

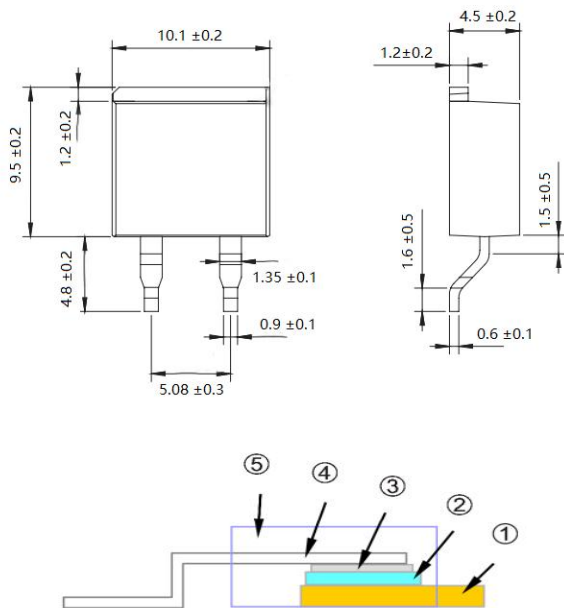
RTP35S 功率型厚膜无感电阻器 RTP35S power type thick film non inductive resistor

产品特点 Product Features

- 安装在散热器，底板中心温度 $\leq 25^{\circ}\text{C}$ ，额定功率 35W；在不使用散热片， 25°C 常温下，额定功率是 2.5W
Installed on the radiator, the center temperature of the bottom plate is $\leq 25^{\circ}\text{C}$, and the rated power is 35W; The rated power is 2.5 watts at room temperature of 25°C without using heat sinks
- 表面贴装 (SMD) TO-263 模压封装
Surface mount (SMD) TO-263 molded package
- 加散热片后，热阻 $R_{th} < 4.28^{\circ}\text{K/W}$
After adding heat sinks, the thermal resistance R_{th} is less than 4.28°K/W
- 可承受回流焊温度 $205^{\circ}\text{C}/10\text{S}$
Can withstand reflow soldering temperature of $270^{\circ}\text{C}/10\text{S}$
- 导电部分和金属底板绝缘
Conductive parts and metal substrate insulation



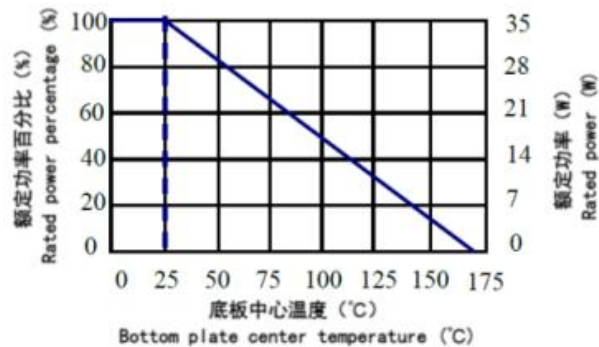
结构图 structural diagram



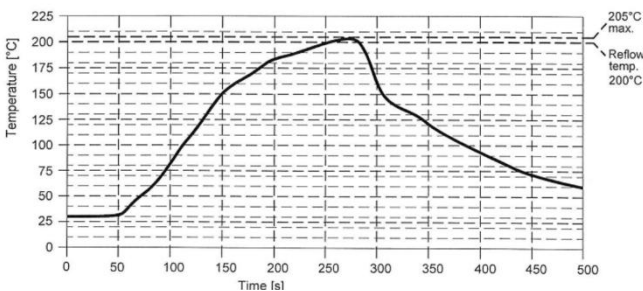
应用范围 Application scope

开关电源、减震器电路、自动机器控制器、射频功率放大器、低能量脉冲负载-UPS、电压调节
Switching Power Supplies、Snubbers Circuits、Automated Machine Controller、RF Power Amplifiers、Low Energy Pulse Loading - UPS、Voltage Regulation

