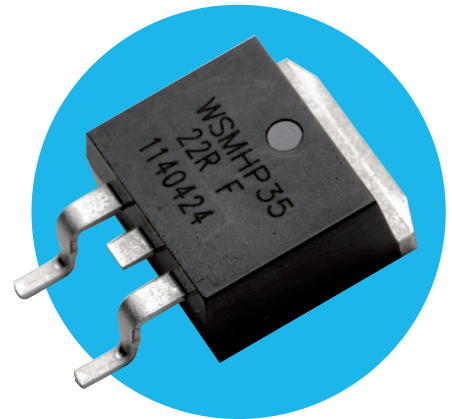


Surface Mount High Power Resistors

WSMHP Series

- TO-263 surface mount package
- Very low thermal resistance
- Non-inductive, 20, 25 and 35 watt high power resistors
- Low profile package for high density PCB installation
- Suitable for board mounting with either solder or clip
- AEC-Q200 qualified



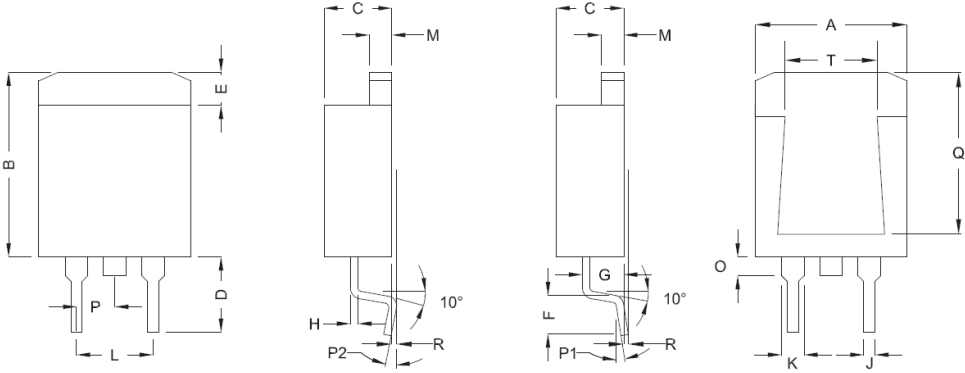
 All parts are Pb-free and comply with EU Directive 2011/65/EU (RoHS2)

Electrical Data

| | | WSMHP20 | WSMHP25 | WSMHP35 | Conditions |
|---------------------------|--------|---------|-------------------------------------|---------|---------------------------------------|
| Power rating | watts | 20 | 25 | 35 | Heatsink with 25°C flange temperature |
| Power rating | watts | | 2.5 | | Without heatsink |
| Thermal resistance | °C/W | | 3.3 | | Resistor hotspot to flange |
| Limiting element voltage | volts | | 500 | | dc or ac rms |
| Resistance range | ohms | | 0R5 – 100K | | |
| Dielectric strength | volts | | 2000 | | dc for 60s |
| Working temperature range | °C | | -55 to 175 | | |
| Insulation resistance | ohms | | >10G | | Between terminals and tab |
| Tolerances | % | | ≤1R0: ±5 >1R0: ±1, ±5 | | |
| TCR | ppm/°C | | ≤3R0: ±300 >3R0-10R: ±100 >10R: ±50 | | 25 to 105°C |
| Standard values | | | E24 preferred | | |

Physical Data

| Dimensions (mm) & Weight (g) | |
|------------------------------|------------|
| A | 10.1 ±0.3 |
| B | 10.1 ±0.3 |
| C | 4.6 ±0.2 |
| D | 5.0 ±1 |
| E | 1.27 ±0.3 |
| F | 2.54 ±0.5 |
| G | 3.2 ±0.2 |
| H | 0.43 ±0.07 |
| J | 0.88 ±0.12 |
| K | 1.32 ±0.15 |
| L | 5.08 ±0.1 |
| M | 1.35 ±0.1 |
| O | 1.5 ±0.5 |
| P | 2.54 ±0.1 |
| P1 | 0 to 3° |
| P2 | 0 to 3° |
| Q | 6.9 ±0.3 |
| R | 0 to 0.254 |
| T | 6.0 ±1 |
| Wt | 1.5 nom. |



