

DATASHEET

Product Name **Cemented wire wound tubular fixed resistors**

Part Name **GRM1 500W $\pm 5\%$ 22 Ω**

Part No. **GRM100J0220500**

File No. **DIP-SP-093**

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1. Scope

1.1 This datasheet is the characteristics of Cemented wire wound tubular fixed resistors manufactured by UNI-ROYAL.

2. Part No. System

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

2.1 The 1st to 4th digits are to indicate the product type.

Example: GRM1= GRM1

2.2 5th~6th digits:

2.2.1 For power rating of 100W and over, the 5th & the 6th digits will be indicated with "00" and the actual wattage being indicated at the last 3 digits (12th~14th) of the part No.

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= $\pm 5\%$

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 digit are to denote the significant figures of the resistance and the 11th digit is the numbers of zeros following.

Example:

0220=22 Ω

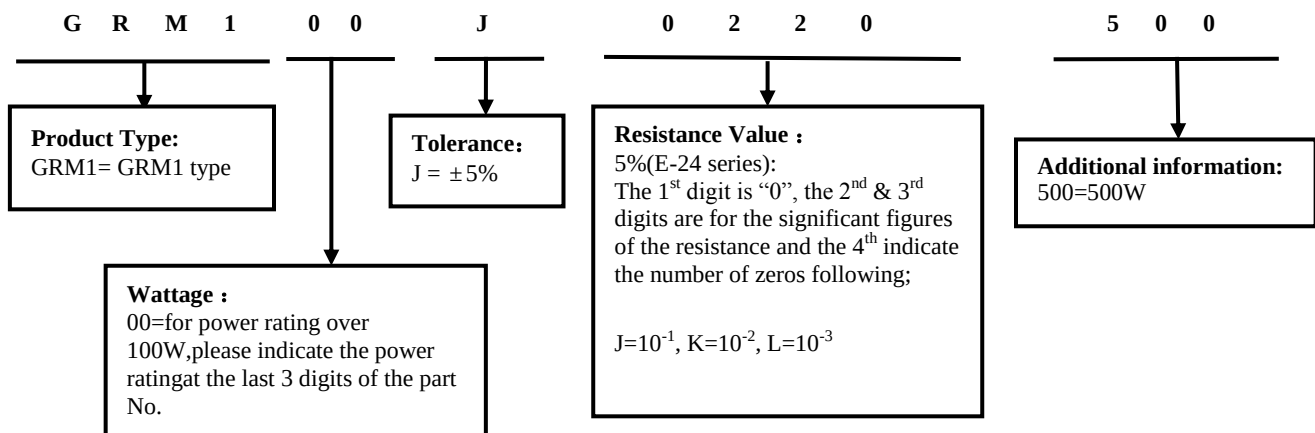
2.5 The 12th, 13th & 14th digits.

2.5.1 for power rating over 100 watt, please indicate the power rating at the last 3 digits of the part no.

Example: 500=500W

3. Ordering Procedure

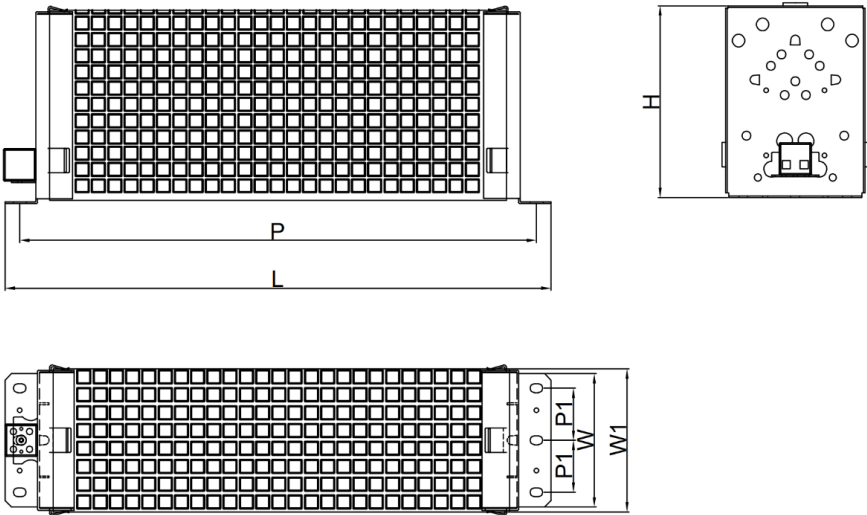
(Example: GRM1 500W 5% 22 Ω B/B)



