



UNI-ROYAL
厚聲集團

DATA SHEET

Product Name High Power, High Current Mica Grid Resistors

Part Name GRM 4KW 40Rx6+2KW 80Rx6+400W 400Rx2+800W 200Rx4+200W 800Rx2 $\pm 5\%$

Part No. GRM000J04004KW

File No. DIP-SP-092

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1. Scope

- 1.1 This datasheet is the characteristics of High Power,High Current Mica Grid Resistors manufactured by UNI-ROYAL.
- 1.2 With impact resistance, fast heat dissipation, high Stable, long service life and so on.

2. Part No. System

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

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

Example: GRM0= Grid Resistors, Mica Series

- 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=±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:

0400=40Ω

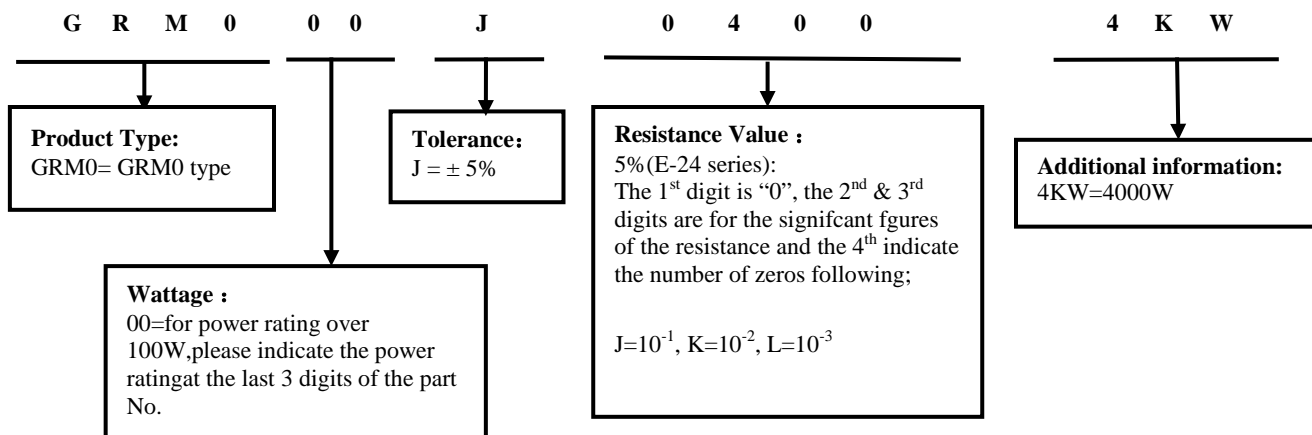
- 2.5 The 12th, 13th & 14th digits.

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

Example: 4KV=4000W

3. Ordering Procedure

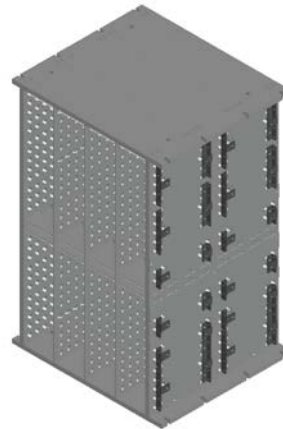
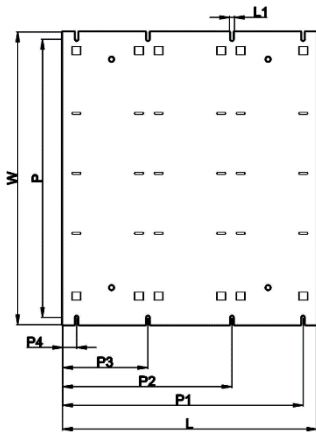
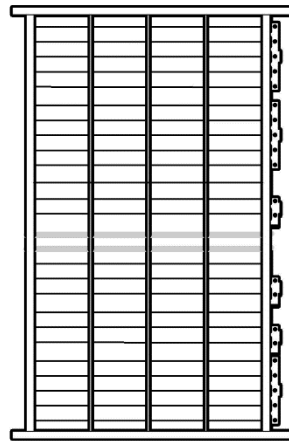
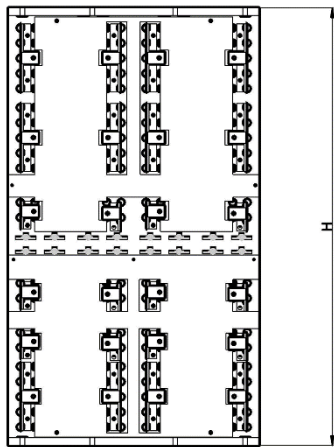
(Example: GRM 4KW 40Rx6+2KW 80Rx6+400W 400Rx2+800W 200Rx4+200W 800Rx2 ±5% B/B)



4. Rating

Type	Tolerance	Resistance	Operating Temperature
GRM	±5%	4KW 40Rx6+2KW 80Rx6+400W 400Rx2+800W 200Rx4+200W 800Rx2	-55~+275°C

