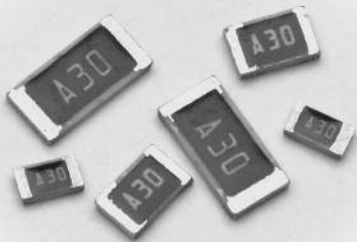
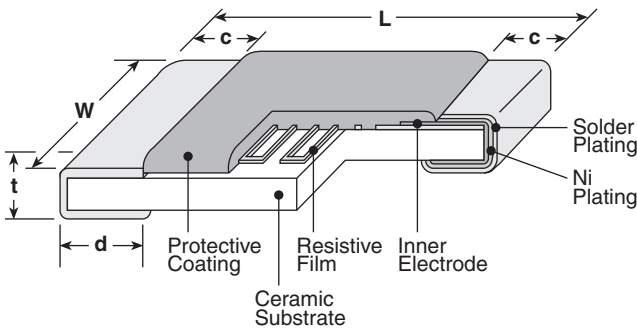


**features**

- Thin film thermal sensors of SMD type
- Resistance tolerance  $\pm 1\%$ , a wide range of TCRs  $+3000 \times 10^{-6}/K \sim +5000 \times 10^{-6}/K$  with the standard products
- Suitable for control of temperatures in various industrial equipment
- Suitable for both flow and reflow soldering
- Marking: Black body color
- Products with lead-free terminations meet EU RoHS and China RoHS requirements



**dimensions and construction**



Type (Inch Size Code)	Dimensions inches (mm)				
	L	W	c	d	t
<b>1J</b> (0603)	.063 $\pm$ .008 (1.6 $\pm$ 0.2)	.031 $\pm$ .008 (0.8 $\pm$ 0.2)	.012 $\pm$ .008 (0.3 $\pm$ 0.2)	.012 $\pm$ .008 (0.3 $\pm$ 0.2)	.02 $\pm$ .004 (0.5 $\pm$ 0.1)
<b>2A</b> (0805)	.079 $\pm$ .008 (2.0 $\pm$ 0.2)	.049 $\pm$ .008 (1.25 $\pm$ 0.2)	.016 $\pm$ .008 (0.4 $\pm$ 0.2)	.016 $\pm$ .008 (0.4 $\pm$ 0.2)	.02 $\pm$ .006 (0.5 $\pm$ 0.15)
<b>2B</b> (1206)	.126 $\pm$ .008 (3.2 $\pm$ 0.2)	.063 $\pm$ .008 (1.6 $\pm$ 0.2)	.02 $\pm$ .012 (0.5 $\pm$ 0.3)	.02 $\pm$ .012 (0.5 $\pm$ 0.3)	.02 $\pm$ .006 (0.5 $\pm$ 0.15)

**ordering information**

New Part #	<b>LP73</b>	<b>2B</b>	<b>T</b>	<b>TE</b>	<b>103</b>	<b>J</b>	<b>3600</b>
	Product Code	Size Code	Termination Material	Packaging	Resistance Value	Tolerance	T.C.R.
		1J: 0603 2A: 0805 2B: 1206	T: Sn	TE: 4mm embossed pitch plastic (5,000 pieces/reel)	2 significant figures + 1 multiplier 3 digits	F: $\pm 1\%$ G: $\pm 2\%$ J: $\pm 5\%$	

**applications and ratings**

Part Designation	Power Rating	Thermal Time Constant (sec.)*	Thermal Dissipation Constant (mW/°C)*	Rated Ambient Temp.	Operating Temp. Range
LP731J	0.016W	2	1.2	+70°C	-55°C to +125°C
LP732A	0.031W	4	1.8		
LP732B	0.063W	6.5	2.4		

\* Thermal Time Constant and Dissipation Constant are reference values, which are values of elements and vary with connecting or fixing methods.

For further information on packaging, please refer to Appendix A.

