ECONOMICAL 1 WATT TO 3 WATT POWER FILM MELF RESISTORS

MPF SERIES

RoHS Term.W is RoHS compliant & 260°C compatible



RESISTORS•CAPACITORS•COILS•DELAY LINES

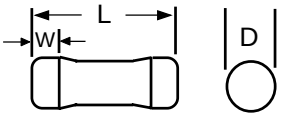
FEATURES

- ❒ High power in small body size
- ❒ Low cost MELF design
- ❒ Wide resistance range: 0.1Ω to 10MΩ
- ❒ Standard tolerance: ±5% (available to ±0.1%)
- ❒ Inherent low inductance power film performance

OPTIONS

- ❒ Option P: Increased Pulse Capability
- ❒ Option 37: Group A Screening per Mil-R-39008
- ❒ Numerous design modifications are available (special marking, matched sets, increased temperature, etc.)

RCD's MPF Series utilize special filming processes and highest grade materials to achieve high power density, yet the economical MELF package enables pricing well below rectangular counterparts. The multilayer coating offers excellent environmental protection and dielectric strength, and is resistant to industrial solvents, steam and humidity.



SPECIFICATIONS

Inch [mm]

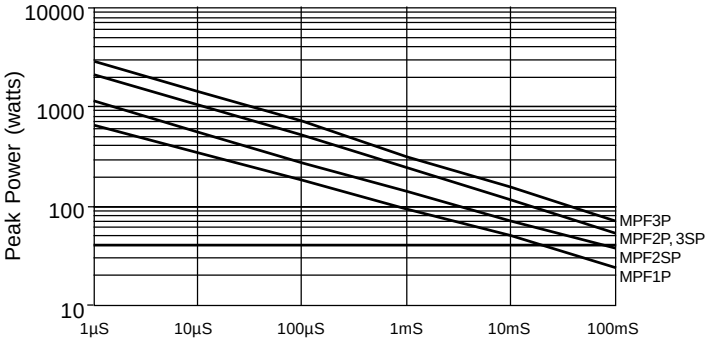
RCD Type	Wattage Rating	Voltage Rating[1]	Resistance Range[2]	L Max.	D Max.	W (Min.)
MPF1	1W	300V	0.1Ω to 1MΩ	.256 [6.5]	.106 [2.7]	.036 [.9]
MPF2S	2W	350V	0.1Ω to 4.7MΩ	.375 [9.5]	.146 [3.7]	.047 [1.2]
MPF2	2W	400V	0.1Ω to 6.8MΩ	.453 [11.5]	.185 [4.7]	.056 [1.4]
MPF3S	3W	400V	0.1Ω to 6.8MΩ	.453 [11.5]	.185 [4.7]	.056 [1.4]
MPF3	3W	400V	0.1Ω to 10MΩ	.602 [15.3]	.201 [5.1]	.064 [1.6]

[1] Not to exceed √(PxR), increased working voltages available. [2] Extended range available

TYPICAL PERFORMANCE CHARACTERISTICS

Temperature Coefficient	200ppm/°C ≤1M, 350ppm 1M-6.8M, 500ppm >6.8M)
Operating Temperature	-55 to +165°C
MPF1, 2, 3 Power Derating: MPF2S, 3S Power Derating:	1.053%/°C >70°C .714%/°C >25°C
Dielectric Strength	500V
Insulation Resistance	10,000Meg ohm
Solderabilty	95% Min.
Short Time Overload (2.5xW 5S, not to exceed 2x volt rating)	0.5% MPF1,2,3; 1% MPF2S, 3S
Voltage Coefficient	25ppm/V
Resistance to Solder Heat (245°C,5S)	0.3%
Temperature Cycling	1%
Moisture Resistance	2%
Load Life (1000 hours at rated W)	2% MPF1,2,3; 4% MPF2S, 3S

PULSE CAPABILITY



Pulse capability is dependent on res. value, waveform, repetition rate, current, etc. Chart is a general guide for Opt. P pulse resistant version, single pulse, with peak voltage levels not exceeding 1KV MPF1, 1.5KV MPF2S, 2KV MPF2, 2.5KV MPF3S, 3KV MPF3. Max pulse capability for standard parts (w/o Opt.P) is 50% less. For improved performance and reliability, a 30-50% pulse derating factor is recommended, or larger for frequent pulses, high values, etc. (refer to #R-42). Verify selection by testing under worst-case conditions. Increased pulse levels available.

P/N DESIGNATION:

MPF2S ☐ - 102 - J T W

RCD Type

Options: P, 37 (leave blank if standard)

Resis. Code: ≤1%: 3 signif. figures & multiplier,
e.g. R100= 0.1Ω, 1R00= 1Ω,1000= 100Ω, 1001= 1KΩ.
Resis. Code 2% - 10%: 2 signif. figures & multiplier,
e.g. R10=.1Ω, R15=.15Ω, 1R0=1Ω,100=10Ω, 102=1K, 103=10KΩ

Tolerance : J= 5% (std), D=0.5%, F=1%, G=2%, K=10%

Packaging : B = Bulk, T = Tape & Reel

Termination: W= Lead-free, Q= Tin/Lead (leave blank if either is acceptable, in which case RCD will select based on lowest price and quickest delivery

APPLICATION NOTE

The temp. rise of SM resistors depends largely on heat conduction through the end terminations, which can vary significantly depending on PCB material and layout (i.e. pad size, trace area, copper thickness, air convection, etc). Typical temperature rise at full rated power is 100°C for MPF1,2,3 and 150°C for MPF2S & 3S (based on DIN44050 PCB material with 500 sq. mil circuit traces MPF1, 2, 2S and 1000 sq. mil MPF3,3S). It is recommended to evaluate product in actual use conditions to ensure the proper component and PCB layout is utilized.