降功率曲线图 Derating curve



回流焊曲线图 Reflow soldering curve diagram



1	铜散热片	Radiator Fin
2	氧化铝基板	Alumina Substrate
3	电阻层	Resistor Layer
4	铜脚	Copper Lead
5	模压封装	Molding

最大工作电压 Maximum operating voltage	350V
耐电压 Voltage endurance	1800VAC
绝缘电阻 Insulation resistance	10GΩ min
工作温度范围 Working temperature range	- 65 ° C to +150 ° C

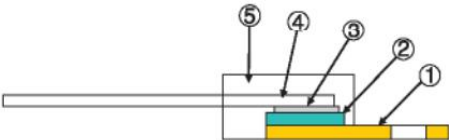
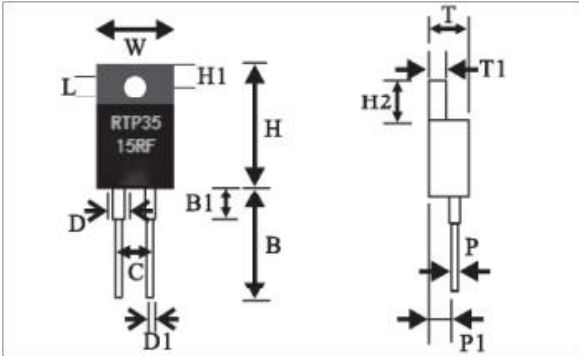
RTP35 功率型厚膜无感电阻器 RTP35 power type thick film non inductive resistor



产品特点 Product Features

- 安装在散热器，于 25℃时，额定功率达 35 瓦 ；在不使用散热片，25℃常温下，额定功率是 2.5 瓦
Installed on the radiator, with a rated power of 35 watts at 25 ℃ ; The rated power is 2.5 watts at room temperature of 25 ℃ without using heat sinks
- T0-220 功率型封装
TO-220 power type package
- 只用一颗螺丝，便可以安装于散热器上
With just one screw, it can be installed on the radiator
- 导电部分和金属底板绝缘，高绝缘度
The conductive part is insulated from the metal substrate, with high insulation level
- 保护性高的模压塑胶封外盒，且易于安装
Highly protective molded plastic outer box, and easy to install
- 无感设计 Sensorless design

结构图 structural diagram

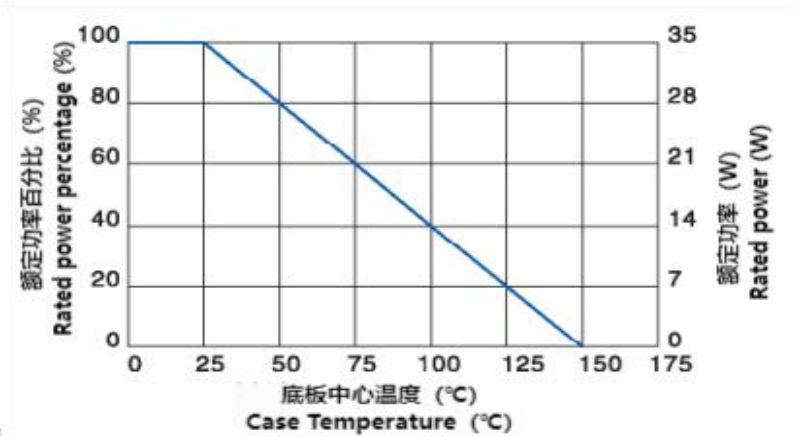


1	铜散热片	Radiator Fin
2	氧化铝基板	Alumina Substrate
3	电阻层	Resistor Layer
4	铜脚	Copper Lead
5	模压封装	Molding

应用范围 Application scope

射频功率放大器、缓冲电路、交换式电源供应、自动化控制器、不间断电源、电压调节、低能量脉冲载入、UPS
RF power amplifier, buffer circuit, switched power supply, automation controller, uninterruptible power supply, voltage regulation, low-energy pulse loading, UPS

