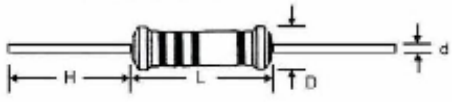
LEADFREE
RoHS Compliant

FEATURES

- Resistances from 10Ω to 1MΩ
- 0.5%, 0.1%, 1% and 5% tolerances
- RoHS compliant / lead-free
- Operating Temperature: -55°C to +155°C
- Produced by high vacuum sputtering deposit metal film on high aluminum content ceramic rods.
- Flameproof Coating meets UL94

MECHANICAL SPECIFICATIONS

Type	L	D	d	H (Min)	Units
MMF1	6.5 ± 0.5	2.3 ± 0.2	0.55 ± 0.05	27	mm
MMF2	10.5 ± 1.0	3.5 ± 1.0	0.75 ± 0.05	25	mm
MMF3	16.0 ± 1.0	5.5 ± 1.0	0.75 ± 0.05	25	mm



PART NUMBERING SYSTEM

MMF ▬ 1 1% 2K2 TR ___

Type
MMF

Code	Wattage @ 70°C
1	1W
2	2W
3	3W

Resistance Tolerance
5%
1%
0.5%
0.1%

Nominal Resistance	
Code	Description
2R2	2.2 Ohms
22R	22 Ohms
2K2	$2.2x10^3$ Ohms
22K	$22x10^3$ Ohms
1M	$1x10^6$ Ohms

Packaging	
Code	Description
B	Bulk
TR	Tape & Reel
TB	Tape & Ammo Box

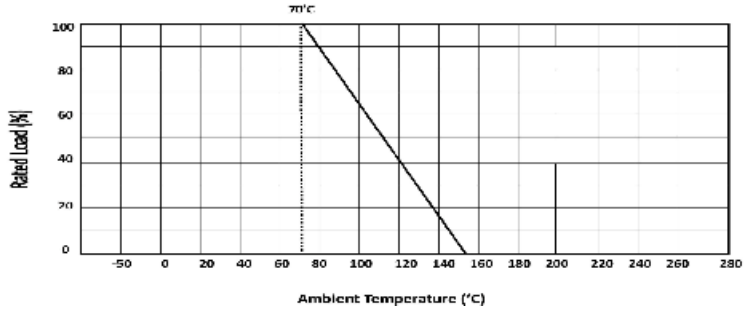
Temperature Coefficient	
Code	Description
Nil	100ppm
50	50ppm
25	25ppm
10	10ppm

ELECTRICAL SPECIFICATIONS

Type	Power Rating (Watts) @ 70°C	Maximum Working Voltage[1]	Maximum Overload Voltage	Resistanc Range[2]
MMF1	1W	350V	500V	10Ω - 1MΩ
MMF2	2W	350V	700V	
MMF3	3W	350V	700V	

1. Max working voltage determined by E = √PR, E should not exceed value listed in column above.
2. Ohmic values beyond 10Ω-1MΩ and closer tolerance up to 0.1% are available upon request.

DERATING CURVE



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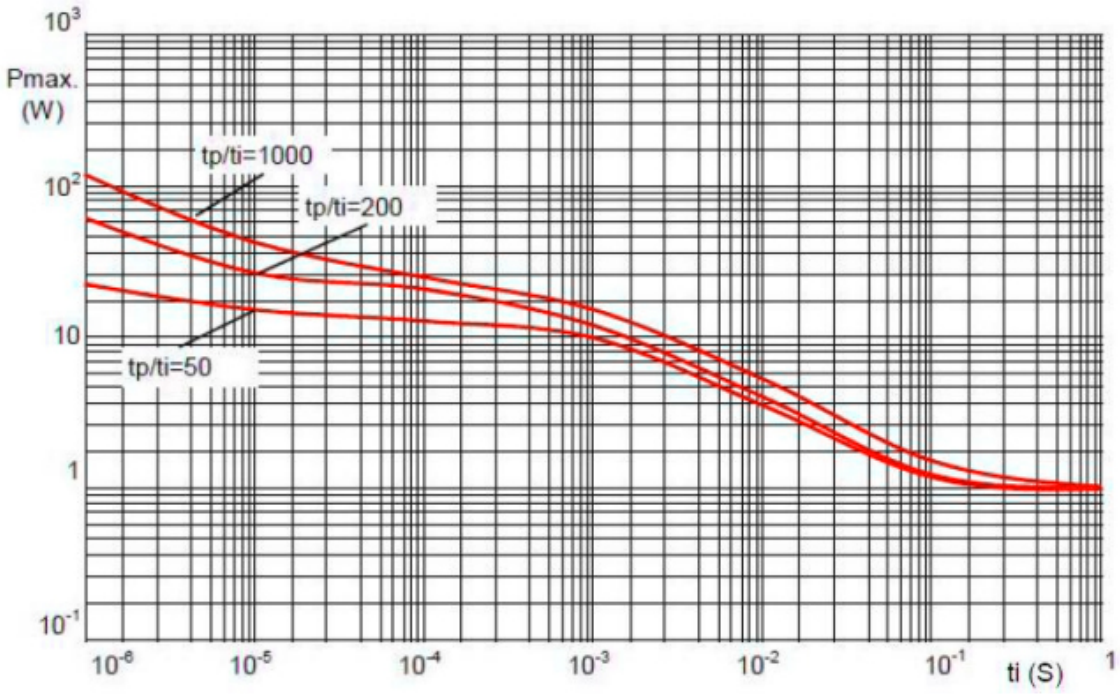
PEAK PULSE POWER CURVE

MMF-1 maximum peak pulse power (Pmax) as a function of pulse duration (ti).



CHARACTERISTICS

Item	Specification	Test Method
Temperature coefficient of resistance (TCR)	±25PPM ±50PPM ±100PPM	10^{-6} / °C MIL-STD-202 METHOD-304
Life Stability at 70°C 1000Hr Max. Resistance Change	0.5%	At most Vmax. 1.5 hour on, 0.5 hour off
Dielectric Withstanding Voltage	300 Vrms for MMF-04 500 Vrms for MMF-06, MMF-01	
Insulation Resistance	> 10 MΩ	100VDC
Damp Heat Steady State	±1%	56 Days at 40°C and 95°C Relative humidity at a voltage of 0.1 times rated voltage. Max. 16 Volts
Short Time Overload	±0.5%	2.5 Times rated voltage, at most 2 times limiting element voltage (U Max)
Moisture Resistance	±1.5%	40 ± 2°C, 95% RH, 1000Hours
Resistance to Soldering Heat	±0.5%	350°C to 6mm distance from the resistance body in 3 sec.
Temperature Cycling	±0.5%	-55°C to +155°C
Low Temperature Operation	±0.5%	-65°C
Vibration	±0.5%	
Current Noise	up tp 1MΩ ≤ 0.5 $\frac{uV}{V}$	-5dB
Solderability	>95% coverage	Dipping in 260°C Solder bath for 2.5 sec.
Resistance to Solvents	no failure to top coating and color code	