

# 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](http://www.vishay.com/doc?99912)


**RoHS  
COMPLIANT**

## DESIGN SUPPORT TOOLS AVAILABLE



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



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 <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		
	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 <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 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			

<b>MARKING</b>
<ul style="list-style-type: none"> <li>• Vishay trademark</li> <li>• Part number</li> <li>• Manufacturing date code</li> <li>• Terminal: 1</li> </ul>

<b>PACKAGING</b>
<ul style="list-style-type: none"> <li>• Box of 15, 20, 25, or 50 pieces, code B12, B15, B17, or B25, depending of body and shaft construction</li> </ul>

<b>OPTIONS</b>
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<b>SPECIAL FEATURES</b>	
Panel sealing	<p>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.</p> <p>For dia. 4 mm shaft please see note "P" in ordering information.</p>
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	<p>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 <math>\pm 10^\circ</math>.</p>
Hardware	<p>Nuts, washer and O.ring are separately supplied (not mounted on the potentiometer), in a small bag placed in the packaging.</p>
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> Bushing: A-B-C-D-E</p> </div> <div style="text-align: center;"> <p><b>Locating Peg R</b> 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> Bushing: A-B-C-D-E</p> </div> <div style="text-align: center;"> <p><b>Without Locating Peg</b> 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 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	
<b>APPLICATION NOTES</b>	
Potentiometers and Trimmers	<a href="http://www.vishay.com/doc?51001">www.vishay.com/doc?51001</a>
Guidelines for Vishay Sfernice Resistive and Inductive Components	<a href="http://www.vishay.com/doc?52029">www.vishay.com/doc?52029</a>



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