降功率曲线图 Derating curve



外形尺寸 Dimensions (Unit: mm)

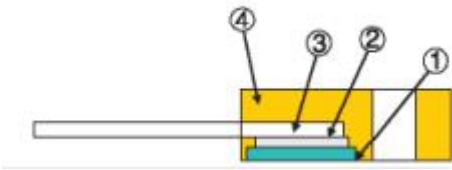
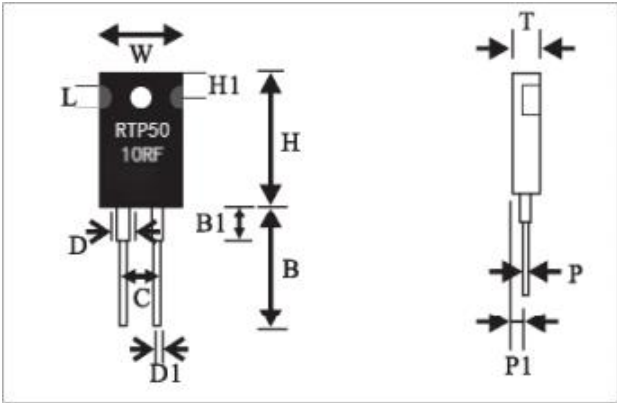
型号 Type	W	H	H1	H2	B	B1	D	D1	L	C	T	T1	P	P1
RTP35	±0.3	±0.5	±0.1	±0.3	±0.5	±0.1	±0.1	±0.1	±0.1	±0.3	±0.3	±0.1	±0.1	±0.1



产品特点 Product Features

- 安装在散热器，于 25℃时，额定功率达 50 瓦；在不使用散热片，25℃常温下，额定功率是 3 瓦
Installed on the radiator, with a rated power of 50 watts at 25 °C; The rated power is 3 watts at room temperature of 25 °C without using heat sinks
- T0-220 模压塑封包装
TO-220 Molded plastic packaging
- 只用一颗 M3（3mm）螺丝，便可以安装于散热器上
Only one M3 (3mm) screw is needed to install it on the radiator
- 保护性高的模压塑胶封外盒，且易于安装
Highly protective molded plastic outer box, and easy to install
- 高绝缘度 High insulation degree
- 无感设计 Sensorless design

结构图 structural diagram

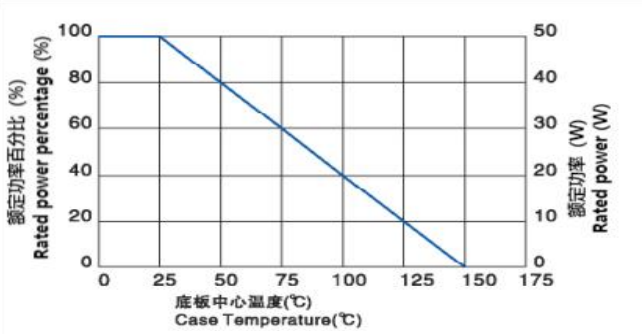


1	氧化铝基板	Alumina Substrate
2	电阻层	Resistor Layer
3	引脚	Lead
4	模压封装	Molding

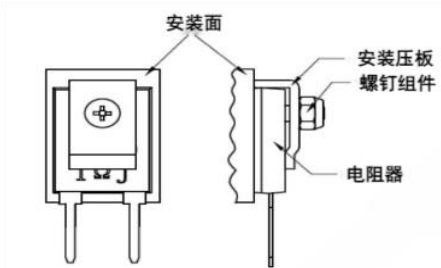
应用范围 Application scope

用于电源供应器的入口端、低能量脉冲负载、射频功率放大器之终端电阻、电压整流器、缓冲电路器、UPS
Used for the inlet end of power supplies, low-energy pulse loads, terminal resistors of RF power amplifiers, voltage rectifiers, buffer circuits, UPS

降功率曲线图 Derating curve



安装示意图 installation diagram



外形尺寸 Dimensions (Unit: mm)

