



element14

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[WSR200000ZEA9](#)

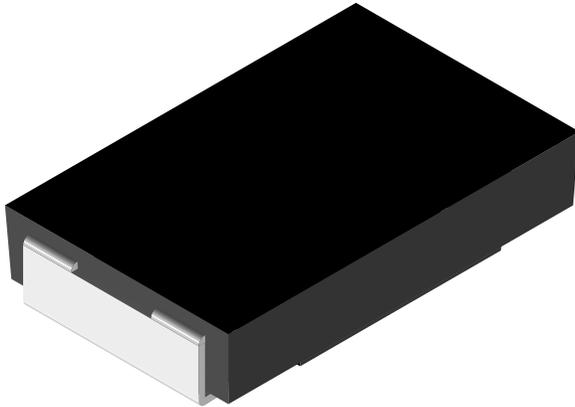
[WSR2R0200FEA](#)

**EN**  
This Datasheet is presented by  
the manufacturer

**DE**  
Dieses Datenblatt wird vom  
Hersteller bereitgestellt

**FR**  
Cette fiche technique est  
présentée par le fabricant

## Power Metal Strip® Resistors, Low Value (down to 0.001 Ω), Surface Mount



### FEATURES

- Molded high temperature encapsulation
- Ideal for all types of current sensing, voltage division and pulse applications including switching and linear power supplies, instruments, power amplifiers
- Proprietary processing technique produces extremely low resistance values (down to 0.001 Ω)
- All welded construction
- Solid metal Nickel-Chrome or Manganese-Copper alloy resistive element with low TCR (< 20 ppm/°C)
- Solderable terminations
- Very low inductance 0.5 nH to 5 nH
- Excellent frequency response to 50 MHz
- Low thermal EMF (< 3 μV/°C)
- Compliant to RoHS directive 2002/95/EC



**RoHS\***  
COMPLIANT  
**GREEN**  
(5-2009)\*\*  
Available

### STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	SIZE	POWER RATING $P_{70\text{ }^\circ\text{C}}$ W	RESISTANCE RANGE Ω	
			± 0.5 %	± 1.0 %
WSR2	4527	2.0	0.01 to 1.0	0.001 to 1.0
WSR3	4527	3.0 <sup>(1)</sup>	0.01 to 0.2	0.001 to 0.2

**Note**

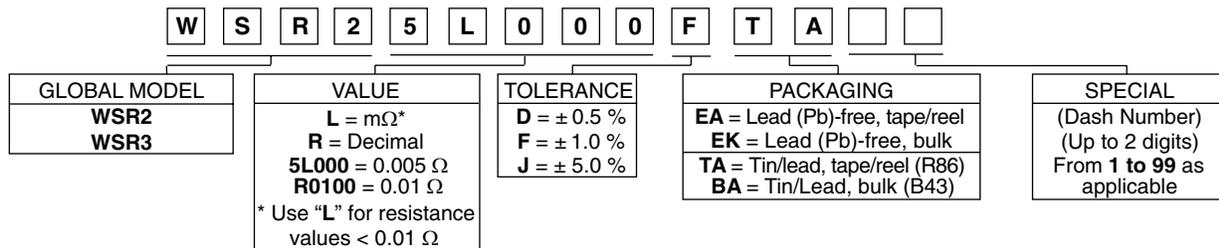
- <sup>(1)</sup> The WSR3 requires a minimum of 1050 sq. mil. circuit traces connecting to the recommended solder pad
- Part Marking: DALE, Model, Value, Tolerance, Date Code

### TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	WSR2 & WSR3
Temperature Coefficient	ppm/°C	0.005 Ω to 0.0099 Ω = ± 110 0.010 Ω to 1.0 Ω = ± 75
Dielectric Withstanding Voltage	$V_{AC}$	> 500
Insulation Resistance	Ω	> 10 <sup>9</sup>
Operating Temperature Range	°C	- 65 to + 275
Maximum Working Voltage	V	$(P \times R)^{1/2}$
Weight/1000 pieces (typical)	g	440

### GLOBAL PART NUMBER INFORMATION

NEW GLOBAL PART NUMBERING: WSR25L000FTA (PREFERRED PART NUMBERING FORMAT)

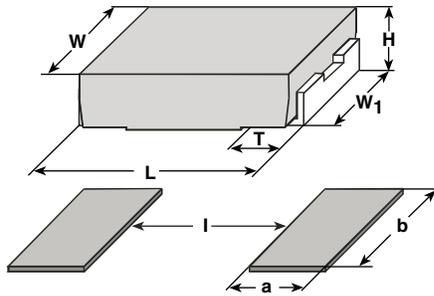


HISTORICAL PART NUMBER EXAMPLE: WSR2 0.005 Ω 1 % R86 (WILL CONTINUE TO BE ACCEPTED)



