Long Life Potentiometer - 500 000 Cycles
Miniature - Cermet - Fully Sealed

FEATURES

- 500 000 cycles
- Cermet element
- Low temperature coefficient (± 150 ppm/°C typical)
- Plastic housing and shaft
- Compact (3/8" square)
- Fully sealed
- Test according to CECC 41000 or IEC 60393-1
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

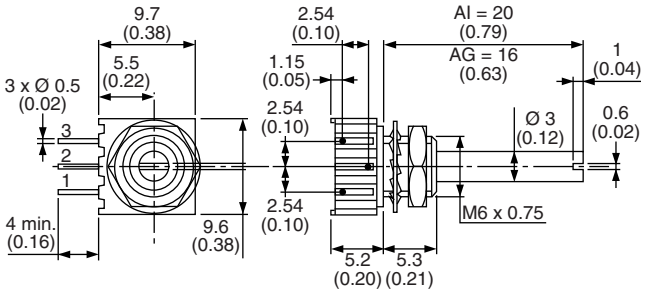
RoHS COMPLIANT

QUICK REFERENCE DATA	
Multiple module	No
Switch module	n/a
Detent module	n/a
Special electrical laws	No, only A: linear
Sealing level	IP 67
Lifespan	500K cycles

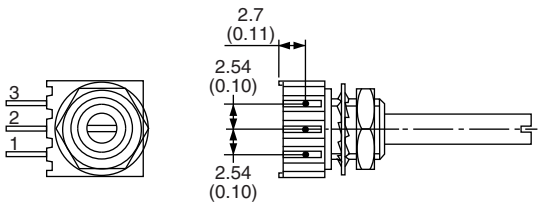
DIMENSIONS in millimeters (inches) ± 0.5 mm (± 0.02")

P10L: Side Adjust

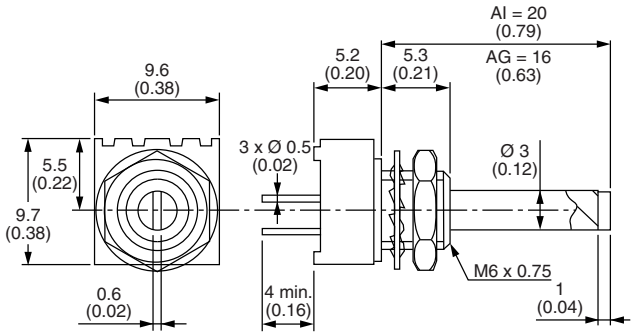
P10LXX



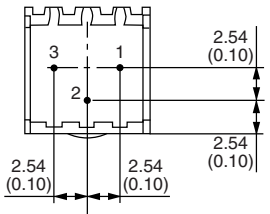
P10LXC



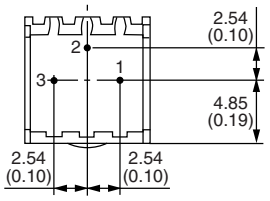
P10L: Top Adjust



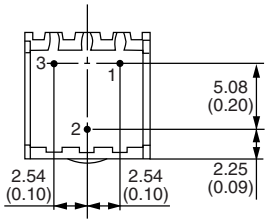
P10LYP

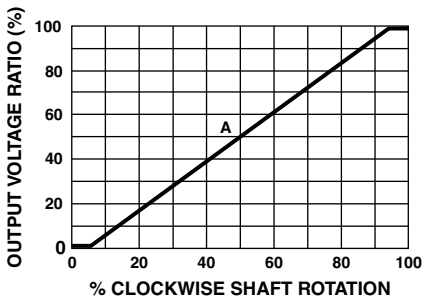
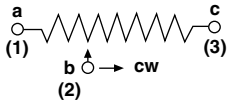
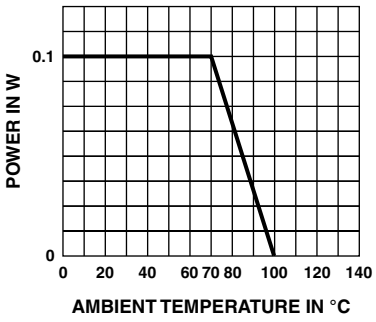


