

METAL FILM RESISTORS

1. GENERAL INSTRUCTION:

1-1 SCOPE

This specification applies to the Metal Film Resistors.

1-2 CLASSIFICATION

Type	number	is	described	as	follows:	
MF	1/4W		T	I50K	OHM	F(±1%)
<u>CLASS</u>	<u>POWER RATING</u>		<u>SHAPE</u>	<u>NOMINAL</u>		<u>TOLERANCE</u>
				RESISTANCE		
				VALUE		

2. NOMINAL RESISTANCE:

The nominal resistance shall be the resistance marked on the resistor body and identified, as a Rule, in units , Ω K Ω , M Ω .

3. NOMINAL RESISTANCE TOLERANCE.

The nominal resistance tolerance is represented in one capital letter selected from F(±1%), D(±0.5%), C(±0.25%), B(±0.1%), K(±10%).

4 .RATING:

MF (METAL FILM FIXED RESISTORS)

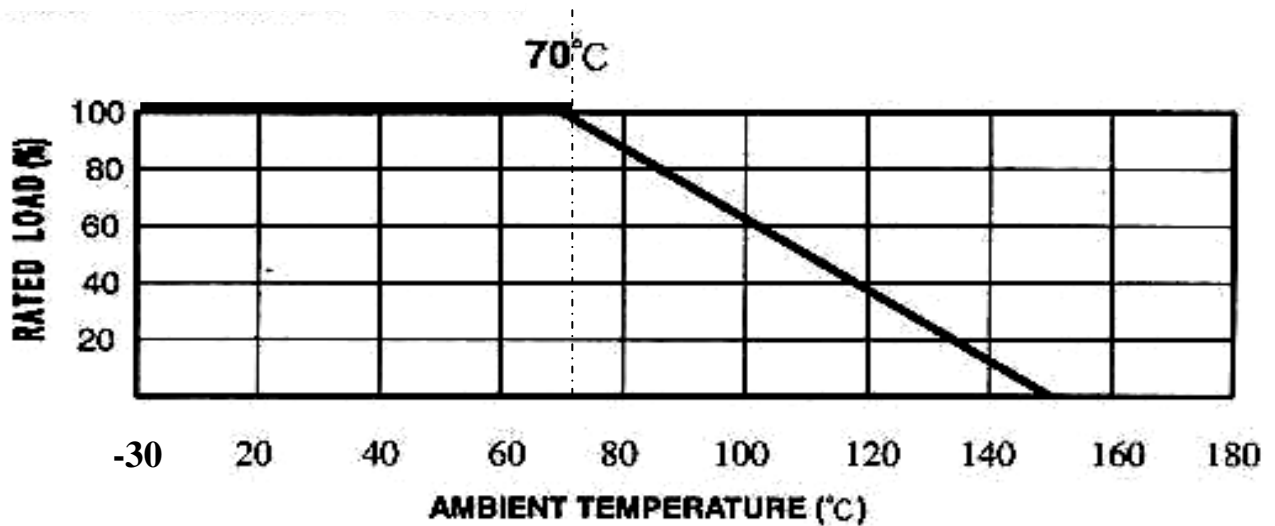
STYLE	MAX WORKING	MAX OVERLOAD	DIELECTRIC WITHSTANDING	RESISTANCE VALUE RANGE
MF1/8W.1/4WS. 1/2WSS	200V	400V	300V	1 Ω – 10M Ω
MF1/4W / I/4WS	250V	500V	500V	1 Ω – 10M Ω
MF1/2W / 1/2WS	350V	700V	700V	1 Ω – 10M Ω
MF1W / 1WS	500V	1000V	1000V	1 Ω – 10M Ω
MF2W / 2WS	500V	1000V	1000V	1 Ω – 10M Ω
MF3W / 3WS	500V	1000V	1000V	1 Ω – 10M Ω
MF5W / 5WS	500V	1000V	1000V	1 Ω – 10M Ω

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4 – 1. POWER RATING

Power rating is defined as maximum power rating continuously applied under ambient

temperature at 70°C .when the ambient temperature exceeds 70°C ,use chart 1.



4 – 2 RATED VOLTAGE

Rated voltage is defined as the DC or AC (effective

Value at commercial frequency example 50 C/S,60 C/S)

Voltage when rated power is applied and can be calculated

By the following EQUATIONE = \sqrt{PR}

E=RATED VOLTAGE

P=RATED POWER (WATTS)

R=NOMINAL RESISTANCE VALUE (OHM)

When the calculated rated voltage exceeds the

Maximum usable voltage flue shown in CHART 1,the

Maximum usable voltage is defined as the voltage

According to the power-decreasing curve shown in CHART1.

