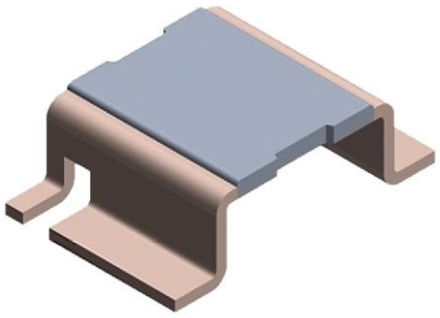
Power Metal Strip® Resistors, High Temperature (275 °C), High Power, Low Value, Surface Mount, 4-Terminal



FEATURES

- 4-terminal design allows for 1 % tolerance down to 0.002 Ω
- High power-to-footprint size ratio
- All welded construction of the Power Metal Strip resistors are ideal for all types of current sensing, voltage division, and pulse applications
- Proprietary processing technique produces extremely low resistance values, down to 0.0005 Ω
- Sulfur resistance by construction that is unaffected by high sulfur environments
- Solid metal nickel-chrome resistive element with low TCR (< 20 ppm/°C)
- Very low inductance 0.5 nH to 5 nH
- Low thermal EMF (< 3 µV/°C)
- AEC-Q200 qualified (1)
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

AUTOMOTIVE GRADE

Pb-free

RoHS COMPLIANT

HALOGEN FREE

GREEN (5-2008)

LINKS TO ADDITIONAL RESOURCES

3D Models

Design Tools

Notes

- Follow link to Overview of Automotive Grade Products for more details: www.vishay.com/doc?49924

(1) Flame retardance test may not be applicable to some resistor technologies

STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	SIZE	POWER RATING $P_{70\,°C}$ W	TOLERANCE ± %	RESISTANCE VALUE RANGE Ω	RESISTANCE VALUES CURRENTLY AVAILABLE (1) Ω	WEIGHT (typical) g/1000 pieces
WSLT4026	4026	3.0	1.0	0.3m to 5m	1.3m, 2m, 3m, 4m, 5m	420

Notes

- Power rating depends on the max. temperature at the solder point, component placement density and the substrate material
- Part marking: model, value, tolerance, date code

(1) Other values may be available, contact factory

GLOBAL PART NUMBER INFORMATION

Global Part Numbering Example: WSLT40265L000FEA (WSLT4026, 0.005 Ω, ± 1 %)

W	S	L	T	4	0	2	6	5	L	0	0	0	F	E	A		

GLOBAL MODEL (8 digits)	RESISTANCE VALUE (5 digits)	TOLERANCE CODE (1 digits)	PACKAGING CODE (1) (2 digits)	SPECIAL (2) (up to 2 digits)
WSLT4026	**L** = mΩ **2L000** = 0.002 Ω **3L000** = 0.003 Ω **4L000** = 0.004 Ω **5L000** = 0.005 Ω	**F** = ± 1.0 %	**EA** = lead (Pb)-free, tape / reel **EK** = lead (Pb)-free, bulk	(dash number) (up to 2 digits) from **1** to **99** as applicable

Notes

(1) Packaging code: EB (lead (Pb)-free) and TB (tin / lead) are non-standard packaging codes designating 1000 piece reels. These non-standard packaging codes are identical to our standard EA (lead (Pb)-free) and TA (tin / lead), except that they have a package quantity of 1000 pieces

(2) Follow link for customization capabilities: www.vishay.com/doc?48163

For technical questions, contact: ww2bresistors@vishay.com

THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

TECHNICAL SPECIFICATIONS		
PARAMETER	**UNIT**	**RESISTOR CHARACTERISTICS**
Component temperature coefficient (including terminal) (1)	ppm/°C	± 75 over temperature of +20 °C to +60 °C
Element TCR (2)	ppm/°C	< 20
Operating temperature range	°C	-65 to +275
Maximum working voltage (3)	V	$(P/R)^{1/2}$

