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

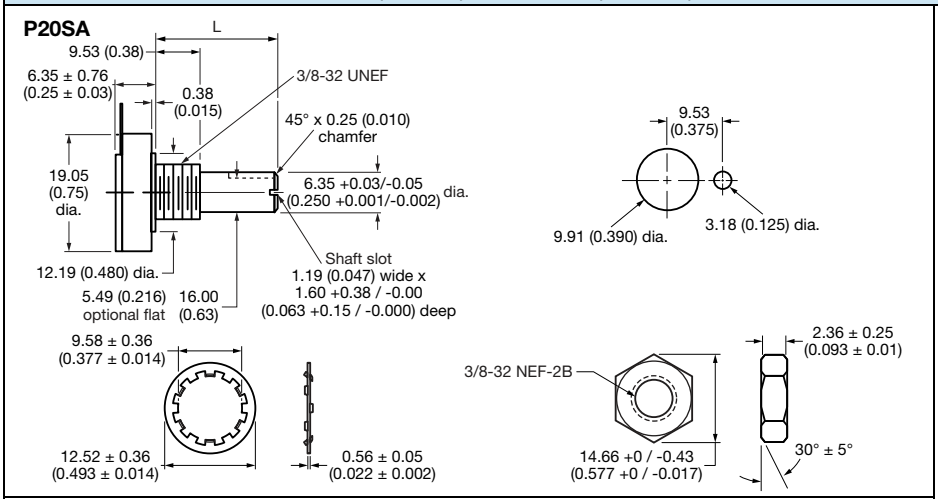
LINKS TO ADDITIONAL RESOURCES

3D Models

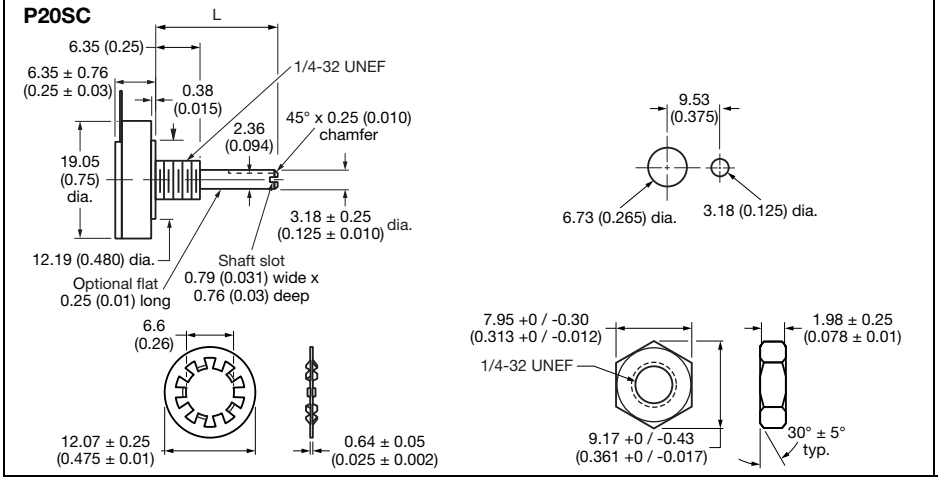
QUICK REFERENCE DATA	
Multiple module	No
Switch module	n/a
Detent module	n/a
Special electrical laws	A: linear
Sealing level	IP 40
Lifespan	20K cycles

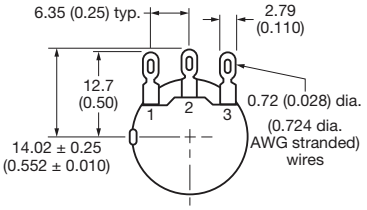
DIMENSIONS in millimeters (inches) ± 0.5 mm (± 0.02")

P20SA

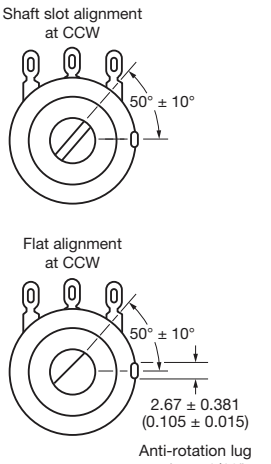


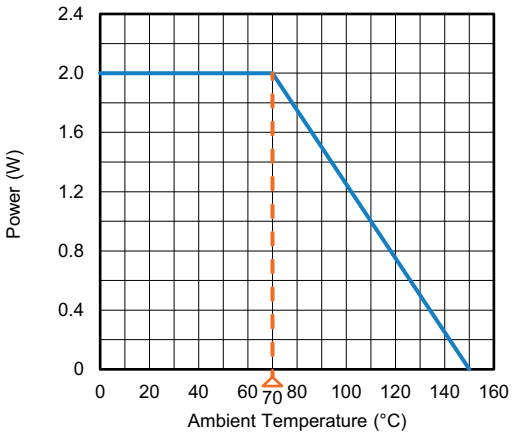
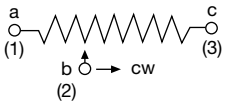
P20SC





Shaft End Detail



ELECTRICAL SPECIFICATIONS	
Resistive element	Cermet
Electrical travel	250° ± 5°
Resistance range	100 Ω to 1 MΩ (see “Standard Resistance Element Data”)
Tolerance	± 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 MΩ min.
Independent linearity (typical)	± 5 %

MECHANICAL SPECIFICATIONS	
Mechanical travel	280° ± 5°
Operating torque (max. Ncm)	P20SA: 0.35 Ncm to 4.23 Ncm (0.05 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 = ± 3 %
Moisture resistance	MIL-STD-202 Method 103, Condition B	Total resistance shift = ± 2 %
Rotational life (no load)	20 000 cycles	Total resistance shift = ± 5 Ω or ± 5 % whichever is greater, contact resistance variation = ± 3 %
Shock	100 *g*	Total resistance shift = ± 2 %, voltage resistance shift = ± 6 %
Vibration	20 *g*	Total resistance shift = ± 2 %, voltage resistance shift = ± 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
P20S

BUSHING
A
C

SHAFT

	Ø	L	Bushing
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

END SHAFT
S = slotted
D = knurled

LEADS
Y = solder lugs

OHMIC VALUE
From 100 Ω to 1 MΩ
103 = 10 kΩ
See "Standard Resistance Element Data"

TOLERANCE
K = 10 %

TAPER
A = linear

SPECIAL NUMBER
(If applicable)
Given by Vishay for custom design

STANDARD COMBINATION OF BUSHING / SHAFT

BUSHING	SHAFT / END SHAFT	AVAILABLE VERSION
A	GGS	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

Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, “Vishay”), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Vishay products are not designed for use in life-saving or life-sustaining applications or any application in which the failure of the Vishay product could result in personal injury or death unless specifically qualified in writing by Vishay. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.