

Data Sheet

Customer:

Product: High Ohmic/High Voltage Metal Glaze Leaded Resistors —
MGR Series

Sizes.: 0623/0932/1145/1550/1760

Issued Date: 31-Oct-23

Edition: REV.A8



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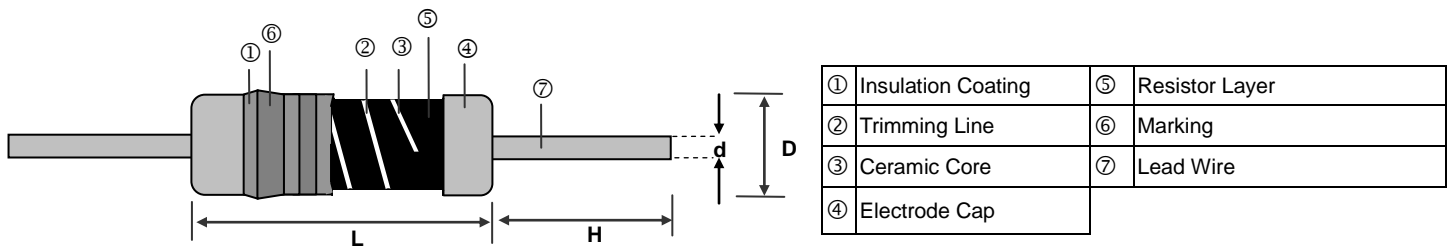
Produced by (QC)	Checked (QC)	Approved by (QC)	Prepared by (Sales)	Accepted by (Customer)
31-Oct-23	31-Oct-23	31-Oct-23	31-Oct-23	
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High Ohmic/High Voltage Metal Glaze Led Resistors

■ Features

- Coat-Insulated Metal Glazed Fixed Resistors (RoHS compliant)
- Higher working voltage
- High pulse loading capability
- Resistance to high Temp/Humidity
- Highly stable performance and highly reliable
- Flameproof coating equivalent to UL-94V-0 (for Silicone Resin)

■ Construction



■ Dimensions

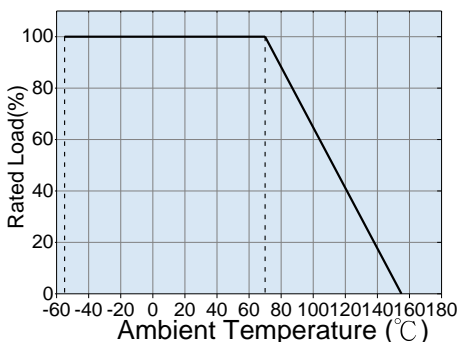
Unit: mm

Type	L	D	H	d
MGR0623	6.3±0.5	2.3±0.3	28±2.0	0.55±0.03
MGR0932	9.0±0.5	3.2±0.5	26±2.0	0.65±0.03
MGR1145	11.5±1.0	4.5±0.5	35±2.0	0.78±0.03
MGR1550	15.5±1.0	5.0±0.5	32±2.0	0.78±0.03
MGR1760	17.5±1.0	6.0±0.5	35±2.0	0.78±0.03

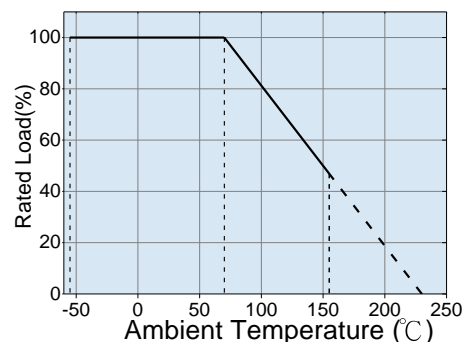
■ Part Numbering

MGR	0932	F	T	F	U	1004	S
Product Type	Dimensions (LxD)	Resistance Tolerance	Packaging Code	TCR (PPM/°C)	Power Rating	Resistance	Special
	0623: 6.3x2.3 0932: 9.0x3.2 1145: 11.5x4.5 1550: 15.5x5.0 1760: 17.5x6.0	F: ±1% G: ±2% J: ±5%	A: Ammo T: Taping Reel	E: ±100 F: ±200 I: ±500	V: 1/4W U: 1/2W T: 1W S: 2W R: 3W D: 5W	1003: 100KΩ 1004: 1MΩ 1006: 100MΩ	S: Silicone Resin E: Epoxy Resin

■ Derating Curve (for Epoxy Resin)



■ Derating Curve (for Silicone Resin)