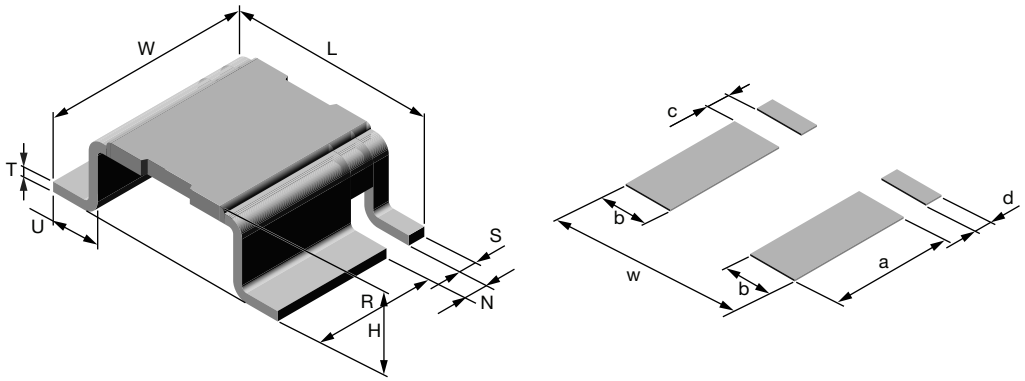
Notes

(1) Component TCR - total TCR that includes the TCR effects of the resistor element and the copper terminal

(2) Element TCR - only applies to the alloy used for the resistor element

(3) Maximum working voltage - the WSHM is not voltage sensitive, but is limited by power / energy dissipation and is also not ESD sensitive

DIMENSIONS in inches (millimeters)



Notes

- 3D models available: www.vishay.com/doc?30320
- Surface mount solder profile recommendations: www.vishay.com/doc?31052

MODEL	DIMENSIONS							
	L	**W**	**H**	**R (REF.)**	**S**	**T**	**U**	**N**
WSLT4026	0.400 ± 0.008 (10.1 ± 0.2)	0.260 + 0.012/- 0.008 (6.6 + 0.3/- 0.2)	0.117 ± 0.008 (3.0 ± 0.2)	0.198 (5.0)	0.028 ± 0.004 (0.7 ± 0.1)	0.016 ± 0.002 (0.4 ± 0.05)	0.078 ± 0.004 (2.0 ± 0.1)	0.039 ± 0.006 (0.99 ± 0.15)

MODEL	SOLDER PAD DIMENSIONS				
	a	**b**	**c**	**d**	**w**
WSLT4026	0.223 (5.66)	0.105 (2.67)	0.027 (0.69)	0.039 (0.99)	0.423 (10.74)

MODEL	RESISTANCE VALUE (mΩ)	THERMAL RESISTANCE (1) (°C/W)	ELEMENT MATERIAL	HEIGHT H
WSLT4026	1.3	11	Ni-Cr	0.119 ± 0.008 (3.02 ± 0.2)
	2.0	16	Ni-Cr	0.114 ± 0.008 (2.9 ± 0.2)
	3.0	19	Ni-Cr	0.110 ± 0.008 (2.79 ± 0.2)
	4.0	22	Ni-Cr	0.110 ± 0.008 (2.79 ± 0.2)
	5.0	38	Ni-Cr	0.110 ± 0.008 (2.79 ± 0.2)

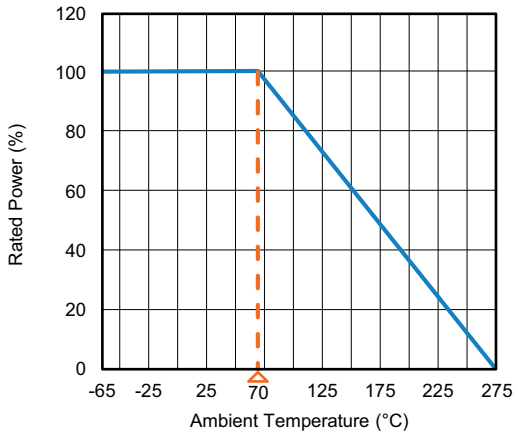
Note

(1) The full power rating of Power Metal Strip resistors are dependent upon the ability of the circuit board to dissipate the heat energy created in the resistance element. It is recommended to follow common design practices for power semiconductors that ensure the junction temperature is maintained with in thermal limits by using large pad surfaces, thermal vias, heavier copper weights, internal layers as well as other thermal spreading features. The thermal resistance values provided function in the same manner as junction to terminal temperature