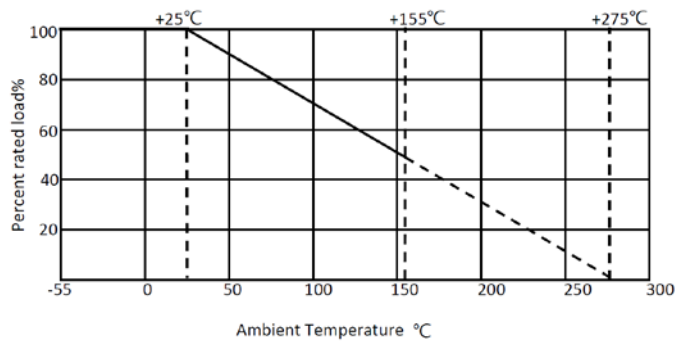
5. Dimension



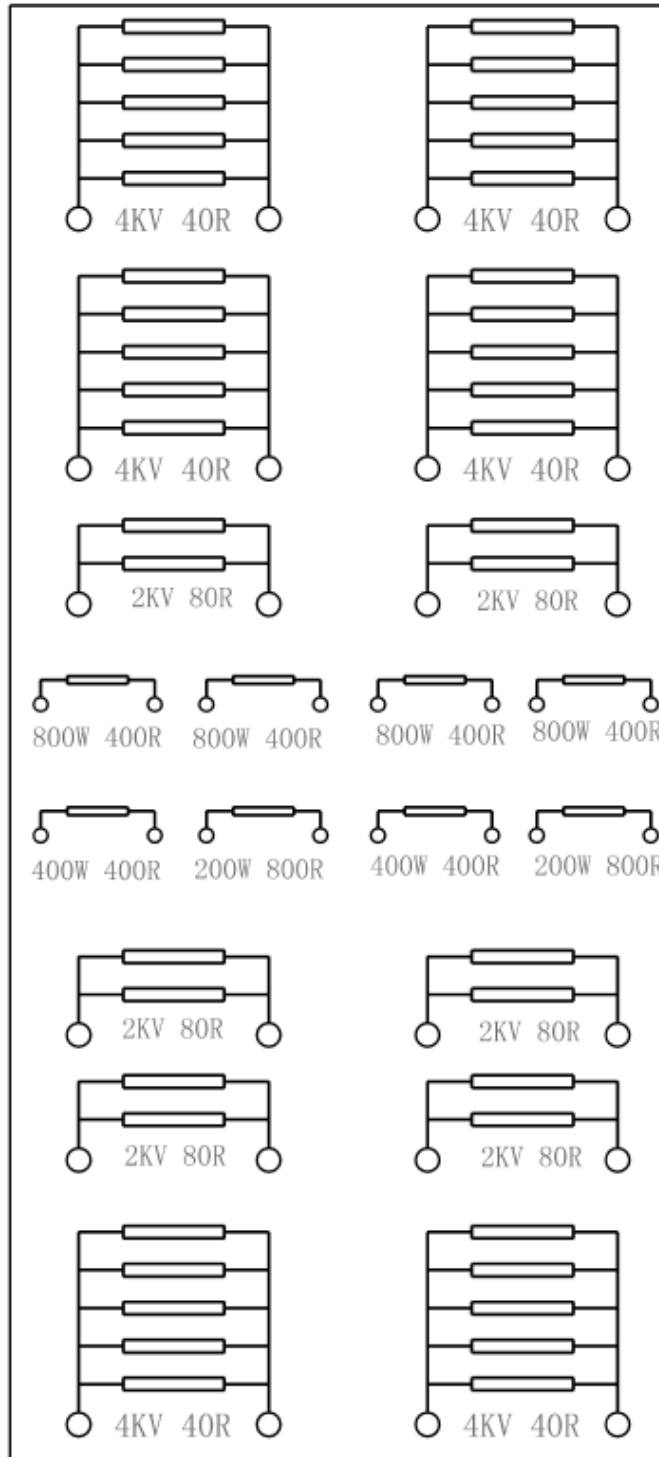
Unit : mm

Type	H±5	L±2	L1±0.5	W±2	P±1	P1±1	P2±1	P3±1	P4±1
GRM	460	260	5	300	285	246	173	87	14

6. Derating Curve



7. Circuit Structure



8. Performance Specification

Characteristic	Limits	Test method (GB/T 5729&JIS-C-5201&IEC60115-1)
Temperature Coefficient	± 500 PPM/ °C	4.8 Natural resistance changes per temp. Degree centigrade $\frac{R_2 - R_1}{R_1(t_2 - t_1)} \times 10^6$ (PPM/°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: $\pm(5\%+0.05\Omega)$ Max. With no evidence of mechanical damage.	4.13 Permanent resistance change after the application of a potential of DC 10 times rated power for 5 seconds.
Vibration	With no evidence of mechanical damage Resistance change rate is: $\pm(0.5\%+0.05\Omega)$ Max	Condition 1: Frequency range: 10-55Hz,1octave/min,(X,Y,Z, 45/min for each of the 3 axes, 10 frequency sweep cycles), PCBA acceleration of 6g, the acceleration of the whole device 3g(working condition) Condition 2: Frequency range: 5-100Hz,100-500 Hz,(X,Y,Z, 30/min for each of the three axes), PCBA acceleration of 6g, the whole device acceleration of 3g(working condition)
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; 5 cycles.
Humidity (Steady state)	Resistance change rate must be in $\pm(5\%+0.05\Omega)$, and no mechanical damage.	4.24 Temporary resistance change after 240 hours exposure in a humidity test chamber controlled at 40±2°C and 90~95%RH relative humidity
Low Temperature Storage	$\Delta R/R \leq \pm(5\%+0.05 \Omega)$	IEC 60068-2-1 (Aa) -40°C ± 3°C, for 16H.
High Temperature Exposure	$\Delta R/R \leq \pm(5\%+0.05 \Omega)$	MIL-STD-202 108A 70°C ± 2°C, for 16H.

9. Note

9.1. 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.

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:

- 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.

10. Record

Version	Description	Page	Date	Amended by	Checked by
1	First version	1~5	Apr.27, 2023	Haiyan Chen	Yuhua Xu
2	Modified dimensional drawing	3	Jun.19, 2023	Haiyan Chen	Yuhua Xu

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