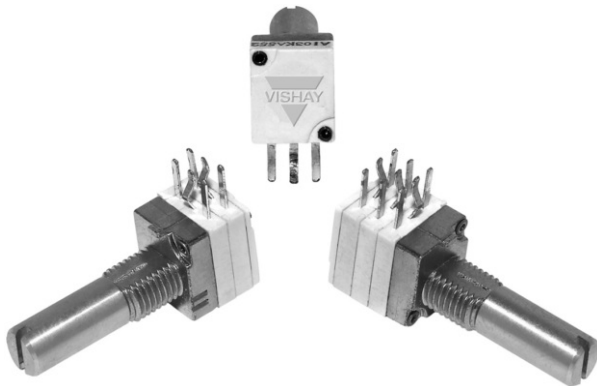


9 mm Multi-Ganged Potentiometer



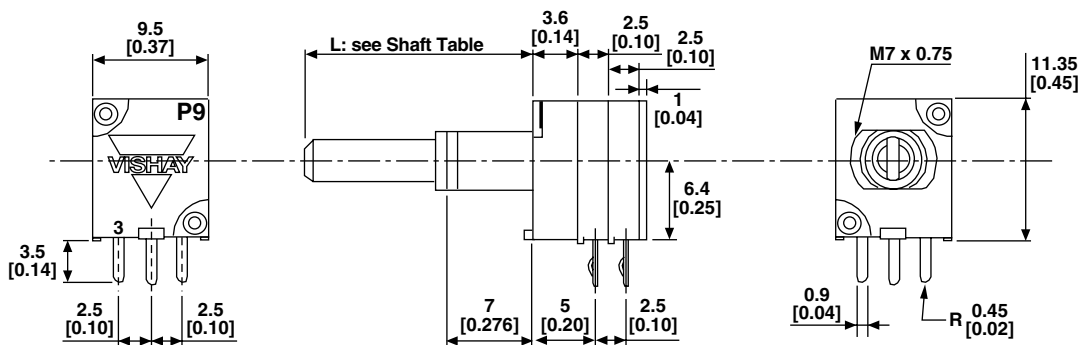
FEATURES

- Conductive plastic element
- Ultra compact (extra miniature module size)
- Multiple assemblies (up to seven modules)
- Shaft and panel sealed option
- Center mechanical detent fully integrated in option
- Center tap option
- Custom designs available on request

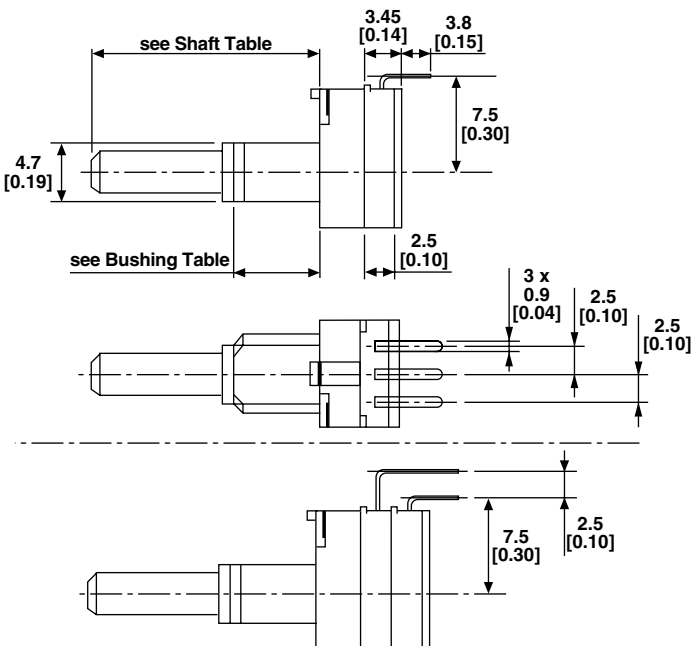


DIMENSIONS in millimeters [inches] (± 0.5 mm)

