

1/4" (6.35 mm) Square Wirewound Trimmers



APPLICATIONS

Wirewound trimmers are particularly useful in those applications where any combination of high power, low temperature coefficient of resistance and/or excellent long term life stability are important design considerations.

ELECTRICAL SPECIFICATIONS

Electrical travel: 22 turns \pm 4 turns

Resistance range: 10 Ω to 5 k Ω

Extended range available in non MIL-SPEC product

Resistance tolerance: \pm 5 % standard

Closer tolerances available

Temperature coefficient: (- 65 $^{\circ}$ C to + 150 $^{\circ}$ C) \pm 50 ppm/ $^{\circ}$ C

Power rating: 0.5 W at + 85 $^{\circ}$ C derated to 0 W at + 150 $^{\circ}$ C

These specifications exceed MIL-SPEC

End resistance: 1 Ω or 2 %, whichever is greater

Equivalent noise resistance (ENR): 100 Ω maximum

Dielectric (DWV): 1000 V_{AC} at atmospheric pressure

These specifications exceed MIL-SPEC

Insulation resistance: > 100 000 M Ω (500 V_{DC})

These specifications exceed MIL-SPEC

MECHANICAL SPECIFICATIONS

Operating torque: 3 oz.-inches maximum, 17^S and 18^S, 5 oz.-inches maximum, 12^S, 14^S and 15^S

Rotation: Clutch stop, wiper idles

Weight: 0.935 g maximum

Resistive element: Nickel chromium

Rotational life: 200 cycles minimum

Terminal strength: 2 lbs for 10 s

FEATURES

- Precious metal wiper
- 0.25 W to + 85 $^{\circ}$ C
- TCR < 50 ppm/ $^{\circ}$ C
- Solderable leads
- Special configurations available
- Military quality at affordable prices

ENVIRONMENTAL SPECIFICATIONS

Temperature limits: - 65 $^{\circ}$ C to + 175 $^{\circ}$ C

Sealing: Fully sealed case (non-hermetic)

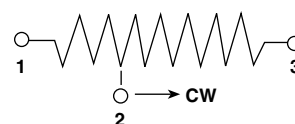
STANDARD RESISTANCE VALUES

| RESISTANCE ⁽¹⁾ (Ω) | NOMINAL RESOLUTION (%) |
|---|---------------------------|
| 10 | 1.65 |
| 20 | 1.35 |
| 50 | 1.13 |
| 100 | 0.82 |
| 200 | 0.62 |
| 500 | 0.62 |
| 1K | 0.49 |
| 2K | 0.34 |
| 5K | 0.27 |
| 10K | 0.21 |
| 20K | 0.17 |
| 25K | 0.16 |

Note

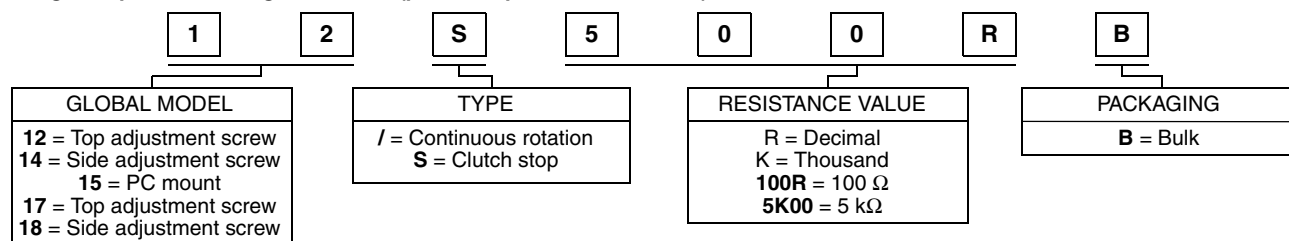
(1) Other resistances available upon request

CIRCUIT DIAGRAM

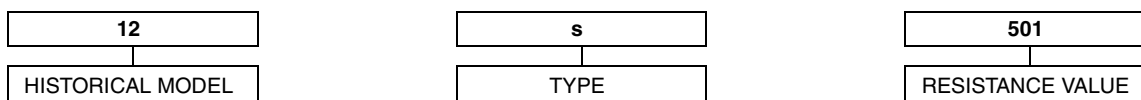


GLOBAL PART NUMBER INFORMATION

New global part numbering: 12S500RB (preferred part number format)

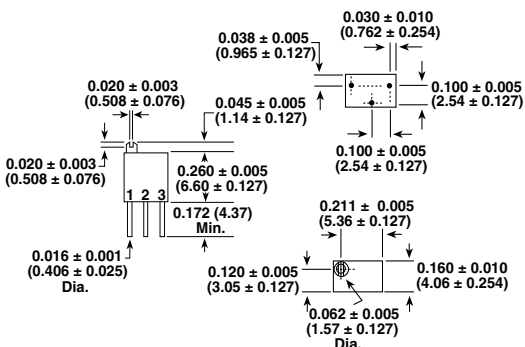


Historical part numbering: 12s501 (will continue to be accepted)

