

METAL GLAZE FILM FIXED RESISTORS

Features

- Small in dimension and broad range in high resistance
- Metal glaze resistor elements provide high stable performance against environmental conditions and overload
- Excellent in absorption of electric shock (Pulse, Surge voltage)
- Approved to IEC 60065 safety requirements (VDE),
Recognized by UL1676 (File #E245052)



Ordering Procedure: (Ex.: MGR 1W, +/-5%, 470KΩ, T/B-1000, Non - Flame)

M	G	R	F	1	W	J	0	4	7	4	A	1	8	
Resistor Type: MGR = Metal Glaze Film Fixed Resistors			Wattage: W4 = 1/4W, W2 = 1/2W, 1W = 1W, 2W = 2W			Resistance Value: <ul style="list-style-type: none"> • E-24 series: the 1st digit is "0", the 2nd & 3rd digits are for the significant figures of the resistance and the 4th indicate the number of zeros. "J" ~ 0.1, "K" ~ 0.01 Ex. 4.7Ω ~ 47J, 4.7KΩ ~ 472 • E-96 series: The 1st to 3rd digits are significant figures of resistance and the 4th one denotes number of zeros. Ex. 1.33 KΩ = 1331 			Packing Type: A = Tape/Box T = Tape/Reel B = Bulk/Box P = Tape/Box of PT-26 product			Packing Qty: 1 = 1,000 PCS 2 = 2,000 PCS 4 = 4,000 PCS 5 = 5,000 PCS A = 500 PCS 0 = for Bulk/Box packing		
Special Feature: 0 = UL Epoxy Paint (Only For MGR 0.25W) F = UL Non-Flame Paint			Tolerance: F = ±1%, G = ±2%, J = ±5%											

* More explanation on part no, please see details on pages 79-80.

Performance Specifications

Temperature coefficient	≤ ±200PPM/°C
Short-time overload	ΔR/R ≤ ±(1.0% + 0.05Ω), with no evidence of mechanical damage.
Dielectric withstanding voltage	No evidence of flashover, mechanical damage, arcing or insulation breakdown.
Pulse overload	ΔR/R ≤ ±(2.0% + 0.05Ω), with no evidence of mechanical damage.
Terminal strength	No evidence of mechanical damage.
Resistance to soldering heat	ΔR/R ≤ ±(1.0% + 0.05Ω), with no evidence of mechanical damage.
Solderability	Min. 95% coverage
Resistance to solvent	No deterioration of protective coating and markings.
Temperature cycling	ΔR/R ≤ ±(1.0% + 0.05Ω), with no evidence of mechanical damage.
Load life in humidity	ΔR/R ≤ ±(5.0% + 0.05Ω), with no evidence of mechanical damage.
Load life	ΔR/R ≤ ±(5.0% + 0.05Ω), with no evidence of mechanical damage.
Surge withstanding voltage	ΔR/R ≤ ±(20.0% + 0.05Ω), with no evidence of mechanical damage.

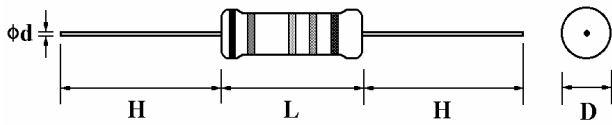
Additional Information:

- 0 = PT-52 mm, NIL for PT-26
- 8 = PT-58 mm
- 9 = PT-64 mm

*More details, please see pages 77-78.

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Dimension (mm)



- 5 color code band for $\pm 5\%$ tolerance and last band Black color for identification
- Standard 5 color code band for $\pm 1\%$ tolerance
- UL Epoxy Paint (Only For MGR 0.25W)
- UL Non-Flame Paint (For MGR 0.5W, 1W, 2W)

Part No.	Style	Power Rating at 70°C	Dimension (mm)			
			D Max.	L Max.	d ± 0.05	H ± 3
MGR0W4	MGR -25	1/4W (0.25 W)	2.7	7.0	0.60	28
MGRFW2	MGR -50	1/2W (0.5 W)	3.8	10.0	0.60	28
MGRF1W	MGR -100	1 W	5.2	13.0	0.75	28
MGRF2W	MGR -200	2 W	6.0	17.0	0.75	28

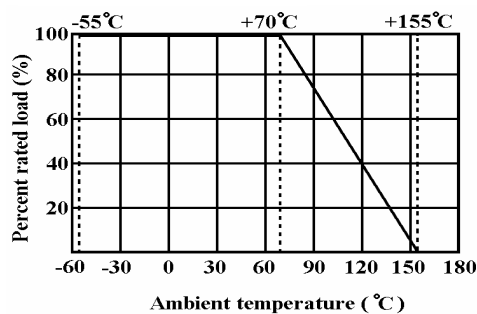
Power Rating

Style	Max. Working Voltage	Max. Overload Voltage	Dielectric Withstanding Voltage	Surge Withstanding Voltage	Resistance Range
MGR -25	1,600 V	2,000 V	700 V	100K Ω ~ 33M Ω : 3,000 V	$\pm 1\%$: 100K Ω ~ 1M Ω $\pm 5\%$: 1K Ω ~ 33M Ω
MGR -50	3,500 V	4,000 V	700 V	100K Ω ~ 360K Ω : 5,000 V 361K Ω ~ 1M Ω : 7,000 V 1.1M Ω ~ 33M Ω : 10,000 V	$\pm 1\%$: 100K Ω ~ 1M Ω $\pm 5\%$: 1K Ω ~ 33M Ω
MGR -100	3,500 V	4,000 V	1,000 V	100K Ω ~ 33M Ω : 10,000 V	$\pm 1\%$: 100K Ω ~ 1M Ω $\pm 5\%$: 1K Ω ~ 33M Ω
MGR -200	3,500 V	4,000 V	1,000 V	100K Ω ~ 33M Ω : 10,000 V	$\pm 1\%$: 100K Ω ~ 1M Ω $\pm 5\%$: 1K Ω ~ 33M Ω

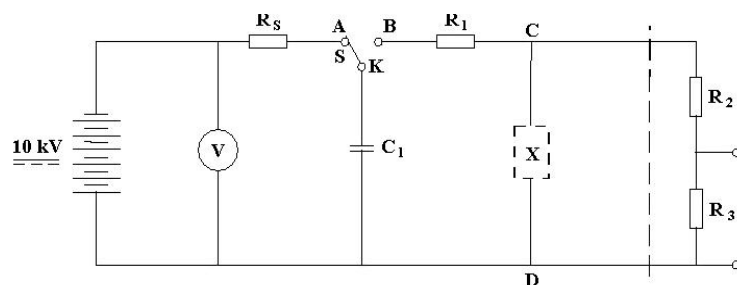
Surge withstanding voltage: IEC 60065

1. Discharge test: 3kV ~ <10kV, 0.01 μ F capacitor discharge pulse, 10 times (1pulse: 2.5 seconds "ON", 2.5 seconds "OFF")
2. Discharge test: >10kV, 0.001 μ F (1nF) capacitor discharge pulse, 50 times (1pulse: 2.5 seconds "ON", 2.5 seconds "OFF")

Derating Curve



Surge Test – Test Circuit



Note: $C_1 = 0.01\mu\text{F} < 10,000\text{V}$ $C_1 = 1\text{nF} (0.001\mu\text{F}) \geq 10,000\text{V}$
 $R_1 = 1\text{k}\Omega$ $R_2 = 100\text{M}\Omega$ $R_3 = 0.1\text{M}\Omega$ $R_s = 15\text{M}\Omega$