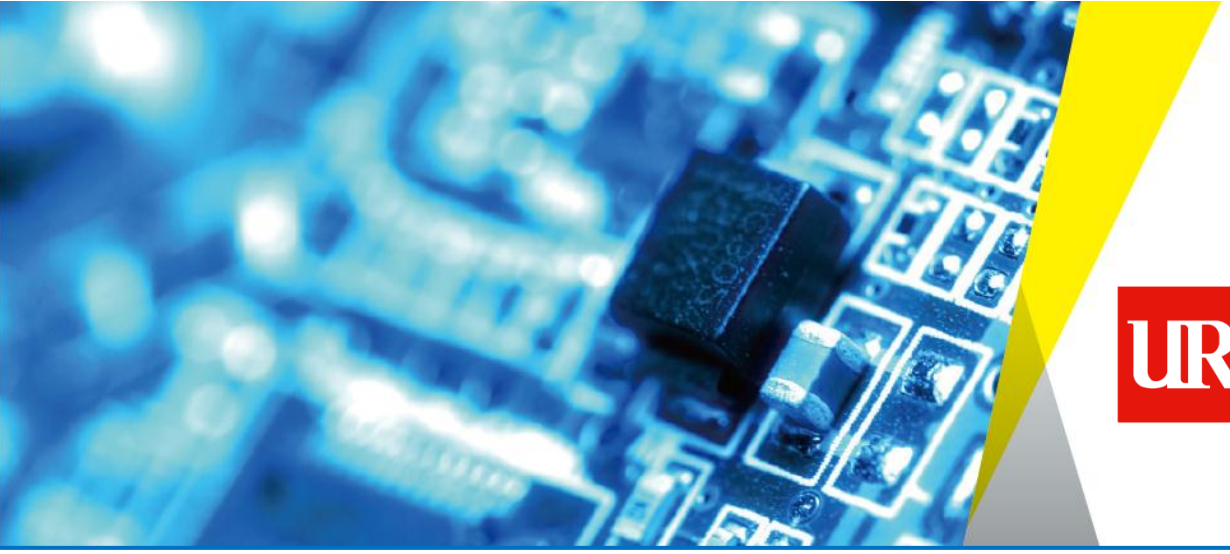

DATA SHEET

Product Name	**High Voltage Non Inductive Resistance**
Part Name	**MGRN Series**
File No.	**DIP-SP-087**

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	Royal Electronic Factory (Thailand) Co., Ltd.
	Royal Technology (Thailand) Co., Ltd.

1. Scope

1.1 This data sheet is the characteristics of High Voltage Non Inductive Resistance manufactured by UNI-ROYAL.

2. Part No. System

The standard Part No. includes 14 digits with the following explanation:

2.1 1st~3th codes: Product type. E.g.: MGR=Metal Glaze Film Fixed Resistors

2.2 The 4thdigit is to denote the Special Features: N= Non-Inductive and High Voltage

2.3 5th~6th digits:

2.3.1 This is to indicate the wattage or power rating. To dieting the size and the numbers， The following codes are used； and please refer to the following chart for detail:

Wattage	8	AW
Normal Size	8W	10W

2.3 The 7th digit is to denote the Resistance Tolerance. The following letter code is to be used for indicating the standard Resistance Tolerance.
J= ±5%

2.4 The 8th to 11th digits is to denote the Resistance Value.

2.4.1 For the standard resistance values of E-24 series, the 8th digit is “0”,the 9th & 10th digits are to denote the significant figures of the resistance and the 11th digit is the number of zeros following;

