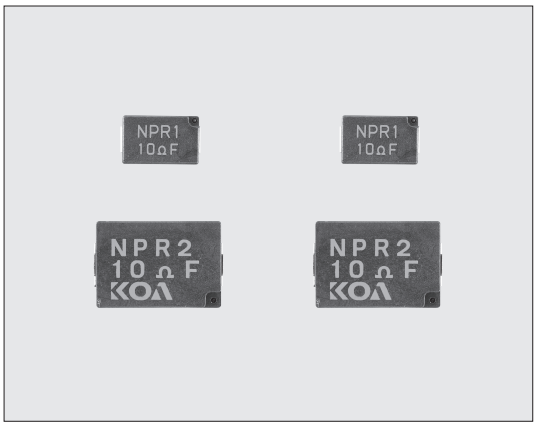
POWER CHIP

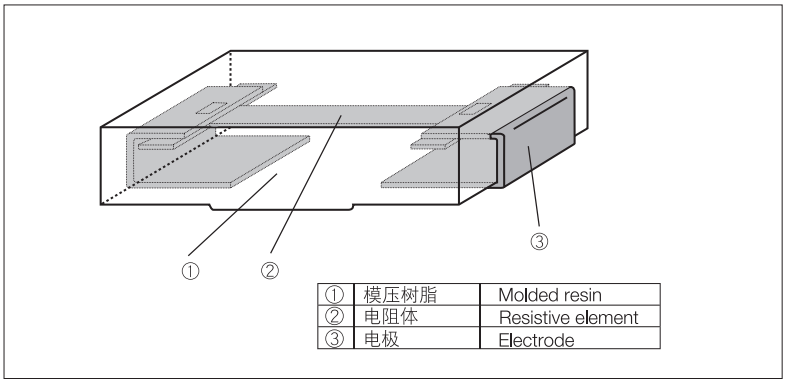
EU RoHS

NPR 功率型片式电阻器
Power Chip Resistors



外观颜色：黑色　Coating color：Black

■ 结构图　Construction



①	模压树脂	Molded resin
②	电阻体	Resistive element
③	电极	Electrode

■ 特点　Features

- 是表面安装型的电力型片状电阻器。
- 是非卷线结构，频率特性良好。
- 是金属板端子电极结构，吸收热膨胀收缩。
- 使用难燃性树脂（UL94V-0）。
- 适用于电源电路、电动机电路等的电流检测电阻器。
- 对应波峰焊、回流焊、烙铁焊接。
- 端子无铅品，对应欧盟RoHS。电极、电阻膜层、玻璃中所含铅玻璃，不包含在欧盟RoHS指令中。
- Surface mount type power chip resistors.
- Non-wirewound structure, and excellent frequency characteristics.
- Easy to absorb the thermal expansion and shrinkage because of a metal plate terminal electrode structure.
- Molding with flame retardant resin. (UL94 V-0)
- Suitable for current detecting resistors for power supplies, motor circuits, etc.
- Suitable forflow, reflow and iron solderings.
- Products with lead free termination meet EU-RoHS requirements. EU-RoHS regulation is not intended for Pb-glass contained in electrode, resistor element andglass.

■ 品名构成　Type Designation

实例　Example

NPR	1	T	TE	10L	J
品种 Product Code	额定功率 Power Rating	端子表面材质 Terminal Surface Material	二次加工 Taping	公称电阻值 Nominal Resistance	阻值允许偏差 Resistance Tolerance
	1:1W 2:2W	T:Sn (L:Sn/Pb)	TE:Plastic embossed BK:Bulk	F:4 digits J,K:3 digits Ex. 0.1Ω:R10 5mΩ:5L0	F:±1% J :±5% K:±10%

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电阻值范围（Ω） Resistance Value	3位显示 3 digits
3.9m～9.1m	3L9～9L1
10m～91m	10L～91L
0.1～0.91	R10～R91
1～9.1	1R0～9R1

电阻值范围（Ω） Resistance Value	4位显示 4 digits
0.1～0.91	R100～R910
1～9.1	1R00～9R10

端子表面材质，以无铅品为准。
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.
The terminal surface material lead free is standard.
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.

■ 用途　Applications

- 汽车的各种控制电路。
- 开关电源。
- 电动机的控制电路。
- Various controlling circuits for automobiles.
- Switching power supplies.
- Motor controlling circuits.

