

Metal Plate Cement Resistor Specifications(金屬板水泥電阻規格書)

2011

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Metal Plate Cement Resistor Specifications (金屬板水泥電阻規格書)



1. 涵蓋範圍 Scope:

此規格書涵蓋 GCR 系列金屬板水泥電阻元件相關規格。

This specification covers GCR series devices, which are Metal Plate Cement Resistors.

2. 產品特性 Product Features:

2.1 全絕緣，適用於印刷電路板。

Completely insulated character suitable for Printed Circuit Boards.

2.2 阻值精確且壽命長。

Precision resistance values with longer life.

2.3 耐熱性優，電阻溫度係數小，呈線性變化。

Super heat dissipation; small linear temperature coefficient.

2.4 耐熱性佳，表面溫昇低。

High thermal stability and low surface temperature rise.

2.5 耐短時間過負載；低雜訊，阻值經年無變化。

Instant overload capability; low noise figures and low annual shift on resistance values

2.6 使用不燃性的材料，即使在過高電流使用時，亦不會發生自燃現象。

As applying non-flammable materials, even if over current, they will be no self-ignition occurred.

2.7 使用耐熱性穩定之電阻材料，具穩定之特性。

Resistor elements have stable characteristics due to thermally and chemically stable materials used.

2.8 小型化能高密度插裝。

Small size film resistors are suitable for high density circuit applications.

2.9 產品材料符合 RoHS 規範。

Compatible with "Restriction of the use of Hazardous Substances" (RoHS) directive 2002/95/EC (issue 2004).

3. 產品應用 Product Application:

3.1 電動機控制器。

Electric motor controller.

3.2 電力電子電路。

Electric power electronic circuit.

3.3 家用電器(變頻電路)

Inverter circuit.

3.4 電源供應器。

Power supply.

4. 產品規格 Product Specification:

Type	Rating Power	Max. Working Voltage	Max. Overload Voltage (V)	T.C.R. (ppm/°C)	Resistance Range(mΩ)
					J (±5%)、K (±10%)
GCR25	5W	0.774V	2.5*Rating voltage	±450	10~120
GCR22	2W	0.447V			10~100

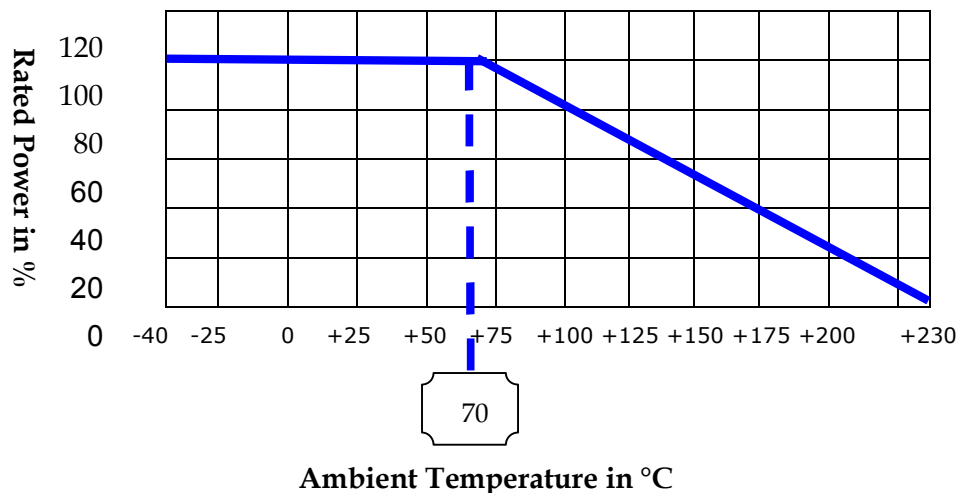
5. 額定功率溫度衰退曲線 Power Derating Curve:

5.1 操作溫度範圍: -40°C ~+230°C。

The Operating Temperature Range: -40°C ~+230°C.

5.2 產品功率的應用，於環境溫度 70°C 時為 100% 額定功率，當溫度增加時需符合以下圖表之曲線。

For resistors operated in ambient temperatures 70°C, power rating must be derated in accordance with the curve below.