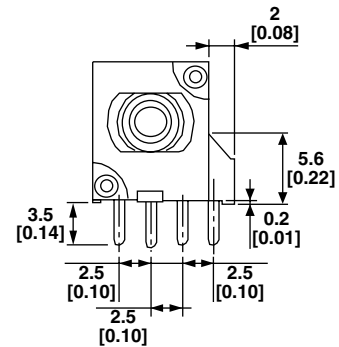
P9A



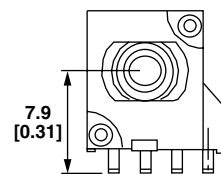
P9A: Vertical Mounting



P9A Center Tap:



P9A Center Tap: Vertical Mounting



**P9 - GENERAL SPECIFICATIONS**

| ELECTRICAL | | |
|-----------------------------------|--|---------------------------|
| Resistive Element | Conductive Plastic | |
| Electrical Travel | 270° ± 10° | |
| Resistance Range | linear law | 1 kΩ up to 1 MΩ |
| | non linear law | 2.2 kΩ up to 500 kΩ |
| Power Rating at 70 °C | linear law | 0.1 W |
| | non linear law | 0.05 W |
| | multiple assemblies linear law | 0.05 W per module |
| | multiple assemblies non linear law | 0.025 W per module |
| Temperature Coefficient (Typical) | ± 500 ppm | |
| Limiting Element Voltage | 10 V _{DC} 50 V _{AC} | |
| End Resistance (Typical) | 3 Ω | |
| Contact Resistance Variation | linear law (typical) | 2 % of nominal resistance |
| Independent Linearity | linear law (typical) | ± 5 % |
| Insulation Resistance | 100 MΩ at 250 V _{DC} | |
| Dielectric Strength | 300 V _{AC} during 1 min | |
| Attenuation (Typical) | 90 dB max./0.05 dB min. | |

| MECHANICAL | |
|----------------------------|---|
| Mechanical Rotational Life | 25 000 cycles min. |
| Mechanical Travel | 300° ± 5 |
| Operating Torque | 0.2 Ncm up to 2.5 Ncm (0.3 to 3.5 oz.inch) |
| End Stop Torque | 50 Ncm max. (4.4 lbinch max.) |
| Shaft Push/Pull Force | 7 DaNcm max. (15.7 lbf max.) |
| Weight (One Module) | 6.25 g (without nut and washer) (0.22 oz.) |

| ENVIRONMENTAL | |
|----------------------|----------------------|
| Temperature Range | - 55 °C up to 100 °C |
| Climatic Category | 55/100/21 |

| MARKING |
|--|
| <ul style="list-style-type: none"> • Type of element • Code for tolerance • Code for ohmic value • Taper • Code for date code |

| PACKAGING |
|---|
| <ul style="list-style-type: none"> • B2 = Box of 25 pieces • B4 = Box of 100 pieces |

| PERFORMANCES | | | | |
|-------------------|---|--------------------------|------------------------------|---------------------------------------|
| TESTS | CONDITIONS | TYPICAL VALUE AND DRIFTS | | |
| | | $\Delta R_1/R_1$ (%) | $\Delta R_{1-2}/R_{1-2}$ (%) | OTHER |
| Load Life | 1000 h under nominal power at 70 °C (90 ON/30 OFF) | ± 5 % | ± 10 % | Contact resistance variation < 5 % Rn |
| Temperature Cycle | - 55 °C to + 100 °C 5 cycles | ± 0.5 % | - | - |
| Moisture | 21 days at 40 ± 2 °C and 90 - 95 % relative humidity | ± 5 % | - | Insulation resistance > 10 MΩ |
| Rotational Life | 25 000 cycles at rated power 90 % of electrical travel 16 cycles per minute Temperature: 20 °C | ± 6 % | ± 12 % | Contact resistance variation |
| Shock | 50 g, 11 ms 3 shocks - 3 directions | ± 0.2 % | ± 0.5 % | - |
| Vibration | 10 - 55 Hz 0.75 mm or 10 g 6 h | ± 0.2 % | - | ± 0.5 % |

| SAP ORDERING INFORMATION (Part Number 18 digits) | | | | | | | | | | | | | | | | | |
|--|-------------------|--|--------------|--------------|---------------|-------|-----------|---|--------------------------------------|---|---|---|---|---|---|---|---|
| P | 9 | A | 1 | R | 1 | 0 | 0 | F | I | R | X | 1 | 1 | 0 | 3 | M | A |
| MODEL | NUMBER OF MODULES | BUSHING | LOCATING PEG | PANEL SEALED | DETENT OPTION | SHAFT | PIN STYLE | | RESISTANCE CODE/TOLERANCE CODE/TAPER | | | | | | | | |
| | 1 to 7 | R = M7 x 0.75 - 7 mm X = M7 x 0.75 - 5 mm | | | | | | | | | | | | | | | |

