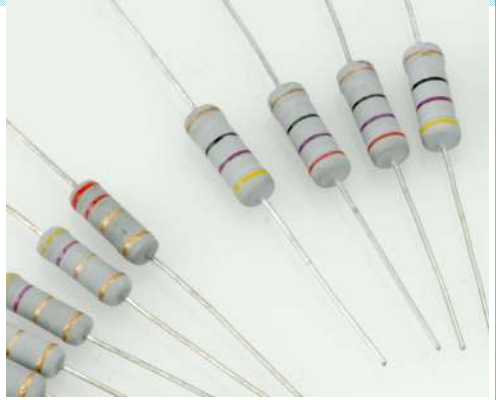


FLAMEPROOF FUSIBLE RESISTORS

Series : MFF & MFFS

Features:

- Suitable to apply in transistor protection circuit.
- Small in sizes with low cost.
- Non combustible insulating coat, solvent proof & excellent application in high temperature.
- Good TCR **±200 ppm/°C**
- Uniform in fusing time.
- Film & wire wound elements available as per requirement.
- **RoHS** Compliant directive 2002/95/EC
- Miniature Size available for space savings.

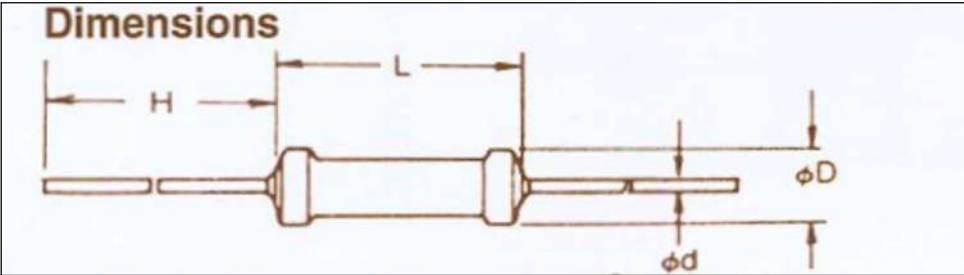


Technical specification:

DESCRIPTION	GENERAL SERIES				MINIATURE SERIES			
	MFF25	MFF50	MFF100	MFF200	MFFS50	MFFS100	MFFS200	MFFS300
Resistance range	1Ω ~ 10KΩ							
Resistance tolerance	±1%, E24/E96 series; ±2% & ±5%, E24 series							
Temperature coefficient*	100 ppm/°C ~ 200 ppm/°C							
Maximum dissipation @ 70°C	0.25W	0.5W	1W	2W	0.5W	1W	2W	3W
Maximum permissible voltage	250 V	350V	500V	500V	350V	500	500	500
Operating temperature range	-40° ~ +235°							
Stability, R max.								
Load	Δ R±(5.0% +0.05Ω)							
Climatic test	Δ R±(1.5% +0.05Ω)							
Soldering	Δ R±(1.0% +0.05Ω)							
Short time overload	Δ R±(2.0% +0.05Ω)							

* NOTE:- Low TCR available on Request

Dimensions :



Physical Data:

1.0 GENERAL SERIES SPECIFICATION :

TYPE	WATT. @ 70°C	TOL.	TCR PPM/°C	DIMENSIONS (mm)				RESISTANCE RANGE	MAX. WORKING VOLTAGE	MAX. OVERLOAD VOLTAGE	DIELECTRIC WITHSTANDING VOLTAGE
				L	D	d ± 0.05	H				
MFF25	0.25W	±1%, ±2% & ±5%	100 ~ 200	6.3± 0.5	2.3 ±0.2	0.6	25 min	1 Ω ~ 10KΩ	250V	500 V	500V
MFF50	0.5W	±1%, ±2% & ±5%	100 ~ 200	9.5± 1	3.5 ±0.5	0.6	25 min	1 Ω ~ 10KΩ	350V	700 V	700V
MFF100	1W	±1%, ±2% & ±5%	100 ~ 200	12± 1	4.5 ±0.5	0.78	24 min	1 Ω ~ 10KΩ	500V	1000 V	1000V
MFF200	2W	±1%, ±2% & ±5%	100 ~ 200	16± 1	5.0 ±0.5	0.78	25 min	1 Ω ~ 10KΩ	500V	1000 V	1000V

Note : Working voltage is $\sqrt{P \times R}$ where P is power & R is resistance in Ohms

