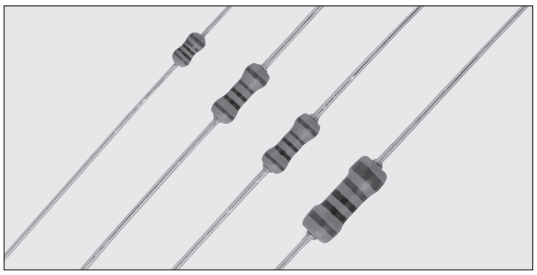
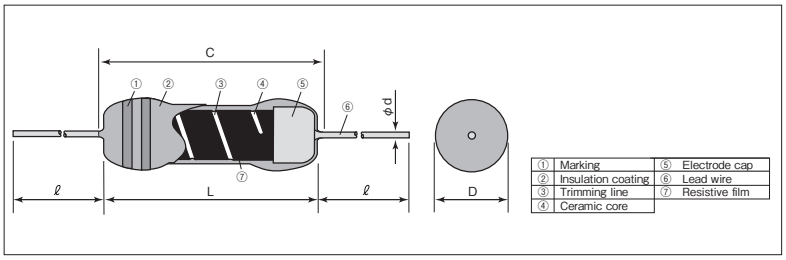
EU RoHS

MF Coat-Insulated Fixed Metal Film Resistors



Coating color : Light gray
Marking : Color code

■Construction



■Features

- High precision and low T.C.R. metal film resistors.
- Automatic insertion is applicable.
- Various formings are available.
- Excellent stability for a long time.
- Products meet EU-RoHS requirements.

■Reference Standards

IEC 60115-1
JIS C 5201-1
EIAJ RC-2137

■Dimensions

Type	Dimensions (mm)					Weight (g) (1000pcs)
	L	C Max.	D	d (Nominal)	ℓ ±3※1	
MFS1/4	3.2±0.2	3.4	$1.7^{+0.2}_{-0.1}$	0.45	28	120
MF1/4	6.3±0.5	7.1	2.3±0.3	0.6		215
MFS1/2						215
MF1/2	9.0±1.0	11.1	3.5±0.4			360

※1 Lead length changes depending on taping and forming type.

■Type Designation

Example

MF	1/4	D	C	T52	A	1002	F
Product Code	Power Rating	T.C.R. (×10⁻⁶/K)	Terminal Surface Material	Taping & Forming	Packaging	Nominal Resistance	Resistance Tolerance
	S1/4 : 0.25W 1/4 : 0.25W S1/2 : 0.5W 1/2 : 0.5W	C : ±50 D : ±100 L : ±200	C : SnCu	See table below	A : AMMO R : REEL Nil: BOX	D, F : 4 digits G : 3 digits	D : ±0.5% F : ±1% G : ±2%

Contact us when you have control request for environmental hazardous material other than the substance specified by EU-RoHS.
For further information on taping and forming, please refer to APPENDIX C on the back pages.

■Taping & Forming Matrix

Type	Axial Taping		Radial Taping				U Forming	M Forming				
	T26	T52	VT	VTP	VTE	MT	U	M5		M10	M12.5	M15
MFS1/4□C	○	○	○	–	–	○	○	M5F	M5R	–	–	–
MF1/4□C	○	○	○	○	○	–	○	–	–	M10F	M12.5R	–
MFS1/2□C	○	○	○	○	○	–	–	–	–	M10R	–	–
MF1/2□C	–	○	–	–	–	–	–	–	–	–	M12.5R	M15R

□ : T.C.R.

