

High Voltage MELF Resistors

WRM-HV Series

- High limiting element voltage up to 1kV
- 1.2/50µs surge voltage to 6kV
- Tolerance down to ±0.1%
- TCR down to ±25ppm/°C



All parts are Pb-free and comply with EU Directive 2011/65/EU amended by (EU) 2015/863 (RoHS3)

Electrical Data

| | | WRM0204HV | WRM0207HV |
|---------------------------|--------|--------------------------------------|-----------|
| Power rating at 70°C | watts | 0.4 | 1 |
| Resistance range | ohms | 340K – 3M4 | |
| Limiting element voltage | volts | 500 | 1000 |
| Maximum overload voltage | volts | 1000 | 2000 |
| TCR | ppm/°C | 25, 50 | |
| Resistance tolerance | % | ≤1M0: 0.1, 0.25, 0.5, 1 >1M0: 0.5, 1 | |
| Standard values | | E24 & E96 | |
| Thermal impedance | °C /W | 200 | 140 |
| Ambient temperature range | °C | -55 to +155 | |
| Insulation resistance | ohms | >10 ¹⁰ | |
| Voltage proof | volts | 710 | 1420 |

Physical Data

| Dimensions (mm) and weight (g) | | | | | | |
|--------------------------------|-------|-------|--------|-------|--------------------|--------|
| Type | L max | D max | D1 max | K min | L ¹ min | Weight |
| WRM 0204HV | 3.7 | 1.55 | 1.55 | 0.7 | 1.5 | 0.02 |
| WRM 0207HV | 6.1 | 2.4 | 2.4 | 1.2 | 2.9 | 0.08 |



Construction

A metal film is deposited onto a high dissipation ceramic former to which tin plated terminating caps are fitted.

The resistor is adjusted to value by a helical cut in the film and the body is protected by a lacquer coating.

Marking

Resistance values are colour coded with three or four bands, indicating value and multiplier.

Terminations

Material Plated steel cap.

Solderability The pure tin finish produces ageing free contacts on which low melting solders can be used. Dipped area shall be covered with a smooth and bright solder coating after 3 seconds immersion at 215°C.

Solvent Resistance

The body protection and marking are resistant to all normal industrial cleaning solvents suitable for printed circuit boards.

General Note

TT Electronics reserves the right to make changes in product specification without notice or liability. All information is subject to TT Electronics' own data and is considered accurate at time of going to print.

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Performance Data

| | | |
|--|------|---------------------------|
| | | Maximum (+0.05Ω) |
| Short time overload: 5s at lesser of 6.25 x rated power or 2 x LEV | ±ΔR% | 0.15 |
| Damp heat with load: 1000hrs 40±2°C/90-95%RH cyclic rated power | ±ΔR% | 1 |
| High temperature exposure: 1000hrs at 155°C | ±ΔR% | 1 |
| Bending test: 2mm deflection for 60s | ±ΔR% | 0.5 |
| Resistance to soldering heat: 260±5°C for 10s | ±ΔR% | 0.25 |
| Temperature rapid change: 1000cycles-55/125°C | ±ΔR% | 1 |
| Endurance: 1000hrs rated power at 70°C | ±ΔR% | 1 |
| Solderability: 245±5°C for 3s | | >95% coverage |
| Voltage proof: 1.42 x LEV | | No breakdown or flashover |

Pulse Performance

Limits for ΔR are ±0.5%

| Peak surge voltage | WRM0204HV | WRM0207HV |
|--------------------|-----------|-----------|
| 1.2/50μs | 4.5kV | 6kV |
| 10/700μs | 2.2kV | 3kV |

Derating Curve



Ordering Procedure

Example: WRM0204HVC-1M0F T3 (WRM0204HV, 50ppm/°C, 1 megohm ±1%, Pb-free)

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W | R | M | 0 | 2 | 0 | 4 | H | V | C | - | 1 | M | 0 | F | T | 3 |
| 1 | | | | | | | | | | 2 | 3 | | | 4 | 5 | |

| 1 Type | 2 TCR | 3 Value | 4 Tolerance | 5 Packing | | |
|-----------|---------------|--|----------------|--------------|------|----------------|
| WRM0204HV | D = ±25ppm/°C | 3/4 characters K = kilohms M = megohms | B = ±0.1% | T3 | 0204 | 3000 / 7" reel |
| WRM0207HV | C = ±50ppm/°C | | C = ±0.25% | T2 | 0207 | 2000 / 7" reel |
| | | | D = ±0.5% | | | |
| | | | F = ±1% | | | |

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