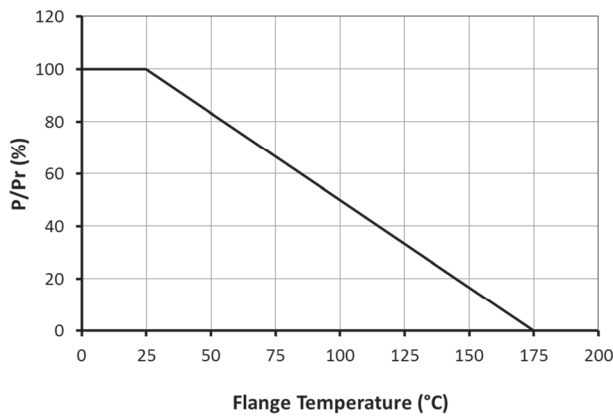
General Note

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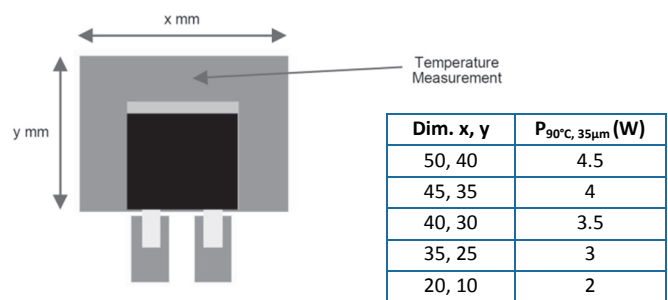
Performance Data

| Test | | Performance |
|---|------|---------------|
| Load at Rated Power: 2000hrs at rated power | ±ΔR% | 1 |
| Short Term Overload: 2 x rated power with applied voltage not to exceed 1.5 x maximum continuous operating voltage for 5 seconds | ±ΔR% | 0.3 |
| High Temperature Exposure: MIL-STD-202 method 108, at 175°C for 1000hrs, no load | ±ΔR% | 0.25 |
| Temperature Cycling: JESD22 method JA-104, -55°C/175°C, 1000cycles | ±ΔR% | 0.3 |
| Biased Humidity: MIL-STD-202 method 103, 1000hrs 85°C/85% RH, 10% of operating power | ±ΔR% | 0.5 |
| Mechanical Shock: MIL-STD-202 method 213 | ±ΔR% | 0.5 |
| Vibration: MIL-STD-202 method 204, peak acceleration 5g for 20min, 12 cycles each of 3 orientations, 10-2000Hz | ±ΔR% | 0.2 |
| Resistance to Soldering Heat: JIS-C-5201-1 4.18 IEC 60115-1 4.18, 260±5°C for 10 seconds | ±ΔR% | 0.5 |
| HBM ESD: AEC-Q200-002, human body 25kV (AD) | ±ΔR% | 1 |
| Solderability: J-STD-002, 240±5°C for 3 seconds | | ≥90% coverage |
| Moisture Resistance: MIL-STD-202 method 106, 10 cycles, 24hours | ±ΔR% | 0.5 |
| Bending Strength: AEC-Q200-005, Bending 2mm for 60 seconds | ±ΔR% | 0.25 |
| Terminal Strength: AEC-Q200-006, 1.8Kg for 60 seconds | ±ΔR% | 0.2 |

