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 IEC60065 safety requirements (VDE)
  (For 1/2W; 1M~33M, 1W and 2W; 100K~33M)

Standard: 2%, 5%---E 24 series
1%--- E 96 series

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

Special Feature:
0 = UL Epoxy for 1/4W Only
F = UL Non-Flame for 1/2W, 1W, 2W

Wattage:
W4 = 1/4W (UL Epoxy Paint) Only
W2 = 1/2W (UL Non-Flame Paint)
1W = 1W (UL Non-Flame Paint)
2W = 2W (UL Non-Flame Paint)

Tolerance:
F = ±1%
G = ±2%
J = ±5%

Resistance Value:
- E-24 series:
  1st digit is "0"
  2nd & 3rd digits are the significant figures of the resistance
  4th digit indicates the number of zeros
  "J" ~ 0.1, "K" ~ 0.01
  Ex. 4.7Ω ~ 47J, 4.7KΩ ~ 472
- E-96 series:
  1st to 3rd digits are significant figures of resistance
  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 B = 2,500 PCS
0 = for Bulk/Box packing

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

** More explanation on part no, please see details on pages 80-81.*

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.

**More details, please see pages 78-79.*

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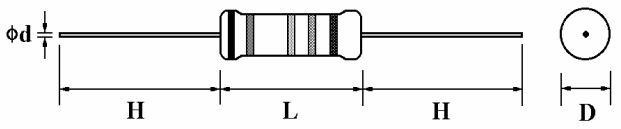
Dimension (mm)



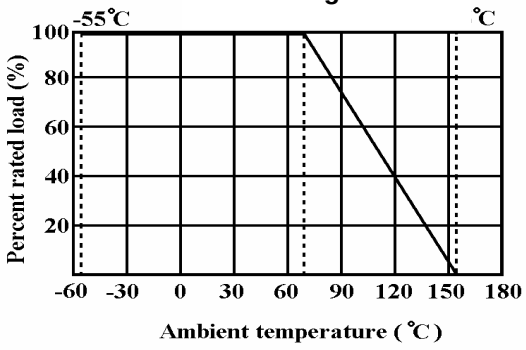
- 5 color code band for ±5% tolerance and last band Black color for identification
- Standard 5 color code band for ±1% tolerance
- ***MGR0W4 using UL Epoxy paint***
- **MGRFW2, MGRF1W, MGRF2W using Non-flame paint**

Part No.	Style	Power Rating at 70°C	Dimension (mm)			
			D Max.	L Max.	d ± 0.05	H ± 3
MGR0W4	MGR-25	1/4W	2.7	7.0	0.54	28
MGR0W2	MGR-50	1/2W	4.0	10.0	0.54	28
MGR01W	MGR-100	1W	4.7	13	0.65	28
MGR02W	MGR-200	2W	6	17	0.75	28
MGR03W	MGR-300	3W	7	19	0.75	28
MGR0S2	MGR-50-S	1/2W	3.3	9.5	0.54	28
MGR01S	MGR-100-S	1W	4.7	11	0.54	28
MGR02S	MGR-200-S	2W	5.2	13	0.65	28
MGR03S	MGR-300-S	3W	6	17	0.75	28

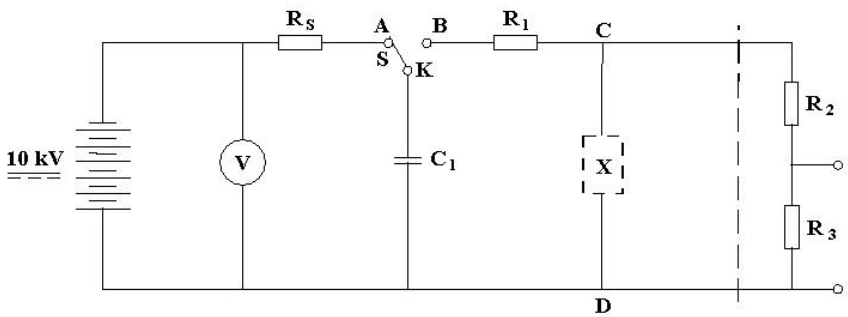
Power Rating

Style	Max. Working Voltage	Max. Overload Voltage	Dielectric Withstanding Voltage	Surge Withstanding Voltage	Resistance Range
MGR-25	500 V	700 V	500 V	100K ~ 33M : 3,000 V	1K-33M (±5% , ±10%) 100K-1M (±1%)
MGR-50	700 V	1,000 V	700 V	100K ~ 360K : 5,000 V 361K ~ 1M : 7,000 V 1.1M ~ 33M : 10,000 V	
MGR-100	1,000 V	1,400 V	700 V	100K ~ 33M : 10,000 V	
MGR-200	1,000 V	1,400 V	700 V	100K ~ 33M : 10,000 V	
MGR-300	1,000 V	1,400 V	700 V	100K ~ 33M : 10,000 V	
MGR-50-S	500 V	700 V	500 V	100K-1M:3,000V 1M1-6M2:4,000V ≥6M8: 6,000V	100K-1M(±1%)
MGR-100-S	700 V	1,000 V	700 V	100K-1M:4,000V 1M1-6M2:5,000V ≥6M8: 8,000V	1K-33M(±5%,±10%)
MGR-200-S	1,000 V	1,400 V	700 V	100K-1M:5,000V 1M1-6M2:6,000V ≥6M8: 9,000V	1K-33M(±5%,±10%)
MGR-300-S	1,000 V	1,400 V	700 V	100K-1M:8,000V 1M1-6M2:9,000V ≥6M8: 10,000V	100K-1M(±1%)

Derating Curve



Surge Test – Test Circuit



Note: C_1 = 0.01μF < 10,000V C_1 = 1nF (0.001μF) ≥ 10,000V
R_1 = 1kΩ R_2 = 100MΩ R_3 = 0.1MΩ R_s = 15MΩ

RoHS