

HIGH STABILITY MOULDED RADIAL RESISTORS

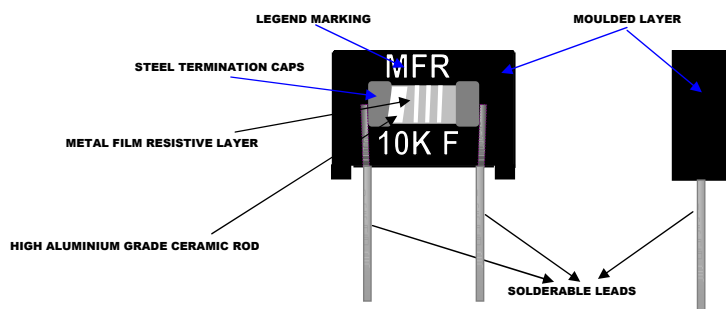
Series : MRR

Features:

- Very high tolerance **$\pm 0.01\% \sim 1\%$**
- Very low temperature co-efficient upto **5 ppm/°C**
- Electrical insulation **$>10^6 M\Omega$**
- Very high stability
- Available ranges from **5 Ohm ~ 1 M Ohms.**
- **RoHS** Compliant directive 2002/95/EC
- Lead (Pb)-free solder contacts.

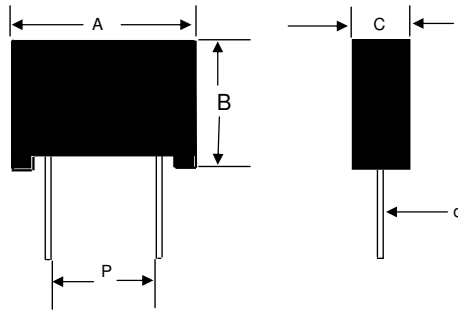


Construction :



Technical specification:

DESCRIPTION	SERIES		
	MRR50	MRR75	MRR100
Resistance range	10Ω ~ 1MΩ		
Resistance tolerance	$\pm 0.01\% \sim 1\%$		
Temperature coefficient	5 ppm/°C ~ 100 ppm/°C		
Maximum dissipation @ 70°C	0.5W	0.75W	1W
Maximum permissible voltage	350 V	350 V	500 V
Climatic category	55/155/56		
Stability, R max.			
Load	$\Delta R \pm (0.5\% + 0.01\Omega)$		
Climatic test	$\Delta R \pm (0.5\% + 0.01\Omega)$		
Soldering	$\Delta R \pm (0.1\% + 0.01\Omega)$		
Short time overload	$\Delta R \pm (0.2\% + 0.01\Omega)$		

Dimensions :**Physical Data:****1.0 SPECIFICATION :**

TYPE	WATT. @ 70°C	TOL.	TCR	DIMENSIONS (mm)					RESISTANCE RANGE	MAX. WORKING VOLTAGE	MAX. OVERLOAD VOLTAGE
			PPM/°C	A	B	C	d ± 0.05	P			
MRR50	0.5W	±0.01% ~ ±1%	10 ~ 100	14 ± 0.5	10.5 ±0.5	5 ± 0.3	0.6	10 ± 1	10 Ω ~ 1MΩ	350V	700 V
MRR75	0.75W	±0.01% ~ ±1%	10 ~ 100	14 ± 0.5	10.5 ±0.5	5 ± 0.3	0.6	10 ± 1	10 Ω ~ 1MΩ	350V	700 V
MRR100	1W	±0.01% ~ ±1%	10 ~ 100	14 ± 0.5	10.5 ±0.5	5 ± 0.3	0.6	10 ± 1	10 Ω ~ 1MΩ	500V	1000 V

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

Marking:

The MRR type the nominal resistance & tolerance are marked on the resistor body using **LEGEND** marking

i.e Logo, type no., resistance value & tolerance.

e.g MFR

MRR75

100E F

Material Specifications:

Element : Vacuum-deposited nickel-chrome alloy

Core : Fire cleaned high purity ceramic

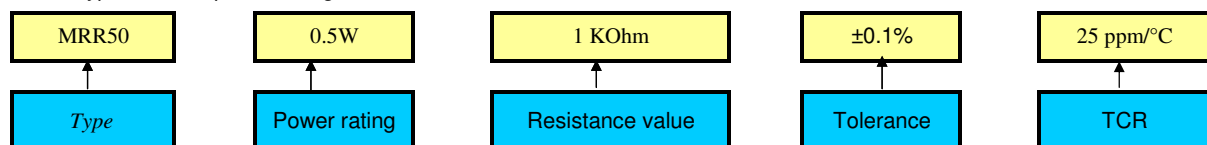
End caps : Steel caps

Encapsulation : Specially formulated epoxy compound

Standard Lead Terminals : Solderable - solder coated copper

Part Numbering Information:

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



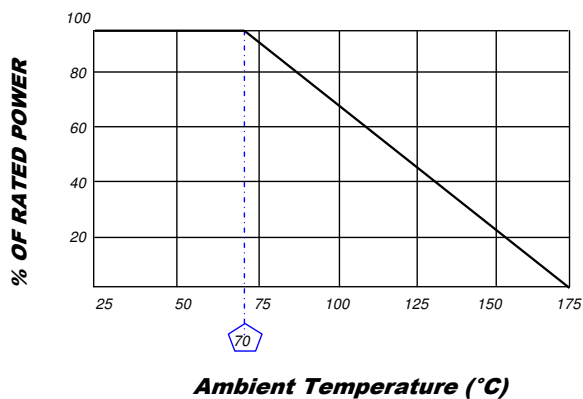
Examples: PART NO. : MRR50, 0.5W, 1 KOhm, ±0.1%, 25ppm/°C

Packing Information:

TYPE	Pcs Per Poly Bag
MRR50	100
MRR75	100
MRR100	100

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 $\Delta R/R$ max.: $\pm(0.2\% + 0.01 \Omega)$
Solderability Test	16 hrs steam or 16 hrs. at 155°C 2 sec. ± 0.5 sec. in solder at 235° $\pm 5^\circ\text{C}$ Using flux	>95% coverage covered (good tinning) & no damage
Resistance To Soldering Heat	at 350°C for 3 sec., 2.5mm from the body	$\Delta R/R$ max.: $\pm(0.1\% + 0.01 \Omega)$
Temperature Cycling	30 minutes at -55°C & 30 minutes at 150°C Total 5 number of cycles.	No visual damage $\Delta R/R$ max.: $\pm(0.2\% + 0.01 \Omega)$
Dry Heat Test	16 hrs at 150°C	$\Delta R/R$ max.: $\pm(0.5\% + 0.01 \Omega)$
Cold Test	2 hrs at -55°C	$\Delta R/R$ max.: $\pm(0.2\% + 0.01 \Omega)$
Short Time Overload	2.5 X Rated voltage for 5 sec. @ 25°C	$\Delta R/R$ max.: $\pm(0.2 + 0.01 \Omega)$
Endurance @ 70°C	1000 hrs. load with Pn (power nominal) 1.5 hr. ON & 0.5 hr. OFF	No visual damage $\Delta R/R$ max.: $\pm(0.5\% + 0.01 \Omega)$
Endurance @ Upper Category Temperature	1000 hrs. at 175°C with no load	No visual damage $\Delta R/R$ max.: $\pm(0.5\% + 0.01 \Omega)$
Shock (Medium Impact)	1Km/S ²	$\Delta R/R$ max.: $\pm(0.20\% + 0.01 \Omega)$
Vibration (High Frequency)	10 to 2000 Hz: m/S ²	$\Delta R/R$ max.: $\pm(0.20\% + 0.01 \Omega)$
Temperature Rise Test	Horizontally mounted, loaded with Pn	Hot spot temperature less than maximum body temperature
Damp Heat Steady State	56 days, 40°C; 90 to 95% Rh; dissipation $\leq 0.01\text{Pn}$	No visual damage $\Delta R/R$ max.: $\pm(0.5\% + 0.01 \Omega)$
Temperature Coefficient	At 25/-55/25 °C & 25/150/25 °C	Within specified limits
Insulation Resistance	V- Block method for 1 minute duration At 500 V dc	$> 10^4 \text{ M}\Omega$
Voltage proof test	V- Block method for 1 minute duration At 500 V	No flash over or break down should observed

Derating Curve:

MFR reserves the right to make changes in product specification without notice or liability.

All information is subject to MFR's own data & is considered accurate at the time of going to print.

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