2.0 MINTURE SERIES SPECIFICATION:

TYPE	WATT. @ 70°C	TOL.	TCR PPM/°C	DIMENSIONS (mm)				RESISTANCE RANGE	MAX. WORKING VOLTAGE	MAX. OVERLOAD VOLTAGE	DIELECTRIC WITHSTANDING VOLTAGE
				L	D	d ± 0.05	H				
MFFS50	0.5W	±1%, ±2% & ±5%	100 ~ 200	6.3± 0.5	2.3 ±0.2	0.6	25 min	1 Ω ~ 10KΩ	350V	700 V	700V
MFFS100	1W	±1%, ±2% & ±5%	100 ~ 200	9.5± 1	3.5 ±0.5	0.6	25 min	1 Ω ~ 10KΩ	500V	1000 V	1000V
MFFS200	2W	±1%, ±2% & ±5%	100 ~ 200	12± 1	4.5 ±0.5	0.78	24 min	1 Ω ~ 10KΩ	500V	1000 V	1000V
MFFS300	3W	±1%, ±2% & ±5%	100 ~ 200	16± 1	5.0 ±0.5	0.78	25 min	1 Ω ~ 10KΩ	500V	1000 V	1000V

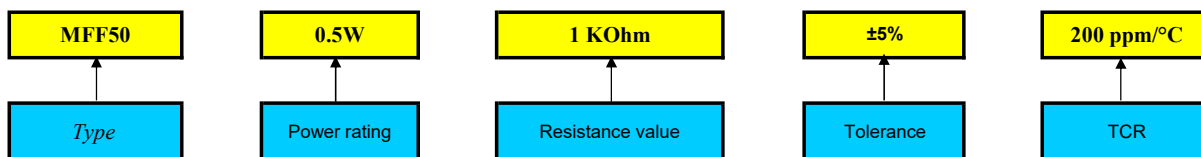
Note : Working voltage is $\sqrt{P \times R}$ where P is power & R is resistance in Ohms

Marking:

The MFF & MFFS series / type, the nominal resistance & tolerance are marked on the resistor body using four or five coloured bands in accordance with IEC publication 60062 "color codes for fixed resistors"

Part Numbering Information:

Part Number : Type number, power rating, resistance value, tolerance, tcr.



Examples: PART NO. : MFF50, 0.5W, 1 KOhm, ±5%, 200ppm/°C

Packing Information:

TYPE	Pcs Per Poly Bag/ Blue box	Pcs Per Brown Box	Pcs Per Real
MFF25 / MFFS50	1,000	5,000	5000
MFF50 / MFFS100	500	2,500	2500
MFF100 / MFFS200	---	1,500	2500
MFF200 / MFFS300	---	1,000	2500

Performance Data (Procedure & Requirements):

TEST	PROCEDURE	REQUIREMENTS
Robustness Of Termination 1. Tensile Test 2. Bend Test 3. Torsion Test	Load 10 N for 10 sec. Load 5 N 90°, 180°, 90° 3 X 360° in opposite directions	No visual damage No visual damage No visual damage ΔR/R max.: ±(0.5% +0.05 Ω)
Solderability Test	16 hrs steam or 16 hrs. at 155°C 2 sec. ±0.5 sec. in solder at 260° ±5°C Using flux	>95% coverage covered (good tinning) & no damage
Temperature Cycling	30 minutes at -40°C & 30 minutes at 85°C Total 5 number of cycles.	No visual damage ΔR/R max.: ±(1.0% +0.05 Ω)
Short Time Overload	2.5 X Rated voltage for 5 sec. @ 25°C	ΔR/R max.: ±(2.0 +0.05 Ω)
Endurance @ 70°C	2000 hrs. load with Pn (power nominal) 1.5 hr. ON & 0.5 hr. OFF	No visual damage ΔR/R max.: ±(5.0% +0.05 Ω)
Endurance @ Upper Category Temperature	1000 hrs. at 150°C with no load	No visual damage ΔR/R max.: ±(5.0% +0.05 Ω)
Temperature Rise Test	Horizontally mounted, loaded with Pn	Hot spot temperature less than maximum body temperature
Incombustibility	16 times of rated wattage for 5 min.	not flamed
Damp Heat Steady State	56 days, 40°C; 90 to 95% Rh; dissipation ≤ 0.01Pn	No visual damage ΔR/R max.: ±(1.5% +0.05 Ω)
Temperature Coefficient	At 25/-40/25 °C & 25/150/25 °C	Within specified limits
Insulation Resistance	V- Block method for 1 minute duration. At 500 V dc	> 10 ³ MΩ
Voltage proof test	V- Block method for 1 minute duration At 500 V ac	No flash over or break down should observed

Fusing Characteristics:

Resistance Range	Fusing Power	
	MFF	MFFS
0.22 Ω ~ 1Ω	32 X Rated Power	16 X Rated Power
1.1 Ω ~ 2Ω	25 X Rated Power	16 X Rated Power
2.1 Ω ~ 10Ω	25 X Rated Power	16 X Rated Power
11 Ω ~ 10KΩ	25 X Rated Power	16 X Rated Power

Fusing Time : within 60 sec.

Note : Special fusing time according to customer's spec is also available.

Derating :