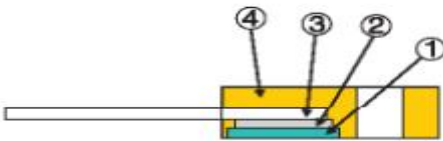
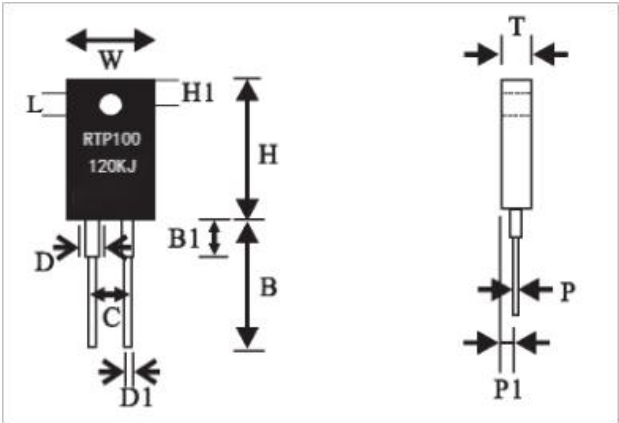
型号	W	H	H1	B	B1	D	D1	L	C	T	P	P1
Type	±0.3	±0.5	±0.1	±0.5	±0.1	±0.1	±0.1	±0.1	±0.3	±0.3	±0.1	±0.1
RTP50	10.8	15.8	3.18	12.5	3.2	1.35	0.8	3.18	4.3	3.2	0.6	1.6

RTP100 功率型厚膜无感电阻器 RTP100 power type thick film non inductive resistor

产品特点 Product Features

- 安装在散热器，于 25℃时，额定功率达 100 瓦；在不使用散热片，25℃常温下，额定功率是 3.5 瓦
Installed on the radiator, with a rated power of 100 watts at 25 ℃ ; The rated power is 3.5 watts at room temperature of 25 ℃ without using heat sinks
- T0-247 模压塑封包装
TO-247 molded plastic packaging
- 只用一颗螺丝，便可以安装于散热器上
Only one screw is needed to install it on the radiator
- 保护性高的模压塑胶封外盒，且易于安装
Highly protective molded plastic outer box, and easy to install
- 高绝缘度 High insulation degree
- 无感设计 Sensorless design

结构图 structural diagram

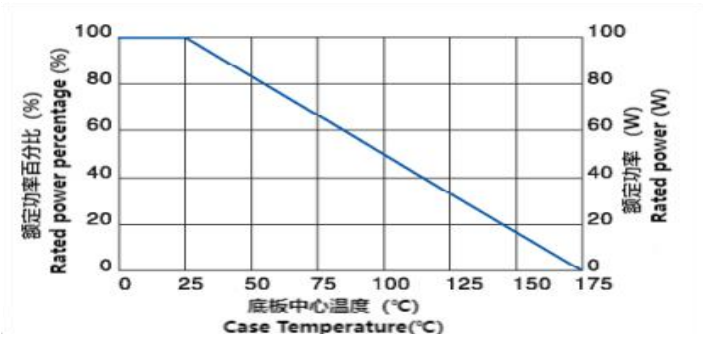


1	氧化铝基板	Alumina Substrate
2	电阻层	Resistor Layer
3	铜脚	Lead
4	模压封装	Molding

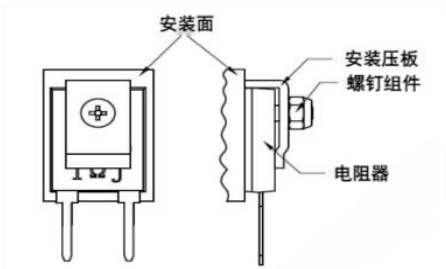
应用范围 Application scope

用于电源供应器的入口端、荧幕映像管的功率负载及泄放电阻、低能量脉冲负载、电压整流器、缓冲电路器、UPS
Used for the inlet end of power supply, power load and discharge resistor of screen picture tube, low-energy pulse load, voltage rectifier, buffer circuit, UPS