Standard Electrical Specifications

Item Type	Power Rating at 70°C	Operating Temp. Range		Max. Working Voltage	Max. Overload Voltage	Voltage Proof		Resistance Range			TCR (PPM/°C)	Measured
		Silicone Resin	Epoxy Resin			Silicone Resin	Epoxy Resin	±1%	±2%	±5%		
0623	1/4W	-55 ~ 225°C	-55 ~ 155°C	DC1600V AC1150V	DC2000V AC1500V	400V	500V	100KΩ~1MΩ	±100	DC100V 100K≤R<1M DC1000V 1M≤R		
0932	1/2W							100KΩ~10MΩ	±200			
								11MΩ~500MΩ	±500			
1145	1W			100KΩ~1MΩ	±100							
				100KΩ~10MΩ	±200							
				11MΩ~500MΩ	±500							
1550	2W			100KΩ~1MΩ	±100							
				100KΩ~10MΩ	±200							
1760	3W			11MΩ~500MΩ	±500							
				100KΩ~1MΩ	±100							
		100KΩ~10MΩ	±200									
								11MΩ~500MΩ	±500			

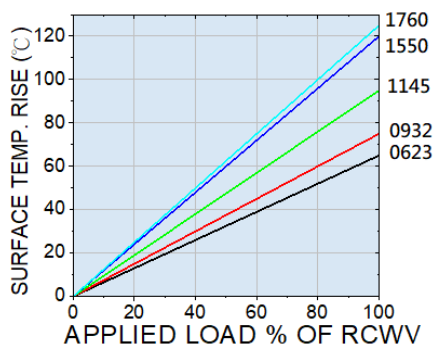
High Power Rating Electrical Specifications

Item Type	Power Rating at 70°C	Operating Temp. Range		Max. Working Voltage	Max. Overload Voltage	Voltage Proof		Resistance Range			TCR (PPM/°C)	Measured
		Silicone Resin	Epoxy Resin			Silicone Resin	Epoxy Resin	±1%	±2%	±5%		
0623	1/2W	-55 ~ 225°C	-55 ~ 155°C	DC1700V	2500V	400V	500V	100KΩ~1MΩ	±100	DC100V 100K≤R<1M DC1000V 1M≤R		
0932	1W							100KΩ~10MΩ	±200			
								11MΩ~500MΩ	±500			
1145	2W			100KΩ~1MΩ	±100							
				100KΩ~10MΩ	±200							
				11MΩ~500MΩ	±500							
1550	3W			100KΩ~1MΩ	±100							
				100KΩ~10MΩ	±200							
1760	5W			11MΩ~500MΩ	±500							
				100KΩ~1MΩ	±100							
		100KΩ~10MΩ	±200									
								11MΩ~500MΩ	±500			

Operating Voltage= $\sqrt{P \cdot R}$ or Max. operating voltage listed above, whichever is lower.
 Overload Voltage= $2.5 \cdot \sqrt{P \cdot R}$ or Max. overload voltage listed above, whichever is lower.
 Value Range for standard resistance, below or over this resistance on request.

Silicone Resin coating color : Brown (Flame-Proof) Epoxy Resin coating color : Light Blue

Hot-Spot Temperature



Environmental Characteristics

Item	Requirement	Test Method
Resistance Value	100KΩ~500MΩ	IEC 60115-1 4.5 Measure at a distance of 10mm from the cap end
Temperature Coefficient(T.C.R)	As Spec	IEC 60115-1 4.8 Resistance value at room temperature and room temperature raised 100°C
Short Time Overload	±(1.0%+0.05Ω)	IEC 60115-1 4.13 Measure executed at 2.5 times RCWV for 5 seconds
Insulation Resistance	>1000 MΩ	IEC 60115-1 4.6 The measure was executed by V-Block methods
Solderability	≥ 95 % covered	IEC 60115-1 4.17 245±5°C for 3±0.5 seconds
Endurance	±(5.0%+0.05Ω)	IEC 60115-1 4.25 70±2°C, RCWV for (or Umax., whichever less) 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Damp Heat, Steady State	±(3.0%+0.05Ω)	IEC 60115-1 4.24 40±2°C, 90~95% R.H., for 56 days, loaded with 0.1 times RCWV (or Umax., whichever less)
Voltage Proof	By Type	IEC 60115-1 4.17 In V-Block for 1 minute
Periodic-Pulse Overload Test	±(1.0%+0.05Ω)	IEC 60115-1 4.39 4 times RCWV (or Umax., whichever less) for 10000 cycles with 1sec "ON" and 25 sec "OFF"
Resistance To Soldering Heat	±(1.0%+0.05Ω)	IEC 60115-1 4.16 The solder iron heated to 260°C ±5°C and applied to the termination for duration of 10±1 seconds
Robustness of Terminations	Tensile: ≥ 2.5kg (24.5N)	IEC 60115-1 4.16 Direct Load for 10 sec. In the direction off the terminal leads
Solvent Resistance of Marking	No obvious abnormality in coatings and markings	IEC 60115-1 4.30 IPA for 5±0.5 Min. with ultrasonic
Temperature Cycling	±(1.0%+0.05Ω)	IEC 60115-1 4.19 -55°C/155°C with 5 cycles. the duration at each temperature 30 min

