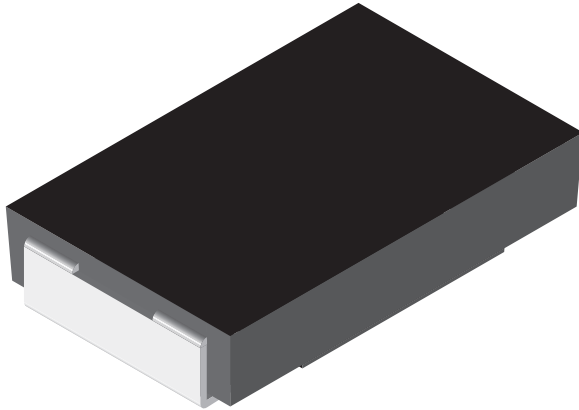


Power Metal Strip® Resistors, Low Value (down to 0.001 Ω), Surface Mount



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



RoHS*
COMPLIANT

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 - 1.0 | 0.001 - 1.0 |
| WSR3 | 4527 | 3.0 ⁽¹⁾ | 0.01 - 0.2 | 0.001 - 0.2 |

Note

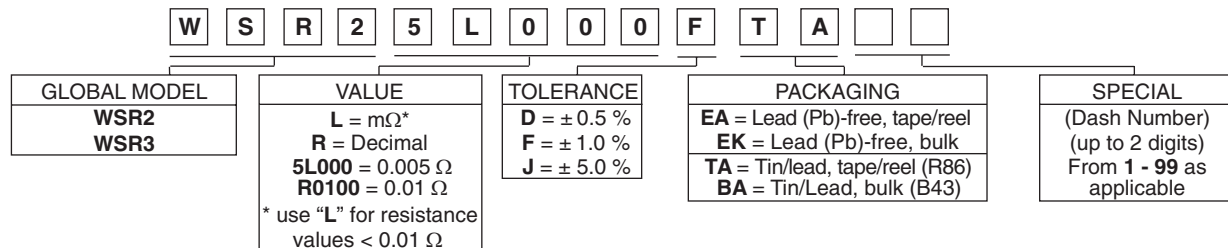
- ⁽¹⁾ The WSR3 requires a minimum of 1050 sq. mil. circuit traces connecting to the recommended solder pad
- Part Marking: DALE, Model, Value, Tolerance, Date Code

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 x R) ^{1/2} |
| Weight/1000 pieces (typical) | g | 440 |

GLOBAL PART NUMBER INFORMATION

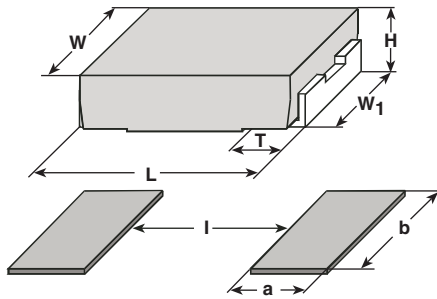
NEW GLOBAL PART NUMBERING: WSR25L000FTA (PREFERRED PART NUMBERING FORMAT)



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

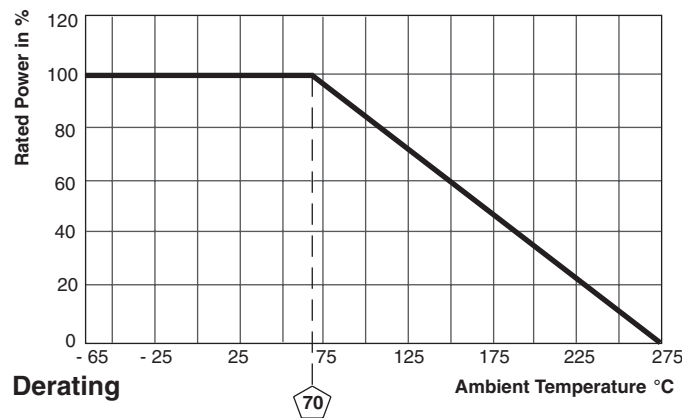


* Pb containing terminations are not RoHS compliant, exemptions may apply

DIMENSIONS


| MODEL | DIMENSIONS in inches [millimeters] | | | | |
|-------|------------------------------------|----------------|----------------|----------------|----------------|
| | L | H | T | W | W ₁ |
| 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 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 - 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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Наши контакты:

Телефон: +7 812 627 14 35

Электронная почта: sales@st-electron.ru

Адрес: 198099, Санкт-Петербург,
Промышленная ул, дом № 19, литера Н,
помещение 100-Н Офис 331