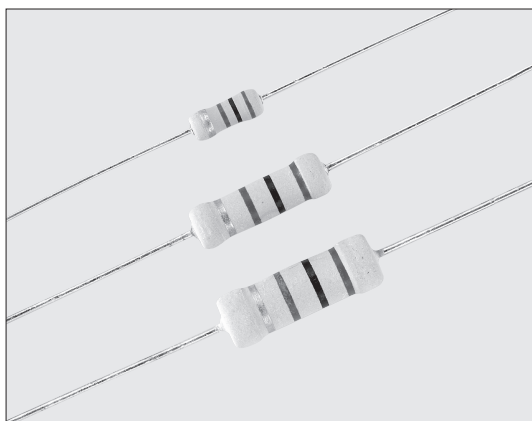


RESISTANCE TO POWER SURGE



PCF 耐脉冲耐浪涌陶瓷电阻器 Ceramic Resistors for Anti Pulse • Surge



外观颜色: 淡绿色 Coating color: Light green
表示: 色码 Marking: Color code

■ 特点 Features

- KOA独自の陶瓷体电阻器
- 耐脉冲特性优异
- 相对于绕线和膜层电阻不会断线可靠性非常高
- 对应欧盟RoHS
- 难燃性涂层
- KOA original ceramic resistors.
- Excellent in anti-pulse characteristics.
- More reliable than wirewound resistors and film resistors against disconnection failure.
- Products meet EU-RoHS requirements.
- Flame retardant coating. (Equivalent to UL-94 V-0)

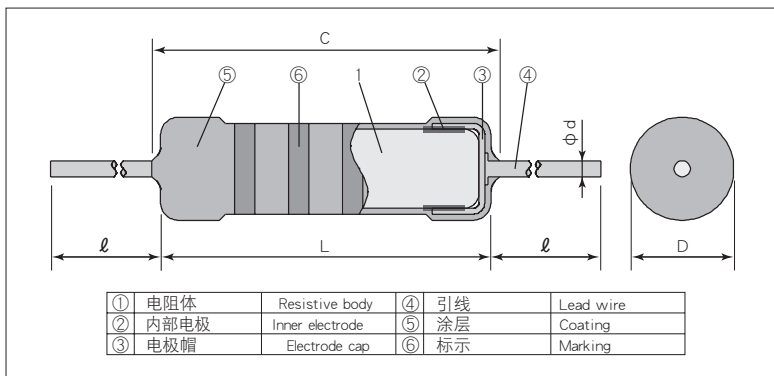
■ 用途 Applications

- X射线设备, 电子显微镜等的高电压线路用
- 加工设备的电源线路用
- High voltage circuits for X-ray generators and electron microscopes.
- Power supply circuits for machine tools, etc.

■ 参考标准 Reference Standards

IEC 60115-1
JIS C 5201-1

■ 结构图 Construction



■ 外形尺寸 Dimensions

型号 Type	尺寸 Dimensions (mm)					Weight (g) (1000pcs)
	L ± 2	C max.	D	d (Nominal)	l ± 3	
PCF1/2	9.0	11.1	3.5 ± 0.5	0.7	30.0	450
PCF1	16.5	19.0	5.5 ± 1.0			1340
PCF2	19.0	22.5	7.0 ± 1.0			2240

■ 品名构成 Type Designation

实例 Example	PCF	1	C	T631	R	103	K
品种 Product Code	PCF						
额定功率 Power Rating		1/2: 0.5W 1: 1.0W 2: 2.0W					
端子表面材质 Terminal Surface Material			C: SnCu				
二次加工 Taping				参照下述 See table Below			
包装 Packaging					R: 卷 R: REEL		
公称电阻值 Nominal Resistance						3 digits	
阻值允许偏差 Resistance Tolerance							K: ± 10% M: ± 20%

预知关于此产品含有的环境负荷物质详情(除EU-RoHS以外), 请与我们联系。

编带细节请参考卷末附录C.

Contact us when you have control request for environmental hazardous material other than the substance specified by EU-RoHS.

For further information on taping, please refer to APPENDIX C on the back pages.

■ 二次加工对应表 Taping

型 号 Type	轴向编带 Axial Taping	
	T52	T631
PCF1/2	○	—
PCF1	—	○
PCF2	—	○

■ 额定值 Ratings

型 号 Type	额定功率 Power Rating	电阻值范围 (Ω) Resistance Range		电阻温度系数 T.C.R. (× 10 ⁻⁶ /K)	最高使用电压 Max. Working Voltage	最高过载电压 Max. Overload Voltage	最高脉冲电压※1 Max. Pulse Voltage	额定环境温度 Rated Ambient Temperature	编带和包装数 Taping & Q'ty (pcs)	
		K: ± 10% E12	M: ± 20% E6						T52	T631
PCF1/2C	0.5W	4.7~100k	4.7~100k	— 900 ± 300 : R < 100 Ω — 1300 ± 300 : R ≥ 100 Ω	200V	400V	10kV	500V	2,000	—
PCF1C	1.0W				300V	600V	14kV		—	1,000
PCF2C	2.0W	3.3~390k	3.3~390k		400V	800V	20kV	700V	—	500

额定环境温度 Rated Ambient Temperature: +70℃

使用温度范围 Operating Temperature Range: -40℃ ~ +200℃

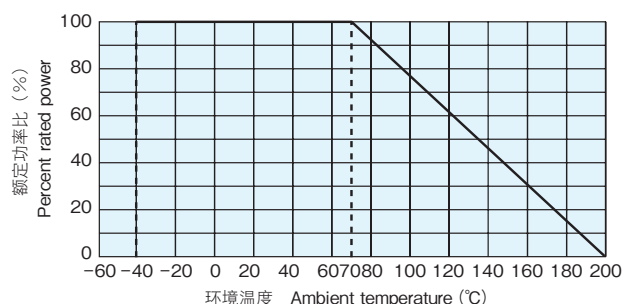
额定电压是√额定功率×公称电阻值所算出的值或表中最高使用电压两者中小的值为额定电压。

Rated voltage = √Power Rating × Resistance value or Max. working voltage, whichever is lower.

