

3/4" Panel Potentiometer Cermet



FEATURES

- 2 W at 70 °C
- Industrial grade
- Wide ohmic range (100 Ω to 1 MΩ)
- Minimal depth package: only 6 mm behind panel
- Radial terminations
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912


RoHS
COMPLIANT

LINKS TO ADDITIONAL RESOURCES



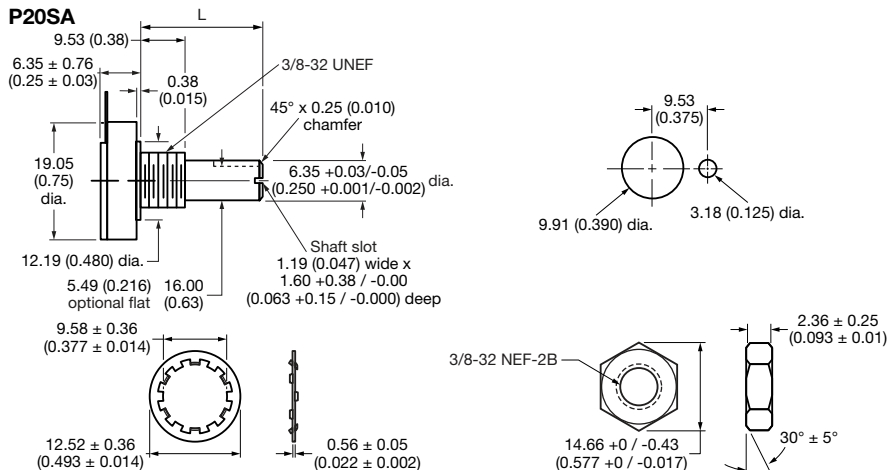
3D Models

QUICK REFERENCE DATA

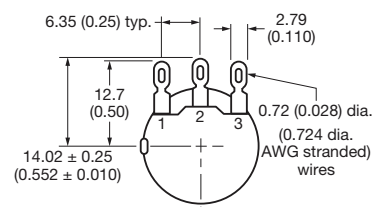
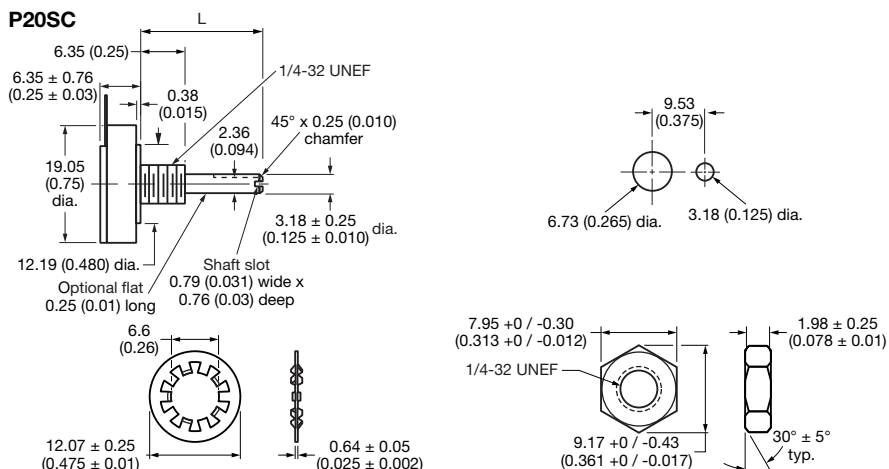
Multiple module	No
Switch module	n/a
Detent module	n/a
Special electrical laws	A: linear
Sealing level	IP 40
Lifespan	20K cycles

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

P20SA

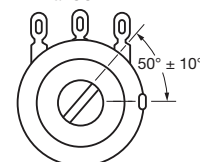


P20SC

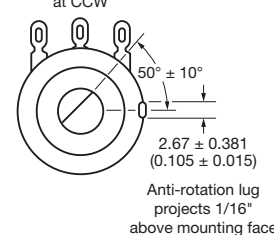


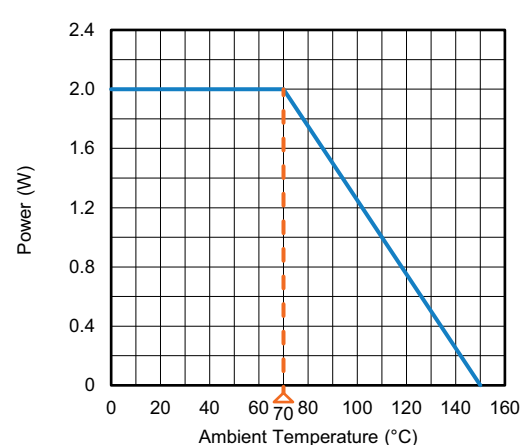
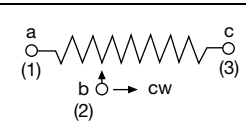
Shaft End Detail