4. Rating

Type	Power (25°C)	Tolerance	Resistance	Max Working Voltage	Operating Temperature
GRM1	500W	±5%	22 Ω	104V	-55~+275°C

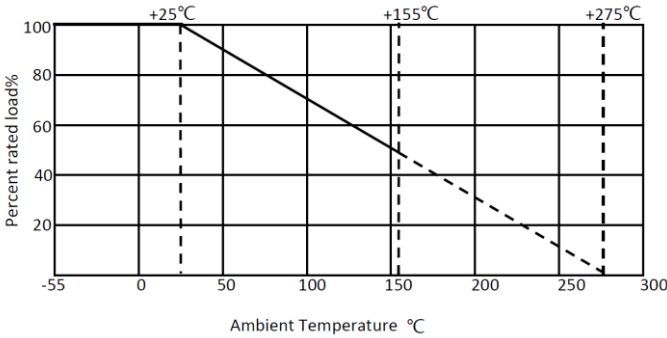
5. Dimension



Unit : mm

Type	$L \pm 2$	$P \pm 2$	$W \pm 1$	$W1 \pm 1$	$H \pm 1$	$P1 \pm 1$
GRM1	341	323	82	88	118	32

6. Derating Curve



7. Performance Specification

Characteristic	Limits	Test method (GB/T 5729&JIS-C-5201&IEC60115-1)
Temperature Coefficient	$\pm 350 \text{ PPM/}^{\circ}\text{C}$	4.8 Natural resistance changes per temp. Degree centigrade $\frac{R_2 - R_1}{R_1(t_2 - t_1)} \times 10^6 \text{ (PPM/}^{\circ}\text{C)}$ R ₁ : Resistance value at room temperature R ₂ : Resistance value at room temperature +100°C t ₁ : Room temperature t ₂ : Room temperature +100°C
Short-time overload	Resistance change rate is: $\pm(5\%+0.05\Omega)\text{Max.}$ With no evidence of mechanical damage.	4.13 Permanent resistance change after the application of a potential of 2.5 times RCWV or Max. Overload Voltage whichever less for 5 seconds.
Rapid change of temperature	$\Delta R/R \leq \pm(5\%+0.05 \Omega)$ with no evidence of mechanical damage	4.19 30 min at -55 °C and 30 min at 155 °C; 100 cycles.
Load life	$\Delta R/R \leq \pm(5\%+0.05 \Omega)$ with no evidence of mechanical damage	4.25.1 Permanent resistance change after 1,000 hours operating at RCWV with duty cycle 1.5 hours “ON”, 0.5 hour “OFF” at 25°C $\pm 2^{\circ}\text{C}$ ambient.

8. Note

8.1. UNI-ROYAL recommend products store in warehouse with temperature between 15 to 35°C 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.

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

8.3. Storage conditions as below are inappropriate:

- Stored in high electrostatic environment
- Stored in direct sunshine, rain, snow or condensation.
- Exposed to sea wind or corrosive gases, such as Cl₂, H₂S, NH₃, SO₂, NO₂, etc.

9. Record

Version	Description	Page	Date	Amended by	Checked by
1	First version	1~4	Jul.11, 2023	Haiyan Chen	Yuhua Xu
2	Modify the dimension	3	Apr.02, 2024	Haiyan Chen	Yuhua Xu

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