■Ratings

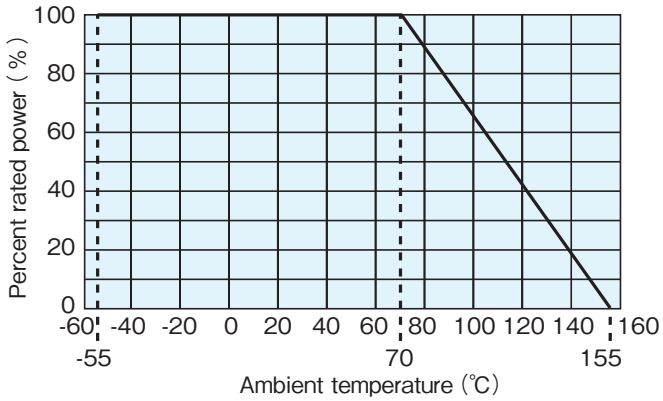
Type	Power Rating	T.C.R. (×10⁻⁶/K)	Resistance Range (Ω)			Max. Working Voltage	Max. Overload Voltage	Dielectri Withstanding Voltage	Taping & Q'ty/AMMO (pcs)	
			D : ±0.5% E24・E192	F : ±1% E24・E96	G : ±2% E24				T26A	T52A
MFS1/4CC	0.25W	C : ±50	49.9～562k	10～1M	–	250V	500V	300V	3,000	3,000
MFS1/4DC		D : ±100							3,000	3,000
MF1/4CC	0.25W	C : ±50	10～2.21M	10～2.21M	–			500V	2,000	2,000
MF1/4DC		D : ±100							2,000	2,000
MF1/4LC		L : ±200	–	1.0～10	0.51～10				2,000	2,000
MFS1/2CC	0.5W	C : ±50	10～1M	10～2.2M	10～2.2M	350V	700V		2,000	2,000
MFS1/2DC		D : ±100							2,000	2,000
MF1/2CC	0.5W	C : ±50	10～5.05M	10～4.99M	–			700V	–	2,000
MF1/2DC		D : ±100		10～5.11M						2,000
MF1/2LC		L : ±200	–	1.0～10	0.51～10					2,000

Rated Ambient Temperature : +70℃
Operating Temperature Range : −55℃～+155℃
Rated voltage = $\sqrt{\text{Power Rating} \times \text{Resistance value}}$ or Max. working voltage, whichever is lower.

Specifications given herein may be changed at any time without prior notice. Please confirm technical specifications before you order and/or use.
Contact our sales representatives before you use our products for applications including automotives, medical equipment and aerospace equipment.
Malfunction or failure of the products in such applications may cause loss of human life or serious damage.

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■Derating Curve



For resistors operated at an ambient temperature of 70℃ or higher, the power shall be derated in accordance with the above derating curve.

■Performance

Test Items	Performance Requirements ΔR±(%+0.05Ω)		Test Methods
	Limit	Typical	
Resistance	Within specified tolerance	—	25℃
T.C.R.	Within specified T.C.R.	—	+25℃/+125℃
Overload (Short time)	0.5	0.3	Rated voltage×2.5 or Max. overload vol., whichever is lower, for 5s : MFS1/4, MF1/4, MF1/2 Rated voltage×2 or Max. overload vol., whichever is lower, for 5s : MFS1/2
Resistance to soldering heat	0.75 : MFS1/4 0.5 : MF1/4, MFS1/2, MF1/2	0.4 : MFS1/4 0.25 : MF1/4, MFS1/2, MF1/2	260℃±5℃, 10s±1s
Rapid change of temperature	1.0	0.3	−55℃ (30min.) /+155℃ (30min.) 5 cycles
Moisture resistance	1.5 : MFS1/4 1 : MF1/4, MFS1/2, MF1/2	1 : MFS1/4 0.75 : MF1/4, MFS1/2, MF1/2	40℃±2℃, 90%~95%RH, 1000h 1.5h ON/0.5h OFF cycle
Endurance at 70℃	1.5 : MFS1/4 1 : MF1/4, MFS1/2, MF1/2	1 : MFS1/4 0.75 : MF1/4, MFS1/2, MF1/2	70℃±2℃, 1000h 1.5h ON/0.5h OFF cycle

■Precautions for Use

- Ionic impurities such as flux etc. that are attached to these products or those mounted onto a PCB, negatively affect their moisture resistance, corrosion resistance, etc. The flux may contain ionic substances like chlorine, acid, etc. Please wash them to get rid of these ionic substances especially when using lead-free solder that may contain much of the said substances for improving a wetting characteristic. Using RMA solder or RMA flux, or well-washing is needed. Also, attaching ionic substances such as perspiration, salt etc. by storage environments or mounting conditions/environments negatively affects their moisture resistance, corrosion resistance etc. Please wash them to remove the ionic substances when they are polluted.

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