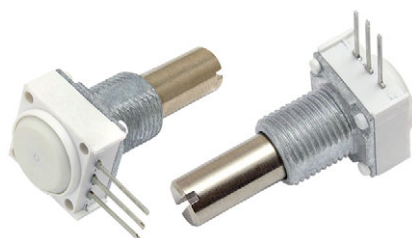


1/2" (12.7 mm) Conductive Plastic and Cermet Potentiometers



FEATURES

- Model 248: 0.5 W at 70 °C (conductive plastic element)
- Model 249: 1 W at 70 °C (cermet element)
- Cost effective panel potentiometer
- PCB mounting
- Tests according to CECC 41000 or IEC 60393-1
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

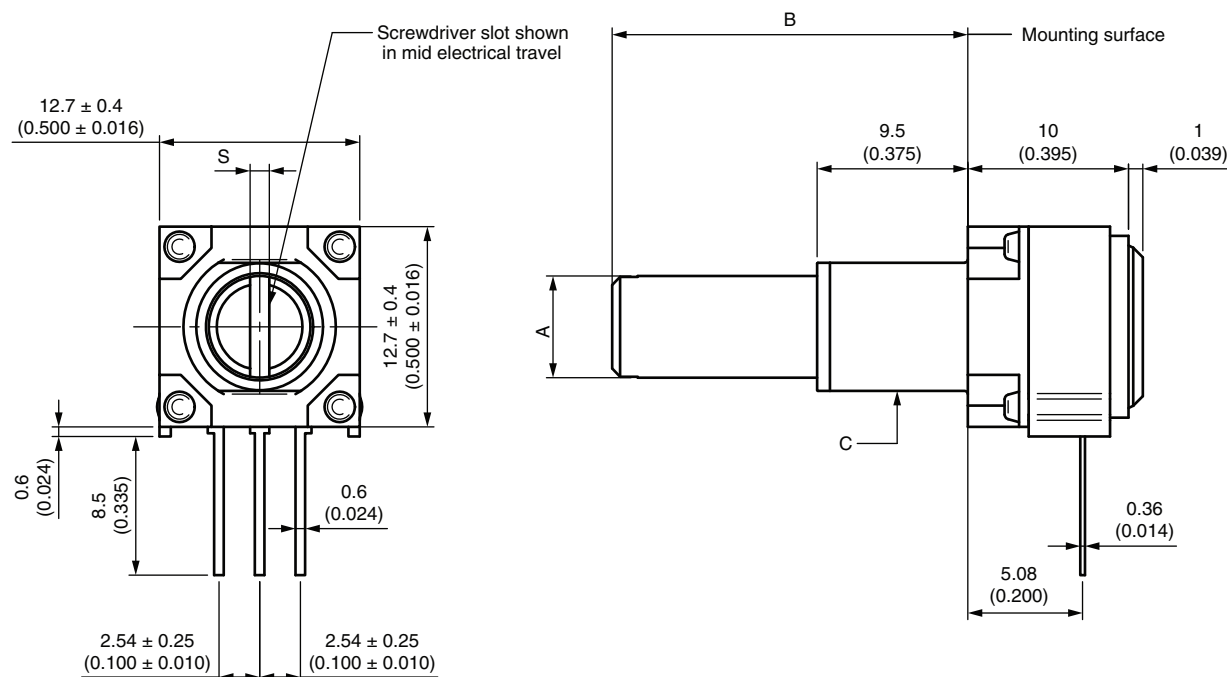


RoHS
COMPLIANT

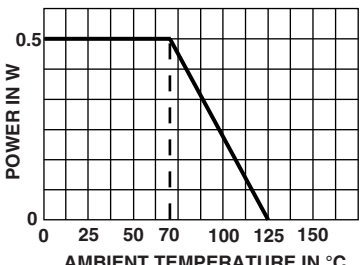
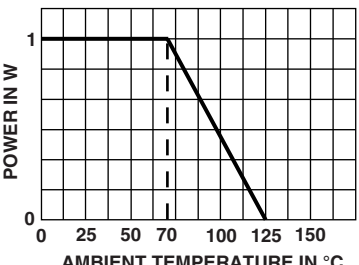
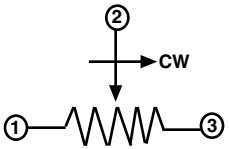
QUICK REFERENCE DATA

