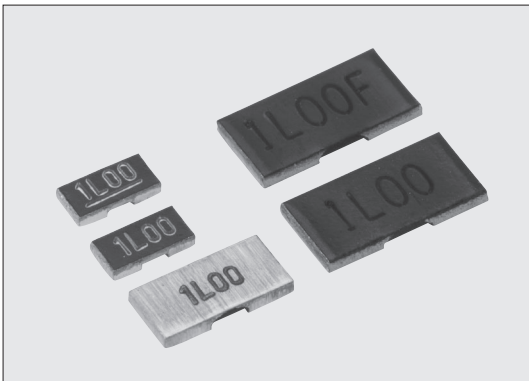


CURRENT SENSING



TLR 金属板贴片式低阻值电阻器 Metal Plate Chip Type Low Resistance Resistors



外观颜色: 黑色 (2BN (1mΩ, 1.5mΩ), 2B (1mΩ, 1.5mΩ), 3A, 3AW (0.5m~1.5mΩ))
Coating color: Black (2BN (1mΩ, 1.5mΩ), 2B (1mΩ, 1.5mΩ), 3A, 3AW (0.5m~1.5mΩ))

特点 Features

- 是超低电阻 (0.5mΩ~) 器, 适用于对大电流的检测。
- 厚度0.6mm超低背型, 适于对小型设备的使用。
- 高频率特性优异。
- 可自动贴装。
- 对应回流焊接。
- 符合欧盟RoHS。
- AEC-Q200相关数据已取得。
- Ultra low resistances (0.5mΩ~), suitable for large current sensing.
- Ultra low height with a thickness of 0.6mm, suitable for use of small equipment.
- Excellent high-frequency characteristics.
- Automatic mounting machines are applicable.
- Suitable for reflow soldering. (Not suitable for flow soldering)
- Products meet EU-RoHS requirements.
- AEC-Q200 qualified.

用途 Applications

- CPU的电流检测。
- 变频器电源。
- DC-DC换流器。
- 移动设备
- Current detection for CPU
- Inverter power supplies
- DC-DC converters
- Mobile device etc.

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	额定环境温度 Rated Ambient Temp.	额定端子部温度 Rated Terminal Part Temp.	电阻温度系数 T.C.R. (×10 ⁻⁶ /K)	电阻值范围 Resistance Range (Ω)	阻值允许偏差 Resistance Tolerance	使用温度范围 Operating Temp. Range	编带和包装数/卷 Taping & Qty /Reel (pcs)	
								TD	TE
TLR 2B	0.5W	+70℃	+105℃	± 50	2m,3m,4m,5m,6m,7m,8m,9m,10m,11m,12m,13m,15m,16m,18m,20m	F: ±1%	-65℃~+155℃	5,000	-
TLR 2BN				± 75	1m,1.5m,2m,3m,4m,5m,6m,7m,8m,9m,10m,11m,12m,13m,15m,16m,18m,20m			5,000	-
TLR 2H	± 50			1m,2m,3m,4m,5m,6m,7m,8m,9m,10m	-			4,000	
TLR 3A	1.0W			± 75	1m,2m			-	-
				± 150	3m,4m			-	2,000
TLR 3AW	2.0W			± 200	2m,3m,4m,5m,6m,7m,8m,9m,10m			-	-
		± 50	0.5m,0.68m,0.75m,0.82m,1m,1.5m,2m ^{※2} ,3m,4m,5m,6m,7m,8m,9m,10m	-	2,000				
		± 75	0.5m,0.68m,0.75m,0.82m,1m,1.5m,2m,3m,4m,5m,6m,7m,8m,9m,10m	-	2,000				

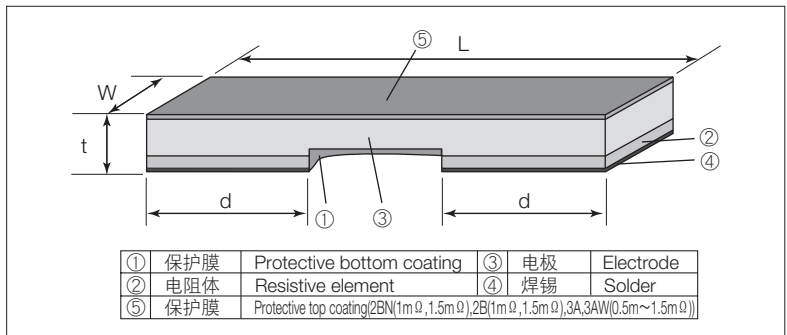
※2 关于未满足2mΩ的产品, 请您另行询问。 Please ask separately us about dimensions of 2mΩ.
根据客户的使用状况, 如果不清楚是该使用额定环境温度还是额定端子部温度, 请以额定端子部温度为优先。
详情请参照14~17页的“端子部温度负荷特性曲线的说明”。