2.4.3 The following number s and the letter codes are to be used to indicate the number of zeros in the 11th digit:

$0=10^0$ $1=10^1$ $2=10^2$ $3=10^3$ $4=10^4$ $5=10^5$ $6=10^6$ $J=10^{-1}$ $K=10^{-2}$ $L=10^{-3}$ $M=10^{-4}$

2.5 The 12th, 13th & 14th digits.

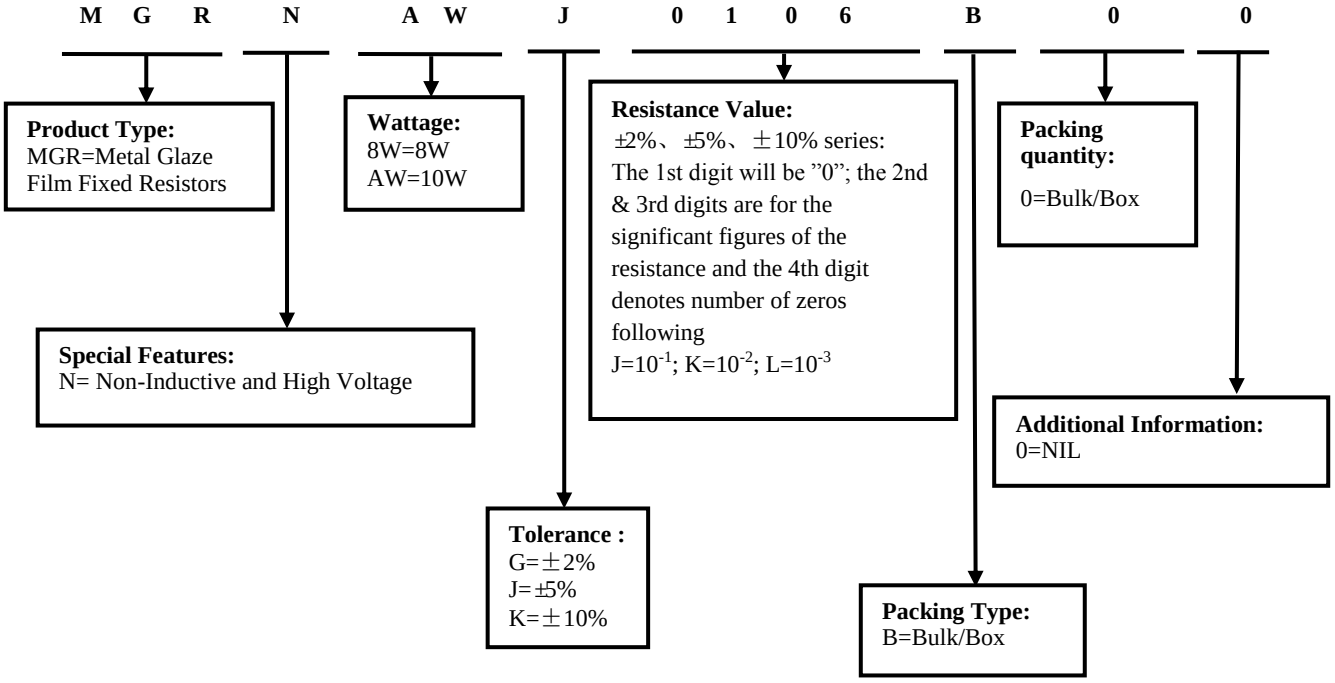
2.5.1 The 12th digit is to denote the Packaging Type with the following codes: B=Bulk/Box

2.5 .2 The 13th digit is normally to indicate the Packing Quantity of Tape/Reel packaging types. The following letter code is to be used for some packing quantities: 0=Bulk/Box

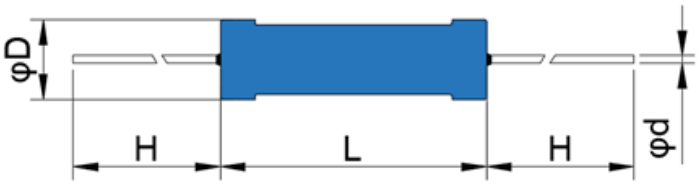
2.5.3 For some items, the 14th digit alone can use to denote special features of additional information with the following codes:
0=NIL

3. Ordering Procedure

(Example: MGRN 10W ±5% 10MΩ)