| | |
|-------------------------|---------------------------|
| Multiple module | No |
| Switch module | n/a |
| Detent module | n/a |
| Special electrical laws | A: linear, L: logarithmic |
| Sealing level | IP 50 |
| Lifespan | 10K cycles |

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



| VERSION BUSHING / SHAFT | A | B | C | S |
|-------------------------|-------|------|---------|-------------|
| | SHAFT | | BUSHING | SCREWDRIVER |
| | Ø | L | Ø | SLOT |
| B / BH | 1/8" | 3/4" | 1/4" | 0.8 |
| F / GJ | 1/4" | 7/8" | 3/8" | 1.2 |

| ELECTRICAL SPECIFICATIONS | | |
|-------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| PARAMETER | MODEL 248 | MODEL 249 |
| Element type | Conductive plastic | Cermet |
| Total resistance range | 1 k Ω to 500 k Ω | 500 Ω to 1 M Ω |
| Standard series | 1, 2, 5 | |
| Resistance tolerance | $\pm 20\%$ | $\pm 20\%$ (on request $\pm 10\%$) |
| Power rating | 0.5 W at 70 °C | 1.0 W at 70 °C |
| |  |  |
| Circuit diagram |  | |
| Temperature coefficient of resistance (typical) | ± 500 ppm/°C | ± 150 ppm/°C |
| Linearity (typical) | $\pm 5\%$ independent | |
| Limiting element voltage | 300 V | |
| Contact resistance variation (typical) | 5 % of the total resistance | |
| Insulation resistance | 1000 M Ω minimum, 500 V _{DC} | |
| Dielectric strength | 750 V _{RMS} minimum 50 Hz / 60 Hz | |
| End resistance | 2 Ω maximum each end | |
| Effective electrical travel | 265° \pm 5° | |

| MECHANICAL SPECIFICATIONS | |
|----------------------------------|---------------------------------------------------|
| Mechanical travel | 295° \pm 5° |
| Operating torque | 0.1 Ncm to 2 Ncm |
| End stop torque | 35 Ncm (50 oz.-inch) |
| Max. tightening torque | 150 Ncm |
| Weight | 8.3 g (0.29 oz.) (1/4" x 7/8" FMF metal shaft) |

| ENVIRONMENTAL SPECIFICATIONS | |
|-------------------------------------|-------------------|
| Temperature range | -55 °C to +125 °C |
| Climatic category | 55 / 125 / 4 |
| Sealing | IP 50 |

| MARKING |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> Vishay model Vishay logo Variation law SAP code for ohmic value Tolerance in % Date code (4 digits) Terminal identification "3" for lead 3 |

| PACKAGING |
|----------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> In box of 25 pieces, code BO25 |