降功率曲线图 Derating curve



安装示意图 installation diagram



外形尺寸 Dimensions (Unit: mm)

型号	W	H	H1	B	B1	D	D1	L	C	T	P	P1
Type	±0.3	±0.5	±0.1	±0.5	±0.1	±0.1	±0.1	±0.1	±0.3	±0.3	±0.1	±0.1
RTP100	15.6	20.4	5.4	14	2.4	3.6	1.45	3.6	8.7	4.9	0.6	2.1

实验项目与方法 Experimental projects and methods

测试项目 Test project	基本要求 Basic Requirements	测试方法 Test Method
短时间过负荷 Short term overload	RTP35S、RTP35、RTP50: $\Delta R \pm 0.3\%$	2 倍额定功率，但不超过最大耐压的 1.5 倍，连续 5 秒钟 2 times the rated power, but not exceeding 1.5 times the maximum withstand voltage, for 5 consecutive seconds
	RTP100: $\Delta R \pm 0.5\%$	1.5 倍额定功率，但不超过最大耐压的 1.5 倍，连续 5 秒钟 1.5 times the rated power, but not exceeding 1.5 times the maximum withstand voltage, for 5 consecutive seconds
负载寿命 Load Life	$\Delta R \pm 1.0\%$	额定功率下 2000 小时 2000 hours at rated power
耐湿测试 Humidity test	$\Delta R \pm 0.5\%$	RTP35S、RTP35、RTP50: $40 \pm 2^{\circ}\text{C}$ 、90~95%湿度下，在最大工作电压下维持 1000 小时（1.5 小时“开”，0.5 小时“关”） Maintain 1000 hours at maximum operating voltage at $40 \pm 2^{\circ}\text{C}$ and 90-95% humidity (1.5 hours "on", 0.5 hours "off")
		RTP100: $-10^{\circ}\text{C} \sim +65^{\circ}\text{C}$ ，湿度>90%在最大工作电压下维持 240 小时 -Maintain at maximum operating voltage for 240 hours at $10^{\circ}\text{C} \sim +65^{\circ}\text{C}$ and humidity>90%
焊接附着性 solderability	90%以上覆盖新锡	$245 \pm 5^{\circ}\text{C}$ 持续 3 秒 $245 \pm 5^{\circ}\text{C}$ for 3 seconds
热冲击测试 Thermal Shock	RTP35S、RTP35、RTP50: $\Delta R \pm 0.3\%$	$-65^{\circ}\text{C} \sim +150^{\circ}\text{C}$ ，100 次循环 $65^{\circ}\text{C} \sim +150^{\circ}\text{C}$, 100 cycles
	RTP100: $\Delta R \pm 0.5\%$	
引线强度 Lead strength	$\Delta R \pm 0.2\%$	（拉力测试）2.4 牛顿 (Tensile test) 2.4 Newtons
高频震动 High-frequency vibration	RTP35S、RTP35、RTP50: $\Delta R \pm 0.2\%$	20 公克震动 20 grams of vibration
	RTP100: $\Delta R \pm 0.4\%$	
绝缘强度 Dielectric Strength	$\Delta R \pm 0.15\%$	1800v AC，60 秒 1800v AC，60 seconds
温度循环 Temperature Cycling	$\Delta R \pm 0.3\%$	$-65^{\circ}\text{C} \sim +150^{\circ}\text{C}$ ，1000 次循环 $-65^{\circ}\text{C} \sim +150^{\circ}\text{C}$, 1000 cycles

选型示例 Selection example: RTP100 /120RJ

RTP	100	120R	J
产品类型 product type	功率 Power	阻值 Resistance	精度 Accuracy
RTP	100 Watts	120R	D: 0.5% F: $\pm 1\%$ J: $\pm 5\%$

