

东莞市安伏特电子有限公司	编号	CR-M-R-08
	版本	A
水泥电阻器 CEMENT RESISTORS	页次	第 1 页 共 4 页

# 承 认 书

客户名称:

产品品名:

规格描述:

料号:

备 注:

送样日期:

水泥电阻器

CR-M 5W ±5% 规格承认

CR-M5W47KJ

2021-12-01

制造厂商:

核准 Approval	确认 Check By	审核 Prepared By
徐文杰	赖榕	陈开峰

客户承认:

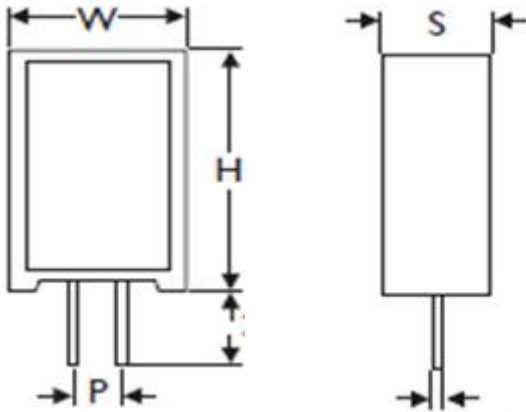
核准 Approval	确认 Check By	审核 Prepared By

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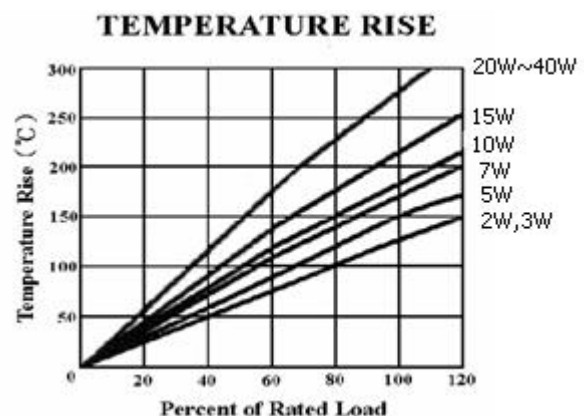
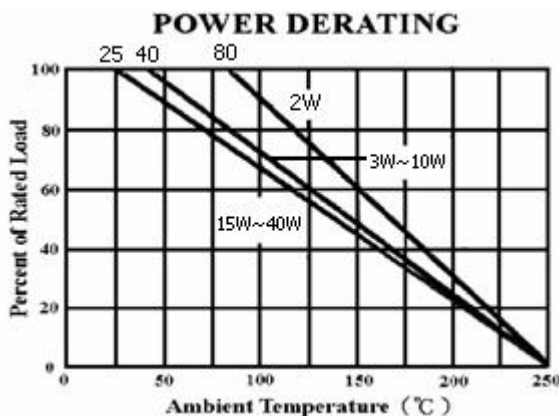
## 1. Dimensions (mm)



Type	H±1.5	W±1.0	S±1.0	P±1.0	d±1.0
<b>CR-M 5W</b>	<b>25</b>	<b>13.5</b>	<b>9</b>	<b>5</b>	<b>0.7</b>

Ampfort's wire wound resistors are made by winding the resistance wire around the glass fiber core or ceramic core. For high ohmage value and resistance range 1% the metal oxide film will be used instead of the wire wound. Two types of packaging are available. Type one using non-corrosive. Heat proof, humidity proof, and nonflammable.

## 2. Power Derating Curve & Temp.Rise Curve



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### 3. Performance Specifications

Characteristics	Standard	Test Methods		
<b>1. Temperature Coefficient of Resistors (PPM/°C)</b>	Wire Wound -80~+900	Natural resistance change per temperature degree centigrade. $\frac{R2 - R1}{R1(T2 - T1)} \times 10^6 \text{ (PPM/°C)}$ R1: Resistance value at reference temp. (T1) R2: Resistance value at reference temp. (T2) T1: Room temperature T2: T1+100°C		
<b>2. Dielectric Withstanding Voltage</b>	No evidence of flashover, mechanical damage or arcing or insulation break down	Resistors shall be subjected to an approximately sinusoidal test potential (as below) 60Hz applied between both terminals connected together and a 90° V-Block extending beyond the end of the resistor		
		<b>Resistor Wattage</b> 1W ABOVE	<b>AC or RMS Volts</b> 500	
<b>3. Solderability</b>	90% Covered min.	The terminal lead shall be dipped into molten solder s at 3.2 to 4.8mm from the body of resistor. The temp. and time as below: a. 235±5°C for 2±0.5 seconds b. 270±10°C for 2±0.5 seconds		
<b>4. Resistance to Soldering</b>	No evidence of mechanical damage ΔR / R at ±2% Max	The terminal of the resistor is dipped into the molten solder of 350 ± 10°C for 3 ± 0.5 seconds. Then put the resistor in the room temperature. For 3 min. hours.		
<b>5. Humidity Load Life</b>	±5% Max / 1000Hours	Resistance change after 1000 hours (1.5 hours on 0.5 hours off) at rated continuous working voltage in a humidity chamber controlled at 40 ± 2°C and 90~95% relative humidity .		
<b>6. Load Life</b>	±5% Max / 1000Hours	Permanent resistance change after 1000 hours operating at rated continuous working voltage with a duty cycle of 1.5 hours on 0.5 hours off at 70 ± 2°C ambient		
<b>7. Temperature Cycling</b>	± 2% Max with no evidence of mechanical damage	Resistance change after continuous 5 cycles for duty cycle as specified below.		
		<b>Step</b>	<b>Temperature</b>	<b>Time</b>
		1	-30°C	30 Minutes
		2	+25°C	10~15 Minutes
		3	+85°C	30 Minutes
		4	+25°C	10~15 Minutes

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Characteristics	Standard	Test Methods
<b>8. Short Time Overload</b>	$\Delta R / R$ at $\pm 3\%$ Max with no evidence of arcing burning, or charring	Permanent resistance change after the application of a potential of 2.5 times rated continuous working voltage for 5 seconds at room temperature.
<b>9. Terminal Strength</b>	No evidence of mechanical damage or loosening terminals	Direct load resistance to 2.5kg direct load $30 \pm 5$ seconds twist test, for axial leads unit only. Terminal lead shall be bent through at a right angle at a point of 6.35mm from the body of resistor and shall be rotated through at a right angle about the original axis of the bent terminal in alternating direction for a total of 3 rotations.
<b>10. Burn Out</b>	The arcing and or flaming duration is less than 2seconds and the flame height is less than 1/2 inch.	Resistors burning out or opening up for overloads in excess of 10 times rated wattage (regardless of how it is applied)

#### 4.Part Number Example

CR-M - 5W - 10R - J - P  
 ↑        ↑        ↑        ↑        ↑  
 1    - 2    - 3    - 4    - 5

1. Type	CR-M = Cement Resistor P Type
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2. Power/Size	Type	2W	3W	5W	7W	10W	.....	40W
	Power	2W	3W	5W	7W	10W	.....	40W

3. Value	E24	R15	1R5	150	151	152	153	154	155	156
	Value	0.15Ω	1.5Ω	15Ω	150Ω	1.5KΩ	15KΩ	150KΩ	1.5MΩ	15MΩ

4. Tolerance	Code	J	K
	%	$\pm 5\%$	$\pm 10\%$

5. Shape	Code	T	P	M	MB	MK
	Type	Taping	P Type	M forming	MB forming	MK forming