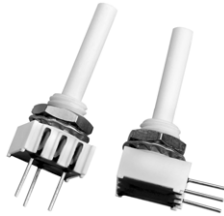


## Long Life Potentiometer - 500 000 Cycles Miniature - Cermet - Fully Sealed

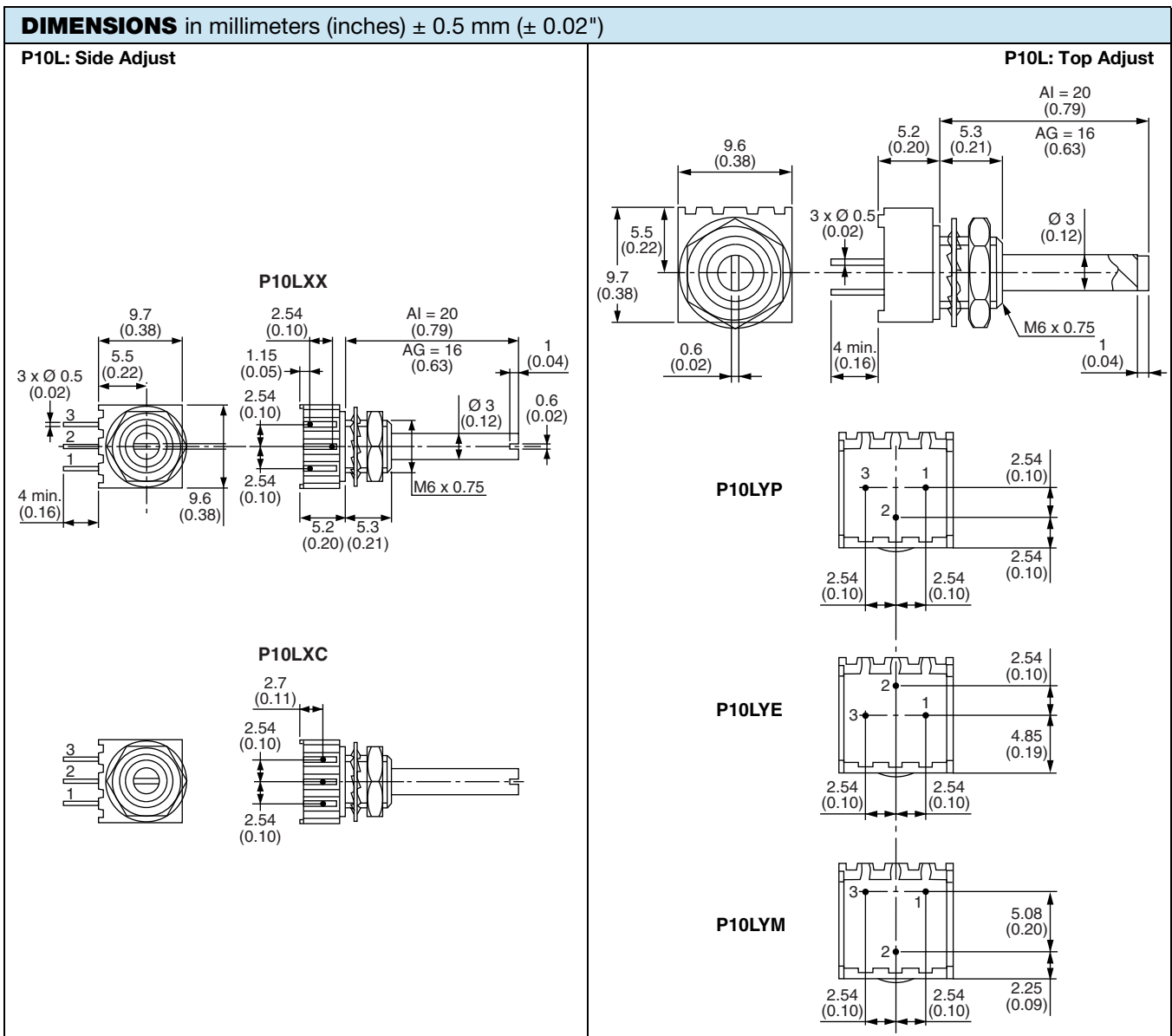


### FEATURES

- 500 000 cycles
- Cermet element
- Low temperature coefficient ( $\pm 150$  ppm/ $^{\circ}$ 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](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT



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															
	<div style="text-align: center;"> <p>OUTPUT VOLTAGE RATIO (%)</p> <p>% CLOCKWISE SHAFT ROTATION</p> </div>															
Circuit diagram	<div style="text-align: center;"> </div>															
Power rating	0.1 W at 70 °C <div style="text-align: center;"> <p>POWER IN W</p> <p>AMBIENT TEMPERATURE IN °C</p> </div>															
Standard resistance element data	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Resistance Value (kΩ)</th> <th>Max. Power at 70 °C (W)</th> <th>Max. Working Voltage (V)</th> </tr> </thead> <tbody> <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> </tbody> </table>	Resistance Value (kΩ)	Max. Power at 70 °C (W)	Max. Working Voltage (V)	1	0.1	10	5	0.1	22.3	10	0.1	31.6	50	0.1	70.7
Resistance Value (kΩ)	Max. Power at 70 °C (W)	Max. Working Voltage (V)														
1	0.1	10														
5	0.1	22.3														
10	0.1	31.6														
50	0.1	70.7														
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 <sub>DC</sub> )	10 <sup>6</sup> MΩ															
Independent linearity (typical)	± 5 %															

MECHANICAL SPECIFICATION		
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 <sup>-2</sup> 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
<ul style="list-style-type: none"> <li>• Vishay trademark</li> <li>• Model</li> <li>• Ohmic value code</li> <li>• Tolerance code</li> <li>• Manufacturing date code</li> <li>• Marking of terminals 3</li> </ul>

APPLICATION NOTE	
<p>The potentiometer shall be used in voltage divider with an impedance load at least 100 times higher than the total potentiometer nominal resistance value.</p> <p>Advised load impedance: 1 MΩ min. for resistance range of 1kΩ to 50 kΩ</p>	

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° - 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 <sup>4</sup> 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 AI = 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	
<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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