P10LYE



P10LYM



ELECTRICAL SPECIFICATIONS	
Resistive element	Cermet
Electrical travel	250° ± 15°
Standard resistance values	1 kΩ - 5 kΩ - 10 kΩ - 50 kΩ
Tolerance	20 % - 10 % on request
Taper	Linear A 
Circuit diagram	
Power rating	0.1 W at 70 °C 
Standard resistance element data	<table><tr><th>Resistance Value (kΩ)</th><th>Max. Power at 70 °C (W)</th><th>Max. Working Voltage (V)</th></tr><tr><td>1</td><td>0.1</td><td>10</td></tr><tr><td>5</td><td>0.1</td><td>22.3</td></tr><tr><td>10</td><td>0.1</td><td>31.6</td></tr><tr><td>50</td><td>0.1</td><td>70.7</td></tr></table>
Temperature coefficient (typical)	± 150 ppm/°C
Limiting element voltage	75 V
End resistance (typical)	1 Ω
Dielectric strength (RMS)	1000 V
Insulation resistance (300 V_{DC})	10^6 MΩ
Independent linearity (typical)	± 5 %

MECHANICAL SPECIFICATIONS

Mechanical travel	290° ± 5	
Operating torque (typical)	2 Ncm max.	2.83 oz.-inch max.
End stop torque	7 Ncm max.	9.9 oz.-inch max.
Tightening torque of mounting nut	25 Ncm max.	2.2 lb-inch max.
Unit weight	1 g	3.5 10^{-2} oz.
Terminals	e3: Pure Sn	

ENVIRONMENTAL SPECIFICATIONS

Temperature range	-40 °C to +100 °C
Climatic category	40/100/56
Sealing	Fully sealed - container IP67

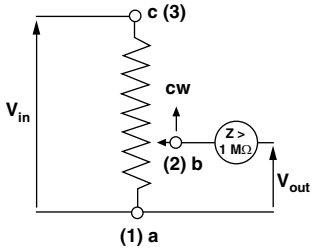
MARKING

- Vishay trademark
- Model
- Ohmic value code
- Tolerance code
- Manufacturing date code
- Marking of terminals 3

APPLICATION NOTE

The potentiometer shall be used in voltage divider with an impedance load at least 100 times higher than the total potentiometer nominal resistance value.

Advised load impedance:
1 MΩ min. for resistance range of 1kΩ to 50 kΩ



PERFORMANCE

TESTS	CONDITIONS	TYPICAL VALUES AND DRIFTS		
		$\Delta R_T/R_T$ (%)	$\Delta R_{1\text{-}2}/R_{1\text{-}2}$ (%)	OTHER
Electrical endurance	1000 h at rated power 90'/30' - ambient temp. 70 °C	± 20 %	± 20 %	-
Climatic sequence	Phase A dry heat 100 °C Phase B damp heat Phase C cold -40 °C Phase D damp heat 5 cycles	± 1 %	± 2 %	-
Damp heat, steady state	56 days 40 °C 93 % HR	± 1 %	± 2 %	Insulation resistance: > 10^4 MΩ
Change of temperature	5 cycles -40 °C at 100 °C	± 1 %	± 2 %	-
Mechanical endurance	500 000 cycles at rated power Turn angle: ± 50° Temperature: 20 °C	± 20 %	-	Independent linearity: ± 20 %
Shock	50 *g*'s at 11 ms 3 successive shocks in 3 directions	± 0.5 %	± 1 %	-
Vibration	10 Hz to 55 Hz 0.75 mm or 10 *g*'s during 6 h	± 0.5 %	± 1 %	-

Note

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

ORDERING INFORMATION (part number)

P	1	0	L	X	X	A	G	1	0	2	M	B	4				

MODEL	STYLE	SHAFT	RESISTANCE CODE	TOLERANCE CODE	PACKAGING CODE	SPECIAL NUMBER
P10L	XC XX YE YM YP	AG = Ø 3 mm to 16 mm Al = Ø 3 mm to 20 mm	102 = 1 kΩ 502 = 5 kΩ 103 = 10 kΩ 503 = 50 kΩ	M = 20 % On request: K = 10 %	B4 = box 100 pieces	(if applicable) Given by Vishay for custom design

PART NUMBER DESCRIPTION (for information only)

P10L	XX	AG	1K	20 %		BO100	e3
MODEL	STYLE	SHAFT	VALUE	TOLERANCE	SPECIAL	PACKAGING	LEAD (Pb)-FREE

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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