If any questions arise whether to use the "Rated Ambient Temperature" or the "Rated Terminal Part Temperature" in your usage conditions, please give priority to the "Rated Terminal Part Temperature".
For more details, please refer to "Introduction of the derating curves based on the terminal part temperature" in page 14 to 17.

本产品目录中记载的产品规格如有变更, 恕不一一奉告。订购以及使用之前, 请仔细确认规格表的内容。
用于车载设备、医疗设备、航空设备以及其它涉及人身安全、或可能引起重大损失的设备上时, 请务必事先与我公司联系。这些产品在这类用途中出现故障或失灵可能导致人身事故或严重损坏。
Specifications given herein may be changed at any time without prior notice. Please confirm technical specifications before you order and/or use.
Contact our sales representatives before you use our products for applications including automobiles, medical equipment and aerospace equipment.
Malfunction or failure of the products in such applications may cause loss of human life or serious damage.

Nov. 2018

结构图 Construction



外形尺寸 Dimensions

型号 Type	电阻值 (Ω) Resistance	尺寸 Dimensions (mm)			
		L	W	d	t
TLR2BN, 2B (1206)	1m, 1.5m	3.2±0.2	1.6±0.2	1.1±0.2	0.6±0.2
	2m, 3m, 4m, 5m, 6m, 7m, 8m, 9m, 10m, 11m, 12m, 13m, 15m, 16m, 18m, 20m			0.5±0.2	
TLR2H (2010)	1m	5.0±0.2	2.5±0.2	1.8±0.2	0.65±0.2
	2m, 3m, 4m, 5m, 6m			1.5±0.2	
	7m, 8m, 9m, 10m			0.5±0.2	
TLR3A (2512)	1m	6.35±0.25	3.18±0.25	2.20±0.25	0.62±0.25
	2m			1.20±0.25	
	3m			1.85±0.25	
	4m			1.20±0.25	
TLR3AW (2512)	0.5m	6.35±0.25	3.18±0.25	2.725±0.25	0.6±0.25
	0.68m, 0.75m, 0.82m			2.675±0.25	
	1m, 1.5m, 2m, 3m, 4m			2.20±0.25	
	5m, 6m, 7m, 8m			1.20±0.25	
	9m, 10m			0.77±0.25	

品名构成 Type Designation

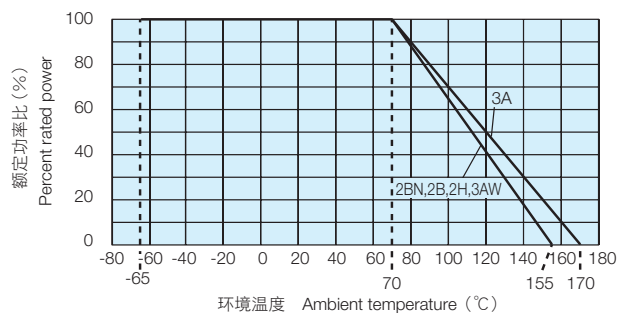
实例 Example	TLR	2B	D	TD	10L0	F	75
品种 Product Code	TLR	2B	D	TD	10L0	F	75
额定功率 Power Rating		2B: 0.5W 2B: 0.5W 2H: 1.0W 3A: 1.0W 3AW: 2.0W	端子表面材质 Terminal Material	二次加工 Taping	公差电阻值 ^{※1} Nominal Resistance	阻值允许偏差 Resistance Tolerance	电阻温度系数 T.C.R. (×10 ⁻⁶ /K)
			D: SnAgCu	TD: 4mm pitch punch paper TE: Plastic embossed BK: Bulk	F: 4 digits	F: ±1%	Nil: ±150, ±200 50: ±50 75: ±75