Shaft slot alignment at CCW



Flat alignment at CCW



ELECTRICAL SPECIFICATIONS	
Resistive element	Cermet
Electrical travel	$250^{\circ} \pm 5^{\circ}$
Resistance range	100 Ω to 1 M Ω (see "Standard Resistance Element Data")
Tolerance	$\pm 10\%$ (standard)
Power rating (linear)	2 W at 70 °C 
Circuit diagram	
Temperature coefficient	± 150 ppm/°C
Limiting element voltage	350 V _{AC}
Contact resistance variation (typical)	3 % or 3 Ω max.
End resistance (typical)	1 % or 3 Ω max.
Dielectric strength (RMS)	900 V _{AC}
Insulation resistance (500 V _{DC})	1000 M Ω min.
Independent linearity (typical)	$\pm 5\%$

MECHANICAL SPECIFICATIONS	
Mechanical travel	$280^{\circ} \pm 5^{\circ}$
Operating torque (max. Ncm)	P20SA: 0.35 Ncm to 4.23 Ncm (0.5 oz.in. to 6.0 oz.in.) P20SC: 0.21 Ncm to 4.23 Ncm (0.3 oz.in. to 6.0 oz.in.)
End stop torque	56.5 Ncm (5 lb.in.)
Mounting torque	1.7 Nm to 2.0 Nm (15 lb.in. to 18 lb.in.) max.
Unit weight (max.)	30 g

ENVIRONMENTAL SPECIFICATIONS	
Temperature range	-1 °C to +125 °C

**PERFORMANCE**

TESTS	CONDITIONS	TYPICAL VALUES AND DRIFTS
Load life	1000 h at rated power, ambient temperature +70 °C	Total resistance shift = $\pm 3\%$
Moisture resistance	MIL-STD-202 Method 103, Condition B	Total resistance shift = $\pm 2\%$
Rotational life (no load)	20 000 cycles	Total resistance shift = $\pm 5\ \Omega$ or $\pm 5\%$ whichever is greater, contact resistance variation = $\pm 3\%$
Shock	100 g	Total resistance shift = $\pm 2\%$, voltage resistance shift = $\pm 6\%$
Vibration	20 g	Total resistance shift = $\pm 2\%$, voltage resistance shift = $\pm 6\%$

Note

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

STANDARD RESISTANCE ELEMENT DATA

RESISTANCE CODE	STANDARD RESISTANCE VALUES	LINEAR LAW		
		MAX. POWER AT 70 °C	MAX. WORKING VOLTAGE	MAX. CURRENT THROUGH WIPER
	Ω	W	V	mA
101	100	2	14.14	141.4
251	250	2	22.36	89.4
501	500	2	31.62	63.2
102	1000	2	44.72	44.7
252	2500	2	70.71	28.3
502	5000	2	100.00	20.0
103	10 000	2	141.42	14.1
253	25 000	2	223.61	8.9
503	50 000	2	316.23	6.3
104	100 000	1.23	350.00	3.5
254	250 000	0.49	350.00	1.4
504	500 000	0.25	350.00	0.7
105	1 000 000	0.12	350.00	0.4

MARKING

Vishay trademark
Wiring diagram
Ohmic value
Manufacturing date code

ORDERING INFORMATION (part number)

P	2	0	S														
MODEL	BUSHING	SHAFT				END SHAFT	LEADS	OHMIC VALUE	TOLERANCE	TAPER	SPECIAL NUMBER						
P20S	A C		Ø	L	Bushing	S = slotted F = flattened	Y = solder lugs	From 100 Ω to 1 MΩ 103 = 10 kΩ See "Standard Resistance Element Data"	K = 10 %	A = linear	(If applicable) Given by Vishay for custom design						
		GB	1/4"	1/2"	A												
		BB	1/8"	1/2"	C												
		GG	1/4"	5/8"	A												
		GJ	1/4"	7/8"	A												
		BJ	1/8"	7/8"	C												

**STANDARD COMBINATION OF BUSHING / SHAFT**

BUSHING	SHAFT / END SHAFT	AVAILABLE VERSION
A	GG	P20SAGGS
	GJS	P20SAGJS

PART NUMBER DESCRIPTION (for information only)

P20S	A	GG	Slotted	Solderlugs	100K	10 %	Linear
MODEL	BUSHING	SHAFT	END SHAFT	LEADS	VALUE	TOLERANCE	TAPER

ACCESSORIES

Additional Accessories (to order separately)	www.vishay.com/doc?51051
Control Knobs	www.vishay.com/doc?51101

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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