



POWER METAL STRIP[®] RESISTOR

WSR5



High-Power (5 W), Surface-Mount Power Metal Strip[®] Resistor

FEATURES

- Compact 4527 package size
- Low resistance values: from 1 m Ω to 300 m Ω
- Inductance values as low as 0.5 nH
- Resistant to thermal and mechanical shock, extreme temperatures, humidity, and vibration
- Operating temperature range: - 65 °C to + 275 °C
- Lead (Pb)-free version is RoHS-compliant

APPLICATIONS

- Automotive systems
- Power supplies in communications base stations
- DC/DC converters

Power Metal Strip® Resistors, High Power (5 W), Low Value (down to 0.001 Ω), Surface Mount

FEATURES

- Molded high temperature encapsulation
- Improved thermal management incorporated into design
- Ideal for all types of current sensing, voltage division and pulse applications including switching and linear power supplies, instrumentation, 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
- Integral heat sink not utilized for resistance values less than 0.0075 Ω



STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	SIZE	POWER RATING P ₇₀ @ 70°C	RESISTANCE RANGE Ω
WSR5	4527	5.0 (1)	+0.5 % 0.01 - 0.3 ± 1 % 0.001 - 0.3

Note: (1) The WSR5 is rated at 5 W with terminal temperature maintained ≤ 120 °C

* Part Marking: DALE, Model, Value, Tolerance, Date Code

TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	WSR5
Temperature Coefficient	ppm/°C	0.0075 Ω to 0.0089 Ω = ± 110 0.01 Ω to 0.3 Ω = ± 75
Dielectric Withstanding Voltage	V _{AC}	> 500
Insulation Resistance	Ω	> 10 ⁹
Operating Temperature Range	°C	- 65 to + 275 (P, R) ^{1/2}
Maximum Working Voltage	V	476
Weight/1000 pieces	g	476

GLOBAL PART NUMBER INFORMATION

NEW GLOBAL PART NUMBERING: WSR5R0100FTA (PREFERRED PART NUMBERING FORMAT)

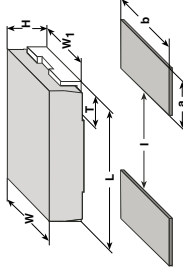
GLOBAL MODEL WSR5	VALUE L = R01 R = Decimal 5L000 = 0.005 Ω R0100 = 0.01 Ω * use "L" for resistance values < 0.01 Ω	TOLERANCE D = ± 0.5 % F = ± 1.0 % J = ± 5.0 %	PACKAGING EA = Lead (Pb)-free, tape/reel EK = Lead (Pb)-free, bulk TA = Tin/lead, tape/reel (R86) BA = Tin/lead, bulk (B43)	SPECIAL (Dash Number) (up to 2 digits) From 1 - 99 as applicable
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HISTORICAL PART NUMBER EXAMPLE: WSR5 0.01 Ω 1 % R86 (WILL CONTINUE TO BE ACCEPTED)

WSR5	0.01 Ω	1 %	R86
HISTORICAL MODEL	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING

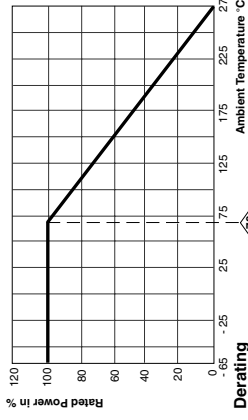
* Pb containing terminations are not RoHS compliant, exemptions may apply

DIMENSIONS



MODEL	DIMENSIONS in inches (millimeters)				
	L	H	T	W	W ₁
WSR5	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	I
WSR5	0.155 [3.94]	0.230 [5.84]	0.205 [5.21]



TEST	CONDITIONS OF TEST	TEST LIMITS
Thermal Shock	- 55 °C to + 150 °C, 1000 cycles, 15 min at each extreme	± (0.5 % + 0.0005 Ω) ΔR
Short Time Overload	3 x rated power for 5 s	± (2.0 % + 0.0005 Ω) ΔR
Low Temperature Storage	- 65 °C for 24 h	± (0.5 % + 0.0005 Ω) ΔR
High Temperature Exposure	1000 h at + 275 °C	± (1.0 % + 0.0005 Ω) ΔR
Bias Humidity	+ 85 °C, 85 % RH, 10 % Bias, 1000 h	± (0.5 % + 0.0005 Ω) ΔR
Mechanical Shock	100 g's for 6 ms, 5 pulses	± (0.5 % + 0.0005 Ω) ΔR
Vibration	Frequency varied 10 to 2000 Hz in 1 min, 3 directions, 12 h	± (0.5 % + 0.0005 Ω) ΔR
Load Life	1000 h at 70 °C	± (2.0 % + 0.0005 Ω) ΔR
Resistance to Solder Heat	260 ± 3 °C 10 - 12 s dwell, 25 mm/s emergence	± (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

PACKAGING		
MODEL	TAPE WIDTH	DIAMETER
WSR5	24 mm/Embossed Plastic	330 mm/13"
		REEL
		PIECES/REEL
		1500
		CODE
		EA

Note
• Embossed Carrier Tape per EIA-481-2

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