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Materials & Features

EIA standard color coding
Flame retardant type available
Low noise & voltage coefficient
Low temperature coefficient range
Wide precision range in a small package
Too low or too high ohmic value can be supplied on a case-to-case basis
Nichrome resistor element provides stable performance in various environments
Multiple epoxy coating on vacuum-deposited metal film provides superior moisture protection

Explanation of Part Number and Ordering Procedure

1	2	3	4	5	6	7	8	9	10	11	12
B											

Resistor type
Coated Resistors

Serial Code
M ~ Precision metal film fixed resistors.
N ~ Non-Flame precision metal film fixed resistor

Resistance tolerance
B ~ 0.1%
C ~ 0.25%
D ~ 0.5%
F~1%
G~2%
Y ~ 5%

power rating
W8 ~ 1/ 8W, S4 ~ 1/ 4W-S,
W4 ~ 1/ 4W, S2 ~1/ 2W-S,
W2 ~ 1/ 2W, X6 ~ 0.6WS,
1W~1W, Y4~0.4W-SS
2W~2W, T2 ~1/ 2W-SS,
3W~3W

Nominal Resistance Value
2.E–6, E–12, E–24 series
a) Normally, for these series, the box no. 6 is “0”.
b) Boxes No.7 & 8 are for the Ohmic Value.
c) Box No.9 is for the multiplier or indication for no. or zeros.
3.E–96 series
a) Boxes No.6 to 8 are for the Ohmic Value.
b) Box No.9 is for the multiplier or indication for no. or zeros.
Decimal point is expressed by:
“J”–0.1, “K”–0.01, “L”–0.001
Ex : 2.26 ~ 226K, 226 ~ 2260

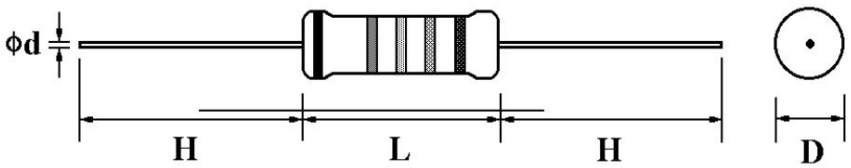
packing type
A ~ Tape/Box
B ~ Bulk/Box
T ~ Tape/Reel

assistance code
Usually is “0”
Shaft: F(3)Type = 3
AVI(2) = 2 etc.

Suffix For Special Features
F~F Type, 0 ~ PT-52mm
M~M Type, 1~PT-26mm
P~Panasert, 8~PT-58mm
T~T Type, 9~PT-64mm
V ~ AVI Type

Note: Special TCR requirements can be supplied on a case-to-case basis. Please indicate when ordering.

Dimension



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ROYAL OHM

Precision Metal Film Fixed Resistors

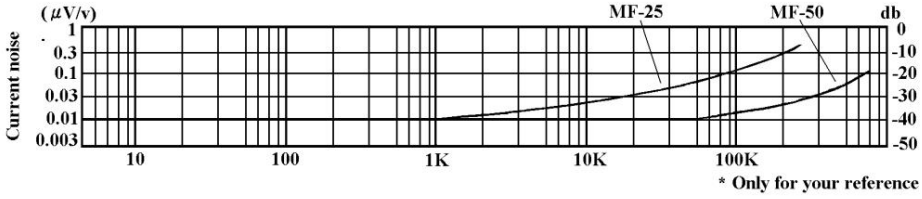
Normal Size						Small Size					
Part no.	Style	Power Rating at 70 ℃	Dimension (mm) D Max.	L Max.	d +0.02 -0.05	H±3	part no.	Style	Power Rating at 70 ℃	Dimension (mm) D Max.	L Max.	d +0.02 -0.05	H±3
BMW8	MF-12	1/ 8W (0.125W)	1.85	BMW4	MF-25	3.5	0.5	28	BMS4	MF-25-S	1/4W (0.25W)	1.85	3.5	0.5	28
1/ 4W (0.25W)			2.5	6.8	0.6	28	BNY4	MF-40-SS	0.4W	1.9	3.7	0.5	28
BMW2	MF-50	1/ 2W (0.5W)	3.5	10.0	0.6	28	BMS2	MF-50-S	1/ 2W (0.5W)	3.0	9.0	0.6	28
BM1W	MF-100	1W	5.0	12.0	0.8	28	BNT2	MF-50-SS	1/ 2W (0.5W)	2.5	6.8	0.6	28
BM2W	MF-200	2W	5.5	16.0	0.8	28	BMX6	MF-60-S	0.6W	2.5	6.8	0.6	28
BM3W	MF-300	3W	6.5	17.5	0.8	28							