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	PERFORMANCE AND/OR QUALIITY ACCEPTANCE	TEST METHOD
Resistance value Vs Temperature Characteristics	$\pm 10-50\text{PPM}/^{\circ}\text{C}$	<p>JIS-C-5202 5.2</p> <p>Measure resistance (Ro ohm) at room Temperature(T_0 °C)</p> <p>Measure again the same at 100°C Higher then room temperature</p> $\text{PPM} = \frac{R - R_0}{R_0} * \frac{10^6}{(T_0+100) - T_0}$
ITEM (STANDARD)	PERFORMANCE AND/OR QUALIITY ACCEPTANCE	TEST METHOD
Short time overload	The resistance variation shall be within $\pm(0.5\% + 0.05\text{ohm})$ and there Shall be no mechanical breakage	<p>JIS-C-5202 5.5</p> <p>Apply DC voltage 2.5times the rated Voltage for 5 seconds</p> <p>The leave at room temperature for 30 Minutes then measure MAX overload Voltage 0.50W – 700V (DC)</p>
Insulation resistance	10,000M ohm or more	<p>JIS-C-5202 5.6 in V-BLOCK</p> <p>Lay the resistor on 90° angle metal V Block apply 500VDC between resistor Lead and V block for one Minute And Measure</p>
Voltage endurance	The resistance variation shall be within $\pm(0.5\% + 0.05\text{ohm})$ and there shall Be no mechanical breakage	<p>JIS-C-5202 5.7</p> <p>Icy the resistor on the 90° angle metal V Block and apply reamed AC voltage for One Minute. Test voltage 0.25W – 500V (AC) 0.50W –700V(AC)</p>
Intermittent overload	Resistance variation shall be Within $\pm(0.50\% + 0.05\text{ohm})$	<p>JIS-C-5202 5.8</p> <p>Apply AC voltage 4 times the rated voltage for 1 second and rest for 25 seconds and Repeat this cycle for 10000\pm200times leave resistor 30 minutes at room temperature after test and measure</p> <p>Maximum voltage for intermittent Overload.0.50W – 700V(AC)</p>
Terminal strength	Resistance variation shall be within $\pm(0.5\% + 0.05\text{ohm})$ also there Shall be on mechanical breakage	Pull test apply 2.5kg force to the lead in the direction of lead axisfor30 \pm 5 seconds.

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Heat resistively Against soldering	Resistance variation shall be within \pm (0.25%+0.05ohm) also there shall be on mechanical breakage	JIS-C-5202 7.10 Dip the lead in to a solder bath having a Temperature of $350^{\circ}\text{C} \pm 10^{\circ}\text{C}$ up to $4\pm 0.8\text{mm}$ from the body of the resistor and hold it for 3 ± 0.5 seconds leave the resistor at room temperature 3 hours after ,then Measure
Load life test	The variation of the resistance shall be within \pm (1.5%+0.05ohm) Also there shall be no mechanical Breakage	JIS-C-5202 7.10 In the constant temperature chamber having Temperature $70^{\circ}\text{C} \pm 2^{\circ}\text{C}$,apply rated Dc voltage for 1.5hour and shut voltage for 0.5 hour and repeat this cycle for 1000 hours,leave in room temperature hour after test, then measure
EM (STANDARD)	PERFORMANCE AND/OR QUALITY ACCEPTANCE	TEST METHOK
Solder ability	More than 95% of the surface of the lead shall be covered by new solder after the leads are dipped in the Solder	JIS-C-5202 6.5 Dip the lead in to a solder bath having a Temperature of $260^{\circ}\text{C} \pm 5^{\circ}\text{C}$ up to $4\pm 0.8\text{mm}$ from the body of the resistor and hold it for 5 ± 0.5 seconds then inspect
Humidity load test	Resistance variation be Within \pm (1.5% + 0.05ohm) Also there shall be no mechanical breakage	JIS-C-5202 7.9 In temperature chamber having temperature $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$,relative humidity 90 – 95%,Apply rated voltage 1.5hour and shut voltage 0.5 hour repeat this cycle for 1000 hours, leave in room temperature for hour after test, then measure