■ 参考标准　Reference Standards

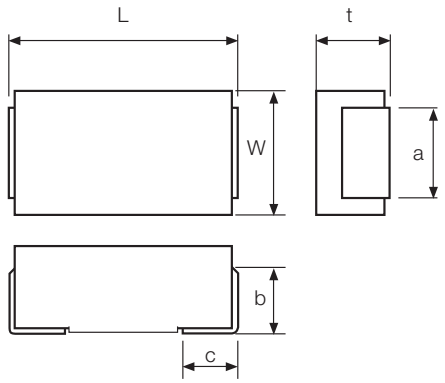
IEC 60115-1
JIS C 5201-1

■ 额定值　Ratings

型　号 Type	额定功率 Power Rating	电阻值范围 Resistance Range（Ω）(E24)			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	额定环境温度 Rated Ambient Temp.	使用温度范围 Operating Temp. Range	编带和包装数/卷 Taping & Q'ty /Reel (pcs)
		F: ±1%	J: ±5%	K: ±10%						TE
NPR1	1W	0.1～10M	10m～22M	3.9m～9.1m	±200:R＜0.1Ω ±100:R≥0.1Ω	350V	700V	+70℃	−55℃～+180℃	1,000
NPR2	2W					500V	1,000V			1,000

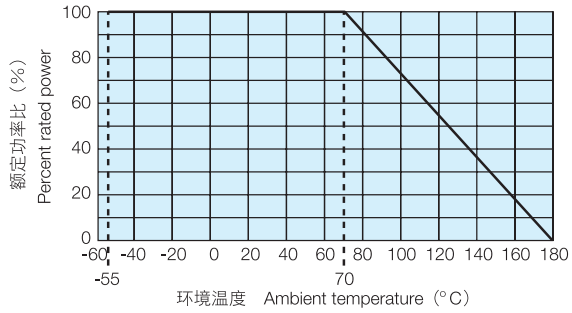
额定电压是√额定功率×公称电阻值所算出的值或表中最高使用电压两者中小的值为额定电压。
Rated voltage = √ Power Rating×Resistance value or Max. working voltage, whichever is lower.

■ 外形尺寸　Dimensions



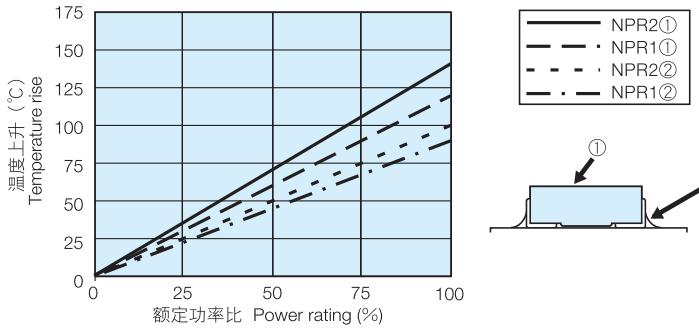
型号 Type	尺寸 Dimensions （mm）						Weight (g) (1000pcs)
	L±0.5	W±0.3	t	a±0.3	b	c	
NPR1	7.5	4.5	2.0±0.3	2.5	1.3±0.3	1.4±0.3	150
NPR2	12.0	8.0	4.0±0.5	4.0	3.0±0.5	1.5±0.5	750

■ 负荷特性曲线　Derating Curve



在环境温度70℃以上使用时，应按照上图负荷特性曲线，减小额定功率。
For resistors operated at an ambient temperature of 70ºC or above, a power rating shall be derated in accordance with the above derating curve.

■ 温度上升　Temperature Rise



表面温度上升，由于是由本公司测定条件测定的，它们的数值因使用状况、使用基板而不同，因此，在使用时，请另行询问。
Regarding the temperature rise, the value of the temperature varies per conditions and board for use since the temperature is measured under our measuring conditions. Please refer to us before use.

■ 性能　Performance

试验项目 Test Items	标准值　Performance Requirements ΔR±%		试验方法 Test Methods
	保证值　Limit	代表值　Typical	
电阻值 Resistance	在规定的允许偏差内 Within specified tolerance	–	25℃
电阻温度系数 T.C.R.	在规定值以内 Within specified T.C.R.	–	+25℃/+125℃
过载（短时间） Overload（Short time）	1	1	额定电压×2.5倍施加5秒钟 Rated voltage ×2.5 for 5s
耐焊接热 Resistance to soldering heat	1	1	260℃±5℃, 10s±1s
温度突变 Rapid change of temperature	1	1	–40℃（30min.）/+155℃（30min.）5 cycles
耐湿负荷 Moisture resistance	2	1.5	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
在70℃时的耐久性 Endurance at 70℃	2	0.5	70℃±2℃, 1000h 1.5小时ON、0.5小时OFF的周期　1.5h ON/0.5h OFF cycle
低温放置 Low temperature exposure	0.5	0.25	−55℃, 1h

■ 使用注意事项　Precautions for Use

- 作为分流电阻使用时，应考虑和周围线圈的电磁感应后配置模式。
- 在50 mΩ以下的电阻值，根据焊接区模式大小和接续焊接的量，焊接后的电阻值会变动。应在事前确认电阻值降低•提高的影响后，进行设备设计。

- In case of using the low ohm resistors as shunt resistors, please lay out a pattern considering the electromagnetic induction with surrounding inductors.
- In the resistance values of 50mΩ or under, the resistance value after soldering may change depending on the size of pad pattern or solder amount. Make sure the effect of decline/increase of resistance value before designing.