General Specification

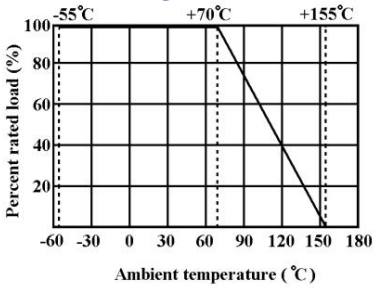
part no.	Style	Dielectric With-standing V.	max. Working voltage	max. Overload voltage	resistance tolerance	TCR	Resistance Range	Special Order Resistance tolerance	Special Order TCR	Special Order Resistance Range
BMW8	MF-12	400V	200V	400V	± 5%	± 200 PPM/ °C	1 ÿ ~ **1Mÿ**	± 0.25%	± 15PPM/ °C	51.1ÿ~200Kÿ
BMS4	MF-25-S				± 2%	± 100 PPM/ °C	10ÿ ~ 1Mÿ	± 0.5%	± 25PPM/ °C	51.1ÿ~511Kÿ
BNY4	MF-40-SS	200 V	200 V	400 V	± 1%	± 50 PPM/ °C	10ÿ ~ 1Mÿ		50PPM/ °C	±
BMW4	MF-25	500V	250V	500V	± 5%	± 200 PPM/ °C	**1ÿ** ~ **1Mÿ**	± 0.1%	± 15PPM/ °C	100ÿ~100Kÿ
BMX6	MF-60-S				± 2%	± 100 PPM/ °C	10ÿ ~ **1Mÿ**	± 0.25%	± 25PPM/ °C	51.1ÿ~330Kÿ
BNT2	MF-50-SS	250 V	250 V	500 V	± 1%	± 50 PPM/ °C	10ÿ ~ **1Mÿ**	± 0.5%	± 50PPM/ °C	10ÿ~1Mÿ
BMW2	MF-50	700V	350V	700V	± 5%	± 200 PPM/ °C	**1ÿ** ~ **1Mÿ**	± 0.1%	± 15PPM/ °C	100ÿ~330Kÿ
BMS2	MF-50-S				± 2%	± 100 PPM/ °C	10ÿ ~ **1Mÿ**	± 0.25%	± 25PPM/ °C	51.1ÿ~511Kÿ
					± 1%	± 50 PPM/ °C	10ÿ ~ **1Mÿ**	± 0.5%	± 50PPM/ °C	10ÿ~1Mÿ
BM1W	MF-100	1000V	500V	1000V	± 5%	± 200 PPM/ °C	10ÿ ~ **1Mÿ**	± 0.1%	± 15PPM/ °C	100ÿ~330Kÿ
BM2W	MF-200				± 2%	± 100 PPM/ °C	51.1ÿ ~ **1Mÿ**	± 0.25%	± 25PPM/ °C	51.1ÿ~511Kÿ
BM3W	MF-300				± 1%	± 50 PPM/ °C	51.1ÿ ~ **1Mÿ**	± 0.5%	± 50PPM/ °C	**51.1ÿ~1Mÿ**

Note: MF–xx–ss is Non-Flame coating.