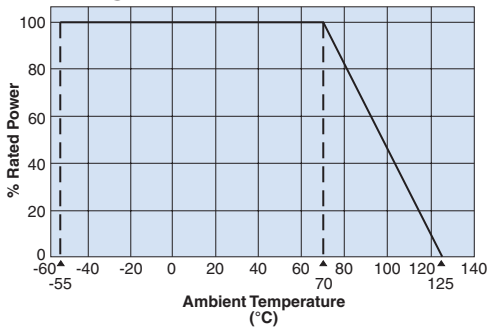
**applications and ratings (continued)**

T.C.R. (ppm/°C) Max.	T.C.R. Tolerance	Resistance Range E-24			Resistance Tolerance
		1J	2A	2B	
3000	±5%	100Ω-1kΩ	100Ω - 2kΩ	100Ω - 10kΩ	F: ±1%, G: ±2% J: ±5%
3300					
3600					100Ω-300Ω
4000		330Ω-1kΩ			F: ±1% G: ±2% J: ±5%
4500		100Ω - 1kΩ			
5000					

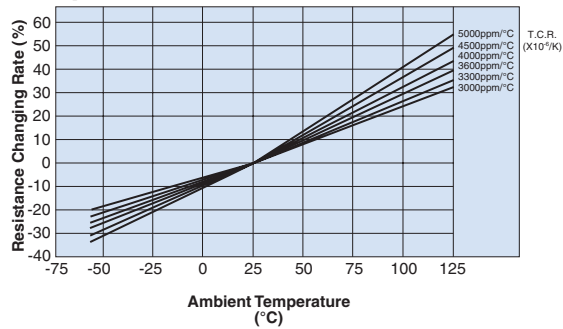
thermal protection

**environmental applications**

**Derating Curve**



**Temperature Characteristics**



**Approximate Expression for Resistance-Temperature Characteristics**

T.C.R. (x10 <sup>-6</sup> /K)	C <sub>0</sub>	C <sub>1</sub>	C <sub>2</sub>
3000	0.931258	0.00265213	3.90112 x 10 <sup>-6</sup>
3300	0.924355	0.00292569	4.00516 x 10 <sup>-6</sup>
3600	0.916356	0.00323714	4.34428 x 10 <sup>-6</sup>
4000	0.907039	0.00361006	4.33457 x 10 <sup>-6</sup>
4500	0.897412	0.00395222	6.05201 x 10 <sup>-6</sup>
5000	0.886014	0.00437224	7.48809 x 10 <sup>-6</sup>

(Values are not guaranteed but typical)

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

R<sub>T</sub>: Resistance value at T°C  
R<sub>25</sub>: Resistance value at 25°C  
T: Ambient temperature (°C)  
C<sub>0</sub>, C<sub>1</sub>, C<sub>2</sub>: Constants

**Performance Characteristics**

Parameter	Requirement Δ R ±(%+0.05Ω)		Test Method
	Limit	Typical	
Resistance	Within regulated tolerance	—	25°C
T.C.R.	Within specified T.C.R.	—	+25°C/+65°C
Overload	±0.5%	±0.3%	Rated voltage x 2.5 for 5 seconds
Resistance to Solder Heat	±0.5%	±0.3%	260°C ± 5°C, 10 seconds ± 1 second
Rapid Change of Temperature	±0.5%	±0.3%	-55°C (30 minutes), +25°C (2-3 minutes), +125°C (30 minutes), +25°C (2-3 minutes), 5 cycles
Moisture Resistance	±2.0%	±1.5%	40°C ± 2°C, 90 - 95% RH, 1000 hours, 1.5 hours ON, 0.5 hours OFF cycle
Endurance at 70°C	±2.0%	±1.5%	70°C ± 2°C, 1000 hours, 1.5 hours ON, 0.5 hours OFF cycle

Confirming resistance drift is recommended since this product has a tendency to have bigger resistance change than general flat chip over 70°C. Please pay attention not to be applied ESD, it may cause of resistance change.

**Actual Value (Out of Guarantee)**

Test Items	Reference	Test Method
High Temperature Exposure	±8.0%	125°C, 1000 hours
ESD	500V	Human model, 100 pF 1.5 kΩ

Specifications given herein may be changed at any time without prior notice. Please confirm technical specifications before you order and/or use.

6/25/12