Note

- Hardware supplied in separate bags



| PERFORMANCE | | | | |
|-------------------------|-----------------------------------------------------------|-----------------------------------|------------------------------|-------------------------------------------------------------------------------------------|
| TESTS | CONDITIONS | TYPICAL VALUES AND DRIFTS FOR 249 | | |
| | | $\Delta R_T/R_T$ (%) | $\Delta R_{1-2}/R_{1-2}$ (%) | OTHER |
| Electrical endurance | 1000 h at rated power 90°/30° - ambient temp. 70 °C | ± 3 % | ± 5 % | Contact res. variation: < 1 % |
| Damp heat, steady state | 4 days 40 °C 93 % HR | ± 2 % | - | Dielectric strength: 1000 V _{RMS} Insulation resistance: > 10 ⁴ MΩ |
| Change of temperature | 5 cycles, -55 °C at +125 °C | ± 1 % | - | $\Delta V_{1-2}/V_{1-3} \leq \pm 2 \%$ |
| Mechanical endurance | 10 000 cycles | ± 3 % | - | Contact res. variation: ≤ 2 % R _n |
| Shock | 50 g's at 11 ms 3 successive shocks in 3 directions | ± 1 % | ± 2 % | - |
| Vibration | 10 Hz to 55 Hz, 0.75 mm or 10 g's during 6 h | ± 1 % | - | $\Delta V_{1-2}/V_{1-3} \leq \pm 2 \%$ |

Note

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

| STANDARD RESISTANCE ELEMENT DATA | | | | | | |
|----------------------------------|---------------------------|----------------------------|--------------------------|---------------------------|----------------------------|--------------------------|
| STANDARD RESISTANCE VALUES | 248 LINEAR TAPER | | | 249 LINEAR TAPER | | |
| | MAX. POWER AT 70 °C | MAX. WORKING VOLTAGE | MAX. WIPER CURRENT | MAX. POWER AT 70 °C | MAX. WORKING VOLTAGE | MAX. WIPER CURRENT |
| Ω | W | V | mA | W | V | mA |
| 500 | 0.5 | 15.8 | 32 | 1 | 22.4 | 45 |
| 1K | 0.5 | 22.4 | 22 | 1 | 31.6 | 32 |
| 2K | 0.5 | 31.6 | 16 | 1 | 44.7 | 22 |
| 2.5K | 0.5 | 35.4 | 14 | 1 | 50.0 | 20 |
| 5K | 0.5 | 50.0 | 10 | 1 | 70.7 | 14 |
| 10K | 0.5 | 70.7 | 7 | 1 | 100 | 10 |
| 20K | 0.5 | 100 | 5.0 | 1 | 141 | 7 |
| 25K | 0.5 | 112 | 4.5 | 1 | 158 | 6 |
| 50K | 0.5 | 158 | 3.2 | 1 | 224 | 4 |
| 100K | 0.5 | 224 | 2.2 | 0.90 | 300 | 3.0 |
| 200K | 0.45 | 300 | 1.50 | 0.45 | 300 | 1.5 |
| 250K | 0.36 | 300 | 1.20 | 0.36 | 300 | 1.2 |
| 500K | 0.18 | 300 | 0.60 | 0.18 | 300 | 0.6 |
| 1M | 0.09 | 300 | 0.30 | 0.09 | 300 | 0.3 |

**ORDERING INFORMATION** (part number)

| | | | | | | | | | | | | | | | | |
|--------------------------------------------------------|--------------------------|-------|------|------|-----------------------------------------|---|----------------|---|---------|------------------------------|---------------------------------------------------------------|---|---|---|---|---|
| 2 | 4 | 8 | F | G | J | S | 0 | X | B | 2 | 5 | 2 | 5 | 2 | M | A |
| MODEL | BUSHING | SHAFT | | | SHAFT END | | SHAFT MATERIAL | | LEADS | PACKAGING | RESISTANCE CODE / TOLERANCE / TAPER OR SPECIAL | | | | | |
| 248 = plastic conductive 249 = cermet element | F = Ø 3/8" B = Ø 1/4" | | Ø | L | S = slotted R = round F = flatted | | 0 or P = metal | | X = std | B25 = box of 25 pieces | Resistance: From 501 = 500 Ω to 105 = 1 MΩ | | | | | |
| | | GJ | 1/4" | 7/8" | | | | | | | Tolerance: M = 20 %; On request: K = 10 % (249 only) | | | | | |
| | | BH | 1/8" | 3/4" | | | | | | | Taper: A = linear; L = logarithmic | | | | | |

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 |



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