

High Voltage MELF Resistors

WRM-HV Series



Features:

- High limiting element voltage up to 1.2kV
- 1.2/50μs surge voltage to 6kV
- Tolerance down to 0.1%
- TCR down to 25ppm/°C
- AEC-Q200 qualified



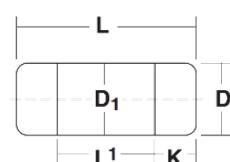
All parts are Pb-free and comply with EU Directive 2011/65/EU amended by (EU) 2015/863 (RoHS3)

Electrical Data

	WRM0204HV	WRM0207HV
Power rating @70°C	W	0.4
Resistance range	ohms	100K – 10M
Limiting element voltage	V	700
Maximum overload voltage	V	1400
TCR	ppm/°C	≤3M4: 25, 50 >3M4: 50
Resistance tolerance	%	≤1M0: 0.1, 0.25, 0.5, 1 >1M0: 0.5, 1
Standard values		E24 & E96
Thermal impedance	°C/W	200
Ambient temperature range	°C	-55 to +155
Insulation resistance	ohms	>10 ¹⁰
Voltage proof	V	990
		1700

Physical Data

Dimensions in mm and weight in g						
Type	L max	D max	D ₁ max	K min	L ₁ min	Wt. nom.
WRM0204HV	3.7	1.55	1.55	0.7	1.5	0.02
WRM0207HV	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.

Performance Data

		Maximum (+0.01Ω)	
Short term overload: Lesser of $6.25 \times P_r$ or $2 \times \text{LEV}$ for 5s	±ΔR%	0.15	
Biased humidity: 1000hrs 85°C/85%RH 10% of P_r ($\leq 100V$)	±ΔR%	≤332K: 0.25	>332K: 1
High temperature exposure: 1000 hours at 155°C	±ΔR%	≤332K: 0.25	>332K: 0.5
Bending test: 2mm deflection for 60s	±ΔR%	0.5	
Resistance to solder heat: $260 \pm 5^\circ\text{C}$ for 10s	±ΔR%	0.25	
Temperature rapid change: 1000 cycles -55/125°C	±ΔR%	1	
Endurance: P_r for 1000 hours at 70°C	±ΔR%	≤332K: 0.25	>332K: 0.5
Solderability: $245 \pm 5^\circ\text{C}$ for 3s		>95% coverage	
Voltage proof: $1.42 \times \text{LEV}$		No breakdown or flashover	
Mechanical shock: half-sine, 100g peak, 6ms	±ΔR%	0.25	
ESD: human body model, 0204: 2kV, 0207: 4kV	±ΔR%	0.5	
Vibration: 5g for 20min, 12 cycles each of 3 orientations, 10 – 2000Hz	±ΔR%	0.5	
Terminal strength: 1.8kg for 60s	±ΔR%	No breakage	
Flammability: UL94-V0 or V1		Pass	

Pulse & Thermal Performance

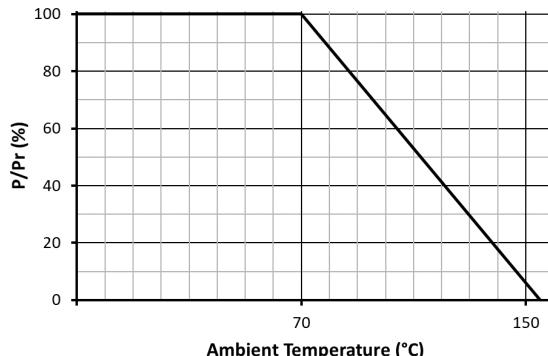
Pulse Performance

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

Note 1: Apply 10 pulses of alternating polarity.

Note 2: Pass criterion is $|\Delta R| < 0.5\%$.

Derating Curve



Packaging

WRM0204HV resistors are supplied in 8mm plastic tape on 7" reels. WRM0207HV resistors are supplied in 12mm plastic tape on 7" reels. Packing complies with the requirements of IEC286-3.

Ordering Procedure

Example: WRM0204HVC-1M0FT3 (WRM0204HV, 50ppm/°C, 1 megohm ±1%, Pb-free)



1	2	3	4	5
Type	TCR	Value	Tolerance	Packing
WRM0204HV	$D = \pm 25\text{ppm}/^\circ\text{C}$	E24/E96	$B = \pm 0.1\%$	T3 0204 3000 / 7" reel
WRM0207HV	$C = \pm 50\text{ppm}/^\circ\text{C}$	3/4 characters K = kilohms M = megohms	$C = \pm 0.25\%$ $D = \pm 0.5\%$ $F = \pm 1\%$	T2 0207 2000 / 7" reel

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