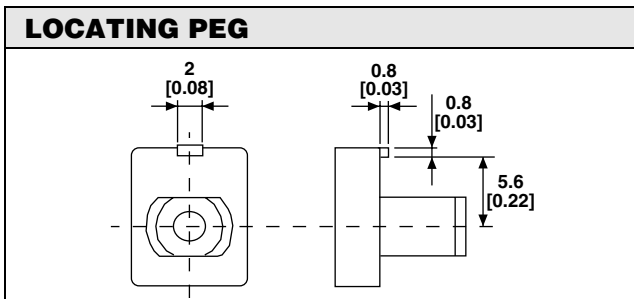
BUSHING

X: Bushing

R: Bushing

- Nut tightening torque M7 bushing 120 Ncm max. (10.6 lbinch max.)
- Nut and washer are delivered in standard packaging

| SAP ORDERING INFORMATION (Part Number 18 digits) | | | | | | | | | | | | | | | | | |
|--|-------------------|---------|-------------------------|-------------------------|----------------------------------|----------------|-----------|---|---|--------------------------------------|---|---|---|---|---|---|---|
| P | 9 | A | 1 | R | 1 | 0 | 0 | F | I | R | X | 1 | 1 | 0 | 3 | M | A |
| MODEL | NUMBER OF MODULES | BUSHING | LOCATING PEG | PANEL SEALED | DETENT OPTION | SHAFT | PIN STYLE | | | RESISTANCE CODE/TOLERANCE CODE/TAPER | | | | | | | |
| | | | 0 = without 1 = with | 0 = without P = with | 0 = without M = center detent | see code below | | | | | | | | | | | |



PANEL SEALED

- Only for R bushing without locating peg.
- Front mounting surface for R bushing with panel sealed option is: 6.2 mm ± 0.5
- The ring is delivered with nut and washer.
- The seal should be placed between panel and body. Sealing is obtained by tightening the seal against the panel when mounting the potentiometer. Tightening torque 50 Ncm up to 100 Ncm
- Advised Panel Hole dimensions

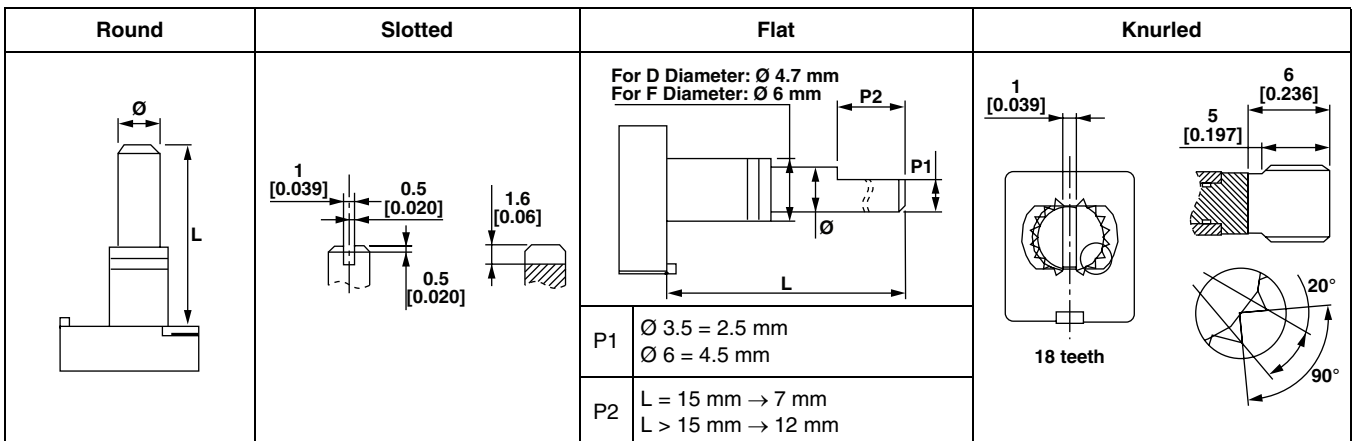
DETENT OPTION

- Stable position and in Mid mechanical travel
- Rotational life: 10 000 actuations