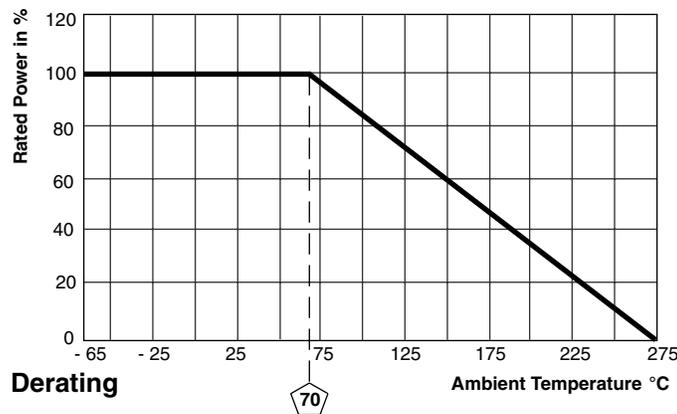
\* Pb containing terminations are not RoHS compliant, exemptions may apply

\*\* Please see document "Vishay Material Category Policy": [www.vishay.com/doc?99902](http://www.vishay.com/doc?99902)

**DIMENSIONS**


MODEL	DIMENSIONS in inches [millimeters]				
	L	H	T	W	W <sub>1</sub>
WSR2	0.455 ± 0.032	0.095 ± 0.005	0.100 ± 0.010	0.275 ± 0.005	0.215 ± 0.005
WSR3	[11.56 ± 0.813]	[2.41 ± 0.127]	[2.54 ± 0.254]	[6.98 ± 0.127]	[5.46 ± 0.127]

MODEL	SOLDER PAD DIMENSIONS in inches [millimeters]		
	a	b	l
WSR2	0.155	0.230	0.205
WSR3	[3.94]	[5.84]	[5.21]



PERFORMANCE			
TEST	CONDITIONS OF TEST	TEST LIMITS	
		WSR2	WSR3
Thermal Shock	- 55 °C to + 150 °C, 1000 cycles, 15 min at each extreme	± (0.5 % + 0.0005 Ω) ΔR	± (0.5 % + 0.0005 Ω) ΔR
Short Time Overload	WSR2: 5 x rated power for 5 s WSR3: 4 x rated power for 5 s	± (0.5 % + 0.0005 Ω) ΔR	± (2.0 % + 0.0005 Ω) ΔR
Low Temperature Storage	- 65 °C for 24 h	± (0.5 % + 0.0005 Ω) ΔR	± (0.5 % + 0.0005 Ω) ΔR
High Temperature Exposure	1000 h at + 275 °C	± (1.0 % + 0.0005 Ω) ΔR	± (1.0 % + 0.0005 Ω) ΔR
Bias Humidity	+ 85 °C, 85 % RH, 10 % Bias, 1000 h	± (0.5 % + 0.0005 Ω) ΔR	± (0.5 % + 0.0005 Ω) ΔR
Mechanical Shock	100 g's for 6 ms, 5 pulses	± (0.5 % + 0.0005 Ω) ΔR	± (0.5 % + 0.0005 Ω) ΔR
Vibration	Frequency varied 10 Hz to 2000 Hz in 1 min, 3 directions, 12 h	± (0.5 % + 0.0005 Ω) ΔR	± (0.5 % + 0.0005 Ω) ΔR
Load Life	1000 h at rated power, + 70 °C, 1.5 h "ON", 0.5 h "OFF"	± (1.0 % + 0.0005 Ω) ΔR	± (2.0 % + 0.0005 Ω) ΔR
Resistance to Solder Heat	+ 260 °C Solder, 10 s to 12 s dwell, 25 mm/s emergence	± (0.5 % + 0.0005 Ω) ΔR	± (0.5 % + 0.0005 Ω) ΔR
Moisture Resistance	MIL-STD-202 Method 106, 0 % power, 7a and 7b not required	± (0.5 % + 0.0005 Ω) ΔR	± (0.5 % + 0.0005 Ω) ΔR

PACKAGING				
MODEL	REEL			
	TAPE WIDTH	DIAMETER	PIECES/REEL	CODE
WSR2 and WSR3	24 mm/Embossed Plastic	330 mm/13"	1500	EA

**Note**

- Embossed Carrier Tape per EIA-481-2



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