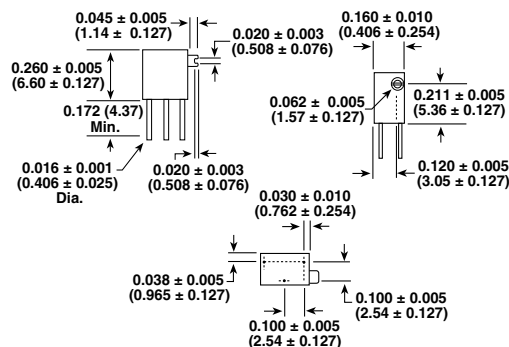


DIMENSIONS 1/4" (6.35 mm) Square in inches (millimeters)

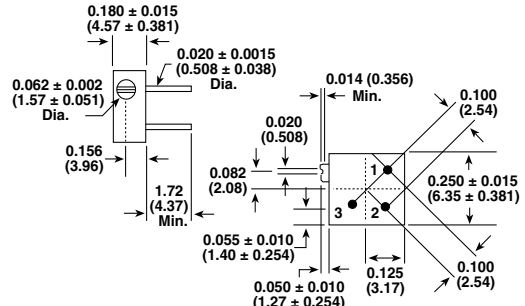
W Lead Style - 17^S



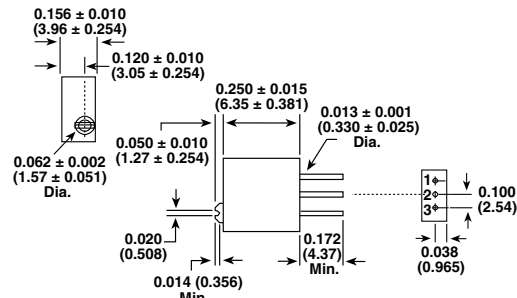
X Lead Style - 18^S



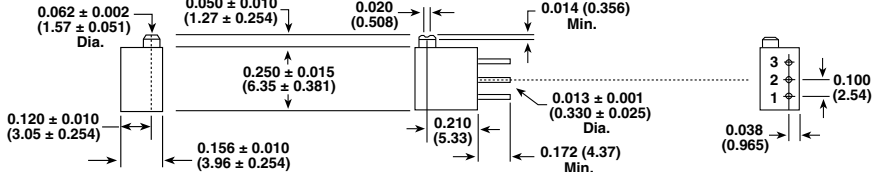
P Lead Style - 15^S



W Lead Style - 12^S



X Lead Style - 14^S



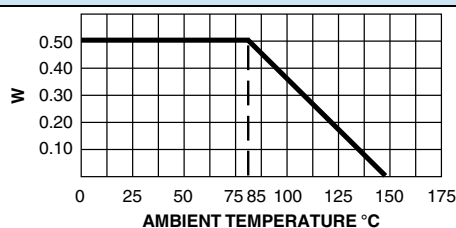
ENVIRONMENTAL PERFORMANCE

| TEST ⁽¹⁾ | CONDITIONS | MIL-R-27208 REQUIREMENT | TYPICAL CHANGE |
|------------------------------------|--|---------------------------------|----------------------|
| Thermal shock (107) | 5 cycles, - 55 °C to + 125 °C | $\Delta R \leq 1.0 \%^{(2)}$ | $\Delta R < 0.02 \%$ |
| Low temperature operation | 1 h storage, 45 min rated power at - 55 °C | $\Delta R \leq 1.0 \%^{(2)(3)}$ | $\Delta R < 0.01 \%$ |
| High temperature exposure | 250 h, no load at + 150 °C | $\Delta R \leq 1.0 \%^{(2)(3)}$ | $\Delta R < 0.03 \%$ |
| Moisture resistance (106) | 240 h at rated power with humidity ranging from 80 % RH to 98 % RH | $\Delta R \leq 1.0 \%^{(2)}$ | $\Delta R < 0.02 \%$ |
| Resistance to soldering heat (210) | + 350 °C for 3 s | $\Delta R \leq 1.0 \%^{(2)}$ | $\Delta R < 0.01 \%$ |
| Shock (213) | 18 shocks, 100 g, 6 ms, sawtooth, 3 axes | $\Delta R \leq 1.0 \%^{(2)(3)}$ | $\Delta R < 0.07 \%$ |
| Vibration (204) | 10 Hz to 2000 Hz, 20 g, 12 h, 3 axes | $\Delta R \leq 1.0 \%^{(2)(3)}$ | $\Delta R < 0.02 \%$ |
| Rotational life | 200 cycles | $\Delta R \leq 2.0 \%$ | $\Delta R < 0.04 \%$ |
| Load life (108) | 1000 h at rated power at + 85 °C | $\Delta R \leq 2.0 \%$ | $\Delta R < 0.12 \%$ |

Notes

- (1) Numbers in parenthesis refer to test method MIL-STD-202 as modified by the detail specification.
- (2) For values below 100 Ω , add 0.05 Ω to the allowable change.
- (3) The referenced tests also require that setting stability change shall not exceed $\pm 1.0 \%$ plus the specified maximum resolution and operating torque shall not exceed 150 % of the specified maximum.

DERATING





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