SHAFT DIAMETER - FMS - STYLE

| L (mm) | 15 | | | | 20 | | | 25 | | | 30 | | |
|--------|-------|---------|------|--------------------|-------|---------|------|-------|---------|------|-------|---------|------|
| Style | Round | Slotted | Flat | Knurled | Round | Slotted | Flat | Round | Slotted | Flat | Round | Slotted | Flat |
| Ø 3.5 | DFR | DFS | DFF | - | DIR | DIS | DIF | DLR | DLS | DLF | DMR | DMS | DMF |
| Ø 6 | FFR | FFS | FFF | FGK ⁽¹⁾ | FIR | FIS | FIF | FLR | FLS | FLF | FMR | FMS | FMF |

Note
⁽¹⁾ For X bushing (16 mm)



| SAP ORDERING INFORMATION (Part Number 18 digits) | | | | | | | | | | | | | | | | | |
|--|-------------------|---------|--------------|--------------|---------------|-------|--|---|---|---|---|--------------------------------------|---|---|---|---|---|
| P | 9 | A | 1 | R | 1 | 0 | 0 | F | I | R | X | 1 | 1 | 0 | 3 | M | A |
| MODEL | NUMBER OF MODULES | BUSHING | LOCATING PEG | PANEL SEALED | DETENT OPTION | SHAFT | PIN STYLE | | | | | RESISTANCE CODE/TOLERANCE CODE/TAPER | | | | | |
| | | | | | | | see Pin Table First digit: Pin type X, J, S, Z, P, L W or N Second digit: Pin Configuration 1, 2, 3, 4 or N | | | | | | | | | | |

| PIN STYLE - HORIZONTAL MOUNTING | | |
|---------------------------------|---|-------------------|
| PIN TYPE | | |
| X | PC mount | |
| J | PC mount center tap | |
| S | Soldering style | |
| Z | Center tap soldering style | |
| L | Long pin | |
| P | Center tap with long pin | |
| NN | If different types of pin style in the same potentiometer | |
| PIN CONFIGURATION | | |
| 1 | 2 | 3 |
| | | |
| | | |
| 2.5 mm between gang | 2.5 - 5 - 2.5 mm between gang | 5 mm between gang |

