

## Multi-Turn 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 $\Omega$ to 5 k $\Omega$ (extended range available in non MIL-SPEC product)
Resistance tolerance	$\pm$ 5 % standard
Temperature coefficient (-65 °C to +150 °C)	$\pm$ 50 ppm/°C
Power rating	0.5 W at +85 °C derated to 0 W at +150 °C, these specifications exceed MIL-SPEC
End resistance	1 $\Omega$ or 2 %, whichever is greater
Equivalent noise resistance (ENR)	100 $\Omega$ maximum
Dielectric (DWV)	1000 V <sub>AC</sub> at atmospheric pressure, these specifications exceed MIL-SPEC
Insulation resistance	> 100 000 M $\Omega$ (500 V <sub>DC</sub> ), these specifications exceed MIL-SPEC

### MECHANICAL SPECIFICATIONS

**Operating torque:** 3 oz.-inches maximum, 17<sup>S</sup> and 18<sup>S</sup>, 5 oz.-inches maximum, 12<sup>S</sup>, 14<sup>S</sup> and 15<sup>S</sup>

**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 °C
- TCR < 50 ppm/°C
- Solderable leads
- Special configurations available
- Military quality at affordable prices

### ENVIRONMENTAL SPECIFICATIONS

**Temperature limits:** -65 °C to +175 °C

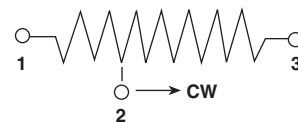
**Sealing:** fully sealed case (non-hermetic)

STANDARD RESISTANCE VALUES	
RESISTANCE <sup>(1)</sup> ( $\Omega$ )	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

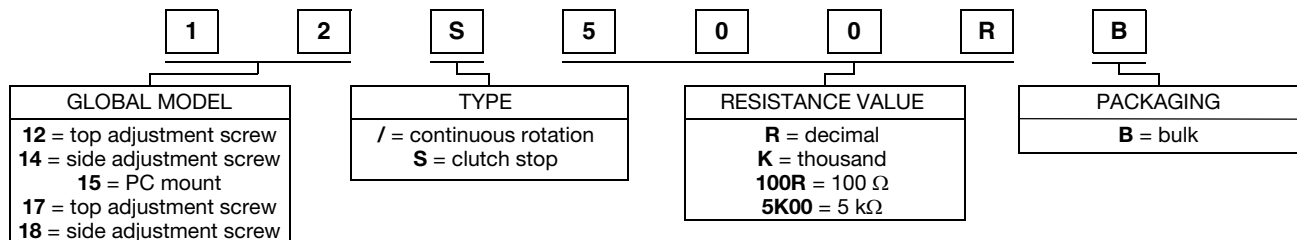
<sup>(1)</sup> Other resistances available upon request