6. 額定電壓 Rating Voltage:

依下列提供的方式計算直流電/交流電應用時額定電壓。

The following equation may be used to determine the DC (Direct Current) or AC (Alternating Current) currents (RMS, root mean square value) of normal rating power.

$$V = \sqrt{P * R}$$

Remark:

- V: Rating Voltage(額定電壓)
- P: Rating Power(額定功率)
- R: Resistance(產品阻值)

7. 編碼方式 Order Information:

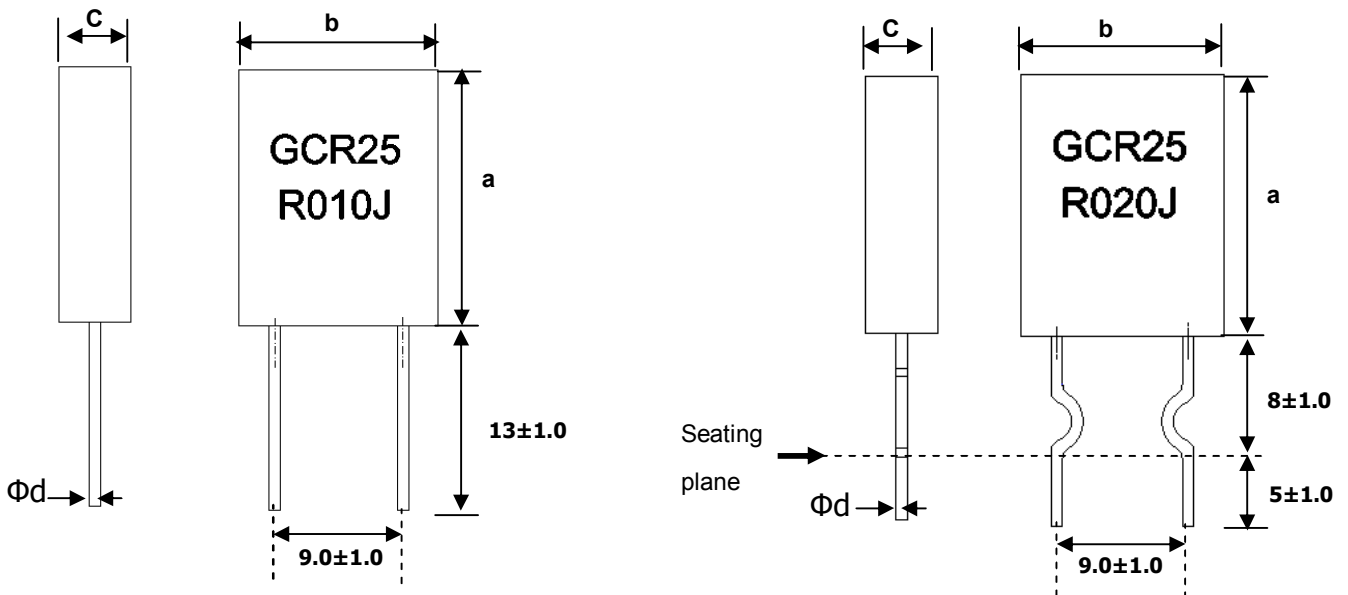
Mode (Size)	Number of terminals	Rating Power (Watt)	Shape of Terminals (P or W)	Resistance Range(mΩ)	Tolerance (J=±5.0%; K=±10%)
GCR	2	5 (5W)	P or W	10~120	J
GCR	2	2 (2W)	P or W	10~100	J

8. 產品外觀與尺寸 Product outline and Physical Dimensions:

“P” style

“W” style

Unit: mm



Type	Dimensions (mm)			
	a	b	c	d
GCR25	18.0±1.0	14.0±1.0	5.0±1.0	0.8±0.1
GCR22	8.5±1.0	13.4±1.0	5.0±1.0	0.8±0.1

9. 產品蓋印字碼 Product marking:

9.1 Product marking will cover by following (產品字碼內容如下):

- Type (型號)
- Resistance (阻值) Tolerance (容許差)
-

Example: GCR25 type, 10mΩ, ±5%, →

GCR25
R010J

10. 信賴性 Product Reliability Performance:

