

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)

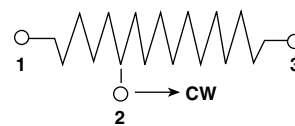
STANDARD RESISTANCE VALUES

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

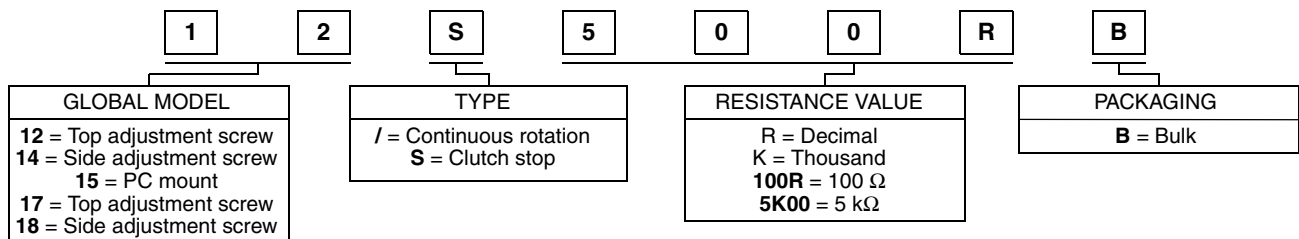
⁽¹⁾ Other resistances available upon request

CIRCUIT DIAGRAM

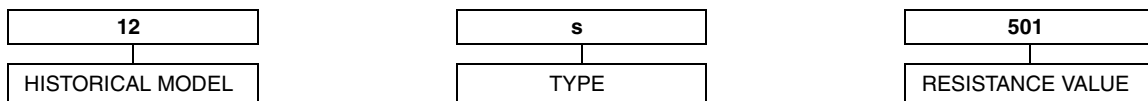


GLOBAL PART NUMBER INFORMATION

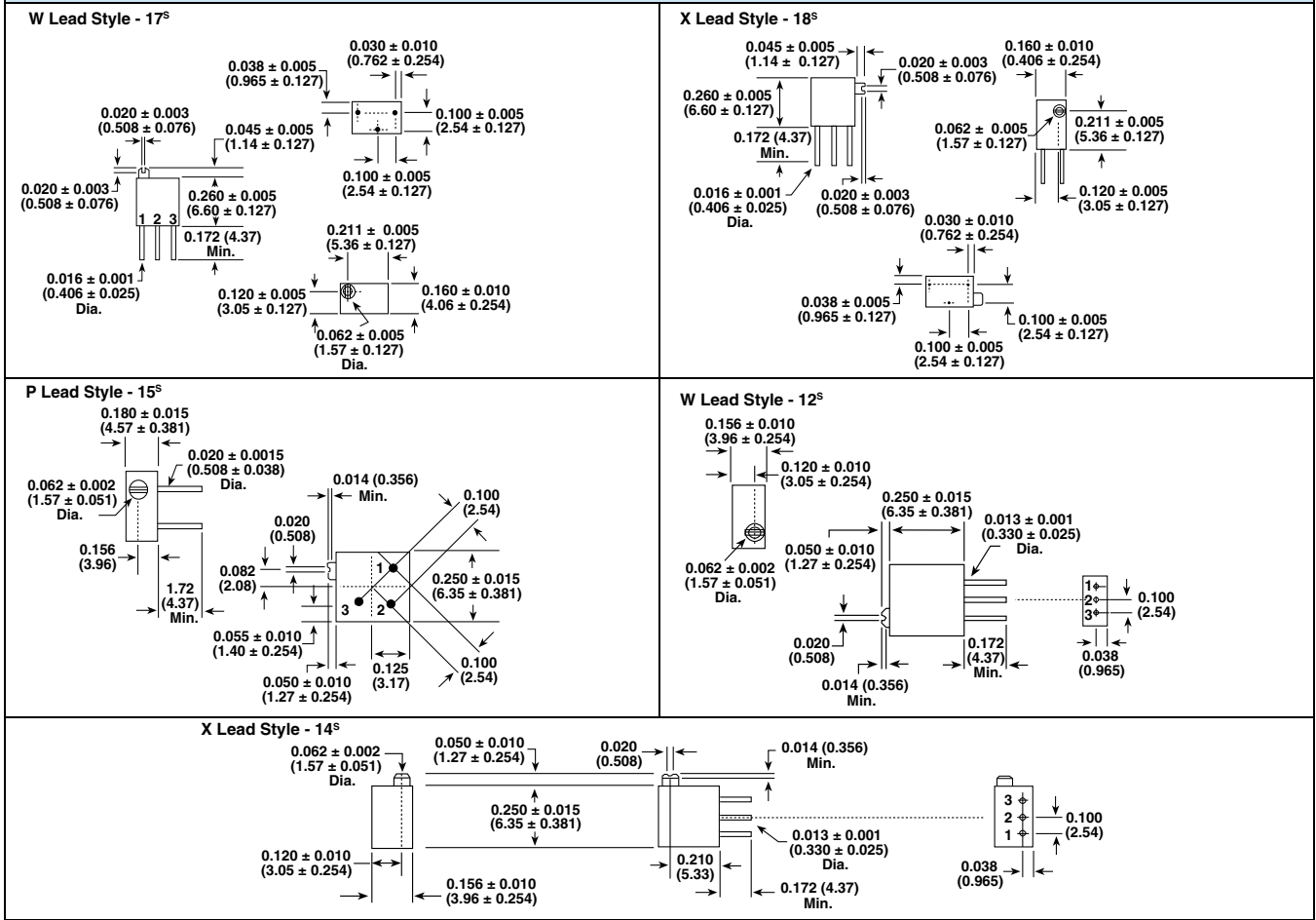
New global part numbering: 12S500RB (preferred part number format)



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



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



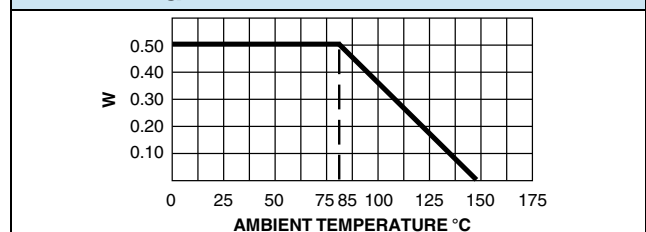
ENVIRONMENTAL PERFORMANCE

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





Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

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 in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and/or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

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

Material Category Policy

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.

Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.