※1 性能表中高压脉冲实验条件下的最高脉冲电压

※1 The maximum pulse voltage in the "Resistance to pulse" examination condition of the performance column.

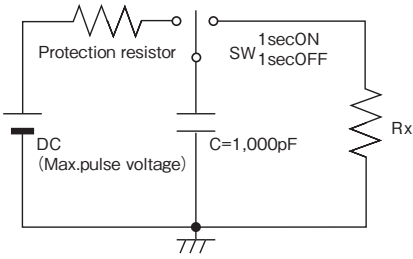
■ 负荷特性曲线 Derating Curve



在环境温度70℃以上使用时，7 应按照左图负荷特性曲线，减小额定功率。

For resistors operated at an ambient temperature of 70℃ or above, a power rating shall be derated in accordance with the derating curve on the left.

■ 性能 Performance

试验项目 Test Items	标准值 Performance Requirements $\Delta R \pm (\% + 0.05 \Omega)$		试验方法 Test Methods
	保证值 Limit	代表值 Typical	
电阻值 Resistance	在规定的容许差内 Within specified tolerance	—	25℃ 电阻值 Resistance 测定电压 Measuring voltage 3.3Ω~8.2Ω 0.3V 10Ω~82Ω 1.0V 100Ω~390kΩ 3.0V
电阻温度系数 T.C.R.	$-900 \pm 300 \times 10^{-6}/K$: $R < 100 \Omega$ $-1300 \pm 300 \times 10^{-6}/K$: $R \geq 100 \Omega$	—	+25℃/-40℃、+25℃/+75℃ and +25℃/+125℃
电压系数 (在1kΩ以上适用) Voltage coefficient (Apply for 1kΩ or over)	0~-0.20%/V	—	额定电压和额定电压×10% Rated voltage and rated voltage×10%
过载 (短时间) Overload (Short time)	2	0.4	额定电压×2.5倍或最高过载电压中低的一方施加5秒 Rated voltage×2.5 or Max. overload vol., whichever is lower, for 5s.
高压脉冲 Resistance to pulse	5	—	在试验电路中，从最高脉冲电压上充电的电容器，以1秒ON、1秒OFF，向10000循环电阻施加高压脉冲 The resistor mounted on to the test circuit as below is applied with high voltage impulse 10000 cycles. 
耐焊接热 Resistance to soldering heat	2	0.8	350℃±10℃、3.5s±0.5s
温度突变 Rapid change of temperature	2	0.4	-40℃ (30min.) / +85℃ (30min.) 5 cycles
耐湿负荷 Moisture resistance	5	0.6	40℃±2℃, 90%~95%RH, 1000h 1.5小时ON、0.5小时OFF的周期 1.5h ON/0.5h OFF cycle
额定负荷 Load life	5	0.4	70℃±2℃, 1000h 1.5小时ON、0.5小时OFF的周期 1.5h ON/0.5h OFF cycle
耐溶剂性 Resistance to solvent	应外观无异常，表示可以容易地辨认 No abnormality in appearance. Marking shall be easily legible.	—	在异丙醇或二甲苯中浸3分钟，除去滴液后放置10分钟后，刷10次 Dipping in IPA or Xylene for 3 min. and leaving for 10 min. after removing drops, then brushing 10 times.

■ 使用注意事项 Precautions for Use

- 在容易发生雷击等浪涌的环境中，在开放电路中使用的电阻器，直接连接输入、输出、接地的电阻器，在施加了脉冲的电路中使用电阻器，由于电阻器有可能为浪涌和脉冲所破坏，因而，对有可能性的电涌和脉冲，需要设想最坏状态，进行充分检验后，选定电阻器。
- 给该产品上涂层可以使其标志更加明显，另外，不具有任何电子性能（绝缘介电强度等）。该产品的涂层易被损坏，因此，在运输盖的时候，盖上的涂层可能会脱落。请认准那些即使在涂层上有脱落、磨损或针孔出现但其标志仍然十分清晰的产品，这些产品为非缺陷产品。
- 本产品因为难断线，根据电路零部件的故障等过载若一直持续，电阻体持续过度加热会造成电阻器和周围的可燃性物质发烟，有引燃的可能性。通常使用中，及对异常发生时，电路设计时本产品表面温度不得超过200℃。
- Under the environment where surge like thunders etc. is apt to happen, the resistors used for open circuit, resistors connected directly to input, output or ground, and resistors used for the circuit pulse applied to, may be destructed by surge or pulse. Therefore, the resistors need to be selected after sufficient check on the supposition of the worst condition against possible surge and pulse.
- Be careful to handle these resistors because outer coatings are comparatively weak to outer shock due to flameproof special coats. Please wash them to a minimum. No external force is given to the coating films until they are well dried because the coating films become weaker right after washing. The original strength will be returned after they are dried, so please pay attention not to apply any external force onto the coating film of resistors for 20 minutes after drying. Especially no PC boards shall be piled up.
- When overload is impressed continuously by the trouble of the circuit part because this product is hard to be snapped, a resistor body continues being overheated and emits smoke from a resistor and neighboring flammable materials and may catch fire. In a steady use state and heterology, please design the circuit so that the surface temperature of this product is not as above 200 degrees Celsius.