RTP200 功率型厚膜无感电阻器 RTP200 power type thick film non inductive resistor

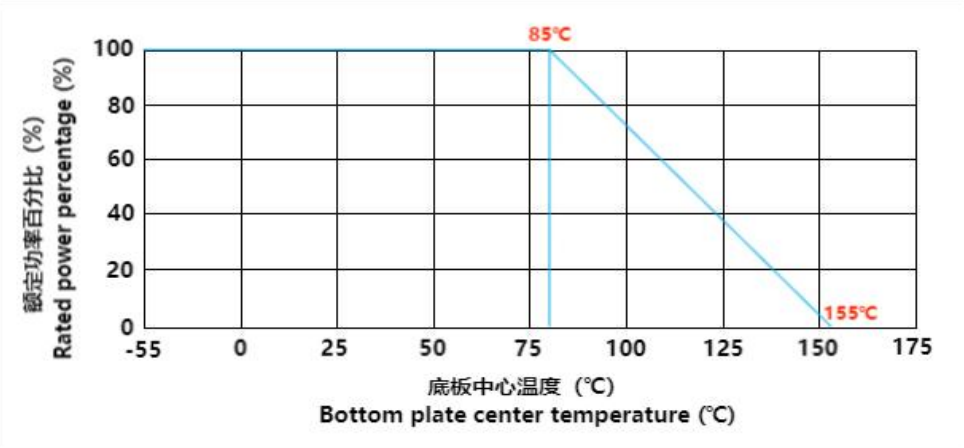
产品特点 Features&Applications

- 阻值范围宽、体积小、功率大、耐热性好
Wide resistance range, small size, high power, good heat resistance
- 可以用 2 个 M4 螺钉简单地安装。
It can be easily installed with 2 M4 screws.
- 电阻器的高度在端子面极低，为 11.8mm，端子为铜板衬套可直接用 M4 螺钉安装。
The height of the resistor is extremely low on the terminal surface, at 11.8mm, and the terminal is a copper plate bushing that can be directly installed with M4 screws.
- 端子的数量标准为 4 个，可以变更为 2 个、3 个。
The standard quantity of terminals is 4, which can be changed to 2 or 3.
- SOT-227 标准封装 SOT-227 standard packaging

适用范围 scope of application

主要应用于变速驱动器、供电、控制设备、通讯、自动控制、发动机控制等。适合逆变器电路、脉冲电路、高频电路。
Mainly used in variable speed drives, power supply, control equipment, communication, automatic control, engine control, etc. Suitable for inverter circuits, pulse circuits, and high-frequency circuits.

