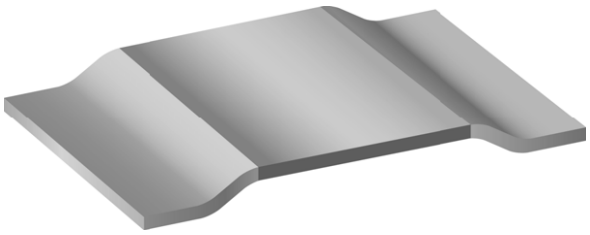
Power Metal Strip® Resistors, Low Value (Down to 0.0003 Ω), Surface-Mount



FEATURES

- Power Metal Strip® all-welded construction is ideal for all types of current sensing, voltage division, and pulse applications
- Proprietary processing technique produces extremely low resistance values, down to 0.0003 Ω
- Solid metal nickel-chrome, manganese-copper, or manganese-copper-tin alloy resistive element with low TCR (< 20 ppm/°C)
- Very low inductance (< 2 nH)
- Low thermal EMF (< 3 µV/°C)
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free
e3
RoHS COMPLIANT
HALOGEN FREE Available
GREEN (5-2008) Available

DESIGN TOOLS (click logo to get started)

3D Models Available

STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	SIZE	POWER RATING $P_{70\,°C}$ (1) W	POWER RATING $P_{100\,°C}$ (2) W	TOLERANCE %	RESISTANCE VALUE RANGE Ω	RESISTANCE VALUES CURRENTLY AVAILABLE (3) Ω	WEIGHT (typical) g/1000 pieces
WSLF2512	2512	6.0	3.0	1.0, 5.0	0.3m to 3m	0.3m, 0.5m	142
	2512	5.0	3.0	1.0, 5.0	0.3m to 3m	1m, 1.3m, 2m	142
	2512	4.0	2.0	1.0, 5.0	0.3m to 3m	3m	142

Notes

- Part marking: no part marking on these parts.

(1) See Ambient Temperature Derating on next page, Fig. 1.
(2) See Terminal Temperature Derating on next page, Fig. 2.
(3) Other values may be available, contact factory.

TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	WSL RESISTOR CHARACTERISTICS
Component temperature coefficient (including terminal) (1)	ppm/°C	± 200 for 0.3 mΩ and 0.5 mΩ, ± 170 for 1.0 m, ± 70 for 2 mΩ and 3 mΩ
Element TCR (2)	ppm/°C	< 20
Operating temperature range	°C	-65 to +170
Maximum working voltage (3)	V	$(P \times R)^{1/2}$

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 WSL is not voltage sensitive, but is limited by power / energy dissipation and is also not ESD sensitive.

GLOBAL PART NUMBER INFORMATION

Global Part Numbering: WSLF25121L000FEA (WSLF2512, 0.001 Ω, ± 1 %)
(visit www.vishay.net Vishay Dale parts numbering manual for all options)

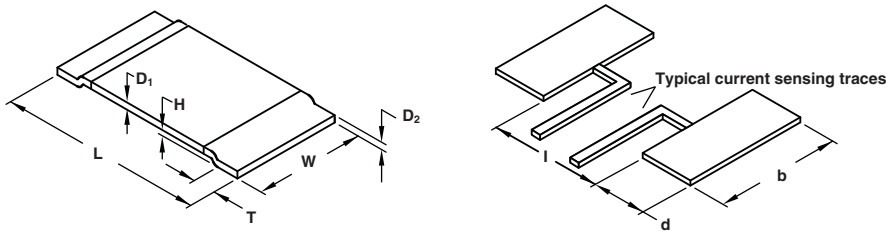
W	S	L	F	2	5	1	2	1	L	0	0	0	F	E	A		

GLOBAL MODEL	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING CODE (1)	SPECIAL
WSLF2512	**L** = mΩ **L5000** = 0.0005 Ω **1L000** = 0.0010 Ω	**F** = ± 1.0 % **J** = ± 5.0 %	**EA** = lead (Pb)-free, tape/reel **EK** = lead (Pb)-free, bulk	Reserved for future specials

Note

(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.