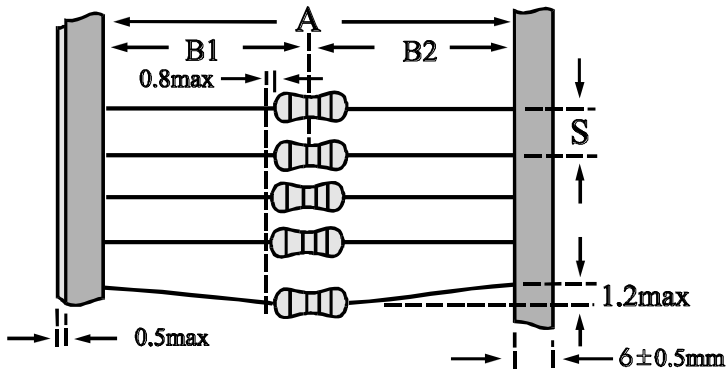
RCWV(Rated continuous working voltage)= $\sqrt{P \cdot R}$ or Max. Operating voltage whichever is lower.

Storage Temperature: 25±10°C; Humidity < 80%RH

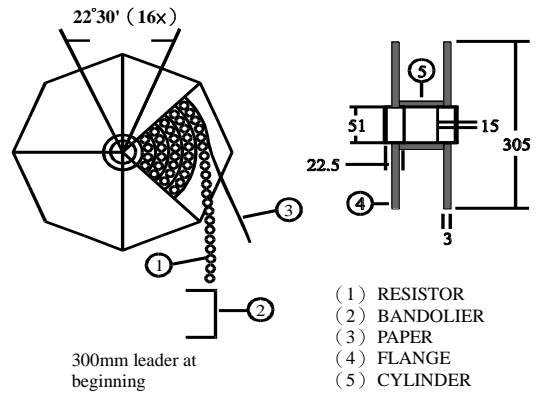
■ Taping/Packing Specifications

1. Standard Type (Reel & Ammo)

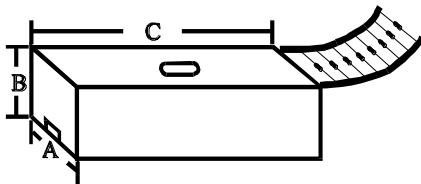
Packing Methods



Reel Packing



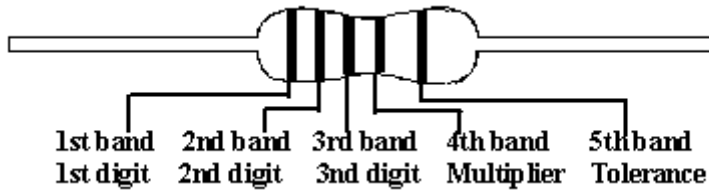
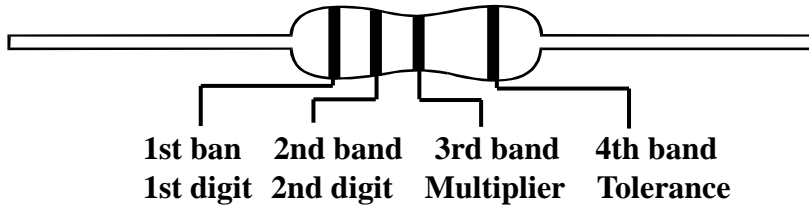
Ammo Packing



Unit: mm

Packaging Type	Packing Methods			Reel Packing		Ammo Packing			
	A	B1-B2 Max	S	Across Flange (A)	Qty	A	B	C	Qty
0623	52+1/-0	1.2	5±0.3	72	5,000	79±2	100±3	257±5	5,000
	26+0.5/-0	1.0				52±2	109±3	252±5	
0932	52+1/-0	1.2	5±0.3	72	2,500	79±2	58±3	257±5	1,000
1145	73+1/-0	1.5	5±0.3	95	2,000	103±2	82±3	262±5	1,000
	52+1/-0					81±2	85±3	256±5	
1550	73+1/-0	1.5	10±0.8	95	1,000	103±2	96±3	265±5	1,000
	52+1/-0					82±2	108±3	258±5	
1760	73+1/-0	1.5	10±0.8	95	1,000	103±2	82±3	262±5	500

