Power Metal Film Resistors

MF-S Series



Features:

- Small size for power rating
- Range of 4 sizes: 0.5W to 3W at 70°C
- Flameproof protection

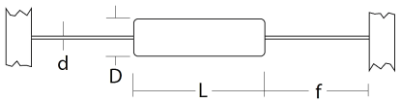
All parts are Pb-free and comply with EU Directive 2011/65/EU amended by (EU) 2015/863

Electrical Data

		MF1/2S	MF1S	MF2S	MF3S
Power rating @70°C	W	0.5	1	2	3
Resistance range	ohms	R10 to 1M0			
Limiting element voltage	V	350			
TCR	ppm/°C	<10R: 350, ≥10Ω: 150			
Isolation voltage	V	500			700
Resistance tolerance	%	≤1R0: 5, >1R0: 1, 2, 5			
Standard values		E24 preferred			
Thermal impedance	°C/W	140	110	80	60
Ambient temperature range	°C	-55 to 155			

Physical Data

Dimensions in mm and weight in g							
Type	**L** max	**D** max	**f** min	**d** nom	PCB mounting centres	Min. bend radius	**Wt.** nom
MF1/2S	6.2	2.5	21	0.6	10.2	0.6	0.3
MF1S	9	4.1	19.6	0.8	12.7	1.2	0.5
MF2S	12.5	5	17.8		18.4		0.9
MF3S	15.1	5.3	23.8		20.3		1.1



Construction

The resistance element is a precisely controlled thin film of metal alloy on a high purity ceramic core, protected by a cement coating applied so that terminations remain completely clear. This permits a well-defined body length (clean lead to clean lead dimension L).

Marking

MF-S series resistors are colour coded with 5 bands for 1% tolerance or 4 bands for other tolerances in accordance with IEC 60062.

Terminations

Terminations are hot tin dipped copper wire. They meet the strength requirements of IEC 60115-1 clause 9.5 and the solderability requirements of IEC 60115-1 clause 11.1.

Solvent Resistance

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

Flammability

The resistor coating will not burn or emit incandescent particles under any condition of applied temperature or power overload.

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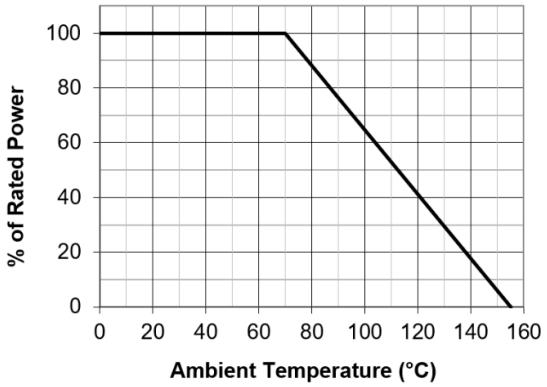
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Performance Data

		Maximum
Load at rated power 1000 hours at 70°C	±ΔR%	5
Shelf-life test 12 months at room temperature	±ΔR%	1
Climatic	±ΔR%	1
Climatic category		40/125/56
Temperature rapid change	±ΔR%	0.5
Resistance to solder heat	±ΔR%	0.5

Temperature Derating

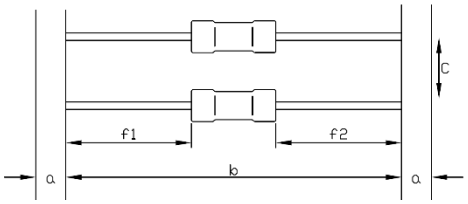


Application Notes

1. If the resistors are to dissipate full rated power, it is recommended that the terminations should not be soldered closer than 4mm from the body.
2. Due to operating temperature limitations imposed by some PCB materials, derating may be necessary. An estimate of the temperature rise to be expected can be calculated using the thermal impedance figures given under Electrical Data.

Packaging

The preferred method of packaging is taped and ammo packed. See below for critical dimensions.



Dims in mm	MF1/2S	MF1S	MF2S	MF3S
a	6			
b	52 ±2			67 ±2
c	5 ±0.5			10 ±0.5
$f_1 - f_2$	≤ 1.4			

Ordering Procedure

Example: MF3S-3K3JI (MF3S, 3.3 kilohms ±5%, Pb-free)

M	F	3	S			-	3	K	3		J	I
1							2				3	4

1 Type	2 Value	3 Tolerance	4 Packing			
MF1/2S	E24 = 3/4 characters R = ohms K = kilohms M = megohms	F = ±1%	I	MF1/2S	Ammo	5000/box
MF1S		G = ±2%		MF1S		2500/box
MF2S		J = ±5%		MF2S		1500/box
MF3S				MF3S		1000/box

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