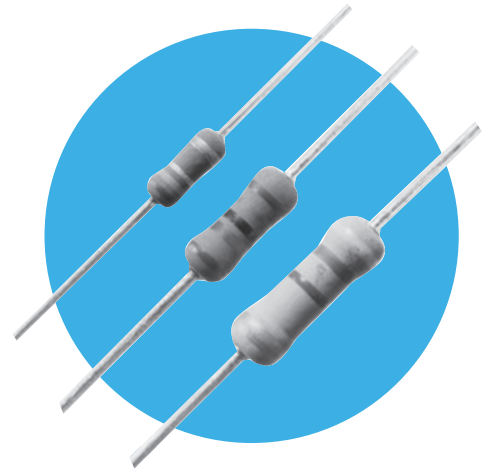


## Power Metal Film Resistors

### MF-S Series

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



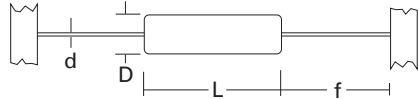
 All Pb-free parts comply with EU Directive 2011/65/EU (RoHS2)

### 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
<b>MF1/2S</b>	6.2 +0 -0.5	2.5 +0 -0.25	21.0	0.6	10.2	0.6	0.3
<b>MF1S</b>	9.0 +0 -0.6	3.6 +0.5 -0	19.6	0.8	12.7	1.2	0.5
<b>MF2S</b>	12.5 +0 -2.1	4.2 +0.8 -0	17.8	0.8	18.4	1.2	0.9
<b>MF3S</b>	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.

**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**

		<b>Maximum</b>
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**

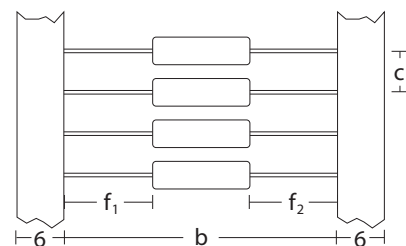
- If the resistors are to dissipate full rate power, it is recommended that the terminations should not be soldered closer than 4mm from the body.
- Due to operating temperature limitations imposed by some pcb materials, derating may be necessary. An estimate of the temperature rise to be expected can be calculated using the thermal impedance figures given under Electrical Data.
- Lead Formed resistors can also be supplied. Standard options of Lancet, Radial and Goalpost forming are shown in lead Form Information section.

**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  $f_1 - f_2 \leq 1.4 \text{ mm}$

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

**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.

MF-S Series

## Ordering Procedure

Example: MF3S at 3.3 kilohms and 5% tolerance in ammo pack box of 1000 pieces –

**MF3S - 3K3 J I**

Type \_\_\_\_\_

Value (use IEC62 code) \_\_\_\_\_

Tolerance (use IEC62 code) \_\_\_\_\_

F	1%	J	5%
G	2%		

Packing \_\_\_\_\_

I	Ammo	MF1/2S	5000/box	Standard
		MF1S	2500/box	
		MF2S	1500/box	
		MF3S	1000/box	

**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.