Temperature Derating

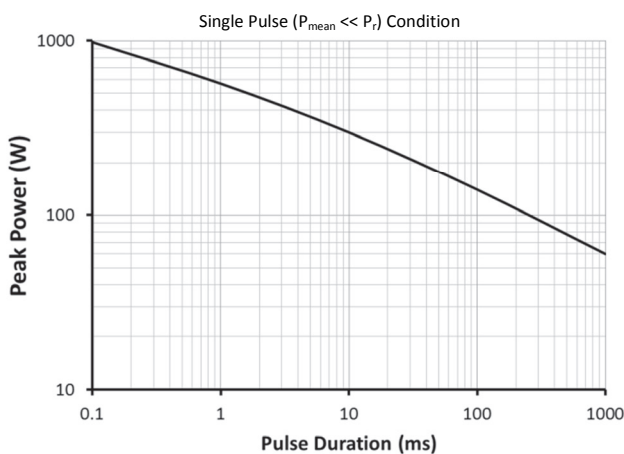


Typical Thermal Performance on FR4 Pad Heatsink



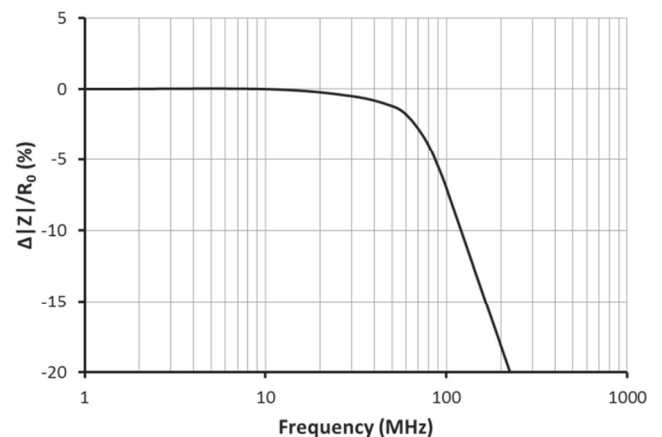
Characterisation carried out using 35μm PCB copper pad weights, with temperature of 90°C used as a maximum reference on the PCB. P_{90°C, 35μm} (W) is power when the measurement point reaches 90°C.

Pulse Performance



Pulse performance for durations ≥1s is dependent on mounting conditions. The short term overload power limit is 2 x power rating for 5s.

Typical High Frequency Performance



Typical high frequency characteristics for WSMHP35-220R. Self resonant frequency is 1GHz.

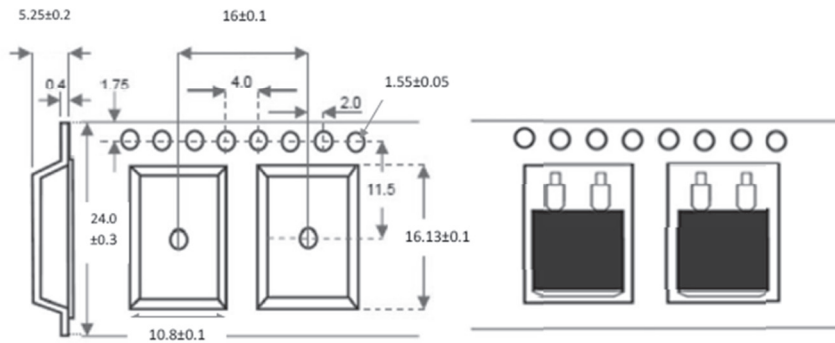
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WSMHP Series

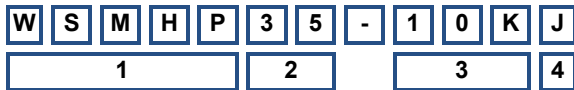
Packing

WSMHP components are packed on 330mm diameter reels, with 100mm inner diameter, in tape of width 24mm and with a quantity of 500 pieces per reel. The dimensions of the tape and orientation of the component are as shown below.



Ordering Procedure

Example: WSMHP35-10KJ (WSMHP35 at 10 kilohms ±5%, Pb-free)



| 1 | 2 | 3 | 4 | Packing |
|-------|--------|------------------|-----------|--------------------------|
| Type | Rating | Value | Tolerance | |
| WSMHP | 20 | 3 / 4 characters | F = ±1% | Plastic tape 500/reel |
| | 25 | R = ohms | J = ±5% | |
| | 35 | K = kilohms | | |

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Mouser Electronics

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