降功率曲线 Power reduction curve



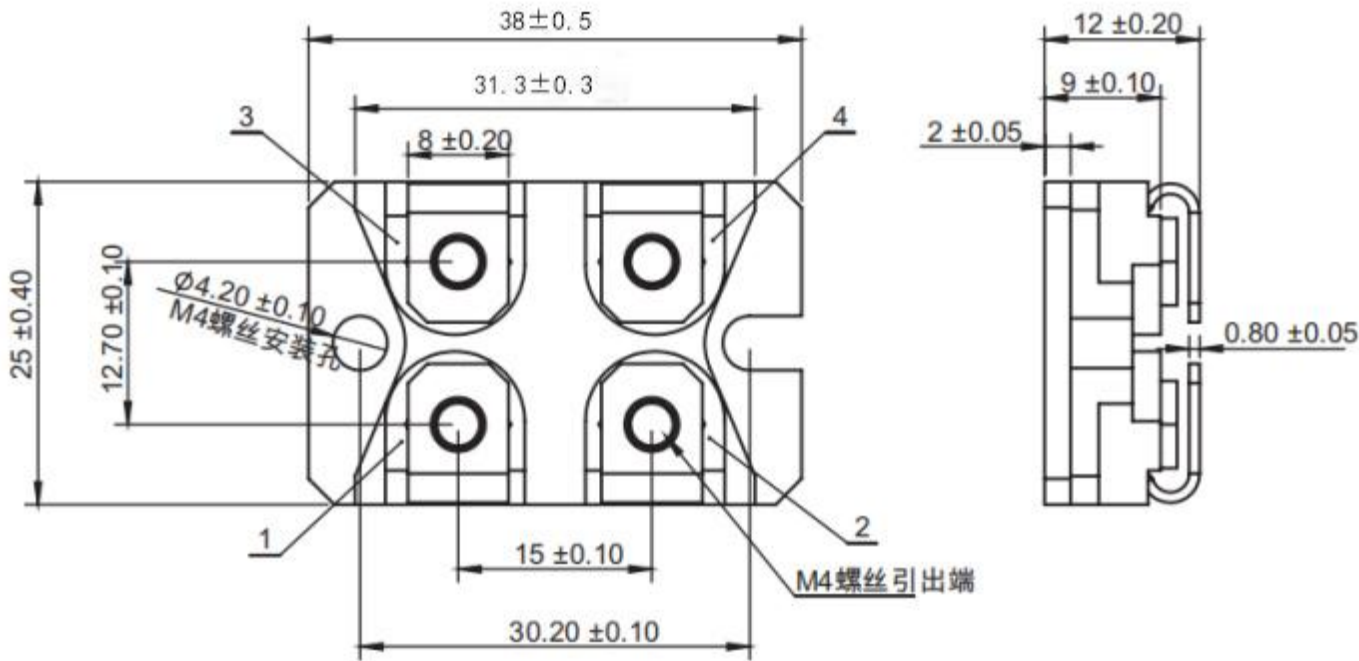
性能参数 performance parameter

型号规格 Model specifications	额定功率 rated power (W)	阻值范围 Resistance range	阻值允许偏差 Resistance Tolerance	电阻温度系数 temperature coefficient (PPM/°C)	最大工作电压 Maximum working voltage U max (V)	耐电压 withstanding voltage (KV /AC)
RTP200	200W	0.1Ω~1MΩ	±1% 、 ±2% ±5% 、 ±10%	±50、 ±100、 ±250	500V	4

性能指标 Performance evaluation

试验项目 Test items	试验条件 Experimental conditions	性能指标 Performance indicators
温度快速变化 Rapid temperature changes	-55℃~+155℃，经五次循环；极限温度暴露时间：30 分钟；转换时间：1~2 分钟 -55 ℃ to+155 ℃, after five cycles; Extreme temperature exposure time: 30 minutes; Conversion time: 1-2 minutes	电阻器应无可见损伤且标志清楚， The resistor should have no visible damage and clear markings, $\Delta R \leq \pm (0.5\%R + 0.05 \Omega)$
电阻温度系数 Temperature coefficient of resistance	-55℃~+155℃	TCR 在 $\pm 150 \times 10^{-6}/K$ 之内 TCR within $\pm 150 \times 10^{-6}/K$
绝缘电阻 insulation resistance	正常气候条件下，在电阻器的金属散热板与引出端之间测试绝缘电阻，试验电压（直流）为 500±5V Under normal weather conditions, test the insulation resistance between the metal heat dissipation plate of the resistor and the lead out terminal, with a test voltage (DC) of 500 ± 5V	绝缘电阻应 $\geq 10G \Omega$ The insulation resistance should be $\geq 10G \Omega$
过载 overload	施加额定功率 2 倍的直流电压（ $U_s \leq 1.5U_{max}$ ）时间为 5s Apply a DC voltage of twice the rated power ($U_s \leq 1.5 U_{max}$) for 5 seconds	电阻器应无可见损伤且标志清楚， The resistor should have no visible damage and clear markings, $\Delta R \leq \pm (0.5\%R + 0.05 \Omega)$
稳态湿热 Damp heat steady state	温度：40±2℃；湿度 95%；时间：56 天 Temperature: 40 ± 2 ℃; Humidity of 95%; Time: 56 days	电阻器应无可见损伤且标志清楚， The resistor should have no visible damage and clear markings, $\Delta R \leq \pm (0.5\%R + 0.05 \Omega)$
寿命 life	施加电压：额定功率直流电压（ $U_R \leq U_{max}$ ）1.5 小时通电，0.5 小时断电，总时长 1000 小时 Applied voltage: rated power DC voltage ($U_R \leq U_{max}$), powered on for 1.5 hours, powered off for 0.5 hours, total duration 1000 hours	电阻器应无可见损伤且标志清楚， The resistor should have no visible damage and clear markings, $\Delta R \leq \pm (0.5\%R + 0.05 \Omega)$
耐电压 withstanding voltage	施加交流有效值电压 4000V，时间为 1 分钟±5 秒 Apply an effective AC voltage of 4000V for 1 minute ± 5 seconds	电阻器无击穿或飞弧现象，漏电流 $\leq 10mA$ The resistor has no breakdown or arcing phenomenon, and the leakage current is $\leq 10mA$
振动 vibrate	按 GB/T2423.10-2019 要求进行试验，振动频率为 10Hz, 振幅 0.35mm, 加速度 50m/s ² , 每个方向 2 次扫频, 3 个方向, 每个方向持续时间 23 分钟 Conduct the test according to the requirements of GB/T2423.10-2019, with a vibration frequency of 10Hz, amplitude of 0.35mm, acceleration of 50m/s ² , 2 frequency scans in each direction, 3 directions, and a duration of 23 minutes in each direction	电阻器塑封体应无机械损伤，阻值变化在 $\pm 2\%R + 0.05 \Omega$ 之内 The plastic casing of the resistor should have no mechanical damage, and the resistance change should be within $\pm 2\% R + 0.05 \Omega$

