High Pulse Carbon Film MELF Resistors

WCM Series



Features:

- 1.2/50µs surge up to 10kV
- Peak power up to 800W for 1ms
- 5s overload up to 700V
- Rated power up to 1W
- Ag-free terminations for intrinsic anti-sulphur status

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

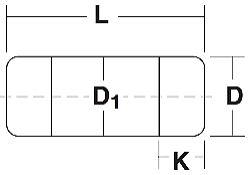
Electrical Data

		WCM0204	WCM0207	WCM0207HP
Power rating @70°C	W	0.25	0.5	1
Resistance range	ohms	7R5 – 10M		
Limiting element voltage	V	200	300	350
Maximum 5s overload voltage	V	400	600	700
TCR	ppm/°C	≤100K: +0/-350, >100K-500K: +0/-700, >500K-1M0: +0/-1000, >1M0: +0/-1500		
Resistance tolerance	%	2, 5		
Standard values		E24		
Ambient temperature range	°C	-55 to +155		
Voltage proof	V	284	426	497

Physical Data

Dimensions in mm and weight in g

Type	L max	D max	D_1 max	K min	Wt. nom.
WCM0204	3.7	1.55	1.5	0.5	0.02
WCM0207	6.1	2.4	2.3		0.08
WCM0207HP				1	



Construction

A carbon 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.

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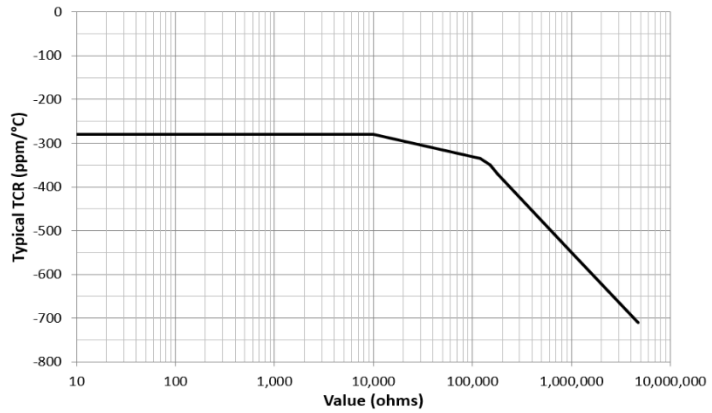
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Performance Data

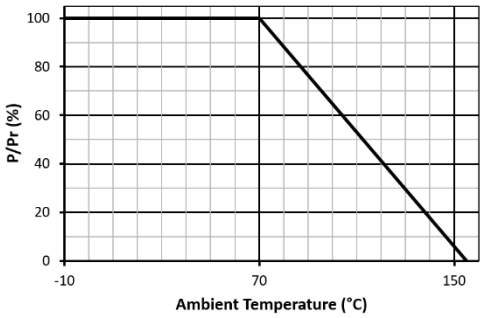
		Maximum (+0.1Ω unless stated)
Short term overload: Lesser of 6.25xP_r or 2xLEV for 5s	±ΔR%	0.5
Climatic sequence: BS EN 60115-1:2011+A11 2015, Method 4.23	±ΔR%	0.5
Bending test: 2mm deflection for 60s	±ΔR%	0.25
Resistance to solder heat: 260±5°C for 10±1s	±ΔR%	1 (+0.05Ω)
Temperature rapid change: 1000 cycles -55/125°C	±ΔR%	1.5
Endurance, cyclic load: P_r for 1000 hours at 125°C	±ΔR%	2 (+0.05Ω)
Endurance, constant load: P_r for 1000 hours at 70°C	±ΔR%	2 (+0.05Ω)
Vibration: 5g for 20min, 12 cycles each of 3 orientations, 10 – 2000Hz	±ΔR%	0.5
ESD: 2kV human body model	±ΔR%	0.5 (+0.05Ω)
Solderability: 235±5°C for 3±0.5s		>95% coverage
Voltage proof: 1.42 x LEV		No breakdown or flashover

Thermal & Pulse Performance

Typical TCR

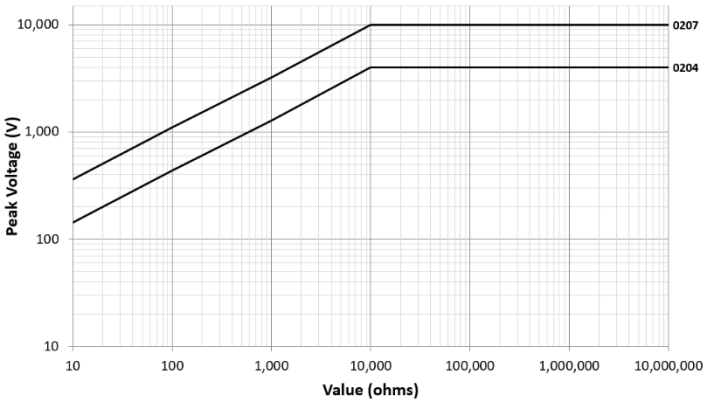


Derating Curve



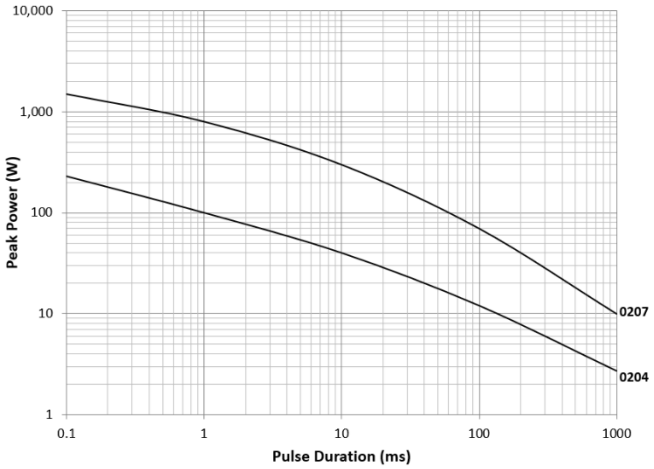
1.2/50µs Lightning Surge

10 pulses applied at 12s intervals, ΔR limits ±0.5%



Single Pulse

10 pulses at mean power ≤ 10% of Pr, ΔR limits ±1%



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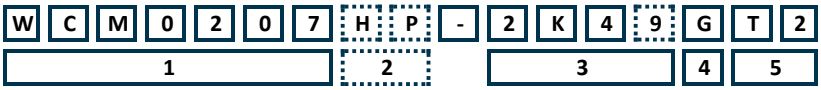
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Packaging

WCM0204 resistors are supplied in 8mm plastic tape on 7” reels. WCM0207(HP) resistors are supplied in 12mm plastic tape on 7” reels. Packing complies with the requirements of IEC 60286-3.

Ordering Procedure

Example: WCM0207HP-2K49GT2 (WCM0207HP, 2.49 kilohms ±2%, Pb-free)



1 Type	2 Variant	3 Value	4 Tolerance	5 Packing		
WCM0204	Omit for standard	E24 3/4 characters R = ohms K = kilohms M = megohms	G = ±2%	T3	0204	3000 / 7” reel
WCM0207	HP=High Power (0207 only)		J = ±5%	T2	0207	2000 / 7” reel

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