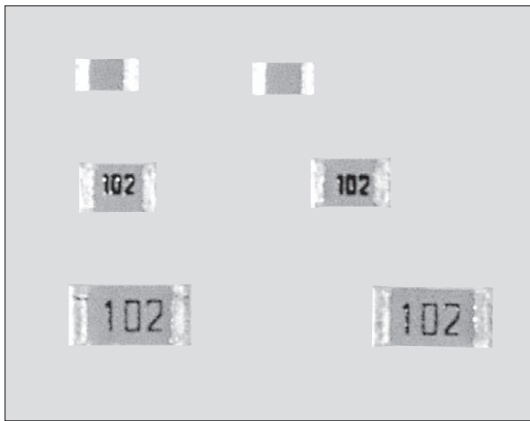


LA73 矩形片式厚膜正温线性温度传感器 Thick Film Linear Positive Temperature Coefficient Flat Chip Resistors

温度传感器
Thermal Sensors



外观颜色: 橙色 Coating color: Orange

特点 Features

- 温度, 电阻值成直线性地变化。
- 热响应速度快。
- 对应回流焊、波峰焊。
- 端子无铅品, 符合欧盟RoHS。在电极、电阻膜层、玻璃中所含的铅玻璃, 不包含在欧盟RoHS指令中。
- Resistance value changes in linearly positive way to temperature.
- Quick response to the change of temperature.
- Suitable for reflow and flow solderings.
- Products with lead free termination meet EU-RoHS requirements. EU-RoHS regulation is not intended for Pb-glass contained in electrode, resistor element and glass.

参考标准 Reference Standards

IEC 60115-8
JIS C 5201-8

额定值 Ratings

型号 Type	热消散系数 Thermal Dissipation Constant (mW/°C)	最高使用电压 Max. Working Voltage (V)	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 & Qty/Reel (pcs)
1J	7.6	25	+70°C	-55°C ~ +125°C	TD 5,000
2A	8.2	50			
2B	9	50			

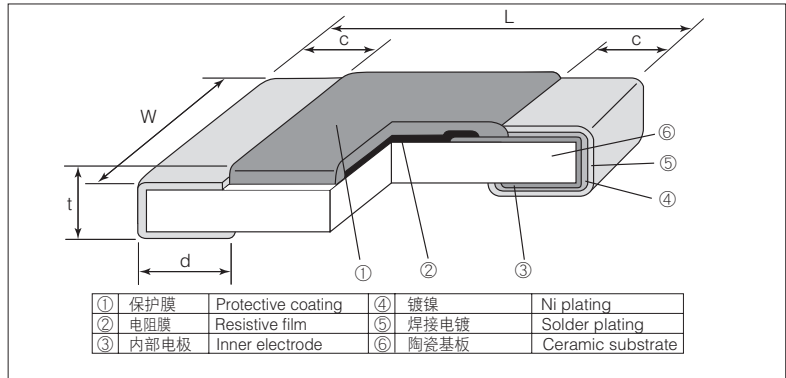
※热时间常数·损耗因数以静止空气中测量的值为参考值。并且, 是单元单体的值由于连接方法和固定方法会变。
※Thermal dissipation constant is reference values, which are values of elements and vary with connecting or fixing methods.

电阻温度系数和电阻值范围 T.C.R. and Resistance Range

电阻温度系数 T.C.R. (×10 ⁻⁶ /K)	电阻温度系数允许偏差 T.C.R. Tolerance	电阻值范围 (Ω) Resistance Range (Ω) E12			阻值允许偏差 Resistance Tolerance
		1J	2A	2B	
1000	±200 × 10 ⁻⁶ /K	1k~10k	1k~10k	1k~10k	J: ±5%
1200		680~6.8k	680~6.8k	680~6.8k	
1400		470~4.7k	470~4.7k	470~4.7k	
1600		470~3.9k	470~3.9k	470~3.9k	
1800		330~2.7k	330~2.7k	330~2.7k	
2000		330~2.7k	330~2.7k	330~2.7k	
2200	±10%	220~1.8k	220~1.8k	220~1.8k	
2400		220~1.2k	220~1.2k	220~1.2k	
2600		100~1.2k	100~1.2k	100~1.2k	
2800		100~390	100~390	100~390	
3000		68~220	68~220	68~220	
3300		33~120	33~120	33~120	
3600		22~82	22~82	22~82	

T.C.R.测定温度 T.C.R. Measuring Temperature: +25°C ~ +75°C

结构图 Construction



外形尺寸 Dimensions

型号 Type (Inch Size Code)	尺寸 Dimensions (mm)					Weight (g/1000pcs)
	L	W	c	d	t	
1J (0603)	1.6±0.2	0.8±0.1	0.3±0.1	0.3±0.1	0.45±0.1	2.2
2A (0805)	2.0±0.2	1.25±0.1	0.4±0.2	0.3 ^{+0.2} _{-0.1}	0.5±0.1	5.1
2B (1206)	3.2±0.2	1.6±0.2	0.5±0.3	0.4 ^{+0.2} _{-0.1}	0.6±0.1	9.5

