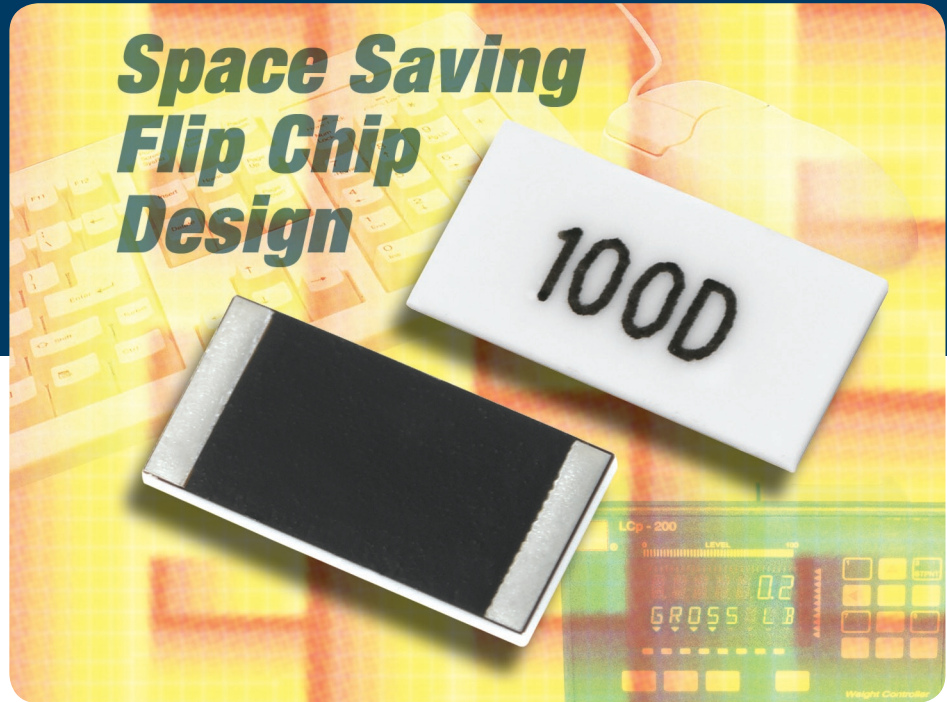




POWER METAL STRIP® RESISTOR

WSL...E



Power Metal Strip® Flip Chip (Extended Range)

KEY BENEFITS

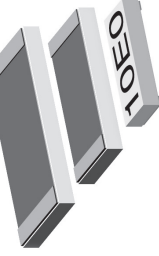
- Very Low TCR of 15 ppm/°C
- Long-Term Stability ($\pm 0.5\% + 0.01\ \Omega$)
- Fillet-less flip chip technology for space savings (reduction of mounting occupation area)
- SMD alternative for low power, leaded wirewound resistors
- Good overload and pulse handling capability (5 times rated power for 5 seconds)
- No noise, no voltage coefficient

APPLICATIONS

- Base station controllers, DC/DC converters, scales, test equipment, PCMCIA, VXO, TCXO, digital and analog video processing, motor controllers

Datasheet is available on our web site at www.vishay.com
for WSL...E - <http://www.vishay.com/doc?20033>

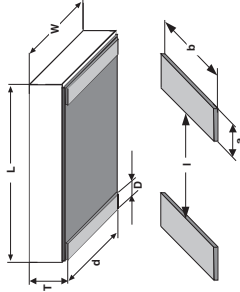
Power Metal Strip® Flip Chip (Extended Range) Patents Pending



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) / 0.01 %/Volt (< 0.1 ppm/V)
- Voltage coefficient < 0.001 %/Volt (< 0.08 ppm/V)
- Very low inductance, < 0.08 nH

DIMENSIONS

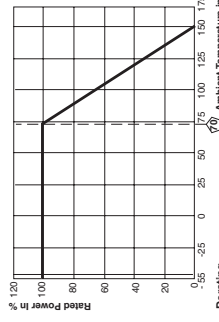
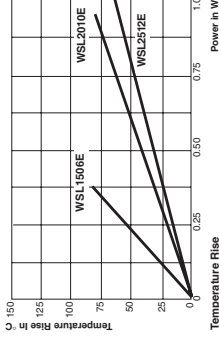
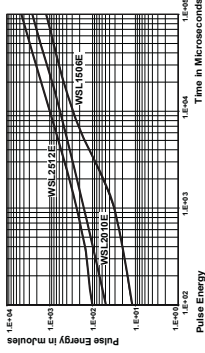


SIZE INCH	L	W	T _{max}	D	d
1506	0.15 ± 0.005 [3.81 ± 0.13]	0.092 ± 0.003 [2.33 ± 0.08]	0.025 [0.64]	0.012 ± 0.003 [0.30 ± 0.08]	0.059 ± 0.003 [1.50 ± 0.08]
2010	0.20 ± 0.005 [5.08 ± 0.13]	0.100 ± 0.003 [2.54 ± 0.08]	0.025 [0.64]	0.020 ± 0.003 [0.51 ± 0.08]	0.097 ± 0.003 [2.46 ± 0.08]
2512	0.250 ± 0.005 [6.35 ± 0.13]	0.128 ± 0.003 [3.25 ± 0.08]	0.025 [0.64]	0.024 ± 0.003 [0.61 ± 0.08]	0.123 ± 0.003 [3.12 ± 0.08]

SIZE INCH	a	b	i
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 [0.68]	0.126 [3.20]	0.186 [4.68]

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).



GLOBAL MODEL	SIZE INCH	POWER RATING P _{70c}	LIMITING ELEMENT VOLTAGE ¹⁾ MAX V _≡		TEMPERATURE COEFFICIENT ppm/K	TOLERANCE %	RESISTANCE RANGE ²⁾ Ω	E-SERIES
			1506	2010				
WSL1506E	1506	0.25	63	100	15, 25	0.5, 1	0R5 - 10K	96
WSL2010E	2010	0.5	100	150	15, 25	0.5, 1	0R5 - 10K	96
WSL2512E	2512	1.0	100	150	15, 25	0.5, 1	0R5 - 10K	96

¹⁾ Ask about further value ranges, tighter tolerances and TCR's.

²⁾ 4-digit rating depends on the max. power at the solder point, the component placement density and the substrate material

³⁾ Rated voltage¹⁾ per MIL-PRF-55342 (except as noted in Ordering Information Table), on top side

⁴⁾ 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

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

³⁾ Depending on solder pad dimensions

MODEL	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

GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: WSL1506E10E0XA

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		Resistance (4)	Multiplier	Symbol	Resistance	Tolerance	EA = Lead (Pb)-free, Tape/Reel EK = Lead (Pb)-free, Bulk	EA = ± 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)	Special (dash number) (up to 2 digits) From 4-99 as applicable				
		0.5	X1	W	0.5	± 25%								
		0.5	X1000	X	0.5	± 15%								
		1.0	X1000000	Y	1.0	± 15%								
		1.0	X1000	D	1.0	± 15%								
		1.0	X1000000	F	1.0	± 15%								

www.vishay.com For technical questions, contact: ww2resistors@vishay.com Document Number: 20033 210 Revision: 22-Sep-06

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