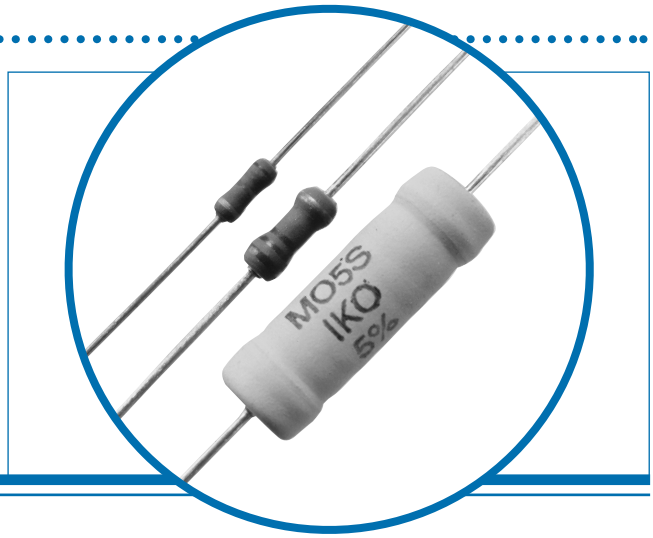
Power Metal Oxide Film Resistors

TT electronics
Welwyn Components

MO-S Series

- **Small size for power rating**
- **Can replace carbon composition in many pulse handling applications**
- **Flameproof protection**



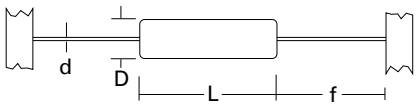
Electrical Data

		MO1/2S	MO1S	MO2S	MO3S	MO5S
Power rating at 70°C	watts	0.5	1.0	2.0	3.0	5.0
Restance range	ohms	10R - 50K	10R - 100K			10R - 100K
Limiting element voltage	volts	250	350			500
TCR	ppm/°C	350				
Isolation voltage	volts	350	500			700
Resistance tolerance	%	5, 10				
Standard values		E24 preferred				
Thermal impedance	°C/watt	140	110	80	60	35
Ambient temperature range	°C	-55 to +155				

Physical Data

Dimensions (mm) and Weight (g)

Type	L max.	D max.	f min.	d nom.	pcb mounting centres	Min bend radius	Wt. nom.
MO1/2S	6.2	2.5	21.0	0.6	10.0	0.6	0.3
MO1S	9.0	3.6	19.6	0.8	12.5	1.2	0.5
MO2S	12.5	4.2	17.8	0.8	15.0	1.2	0.9
MO3S	14.5	5.3	23.8	0.8	20.0	1.2	1.1
MO5S	25.0	8.5	27.6	0.8	30.0	1.2	4.3



Construction
The tin oxide resistance element is deposited onto a high purity ceramic rod. End caps are force fitted and termination wires are welded to the end caps. The element is adjusted to the required resistance value by a helical cut; finally a cement protection is applied to the resistor body prior to marking with indelible ink.

Terminations
Material Resistor sizes up to and including the MO3S use solder coated copper terminations. MO4S and MO5S use solder coated steel cored terminations.

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
MO1/2S, MO1S, MO2S and MO3S resistors are colour coded with four bands. IEC 62 colours are used. For larger sizes type reference, resistance value and tolerance are legend marked. The resistance value marking conforms to IEC 62.

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.

General Note
Welwyn Components reserves the right to make changes in product specification without notice or liability.
All information is subject to Welwyn's own data and is considered accurate at time of going to print.

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Performance Data

		Maximum
Load at rated power: 1000 hrs at 70°c	ΔR%	5
Shelf life: 12 months at room temperature	ΔR%	2
Derating		See derating curve
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 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.

3. MO-S resistors can also be supplied pre-formed. See lead form section for details.

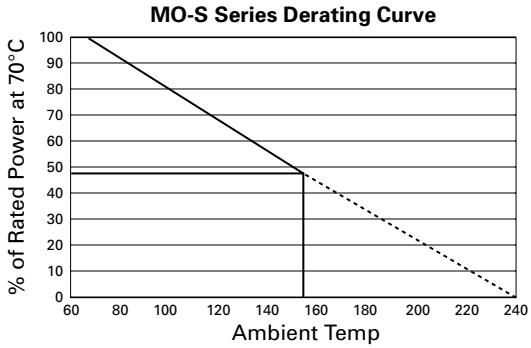


Figure 1

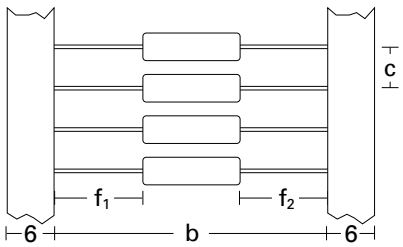
Packaging

Our standard packaging for MO1/2S, MO1S, MO2S and MO3S is taped and ammo packed, MO5S is taped and reeled. The critical dimensions are shown in Figure 1.

The component wires will not protrude beyond the outside edge of the tapes.

Pre-formed resistors are supplied loose packed in plastic bags or boxes.

Alternative packaging available by request.



Body Location $f_1 - f_2 \leq 1.4$ mm

Type	MO1/2S	MO1S	MO2S	MO3S	MO5S
b	52	52	52	67	85
c	5	5	5	10	10

Standard Quantities Per Package

Type	MO1/2S	MO1S	MO2S	MO3S	MO5S
Reel	5000	2500	2500	1000	700
Ammo pack	5000	2500	1500	1000	n/a

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