Metal Film Resistors, Power, Surface Mount

FEATURES
• Molded encapsulation
• Wraparound compliant terminations eliminate risk of solder fillet cracking
• Solderable terminations
• Excellent stability at different environmental conditions
• High power ratings (up to 2 W)
• AEC-Q200 qualified (1)
• Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Note
(1) Flame retardance test may not be applicable to some resistor technologies

STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL | SIZE INCH | POWER RATING $P_{T0}/C W$ | TOLERANCE $\pm \%$ | RESISTANCE RANGE $\Omega$ | TEMPERATURE COEFFICIENT $\pm ppm/\degree C$ | ENCAPSULATION
---|---|---|---|---|---|---
WSF2515 | 2515 | 1.0 | 0.5, 1, 5 | 10 to 10K | 100 | Thermoplastic
WSF4527 | 4527 | 2.0 (3) | 0.5, 1, 5 | 10 to 100K | 100 | Thermoplastic

Notes
• WSF2012 has been obsoleted; PTN-DR-00013-2018 Rev. 0 - July 20, 2018. WSF2515 and WSF4527 sizes are not affected
(1) E96 values only
(2) $\pm 50 ppm/\degree C$ and $\pm 25 ppm/\degree C$ available
(3) Resistance values above 31.25 k$\Omega$ are limited to 250 V maximum working voltage

TECHNICAL SPECIFICATIONS

PARAMETER | UNIT | WSF2515 | WSF4527
---|---|---|---
Dielectric withstanding voltage | VAC | $> 500$ | $> 500$
Insulation resistance | $\Omega$ | $> 10^9$
Operating temperature range | °C | -65 / +175 | -65 / +150
Maximum working voltage | $V$ | $(P \times R)^{1/2}$ | $(P \times R)^{1/2}$ (1)
Weight/1000 pieces (typical) | g | 165 | 760

Notes
• Part marking: 1/2 W - DALE, value; 1 W - model, value, tolerance, date code; 2 W - DALE, model, value, tolerance, date code
(1) Resistance values above 31.25 k$\Omega$ are limited to 250 V maximum working voltage

GLOBAL PART NUMBER INFORMATION

Global Part Numbering Example: WSF2515K500JKTA (preferred numbering format)

Global Model | Value | Tolerance | TCR | Packaging | Special
---|---|---|---|---|---
WSF2515 | R = decimal | D = ± 0.5 % | E = ± 25 ppm/°C | EA = lead (Pb)-free, tape / reel
WSF4527 | K = thousand | F = ± 1.0 % | H = ± 50 ppm/°C | EK = lead (Pb)-free, bulk
100R0 = 100 $\Omega$ | G = ± 2.0 % | K = ± 100 ppm/°C | TA = tin / lead, tape / reel (R86)
1K000 = 1 k$\Omega$ | J = ± 5.0 % | | BA = tin / lead, tape / reel, bulk (B43)

Historical Part Numbering Example: WSF2515 1.5 k$\Omega$ 5 % 100 ppm/°C R86 (will continue to be accepted for tin/lead product only)

Notes
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For technical questions, contact: ww2bresistors@vishay.com
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**DIMENSIONS**

Note

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**PERFORMANCE**

<table>
<thead>
<tr>
<th>TEST</th>
<th>CONDITIONS OF TEST</th>
<th>TEST LIMITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermal shock</td>
<td>-55 °C to +150 °C, 1000 cycles, 15 min at each extreme</td>
<td>± (1.0 % ± 0.05 Ω) ΔR</td>
</tr>
<tr>
<td>Short time overload</td>
<td>5 x rated power for 5 s</td>
<td>± (0.5 % ± 0.05 Ω) ΔR</td>
</tr>
<tr>
<td>Low temperature storage</td>
<td>-65 °C for 24 h</td>
<td>± (0.5 % ± 0.05 Ω) ΔR</td>
</tr>
<tr>
<td>High temperature exposure</td>
<td>1000 h at +175 °C (150 °C for WSF4527)</td>
<td>± (1.0 % ± 0.05 Ω) ΔR</td>
</tr>
<tr>
<td>Bias humidity</td>
<td>+85 °C, 85 % RH, 10 % bias, 1000 h</td>
<td>± (0.5 % ± 0.05 Ω) ΔR</td>
</tr>
<tr>
<td>Moisture resistance</td>
<td>MIL-STD-202 method 106, 0 % power, 7a and 7b not required</td>
<td>± (0.5 % ± 0.05 Ω) ΔR</td>
</tr>
<tr>
<td>Mechanical shock</td>
<td>100 g&quot;s for 6 ms, 5 pulses</td>
<td>± (0.5 % ± 0.05 Ω) ΔR</td>
</tr>
<tr>
<td>Vibration</td>
<td>Frequency varied 10 Hz to 500 Hz in one min, 3 directions, 9 h</td>
<td>± (0.5 % ± 0.05 Ω) ΔR</td>
</tr>
<tr>
<td>Load life</td>
<td>1000 h at rated power, +70 °C, 1.5 h “ON”, 0.5 h “OFF”</td>
<td>± (1.0 % ± 0.05 Ω) ΔR</td>
</tr>
<tr>
<td>Resistance to solder heat</td>
<td>+260 °C solder, 10 s to 12 s dwell, 25 mm/s emergence</td>
<td>± (0.5 % ± 0.05 Ω) ΔR</td>
</tr>
</tbody>
</table>

**PACKAGING**

<table>
<thead>
<tr>
<th>MODEL</th>
<th>TAPE WIDTH</th>
<th>DIAMETER</th>
<th>PIECES/REEL</th>
<th>CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>WSF2515</td>
<td>16 mm / embossed plastic</td>
<td>330 mm / 13&quot;</td>
<td>2000</td>
<td>EA/TA</td>
</tr>
<tr>
<td>WSF4527</td>
<td>24 mm / embossed plastic</td>
<td>330 mm / 13&quot;</td>
<td>1200</td>
<td>EA/TA</td>
</tr>
</tbody>
</table>

Notes

- Embossed carrier tape per EIA-481
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