■ **Marking & Resistance Tolerance**



Color	Digit	Multiplier	Tolerance	
Without	-	-	-	-
Silver	-	10 ⁻²	±10%	K
Gold	-	10 ⁻¹	±5.0%	J
Black	0	10 ⁰	-	-
Brown	1	10 ¹	±1.0%	F
Red	2	10 ²	±2.0%	G
Orange	3	10 ³	-	-
Yellow	4	10 ⁴	-	-
Green	5	10 ⁵	-	-
Blue	6	10 ⁶	-	-
Violet	7	10 ⁷	-	-
Grey	8	10 ⁸	-	-
White	9	10 ⁹	-	-

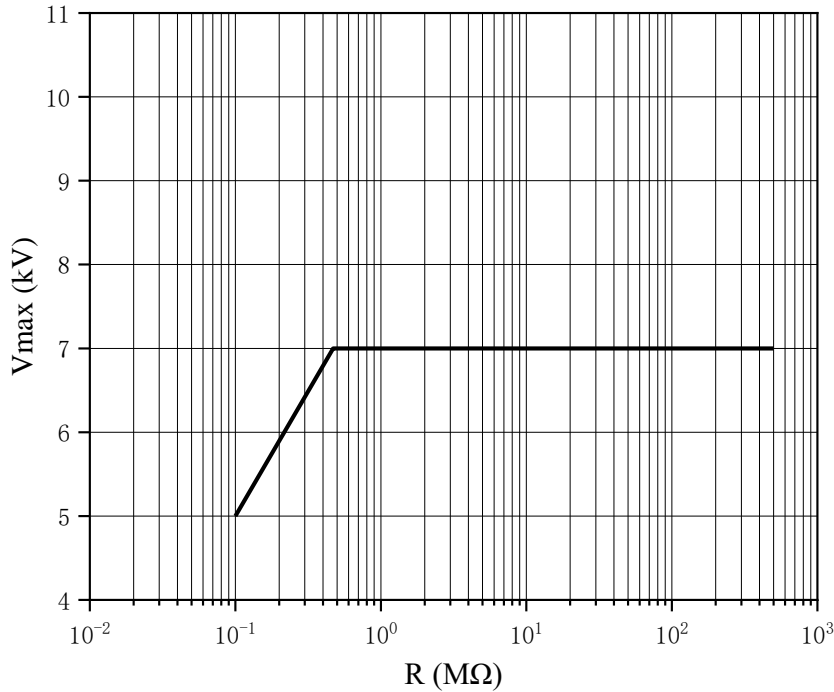
±5.0%	E-24	1.0	1.1	1.2	1.3	1.5	1.6	1.8	2.0	2.2	2.4	2.7	3.0	3.3	3.6	3.9	4.3	4.7	5.1	5.6	6.2	6.8	7.5	8.2	9.1
±2.0%																									
±1.0%																									