电阻值范围 (Ω) Resistance Value	4位显示 4 digits
0.5m~0.82m	L500~L820
1m~9m	1L00~9L00
10m~20m	10L0~20L0

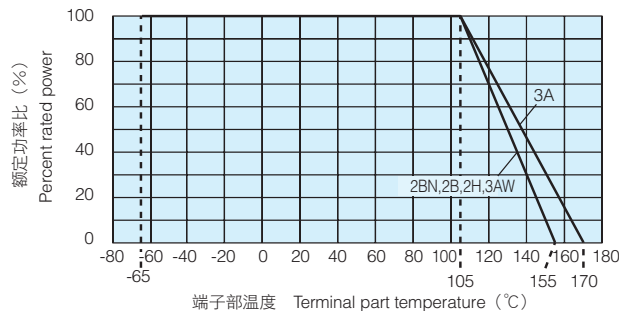
欲知关于此产品含有的环境负荷物质详情 (除EU-RoHS以外), 请与我们联系。
编带细节请参考卷末附录C。

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.

■ 负荷减轻特性曲线 Derating Curve

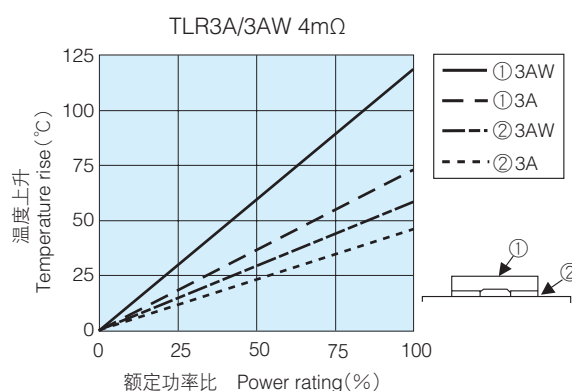
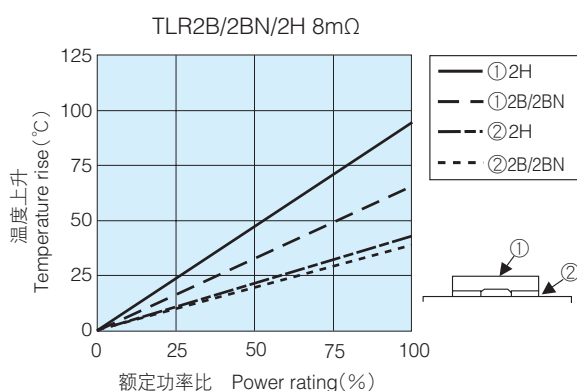


在环境温度70°C以上使用时，应按照上图负荷减轻特性曲线，减小额定功率。
For resistors operated at an ambient temperature of 70°C or above, a power rating shall be derated in accordance with the above derating curve.



超过上述端子部温度使用时，请根据负荷减轻特性曲线减小额定功率后使用。
※关于使用方法，请参照卷首的“端子部温度负荷减轻特性曲线的说明”。
For resistors operated terminal part temperature of described for each size or above, a power rating shall be derated in accordance with derating curve.
※Please refer to “Introduction of the derating curves based on the terminal part temperature” on the beginning of our catalog before use.

■ 温度上升 Temperature Rise



表面温度上升，由于是用本公司测定条件测定的，根据使用状况、使用基板不同，数值也有不同，因此在使用时应另行询问。

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°C
电阻温度系数 T.C.R.	在规定值以内 Within specified T.C.R.	-	+25°C/+125°C
耐焊接热 Resistance to soldering heat	0.5	0.3	260°C ± 5°C, 10s ± 0.5 s
温度突变 Rapid change of temperature	0.5	0.4	-55°C (15min.) / +150°C (15min.) 1000 cycles
耐湿性 (温湿度循环) Moisture resistance	0.5	0.1	MIL-STD-202, 106, 0% power, 7a and 7b not required
耐湿负荷 Moisture resistance	0.5	0.1	85°C ± 2°C, 85%RH, 1000h, 10% Bias
在70°C时的耐久性 Endurance at 70°C	1	0.3	70°C ± 2°C, 1000h, 1.5h ON/0.5h OFF cycle
高温放置 High temperature exposure	1	0.6	+155°C (2BN, 2B, 2H, 3AW), +170°C (3A), 1000h

■ 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型。
- 在TLR的电阻值，根据焊盘图案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 TLR 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.