

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



FEATURES

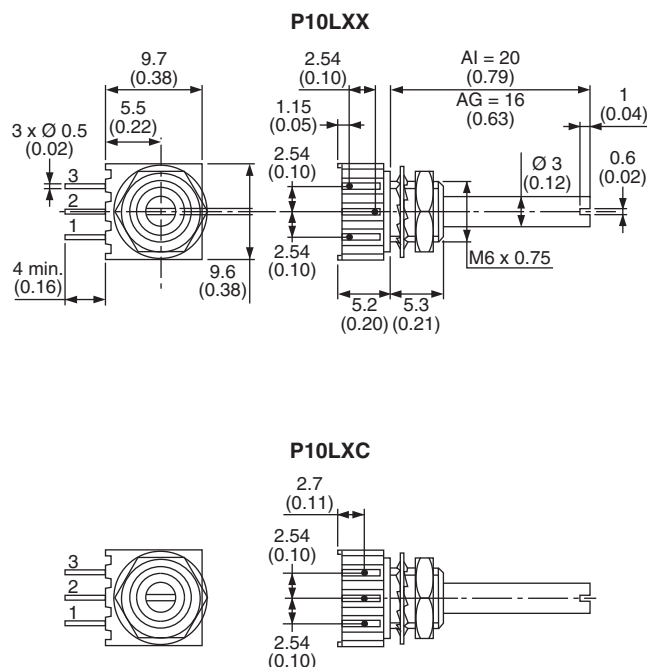
- 500 000 cycles
- Cermet element
- Low temperature coefficient (± 150 ppm/ $^{\circ}\text{C}$ typical)
- Plastic housing and shaft
- Compact ($3/8$ " square)
- Fully sealed
- Test according to CECC 41000 or IEC 60393-1
- Compliant to RoHS Directive 2002/95/EC



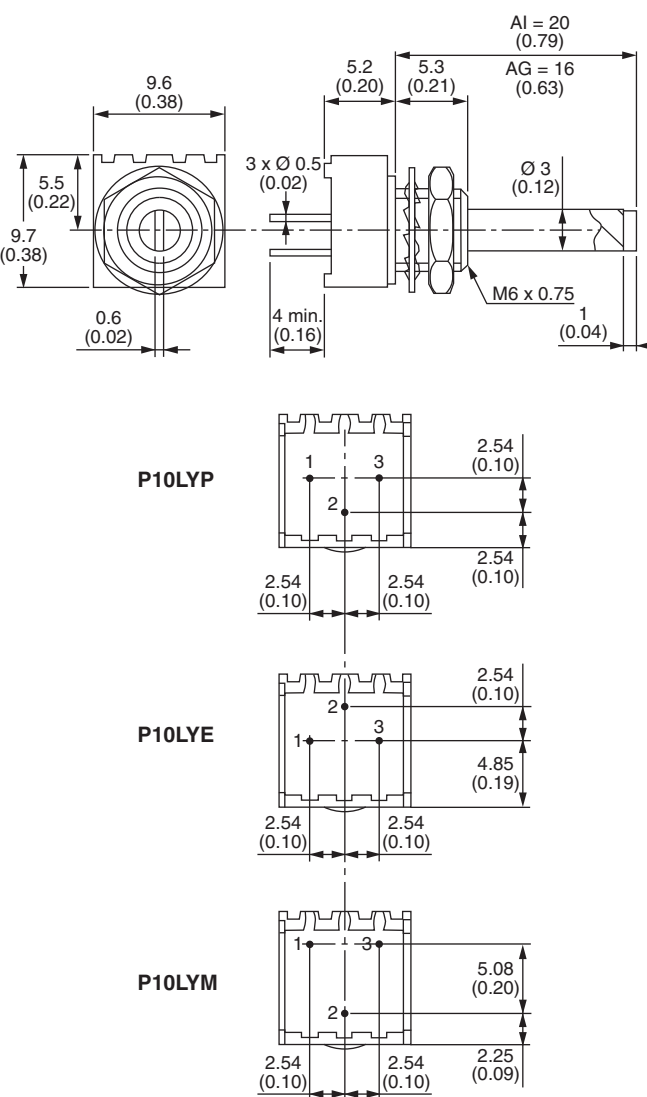
RoHS
COMPLIANT

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

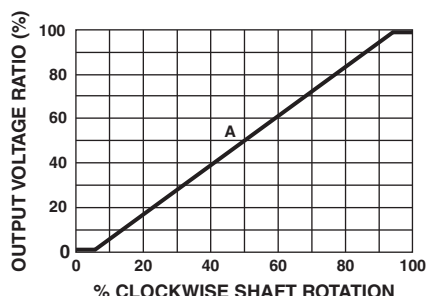
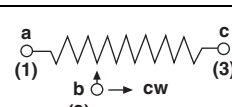
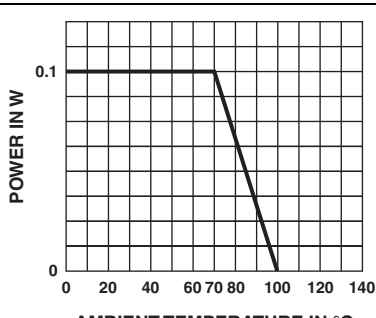
P10L: Side Adjust



P10L: Top Adjust



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> | 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 _{DC}) | 10 ⁶ MΩ | | | | | | | | | | | | | | | |
| Independent Linearity (Typical) | ± 5 % | | | | | | | | | | | | | | | |



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

Vishay Sfernice

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 |

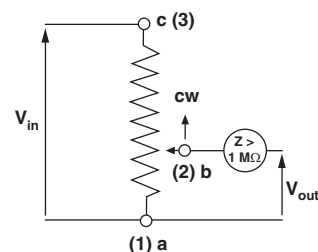
MARKING

- 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



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 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 % | - |

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 |



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