DIMENSIONS in inches (millimeters)



Notes

- 3D models available: www.vishay.com/doc?30335.
- Surface mount solder profile recommendations: www.vishay.com/doc?31052.

MODEL	DIMENSIONS				SOLDER PAD DIMENSIONS		
	L	W	H	T	a	b	l
WSLF2512	0.250 ± 0.010 (6.35 ± 0.254)	0.125 ± 0.010 (3.18 ± 0.254)	0.038 ± 0.010 (0.35 ± 0.254)	0.045 ± 0.010 (1.14 ± 0.254)	0.71 (1.80)	0.13 (3.40)	0.13 (3.40)

GLOBAL MODEL	RESISTANCE VALUE (mΩ)	THICKNESS (Inches)		ELEMENT MATERIAL
		D_1	D_2	
WSLF2512	0.3	0.0375 (0.95)	0.039 (1.0)	Mn-Cu-Sn
	0.5	0.033 (0.84)	0.033 (0.84)	Mn-Cu
	1.0	0.017 (0.43)	0.017 (0.43)	Mn-Cu
	1.3	0.013 (0.33)	0.013 (0.33)	Mn-Cu
	2.0	0.028 (0.71)	0.028 (0.71)	Ni-Cr
	3.0	0.019 (0.48)	0.019 (0.48)	Ni-Cr

DERATING

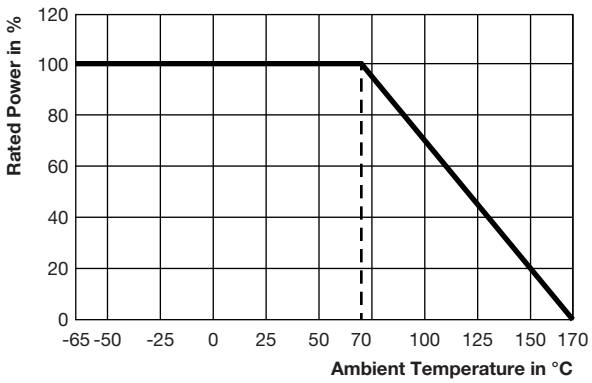


Fig. 1 - Ambient Temperature Derating
($P_{70\ °C}$ of Standard Electrical Specification Table)

DERATING - TERMINAL TEMPERATURE

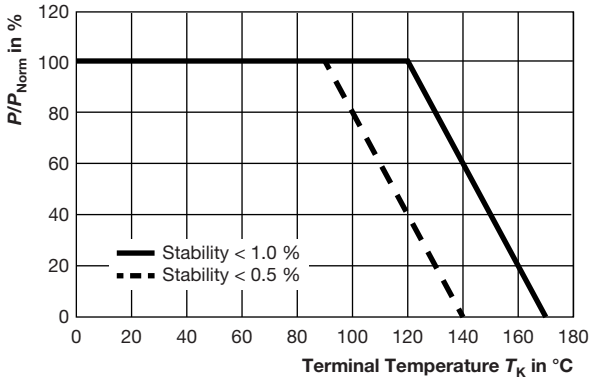


Fig. 2 - Terminal Temperature Derating
($P_{100°C}$ of Standard Electrical Specification Table

PERFORMANCE		
TEST	**CONDITIONS OF TEST**	**TEST LIMITS**
Thermal shock	-55 °C to +150 °C, 2000 cycles, 15 min at each extreme	± 0.5 %
Short time overload	5x rated power for 5 s	± 0.5 %
Low temperature storage	-65 °C for 24 h	± 0.1 %
High temperature exposure	2000 h at +170 °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	± 0.2 %
Vibration	Frequency varied 10 Hz to 2000 Hz in 1 min, 3 directions, 12 h	± 0.2 %
Load life	2000 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, 7a and 7b not required	± 0.1 %

PACKAGING				
MODEL	**REEL**			
	TAPE WIDTH	**DIAMETER**	**PIECES/REEL**	**CODE**
WSLF2512	12 mm/embossed plastic	178 mm/7"	2000	EA

Note

- Embossed carrier tape per EIA-481.

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