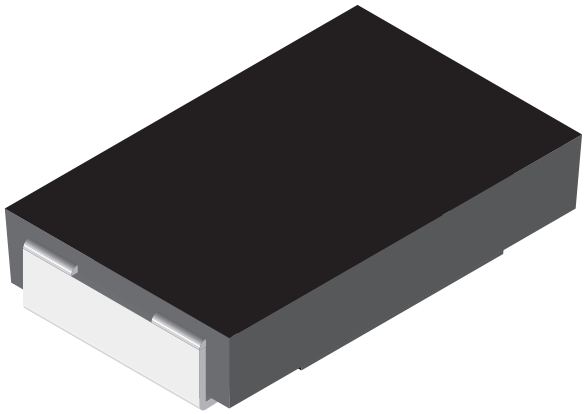
Power Metal Strip® Resistors, Low Value (down to 0.001 Ω), Surface Mount



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)
- Lead (Pb)-free version is RoHS compliant

Pb-free Available

RoHS* COMPLIANT

STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	SIZE	POWER RATING $P_{70\,°C}$ W	RESISTANCE RANGE Ω	
			± 0.5 %	± 1.0 %
WSR2	4527	2.0	0.01 - 1.0	0.001 - 1.0
WSR3	4527	3.0 (1)	0.01 - 0.2	0.001 - 0.2

Note

(1) 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 - 0.0099 Ω = ± 110 0.010 Ω - 1.0 Ω = ± 75
Dielectric Withstanding Voltage	V_{AC}	> 500
Insulation Resistance	Ω	> 10^9
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)

W	S	R	2	5	L	0	0	0	F	T	A		

GLOBAL MODEL	VALUE	TOLERANCE	PACKAGING	SPECIAL
WSR2 **WSR3**	**L** = mΩ* **R** = Decimal **5L000** = 0.005 Ω **R0100** = 0.01 Ω * use "**L**" for resistance values < 0.01 Ω	**D** = ± 0.5 % **F** = ± 1.0 % **J** = ± 5.0 %	**EA** = Lead (Pb)-free, tape/reel **EK** = Lead (Pb)-free, bulk **TA** = Tin/lead, tape/reel (R86) **BA** = Tin/Lead, bulk (B43)	(Dash Number) (up to 2 digits) From **1 - 99** as applicable

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

WSR2	0.005 Ω	1 %	R86
HISTORICAL MODEL	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING

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

For technical questions, contact: ww2bresistors@vishay.com

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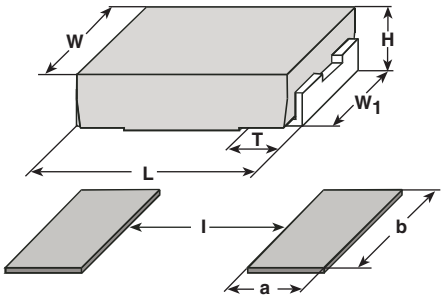
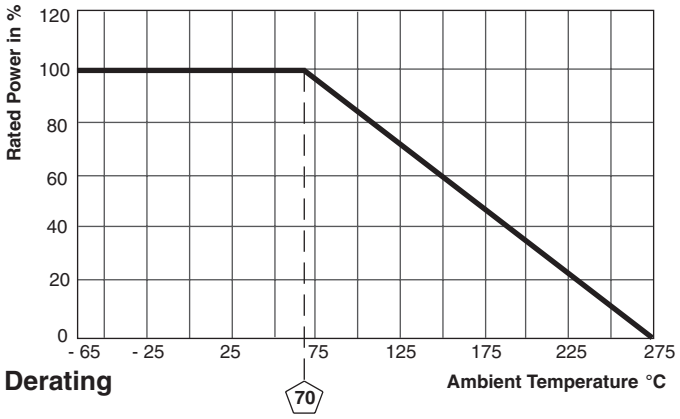
DIMENSIONS



MODEL	DIMENSIONS in inches [millimeters]				
	L	H	T	W	W_1
WSR2 WSR3	0.455 ± 0.032 [11.56 ± 0.813]	0.095 ± 0.005 [2.41 ± 0.127]	0.100 ± 0.010 [2.54 ± 0.254]	0.275 ± 0.005 [6.98 ± 0.127]	0.215 ± 0.005 [5.46 ± 0.127]

MODEL	SOLDER PAD DIMENSIONS in inches [millimeters]		
	a	b	l
WSR2 WSR3	0.155 [3.94]	0.230 [5.84]	0.205 [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) Δ*R*	± (0.5 % + 0.0005 Ω) Δ*R*
Short Time Overload	WSR2: 5 x rated power for 5 s WSR3: 4 x rated power for 5 s	± (0.5 % + 0.0005 Ω) Δ*R*	± (2.0 % + 0.0005 Ω) Δ*R*
Low Temperature Storage	- 65 °C for 24 h	± (0.5 % + 0.0005 Ω) Δ*R*	± (0.5 % + 0.0005 Ω) Δ*R*
High Temperature Exposure	1000 h at + 275 °C	± (1.0 % + 0.0005 Ω) Δ*R*	± (1.0 % + 0.0005 Ω) Δ*R*
Bias Humidity	+ 85 °C, 85 % RH, 10 % Bias, 1000 h	± (0.5 % + 0.0005 Ω) Δ*R*	± (0.5 % + 0.0005 Ω) Δ*R*
Mechanical Shock	100 g's for 6 ms, 5 pulses	± (0.5 % + 0.0005 Ω) Δ*R*	± (0.5 % + 0.0005 Ω) Δ*R*
Vibration	Frequency varied 10 to 2000 Hz in 1 min, 3 directions, 12 h	± (0.5 % + 0.0005 Ω) Δ*R*	± (0.5 % + 0.0005 Ω) Δ*R*
Load Life	1000 h at rated power, + 70 °C, 1.5 h "ON", 0.5 h "OFF"	± (1.0 % + 0.0005 Ω) Δ*R*	± (2.0 % + 0.0005 Ω) Δ*R*
Resistance to Solder Heat	+ 260 °C Solder, 10 - 12 s dwell, 25 mm/s emergence	± (0.5 % + 0.0005 Ω) Δ*R*	± (0.5 % + 0.0005 Ω) Δ*R*
Moisture Resistance	MIL-STD-202 Method 106, 0 % power, 7a and 7b not required	± (0.5 % + 0.0005 Ω) Δ*R*	± (0.5 % + 0.0005 Ω) Δ*R*

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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