Test Item	Conditions of Test	Test Limits
阻值 Resistance	(25°C)量測位置：在水泥殼下方 10mm Measurement position : 10mm under from the case	規定的容差以內 Within specified tolerance
溫度係數 Temperature Coefficient of Resistance (T.C.R.)	$\bullet \text{ T.C.R. (ppm/}^\circ\text{C)} = \frac{(R2-R1)}{R1 (T2-T1)} \times 10^6$ <ul style="list-style-type: none"> • R1 : resistance of room temperature (T1) • R2 : resistance of 150°C (T2) 	Per Spec. (refer to paragraph 4)
短時間過負荷 Short Time Overload	施加 2.5 倍額定電壓 5 秒鐘。 <ul style="list-style-type: none"> • Testing Voltage: 2.5 times rating voltage • Testing duration: 5secs 	(ΔR/R1) ≤ ±2.0%，外觀無不良，字碼可辨識。 (ΔR/R1) ≤ ±2.0%; without cosmetic defect (marking can readable)
抗焊錫熱 Resistance to Solder Heat	<ul style="list-style-type: none"> • 焊錫爐測試: 產品 1.6mm 處置於 260 °C 錫爐內 10 秒 • Auto soldering method: <ul style="list-style-type: none"> - Pre-heat: 100°C ~110°C/30secs - Solder temp.: 260+5/-0°C - Immersion time: 10±1secs - Immersion depth: up to 1.6mm from the product body 	(ΔR/R1) ≤ ±2.0%，外觀無不良，字碼可辨識。 (ΔR/R1) ≤ ±2.0%; without cosmetic defect (marking can readable)
濕度負載壽命測試 Bias Humidity	產品置於 40±2°C 相對濕度 90~95% 恆溫、恆濕槽中，並施加額定電壓，1.5 小時 ON，0.5 小時 OFF，共 1,000 小時 +40±2°C, 90~95% RH, Bias (Voltage max.), 1.5 hours On, 0.5 hours Off; extended life test: 1,000 hours,	(ΔR/R1) ≤ ±5.0%，外觀無不良，字碼可辨識。 (ΔR/R1) ≤ ±5.0%; without cosmetic defect (marking can readable)

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<p style="text-align: center;">70°C 耐久性 Endurance at 70°C</p>	<p>產品置於70±2°C，並施加額定電壓，1.5小時ON，0.5小時OFF，共1,000 小時 +70±2°C, (Voltage max.), 1.5 hours On, 0.5 hours Off; extended life test:1,000 hours,</p>	<p>($\Delta R/R1$) ≤ ±5.0%，外觀無不良，字碼可辨識。 ($\Delta R/R1$) ≤ ±5.0%; without cosmetic defect (marking can readable)</p>
<p style="text-align: center;">高溫儲存測試 High Temperature Exposure (Storage)</p>	<p style="text-align: center;">產品儲存於+125±2°C 的環境下持續 100 hours 100 hours @ +125±2°C</p>	<p>($\Delta R/R1$) ≤ ±3.0%，外觀無不良，字碼可辨識。 ($\Delta R/R1$) ≤ ±3.0%; without cosmetic defect (marking can readable)</p>
<p style="text-align: center;">耐溶劑性 Resistance to solvent</p>	<ul style="list-style-type: none"> ● 浸入 IPA (異丙醇) 60±5 秒 ● 擦拭电阻表面 10 次 ● Immersing the specimen into I.P.A. for 60s±5s, ● Without surface damage was observed after rubbed with absorbent cotton 10 times. 	<p>外觀無不良，字碼可辨識 Without cosmetic defect (marking can readable)</p>

11. Packaging (包裝):

11.1 塑料盒名稱：金屬板水泥電阻器包裝盒。

Plastic box name: Metal Plate Cement Resistor packing box.

材料/顏色：PET/透明。

Material/color: PET/limpid.

數量：100 個 (5 x 20 方塊)。

Quantity: 100pcs (5 x 20 blocks).

Plastic Box (塑料盒):