4. Dimension (Unit: mm)



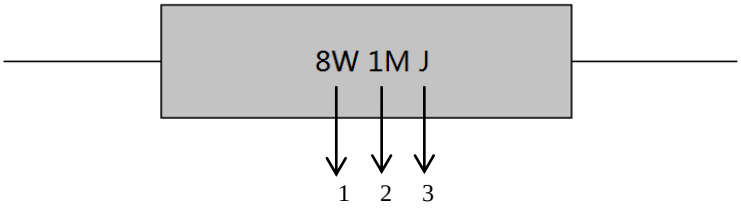
Type	L±1	D±1	H±2	Φd±0.05
MGRN 8W	51	8	35	1.0
MGRN 10W	115	8	35	1.0

5. Ratings

Type	Power Rating	Tolerance	Max. Working Voltage	Max. Overload Voltage	Resistance Range	Color of primer
MGRN	8W	±2%、±5%、±10%	20kV	20kV	1MΩ~500MΩ	Sky Blue
MGRN	10W	±2%、±5%、±10%	35kV	50kV	1MΩ~500MΩ	Sky Blue

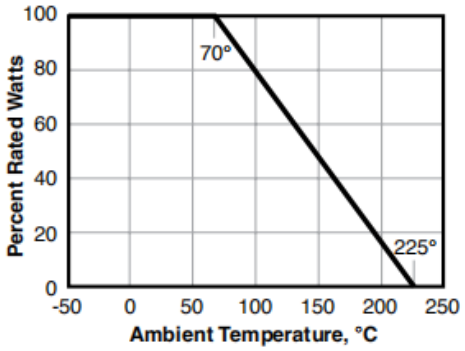
6. Marking

Example:



1. Wattage Rating
2. Resistance Value
3. Resistance Tolerance. J: ± 5%

7. Derating Curve



8. Performance Specification

Characteristic	Limits	Test Method (GB/T5729&JIS-C-5201&IEC60115-1)
Temperature Coefficient	±200PPM/°C	Natural resistance changes per temp. Degree centigrade $\frac{R_2-R_1}{R_1(t_2-t_1)} \times 10^6$ (PPM/℃) R_1: Resistance Value at room temperature （t_1）; R_2: Resistance at room temperature +100℃（t_2） t_1: +100 ℃ room temperature Test temperature： Room temperature （t_1）; Room temperature +100℃（t_2）
Short-time overload	△R/R： ±(3%+0.05Ω）	4.13 Permanent resistance change after the application of a potential of 1.5 times RCWV or Max. Overload Voltage whichever less for 5seconds.
Insulation resistance	≥1,0000 MΩ	Test voltage : 500±50VDC ; test the resistance value after 1 minute.
Dielectric withstanding voltage	No visible mechanical damage	Apply 1000V for 60~70S
Rapid change of temperature	△R/R： ±(3%+0.05Ω）	4.19 30 min at -55 ℃ and 30 min at 155 ℃ ,100 cycles
Solderability	Coverage must be over 95%.	The area covered with a new, smooth, clean, shiny and continuous surface free from concentrated pinholes. Test temp. Of solder:245℃±3℃ Dwell time in solder: 2~3seconds.
Humidity (Steady state)	ΔR/R：±(3%+0.05Ω）	4.24 Temporary resistance change after 240 hours exposure in a humidity test chamber controlled at 40±2℃ and 90~95%RH relative humidity
Load Life	ΔR/R：±(3%+0.05Ω）	4.25.1 Permanent Resistance change after 1000 hours operating at RCWV or Max. Working Voltage whichever less with duty cycle of 1.5 hours “ON”，0.5 hour “OFF” at 70±2°C ambient.

9. Note

9.1. UNI-ROYAL recommend products store in warehouse with temperature between 15 to 35℃ under humidity between 25 to 75%RH. Even under storage conditions recommended above, solder ability of products will be degraded stored over 1 year old.

9.2. Cartons must be placed in correct direction which indicated on carton, otherwise the reel or wire will be deformed.

9.3. Storage conditions as below are inappropriate:

a. Stored in high electrostatic environment

b. Stored in direct sunshine, rain, snow or condensation.

c. Exposed to sea wind or corrosive gases, such as Cl_2, H_2S, NH_3, SO_2, NO_2, Br， etc.

10. Record

Version	Description	Page	Date	Amended by	Checked by
1	First version	1~4	Aug.08,2023	Haiyan Chen	Yuhua Xu