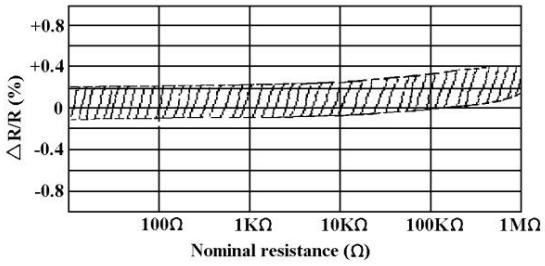
current noise level



Derating Curve



Load Life



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Performance Specifications

Characteristics	Test Methods	limits
Temperature coefficient JIS-C-5202 5.2	Natural resistance change per temp. degree centigrade. $\frac{R2-R1}{R1(t\,2-t\,1)} \times 10^{6}$ (PPM/ ℃) R1: Resistance value at room temperature (t1) R2: Resistance value at room temp. plus 100 (t 2) ℃	Within the temperature coefficient specified below **max. TCR** ± 15 PPM/ ℃ ± 100 PPM/ ℃ ± 25 PPM/ ℃ ± 200 PPM/ ℃ ± 50 PPM/ ℃
Dielectric withstanding voltage JIS-C-5202 5.7	Resistors shall be clamped in the trough of a 90 °metallic V block and shall be tested at ACpotential respectively specified in the above list for 60 + 10 / -0 seconds.	No evidence of flashover mechanical damage, arcing or insulation breaks down.
Temperature cycling JIS-C-5202 7.4	Resistance change after continuous five cycles for duty cycle specified **Step** 1 **temperature** / **Time** ÿ55 ±3 ℃ — 30 mins 2 — Room temp. — 10 - 15 minutes 3 — +155 ±3 ℃ — 30 mins 4 — Room temp. — 10 - 15 minutes	Resistance change rate is ± (1% + 0.05ÿ). No evidence of mechanical damage.
Short-time overload JIS-C-5202 5.5	Permanent resistance change after the application of a potential of 2.5 times RCWV for 5 seconds	Resistance change rate is ± (0.5% + 0.05ÿ). No evidence of mechanical damage.
pulse overload JIS-C-5202 5.8	Resistance change after 10,000cycles (1 second “on”, 25 seconds “off”) at 4 times RCWV.	Resistance change rate is ± (1% + 0.05ÿ). No evidence of mechanical damage.
Load life in humidity JIS-C-5202 7.9	Resistance change after 1,000 hours (1.5 hours “on”, 0.5 hour “off”) at RCWV in a humidity test chamber controlled at 40 ± 2 and 90 to 95% relative humidity.	**resistance value** — **△R/R** normal type — ± 1.5% Non Flame type — ± 5%
Load life JIS-C-5202 7.10	Permanent resistance change after 1,000 hours operating at RCWV with duty cycle of 1.5 hours “on”, 0.5 hour “off” at 70 ℃ ± 2 ℃ ambient	**resistance value** — **△R/R** normal type — ± 1.5% Non Flame type — ± 5%
Terminal strength JIS-C-5202 6.1	**Direct load:** Resistance to a 2.5 kgs direct load for 10 seconds in the direction of the longitudinal axis of the terminal leads. **Twist test:** Terminal leads shall be bent through 90 ° at a point of about 6mm from the body of the resistor and shall be rotated through 360 ° about the original axis of the bent terminal in alternating direction for a total of 3 rotations.	No evidence of mechanical damage.
Resistance to soldering heat JIS-C-5202 6.4	Permanent resistance change when leads immersed to 3.2 - 4.8mm from the body in 350 ± 10 solder for 3 ± 0.5 ℃ seconds	Resistance change rate is ± (1%+ 0.05ÿ). No evidence of mechanical damage.
Solderability JIS-C-5202 6.5	The area covered with a new, smooth, clean, shiny and continuous surface free from concentrated pinholes. test temp. of solder: 235 ± 5 ℃ Dwell time in solder: 3 +0.5/ -0 seconds	95% coverage Min.
Resistance to solvent JIS-C-5202 6.9	Specimens shall be immersed in a bath of trichroethane completely for 3 mins with ultrasonic.	No deterioration of protective coating and markings.

*RCWV = Rated Continuous Working Voltage = Rated Power × Resistance Value