

Fully Sealed Potentiometer Cermet or Conductive Plastic



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


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 % |
| | | ± 20 % |
| | | ± 10 % (1 kΩ to 100 kΩ) |
| 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 _{RMS} | |
| Insulation resistance (500 V _{DC}) | 10 ⁶ 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 | | |
|------------------------------|---|-------------------|
| | PRV6S, PRV6B | PRV6A, PRV6C |
| 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 90°/30° - temperature 70 °C | ± 1 % | | CRV < 3 % Rn |
| Climatic sequence | Phase A dry heat 100 °C Phase B damp heat Phase C cold -55 °C Phase D damp heat 5 cycles | ± 0.5 % | ± 1 % | |
| Damp heat, steady state | 56 days | ± 0.5 % | ± 1 % | Insulation resistance: > 10 ⁴ 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 3 successive shocks in 3 directions | ± 0.1 % | ± 0.2 % | |
| Vibration | 10 Hz to 55 Hz 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 RESISTANCE VALUES | PRV6S AND PRV6B WITH LINEAR TAPER | | | PRV6S AND PRV6B WITH NON-LINEAR TAPER | | |
| | MAX. POWER AT 70 °C | MAX. WORKING VOLTAGE | MAX. WIPER CURRENT | MAX. POWER AT 70 °C | MAX. WORKING VOLTAGE | MAX. WIPER 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 |
|---|
| <ul style="list-style-type: none"> • Vishay trademark • Part number • Manufacturing date code • Terminal: 1 |

| PACKAGING |
|---|
| <ul style="list-style-type: none"> • 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. 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>Bushing E</p> </div> <div style="text-align: center;"> <p>Bushing D</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;"> <p>Bushing S no panel sealed (61QH)</p> </div> <div style="text-align: center;"> <p>Bushing S panel sealed (61QPH)</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 45°. These 2 pegs can be easily broken-off by the customer. On request, the orientation of the pegs can be at 30° instead of 45°.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Locating Peg A Bushing: A-B-C-D-E</p> </div> <div style="text-align: center;"> <p>Locating Peg R Bushing: H-I-S (locking shaft, not panel sealed)</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;"> <p>Locating Peg L Bushing: A-B-C-D-E</p> </div> <div style="text-align: center;"> <p>Without Locating Peg Panel sealed bushing:</p> </div> </div> |



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

Note

⁽¹⁾ 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 A = audio B = body length C = audio and body length | ∅ | L | Old codes | 0 = without A = 45° L = 30° R = 180° round (see locating peg table above) | ∅ | L | Old codes | X = PCB pins (old code W) Y = solder lugs | Depending of body and shaft construction: B12 = box 15 pcs B15 = box 20 pcs B17 = box 25 pcs B25 = box 50 pcs | Resistance: from 200 = 20 Ω to 106 = 10 MΩ for linear cermet Tolerance: standard M = 20 % on request K = 10 % or J = 5 % Taper: A, L, F or special code given by 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 |
| Guidelines for Vishay Sfernice Resistive and Inductive Components | www.vishay.com/doc?52029 |



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