规格参数 Specification parameter



左下角引出端为 1 号引出端，按顺时针旋转分别为 3 号、4 号、2 号引出端
The lead out terminal in the lower left corner is the first lead out terminal, which rotates clockwise to become the second, third, and fourth lead out terminals, respectively

电路结构图 Circuit structure diagram



选型示例: RTP200-3-40RJ

RTP200	3	40R	J
型号 Model	电路结构 Circuit	阻值 Resistance	精度 Accuracy
			F: $\pm 1\%$ G: $\pm 2\%$ J: $\pm 5\%$ K: $\pm 10\%$

注意事项 points for attention

- 电阻器通过 M4 螺丝安装在散热器上，螺丝安装扭矩为 2N.m，应确保产品安装紧固，无晃动。另外应为螺丝配套防松组件，如：平垫、弹垫、防松螺母等。

The resistor is installed on the heat sink with M4 screws, and the installation torque of the screws is 2N. m. It should be ensured that the product is installed firmly without shaking. In addition, screws should be equipped with anti loosening components such as flat washers, spring washers, anti loosening nuts, etc.

- 电阻器引出端电气安装使用的是 M4 螺丝，螺丝安装扭矩为 1.3N.m，应确保电气连接紧固，无晃动。另外应为螺丝配套防松组件，如：平垫、弹垫等，防止振动造成电气连接松脱。

M4 screws are used for the electrical installation of the resistor lead out end, with a torque of 1.3N. m. It should be ensured that the electrical connection is tight and there is no shaking. In addition, screws should be equipped with anti loosening components, such as flat washers, spring washers, etc., to prevent electrical connections from loosening due to vibration.

- 电阻器与安装面之间需要均匀的涂覆一层导热硅脂，推荐使用导热系数 1W/mK 的导热硅脂产品。

A uniform layer of thermal grease should be applied between the resistor and the installation surface. It is recommended to use thermal grease products with a thermal conductivity of 1W/mK.

- 产品在贮存期间，应贮存在环境温度为-10℃~+45℃，相对湿度不大于 85%，通风、干燥、周围无酸碱或其他有害物质的仓库内。

During storage, the product should be stored in a warehouse with an ambient temperature of -10 °C to +45 °C, a relative humidity of no more than 85%, ventilation, dryness, and no acidic, alkaline, or other harmful substances around it