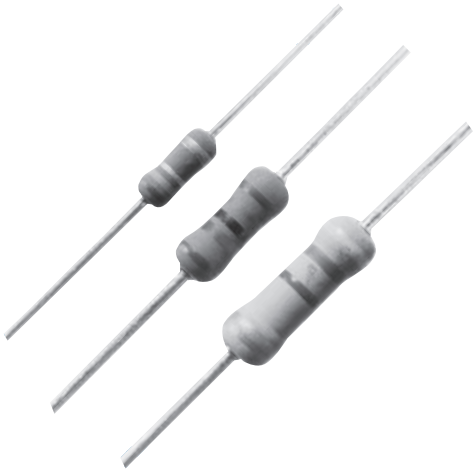
Resistors

Power Metal Film Resistors



MF-S Series

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

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

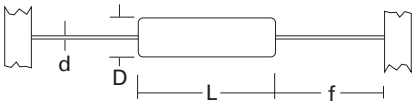
Electrical Data

		MF1/2S	MF1S	MF2S	MF3S
Power rating at 70° C	watts	0.5	1.0	2.0	3.0
Resistance range	ohms	0R1 – 1M			
Limiting element voltage	volts	350			
TCR	ppm/° C	< 10Ω :350		≥10Ω :150	
Isolation voltage	volts	500			700
Resistance tolerance	%	≤1Ω : 5		>1Ω : 1, 2, 5	
Standard values		E24 preferred			
Thermal impedance	° C/watt	140	110	80	60
Ambient temperature range	° C	-55 to 155			

Physical Data

Dimensions (mm) & Weight (g)

Type	L	D	f min	d +0.01 -0.06	PCB mounting centres	Min. bend radius	Wt.nom
MF1/2S	6.2 +0 -0.5	2.5 +0 -0.25	21.0	0.6	10.2	0.6	0.3
MF1S	9.0 +0 -0.6	3.6 +0.5 -0	19.6	0.8	12.7	1.2	0.5
MF2S	12.5 +0 -2.1	4.2 +0.8 -0	17.8	0.8	18.4	1.2	0.9
MF3S	14.5 +0.6 -0	5.3 +0 -0.4	23.8	0.8	20.3	1.2	1.1



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.

BI Technologies IRC Welwyn

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MF-S Series

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).

Terminations
Material Solder-coated copper wire.

Strength The terminations meet the requirements of IEC 68.2.21

Solderability The terminations meet the requirements of IEC 115-1, Clause 4.17.3.2

Marking
MF Series resistors are colour coded with 5 bands for 1% tolerance or 4 bands for other tolerances. IEC 62 colours are used.

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

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

Performance Data

		Maximum
Load: 1000 hours at 70°C	ΔR %	5
Shelf life: 12 months at room temperature	ΔR %	1
Derating from rated power at 70°C	ΔR %	zero at 155°C
Climatic	ΔR %	1
Climatic category		40/125/56
Temperature rapid change	ΔR %	0.5
Resistance to solder heat	ΔR %	0.5

Application Notes

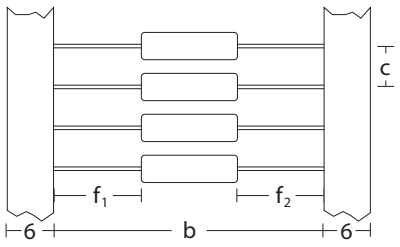
1. If the resistors are to dissipate full rate power, it is recommended that the terminations should not be soldered closer than 4mm from the body.

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 figure 1 for critical dimensions.

Alternative packaging is available by special request.

Figure 1



Body location $f_1 - f_2 \leq 1.4$ mm

Type	b	c
MF1/2S	52±2	5 ±0.5
MF1S	52±2	5 ±0.5
MF2S	52±2	5 ±0.5
MF3S	67±2	10±0.5

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 & Termination Finish		
MF1/2S	E24 = 3/4 characters R = ohms K = kilohms M = megohms	F = ±1%	I = Standard packing & Pb-free		
MF1S		G = ±2%	MF1/2S	Ammo pack	5000/box
MF2S		J = ±5%	MF1S		2500/box
MF3S			MF2S		1500/box
			MF3S		1000/box