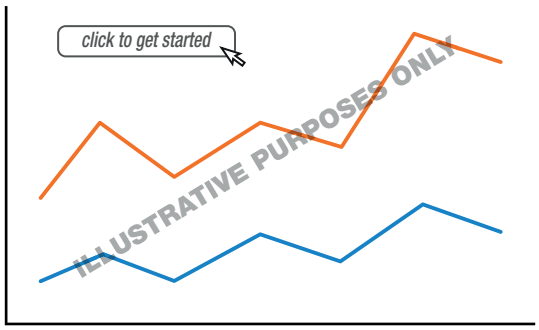
For technical questions, contact: ww2bresistors@vishay.com

THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

DERATING



PULSE CAPABILITY



www.vishay.com/resistors/power-metal-strip-calculator

PERFORMANCE		
TEST	**CONDITIONS OF TEST**	**TEST LIMITS**
Thermal shock	-55 °C to +150 °C, 1000 cycles, 15 min at each extreme	± 0.5 %
Short time overload	0.3 mΩ, 0.5 mΩ, 2 mΩ and 3 mΩ - 5 x rated power for 5 s 4 mΩ and 5 mΩ - 3 x rated power for 5 s	± 0.5 %
Low temperature operation	-65 °C for 24 h	± 0.5 %
High temperature exposure	1000 h at +275 °C	± 1.0 %
Bias humidity	+85 °C, 85 % RH, 10 % bias, 1000 h	± 0.5 %
Mechanical shock	100 *g*'s for 6 ms, 5 pulses	± 0.5 %
Vibration	Frequency varied 10 Hz to 2000 Hz in 1 min, 3 directions, 12 h	± 0.5 %
Load life	1000 h at +70 °C, 1.5 h "ON", 0.5 h "OFF"	± 1.0 %
Resistance to solder heat	+260 °C solder, 10 s to 12 s dwell, 25 mm/s emergence	± 0.5 %
Moisture resistance	MIL-STD-202, method 106, 0 % power, 7b not required	± 0.5 %

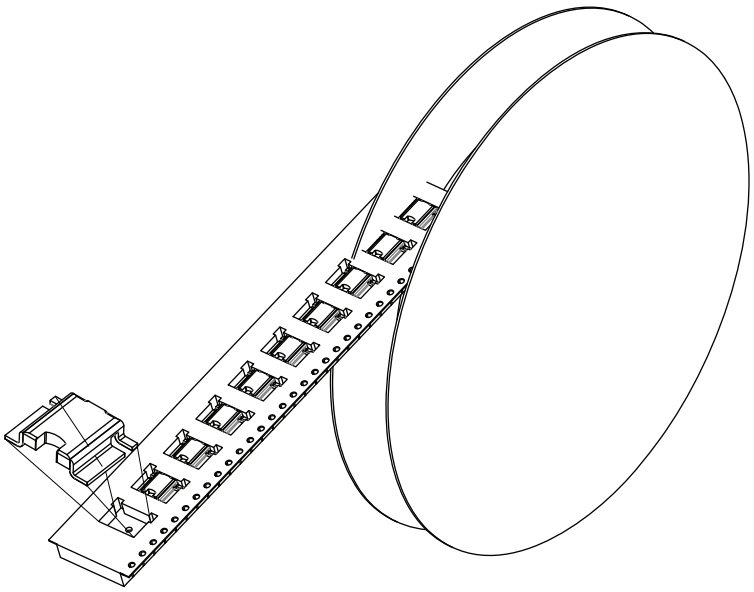
For technical questions, contact: ww2bresistors@vishay.com
THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

PACKAGING				
MODEL	REEL			
	TAPE WIDTH	DIAMETER	PIECES/REEL	CODE
WSLT4026	24 mm / embossed plastic	330 mm / 13"	1500	EA

Notes

- Embossed carrier tape per EIA-481
- Additional packaging details at www.vishay.com/doc?20051

REEL ORIENTATION



For technical questions, contact: ww2bresistors@vishay.com
THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

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.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

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.

© 2022 VISHAY INTERTECHNOLOGY, INC. ALL RIGHTS RESERVED