### CIRCUIT DIAGRAM

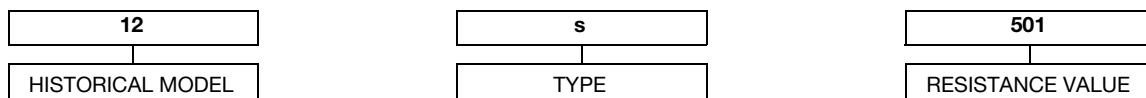


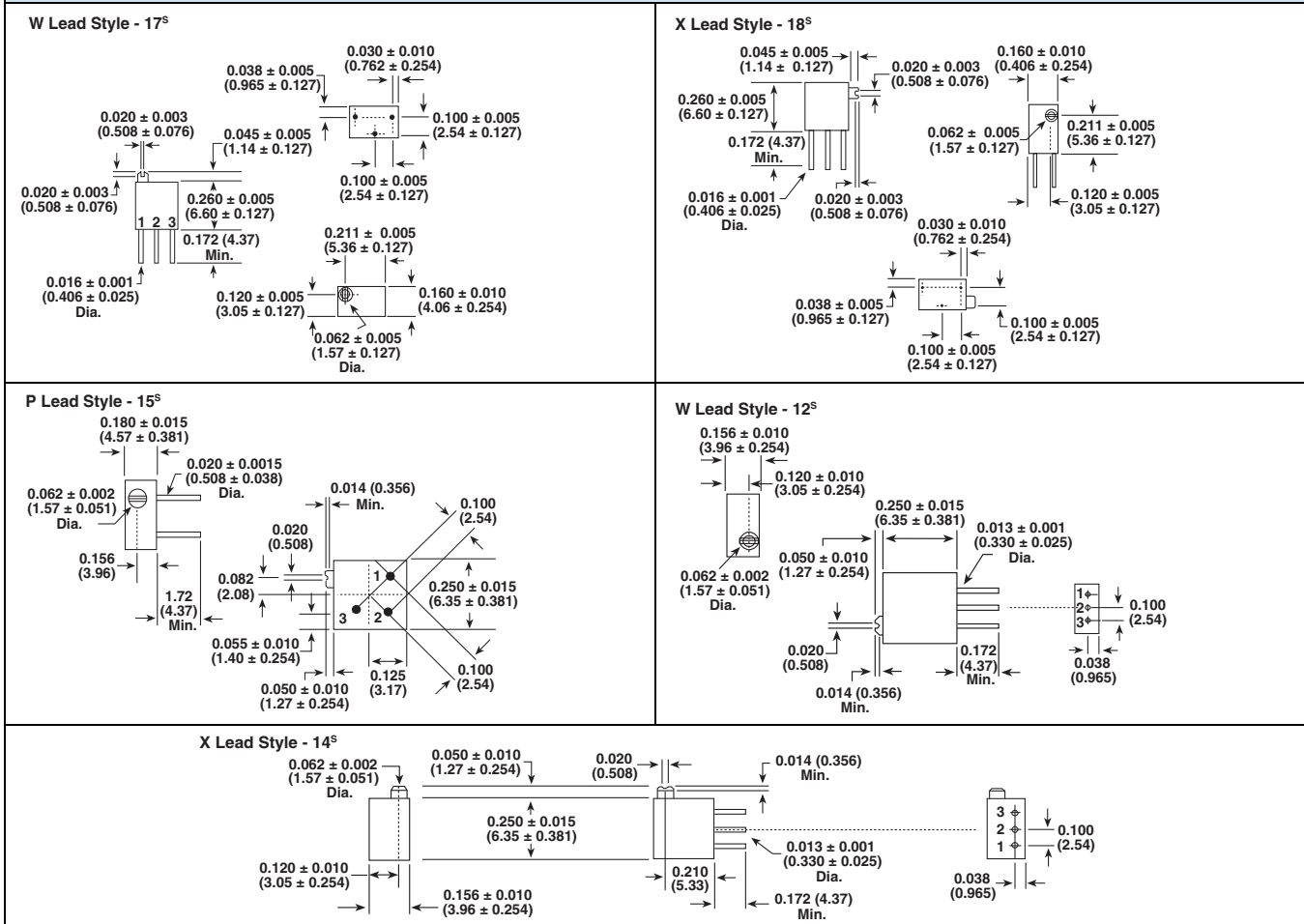
### GLOBAL PART NUMBER INFORMATION

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



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

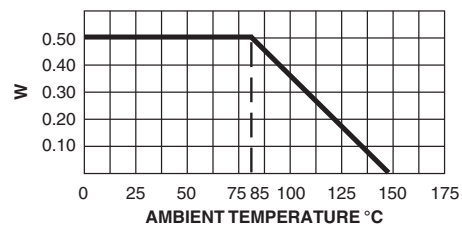


**DIMENSIONS 1/4" (6.35 mm) SQUARE in inches (millimeters)**

**ENVIRONMENTAL PERFORMANCE**

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

- Numbers in parenthesis refer to test method MIL-STD-202 as modified by the detail specification.
- For values below 100  $\Omega$ , add 0.05  $\Omega$  to the allowable change.
- 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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