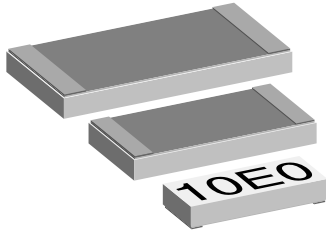


Power Metal Strip® Flip Chip (Extended Range) Patents Pending



FEATURES

- SMD alternative for low power leaded wirewound resistors
- Excellent stability in different environmental conditions (< 0.5 % change in resistance)
- Superior overload and pulse handling capability as compared to thin film (as much as 2 x better)
- Low TCR, down to ± 15 ppm/K
- Low noise: < 0.01 μV_{rms}/V
- Voltage coefficient: < 0.00001 %/V (< 0.1 ppm/V)
- Very low inductance: < 0.08 μH



RoHS*
COMPLIANT

STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	SIZE INCH	POWER RATING P _{70 °C}	LIMITING ELEMENT VOLTAGE MAX ⁽¹⁾ V _≡	TEMPERATURE COEFFICIENT ppm/K	TOLERANCE %	RESISTANCE RANGE ⁽²⁾ Ω	E-SERIES
WSL1506E	1506	0.25	63	15, 25	0.5, 1	0R5 - 10K	96
WSL2010E	2010	0.5	100	15, 25	0.5, 1	0R5 - 10K	96
WSL2512E	2512	1.0	100	15, 25	0.5, 1	0R5 - 10K	96

Notes

- Ask about further value ranges, tighter tolerances and TCR's
- Power rating depends on the max. temperature at the solder point, the component placement density and the substrate material
- 4-Digit Marking, according to MIL-PRF-55342 (except as noted in Ordering Information table), on top side
- ⁽¹⁾ Rated voltage: $\sqrt{P \times R}$
- ⁽²⁾ Contact factory using e-mail address at bottom of this page for resistance values available between 0R5 - 10R for 1506 and 0R5 - 100R for 2010 and 2512

TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	WSL1506E	WSL2010E	WSL2512E
Rated Dissipation at 70 °C	W	0.25	0.5	1.0
Limiting Element Voltage ⁽³⁾	V _≡	63	100	100
Insulation Voltage (1 min)	Vdc/ac peak	200	200	200
Thermal Resistance	K/W	≤ 220 ⁽⁴⁾	≤ 88 ⁽⁴⁾	≤ 65 ⁽⁴⁾
Insulation Resistance	MΩ	> 10 ⁶		
Category Temperature Range	°C	- 55 to + 150		
Weight/1000 pieces	g	12	25	35

Notes

- ⁽³⁾ Rated voltage: $\sqrt{P \times R}$
- ⁽⁴⁾ Depending on solder pad dimensions

PACKAGING

MODEL	REEL			
	TAPE WIDTH	DIAMETER	PIECES/REEL	CODE
WSL1506E	12 mm/Embossed Plastic	180 mm/7"	4000	EA
WSL2010E	12 mm/Embossed Plastic	180 mm/7"	4000	EA
WSL2512E	12 mm/Embossed Plastic	180 mm/7"	2000	EA

