                                                                                                                                                                                 |   |   |   |   |
|       |                                                                           | H       | 7   | 6.5 | 6Q        |                                                                                       | BG              | 1/8          | 16   | CD        |                                              |                                                                                                                           |                                                                                                                                                                                                                                 |   |   |   |   |
|       |                                                                           | I       | 7   | 9.5 | 61Q       |                                                                                       | BJ              | 1/8          | 22   | CR        |                                              |                                                                                                                           |                                                                                                                                                                                                                                 |   |   |   |   |
|       |                                                                           | J       | 7   | 6.5 | 6QP       |                                                                                       | EA              | 4            | 9.5  | E         |                                              |                                                                                                                           |                                                                                                                                                                                                                                 |   |   |   |   |
|       |                                                                           | K       | 7   | 9.5 | 61QP      |                                                                                       | EB              | 4            | 12.5 | F         |                                              |                                                                                                                           |                                                                                                                                                                                                                                 |   |   |   |   |
|       |                                                                           | S       | 7   | 9.5 | 61QH      |                                                                                       | EJ              | 4            | 22   | G         |                                              |                                                                                                                           |                                                                                                                                                                                                                                 |   |   |   |   |
|       |                                                                           | S       | 7   | 9.5 | 61QPH     |                                                                                       | AP              | custom shaft |      |           |                                              |                                                                                                                           |                                                                                                                                                                                                                                 |   |   |   |   |
|       |                                                                           |         |     |     |           |                                                                                       | all are slotted |              |      |           |                                              |                                                                                                                           |                                                                                                                                                                                                                                 |   |   |   |   |

**PART NUMBER DESCRIPTION** (for information only using old codes)

| PRV   | S       | 61    | W       | CD    | 5K    | 20 %      | A     |         | BO        |         |       |         | e3          |
|-------|---------|-------|---------|-------|-------|-----------|-------|---------|-----------|---------|-------|---------|-------------|
| MODEL | BUSHING | LEADS | SPECIAL | SHAFT | VALUE | TOLERANCE | TAPER | SPECIAL | PACKAGING | SPECIAL | AP N° | SPECIAL | LEAD FINISH |

**RELATED DOCUMENTS**
**APPLICATION NOTES**

Potentiometers and Trimmers

[www.vishay.com/doc?51001](http://www.vishay.com/doc?51001)

Guidelines for Vishay Sfernice Resistive and Inductive Components

[www.vishay.com/doc?52029](http://www.vishay.com/doc?52029)



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