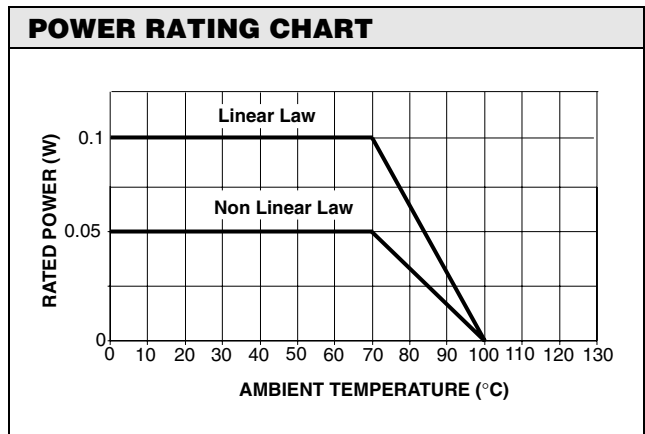
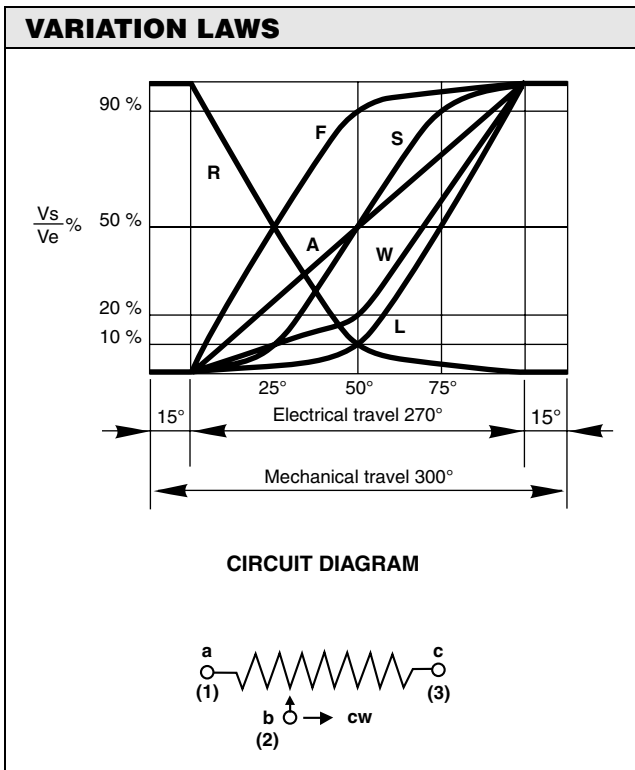
| SAP ORDERING INFORMATION (Part Number 18 digits) | | | | | | | | | | | | | | | | | |
|--|-------------------|---------|--------------|--------------|---------------|-------|---|---|---|---|---|--------------------------------------|---|---|---|---|---|
| P | 9 | A | 1 | R | 1 | 0 | 0 | F | I | R | X | 1 | 1 | 0 | 3 | M | A |
| MODEL | NUMBER OF MODULES | BUSHING | LOCATING PEG | PANEL SEALED | DETENT OPTION | SHAFT | PIN STYLE | | | | | RESISTANCE CODE/TOLERANCE CODE/TAPER | | | | | |
| | | | | | | | <p>see Pin Table First digit: Pin type X, J, S, Z, P, L W or N Second digit: Pin Configuration 1, 2, 3, 4 or N</p> | | | | | | | | | | |

| PIN STYLE - VERTICAL MOUNTING | | | |
|-------------------------------|---|--|--|
| W1 | Single gang vertical mounting | | |
| W2 | Dual gang vertical mounting | | |
| W3 | Single gang with center tap vertical mounting | | |
| W4 | Dual gang with center tap vertical mounting | | |

| SAP ORDERING INFORMATION (Part Number 18 digits) | | | | | | | | | | | | | | | | | |
|--|-------------------|---------|--------------|--------------|---------------|-------|-----------|---|---|---|---|---|---|---|---|---|---|
| P | 9 | A | 1 | R | 1 | 0 | 0 | F | I | R | X | 1 | 1 | 0 | 3 | M | A |
| MODEL | NUMBER OF MODULES | BUSHING | LOCATING PEG | PANEL SEALED | DETENT OPTION | SHAFT | PIN STYLE | | | RESISTANCE CODE/ TOLERANCE CODE/ TAPER | | | | | | | |
| | | | | | | | | | | Resistance code: 102 = 1 kΩ to 105 = 1 MΩ Tolerance code: M = 20 % - K = 10 % Taper: A, L, W, F, S, R or Special code given by VISHAY | | | | | | | |

| RESISTANCE CODE |
|--------------------------------------|
| See Conversion Table for ohmic value |

| TOLERANCE |
|------------------------|
| Standard: M = ± 20 % |
| On request: K = ± 10 % |



| SPECIAL CODES GIVEN BY VISHAY |
|---|
| <p>OPTIONS AVAILABLE</p> <ul style="list-style-type: none"> • Custom shaft • Design on request • Specific linearity • Specific interlinearity • Specific variation law |

| PART NUMBER DESCRIPTION (for information only) | | | | | | | | | | | | | | |
|--|---------|---------|--------------|-----------------|----------------|-------|-------|-------|-------|------|-------|---------|---------|----------------|
| P9A | 1 | R | 1 | 0 | 0 | FI | R | X1 | 10K | 20% | A | | | e3 |
| MODEL | MODULES | BUSHING | LOCATING PEG | SEALING OPTIONS | DETENT OPTIONS | SHAFT | SHAFT | LEADS | VALUE | TOL. | TAPER | SPECIAL | SPECIAL | LEAD (Pb)-FREE |



Disclaimer

All product specifications and data are subject to change without notice.

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 herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

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.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.