Note

- Embossed Carrier Tape per EIA-481-1.2

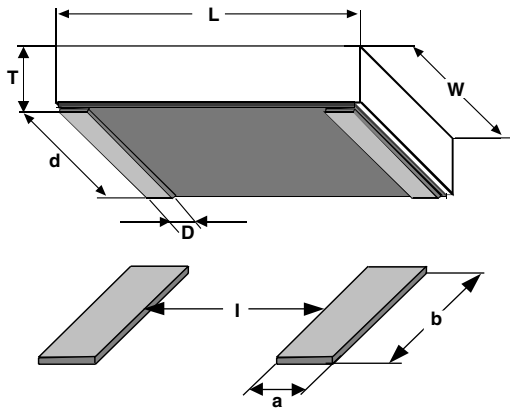
GLOBAL PART NUMBER INFORMATION

NEW GLOBAL PART NUMBERING: WSL1506E10E0XEAE

W S L 1 5 0 6 E 1 0 E 0 X E A

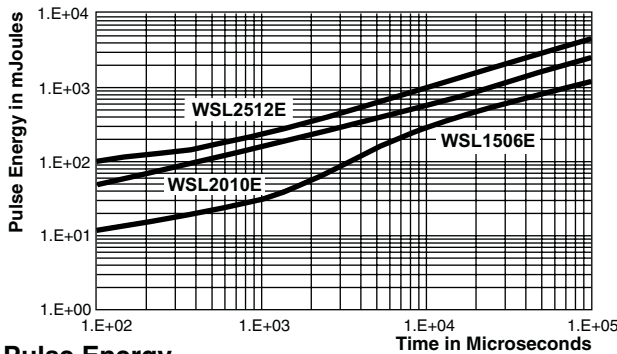
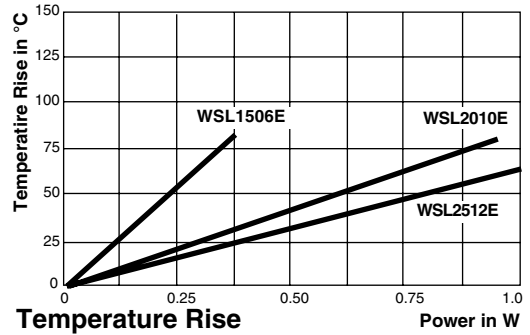
GLOBAL MODEL	RESISTANCE VALUE & TOLERANCE	TOLERANCE CODE	PACKAGING	SPECIAL																					
WSL1506E	<table border="1"> <thead> <tr> <th>Resistance</th> <th>Multiplier</th> <th>Symbol</th> </tr> </thead> <tbody> <tr> <td>0.5</td> <td>X1</td> <td>W</td> </tr> <tr> <td>0.5</td> <td>X1000</td> <td>X</td> </tr> <tr> <td>0.5</td> <td>X1 000 000</td> <td>Y</td> </tr> <tr> <td>1.0</td> <td>X1</td> <td>D</td> </tr> <tr> <td>1.0</td> <td>X1000</td> <td>E</td> </tr> <tr> <td>1.0</td> <td>X1 000 000</td> <td>F</td> </tr> </tbody> </table>	Resistance	Multiplier	Symbol	0.5	X1	W	0.5	X1000	X	0.5	X1 000 000	Y	1.0	X1	D	1.0	X1000	E	1.0	X1 000 000	F	E = ± 25 ppm/K X = ± 15 ppm/K	EA = Lead (Pb)-free, tape/reel EK = Lead (Pb)-free, bulk TA = Tape/reel (R86) BA = Bulk (B43)	(Dash Number) (up to 2 digits) From 1 - 99 as applicable
Resistance	Multiplier	Symbol																							
0.5	X1	W																							
0.5	X1000	X																							
0.5	X1 000 000	Y																							
1.0	X1	D																							
1.0	X1000	E																							
1.0	X1 000 000	F																							

* Pb containing terminations are not RoHS compliant, exemptions may apply

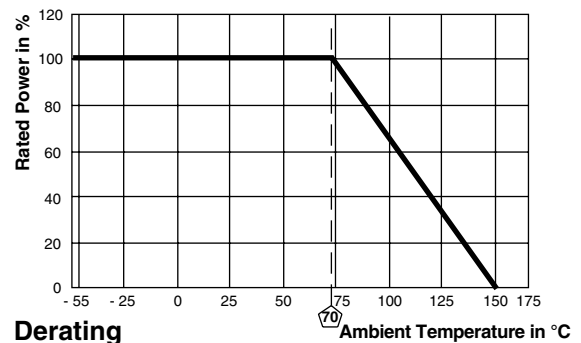
DIMENSIONS


SIZE INCH	Dimensions in inches [millimeters]				
	L	W	T _{max.}	D	d
1506	0.15 ± 0.005 [3.81 ± 0.13]	0.062 ± 0.003 [1.57 ± 0.08]	0.025 [0.64]	0.012 ± 0.003 [0.30 ± 0.08]	0.059 ± 0.003 [1.50 ± 0.08]
2010	0.200 ± 0.005 [5.08 ± 0.13]	0.100 ± 0.003 [2.54 ± 0.08]	0.025 [0.64]	0.020 ± 0.003 [0.51 ± 0.08]	0.097 ± 0.003 [2.46 ± 0.08]
2512	0.250 ± 0.005 [6.35 ± 0.13]	0.126 ± 0.003 [3.20 ± 0.08]	0.025 [0.64]	0.024 ± 0.003 [0.61 ± 0.08]	0.123 ± 0.003 [3.12 ± 0.08]

SIZE INCH	Solder Pad Dimensions in inches [millimeters]		
	a	b	l
1506	0.015 [0.38]	0.062 [1.57]	0.118 [3.00]
2010	0.023 [0.58]	0.100 [2.54]	0.153 [3.89]
2512	0.027 [0.69]	0.126 [3.20]	0.196 [4.98]


Pulse Energy

Temperature Rise
Pulse Energy Plot:

This represents the energy in each of 50 pulses, with a 1 second rest between pulses, that it takes to shift the WSL....E resistance ± (0.50 % + 0.01 Ω).


Derating

PERFORMANCE		
TEST	CONDITIONS OF TEST	TEST LIMITS
Thermal Shock	- 55 °C to + 150 °C, 100 cycles, 15 min at each extreme	± (0.20 % + 0.01 Ω)
Short Time Overload	5 x rated power for 5 s	± (0.20 % + 0.01 Ω)
Low Temperature Storage	- 65 °C for 24 h	± (0.20 % + 0.01 Ω)
High Temperature Exposure	1000 h at + 150 °C	± (0.50 % + 0.01 Ω)
Moisture Resistance	MIL-STD-202, Method 106, 0 % power, 7a and 7b not required	± (0.50 % + 0.01 Ω)
Load Life	1000 h at rated power, + 70 °C, 1.5 h "ON", 0.5 h "OFF"	± (0.50 % + 0.01 Ω)
Vibration	MIL-STD-202, Method 204D	± (0.10 % + 0.01 Ω)
Mechanical Shock	100 g's for 6 ms, 5 pulses	± (0.10 % + 0.01 Ω)
Resistance to Soldering Heat	+ 260 °C Solder, 10 - 12 s dwell, 25 mm/s emergence	± (0.50 % + 0.01 Ω)



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