Maximum Allowed Peak Pulse Voltage Diagrams

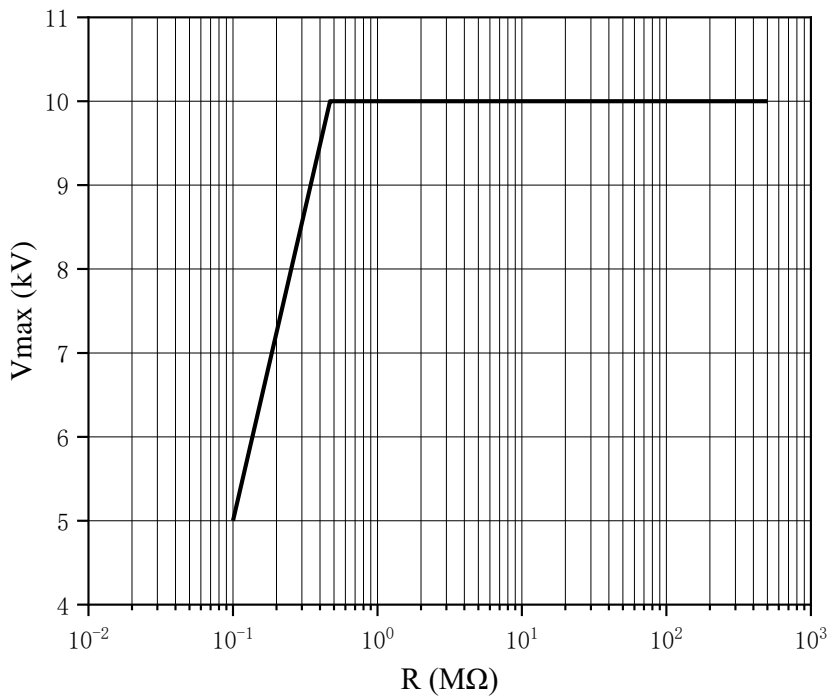
In accordance with IEC 62368-1, G.10

50 discharges from a 1 nF capacitor charged to V_{max} .; 12 discharges/min (drift $\Delta R/R \leq 2\%$)

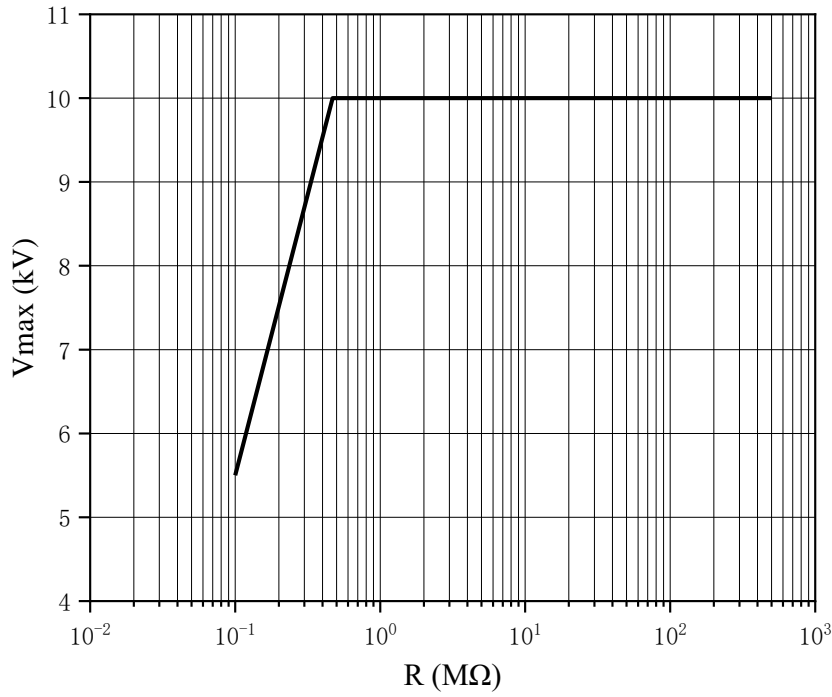
MGR0623



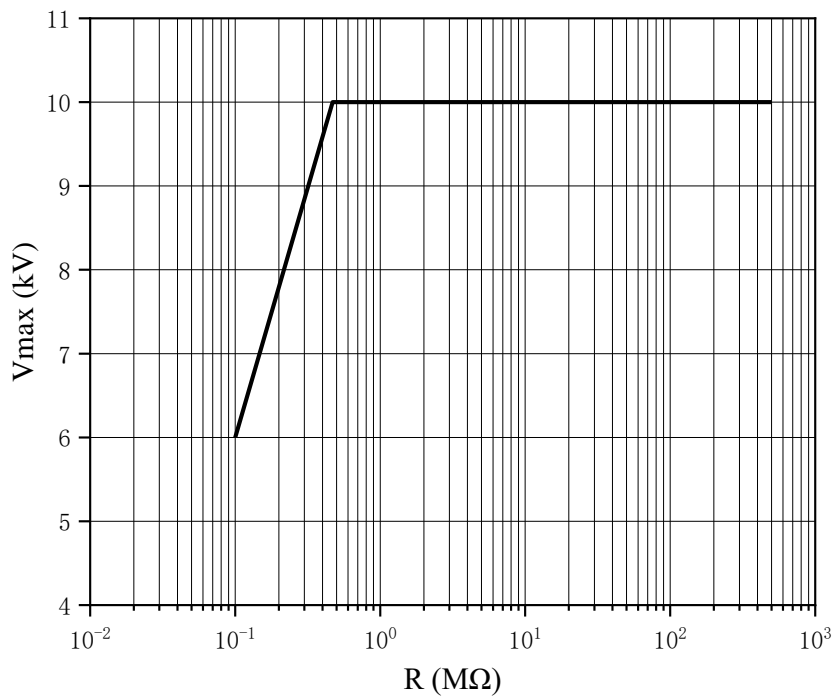
MGR0932



MGR1145



MGR1550



MGR1760