品名构成 Type Designation

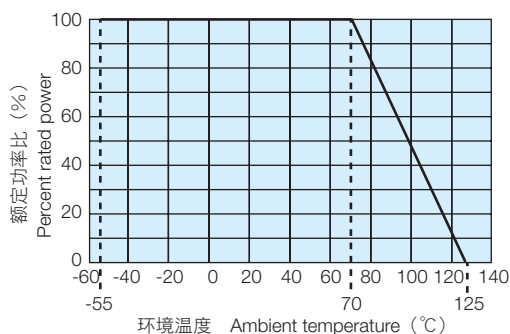
实例 Example

LA73	1J	T	TD	122	J	1000
品种 Product Code	额定功率 Power Rating	端子表面材质 Termination Surface Material	二次加工 Taping	公称电阻值 Nominal Resistance	阻值允许偏差 Resistance Tolerance	电阻温度系数 T.C.R. (×10 ⁻⁶ /K)
	1J: 0.063W 2A: 0.1W 2B: 0.125W	T: Sn (L: Sn/Pb)	TD: 4mm pitch punch paper BK: Bulk	3digits	J: ±5%	4 digits

端子表面材质以无铅品为标准。
欲知关于此产品含有的环境有害物质详情(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.

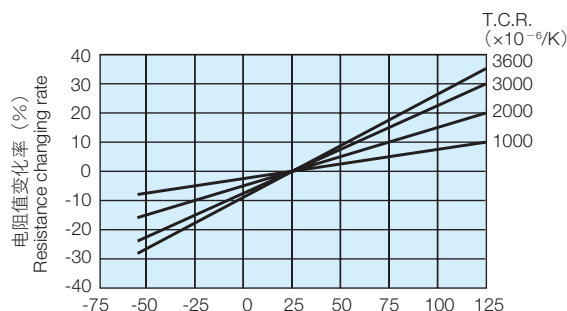
■ 负荷减轻特性曲线 Derating Curve



在环境温度70℃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.

■ 电阻温度特性实例

Examples of Temperature Characteristics of Resistance



■ 电阻温度特性近似式 Approximate Expression for Resistance-Temperature Characteristics

(是代表值，不是保证值。 Values are not guaranteed but typical.)

$$R_T = R_{25} (C_0 + C_1 T + C_2 T^2)$$

R_T : T℃时的电阻值 R_T : Resistance value at T℃
 R_{25} : 25℃时的电阻值 R_{25} : Resistance value at 25℃
 T : 环境温度 (℃) T : Ambient temperature (℃)
 C_0, C_1, C_2 : 常数 C_0, C_1, C_2 : Constants

T.C.R. (×10 ⁻⁶ /K)	C ₀	C ₁	C ₂
3000	0.926	0.00294	1.1×10 ⁻⁷
3300	0.918	0.00325	4.1×10 ⁻⁷
3600	0.910	0.00359	1.7×10 ⁻⁷

■ 性能 Performance

试验项目 Test Items	标准值 Performance Requirements ΔR± (%+0.1 Ω)		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℃/+75℃
过载 (短时间) Overload (Short time)	1	0.5	额定电压的2.5倍或最高使用电压×2倍中低的一方施加5秒钟。 Rated voltage×2.5 or max. working vol.×2 for 5s, whichever is lower.
耐焊接热 Resistance to soldering heat	1	0.5	260℃±5℃, 10s±1s
温度突变 Rapid change of temperature	1	0.5	-55℃ (30min.) /+125℃ (30min.) 100 cycles
耐湿负荷 Moisture resistance	3	1.5	40℃±2℃, 90%~95%RH, 1000h 额定电压施加 Related voltage load 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℃	3	1.5	70℃±2℃, 1000h 额定电压施加 Related voltage load 1.5小时ON、0.5小时OFF的周期 1.5h ON/0.5h OFF cycle

本产品因为在超过70℃高温环境下有电阻值漂移大的倾向，所以请确认之后能使用。还有，本产品使用特殊的皮膜，由于静电破坏皮膜导致电阻变化，所以在静电使用场合请注意。
Confirming resistance drift is recommended since this product has a tendency to have bigger resistance change than general flat chip over 70℃.
Please pay attention not to be applied ESD, it may cause of resistance change.

■ 实效值 (不在保证范围) Actual Value (Out of guarantee)

试验项目 Test Items	参考值 Reference	试验方法 Test Methods
高温放置 High temperature exposure	3%	+125℃, 1000h
静电特性 ESD	300V	人体模型, Human model, 100pF 1.5kΩ

■ 使用注意事项 Precautions for Use

- 这一电阻器通过因施加电力而自身发热，电阻值就变化。因此，应考虑到自身发热后使用。
- 请注意在设备组装修序中，会因静电的发生、施加而使电阻器损伤的情况。
- 虽然元件采用了经过静电处理的编带材质，但是仍然要注意带子上部那些元件会带来危险，从而会导致无法安装或安装受到影响，这种情况是由于在超干躁条件下或包装内的元件在长时间振动的情况下，产生静电 (100pF/1.5kΩ条件下等于300V) 而带来的电阻变化所造成的。同样，电路板上安装元件时，要注意过量静电。
- The resistance value of this resistor changes by its self-heating by power applied. Therefore, it is recommended to use it by taking its self heat-generation into consideration.
- Care must be taken that the resistors may be damaged by occurrence or application of the static electricity in equipment assembling processes.
- Though properly and electrostatically measured taping materials are used for the components, attention should be required because of some danger that the parts absorb on the top tapes to cause mounting failure and are destructed by static electricity (equivalent to 300V at 100pF/1.5kΩ) to change the resistance under the extra dry conditions or after the packaged parts are given vibration for a long time. Similarly, care should be given not to apply the excessive static electricity when mounting the parts on the boards.