

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)

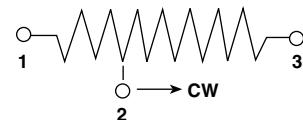
STANDARD RESISTANCE VALUES

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



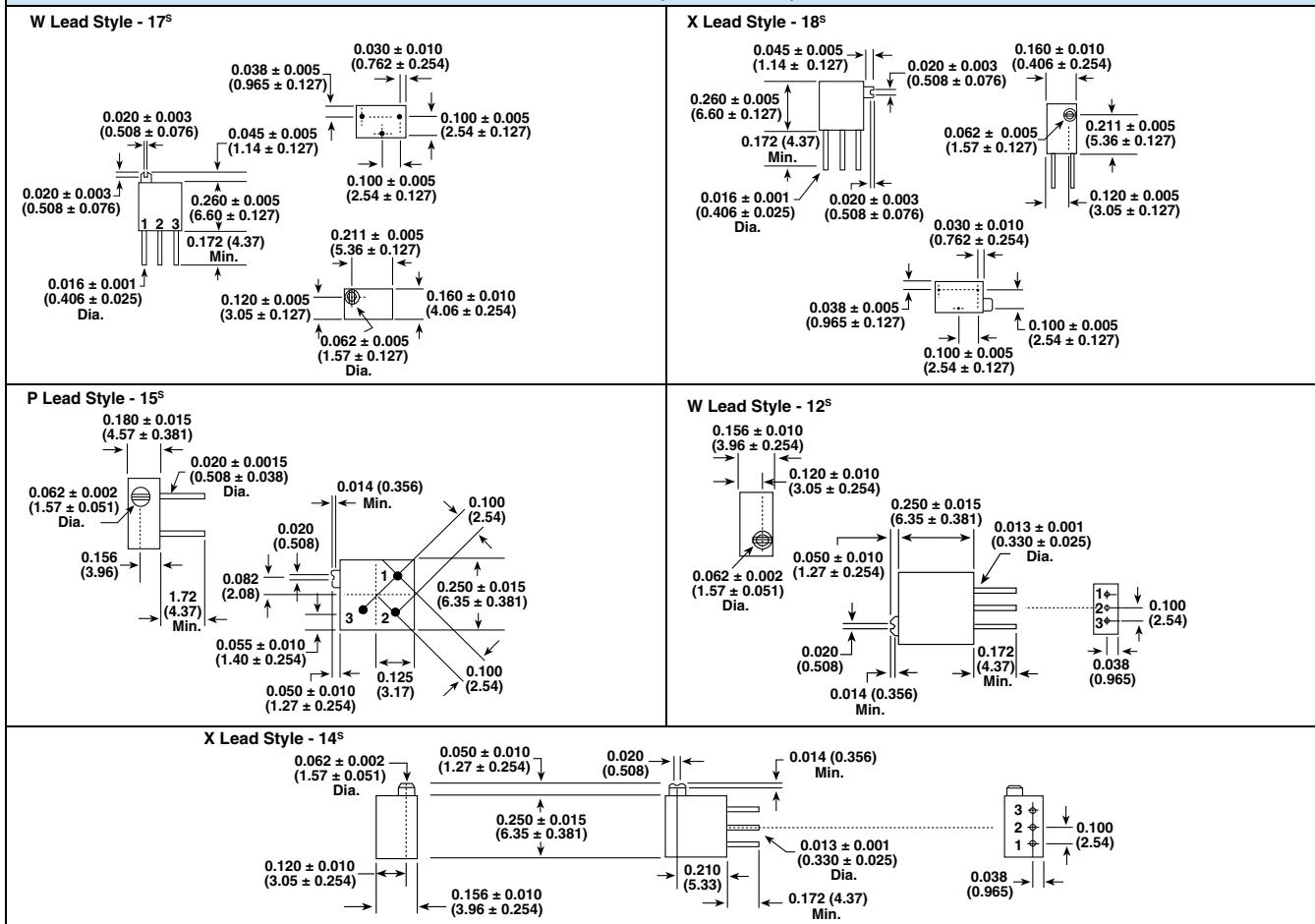
GLOBAL PART NUMBER INFORMATION

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

1	2	S	5	0	0	R	B
GLOBAL MODEL		TYPE		RESISTANCE VALUE		PACKAGING	
12 = Top adjustment screw		I = Continuous rotation		R = Decimal		B = Bulk	
14 = Side adjustment screw		S = Clutch stop		K = Thousand			
15 = PC mount		100R = 100 Ω		5K00 = 5 k Ω			
17 = Top adjustment screw							
18 = Side adjustment screw							

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

12	s	501
HISTORICAL MODEL	TYPE	RESISTANCE VALUE

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

ENVIRONMENTAL PERFORMANCE

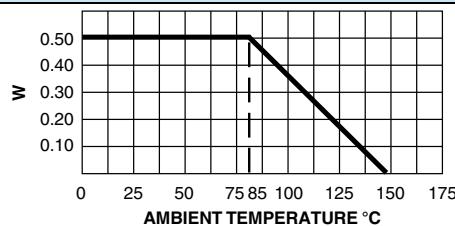
TEST ⁽¹⁾	CONDITIONS	MIL-R-27208 REQUIREMENT	TYPICAL CHANGE
Thermal shock (107)	5 cycles, - 55 °C to + 125 °C	$\Delta R \leq 1.0\%$ ⁽²⁾	$\Delta R < 0.02\%$
Low temperature operation	1 h storage, 45 min rated power at - 55 °C	$\Delta R \leq 1.0\%$ ⁽²⁾⁽³⁾	$\Delta R < 0.01\%$
High temperature exposure	250 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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