

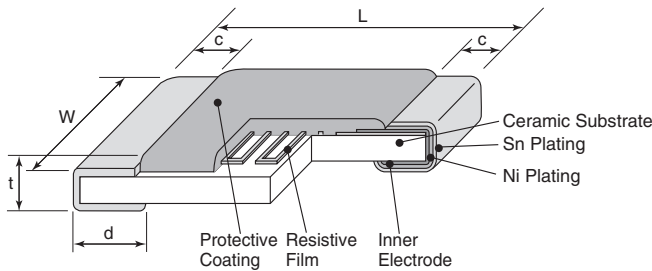
## linear positive temperature coefficient flat chip resistors (for automotive)



### features

- SMD thin film resistors with thermo-perceptivity
- Various TCRs  $+150 - +4500 \times 10^{-6}/K$  are available
- Operating temperature range  $-155^{\circ}C$   
Rated ambient temperature:  $85^{\circ}C$
- Products meet EU RoHS requirements
- AEC-Q200 Tested

### dimensions and construction



Type	Dimensions inches (mm)				
	L	W	c	d	t
<b>2A (0805)</b>	.079±.008 (2.0±0.2)	.049±.008 (1.25±0.2)	.016±.008 (0.4±0.2)	.012 <sup>+0.008</sup> <sub>-.004</sub> (0.3 <sup>+0.2</sup> <sub>-.01</sub> )	.020±.004 (0.5±0.1)
<b>2B (1206)</b>	.126±.008 (3.2±0.2)	.063±.008 (1.6±0.2)	.020±.012 (0.5±0.3)	.016 <sup>+0.008</sup> <sub>-.004</sub> (0.4 <sup>+0.2</sup> <sub>-.01</sub> )	.024±.004 (0.6±0.1)

### ordering information

LT73V	2B	T	TD	102	J	0900
Type	Power Rating	Termination Material	Taping	Nominal Resistance	Resistance Tolerance	T.C.R. ( $\times 10^{-6}/K$ )
	2A:0.1W 2B:0.125W	T:Sn	TD:4mm pitch paper TE:4mm pitch plastic embossed	3 digits	G:±2% J:±5%	4 digits

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

### applications and ratings

Type	Power Rating	Max. Working Voltage	Max. Overload Voltage	Thermal Time Constant*	Thermal Dissipation Constant*	Rated Ambient Temperature	Operating Temperature Range	Taping & Q'ty/Reel (pcs)	
								TD	TE
2A	0.1W	50V	100V	1.0s	1.37mW/°C	+85°C	-55°C - +155°C	5,000	4,000
2B	0.125W	75V	150V	1.5s	1.47mW/°C			5,000	4,000

\* Thermal time constant and dissipation constant are reference values, which are values of elements and vary with connecting or fixing methods.

T.C.R. ( $\times 10^{-6}/K$ )	T.C.R. Tolerance	(Ω) Resistance Range (E24)		Resistance Tolerance
		2A	2B	
150, 250, 350, 450, 500	±100×10 <sup>-6</sup> /K	2k - 15k	2k - 22k	G: ±2%
600, 700, 800, 900	±150×10 <sup>-6</sup> /K	1k - 8.2k	1k - 15k	
1000, 1200, 1400	±15%	1k - 6.8k	1k - 8.2k	J: ±5%
1600, 1800		510 - 4.7k	1k - 6.8k	
2000, 2200, 2400	510 - 4.7k	510 - 6.8k		
2600, 2800, 3000	±10%	510 - 3k	510 - 6.2k	
3300, 3600, 3900		100 - 1k	100 - 2k	
4200		51 - 510	51 - 510	
4500				

T.C.R. Measuring Temperature: +25°C - +75°C

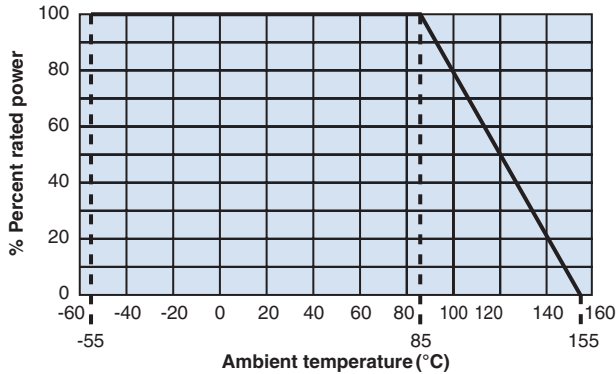
Rated voltage =  $\sqrt{\text{Power Rating} \times \text{Resistance value}}$  or Max. working voltage, whichever is lower.

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

10/26/21

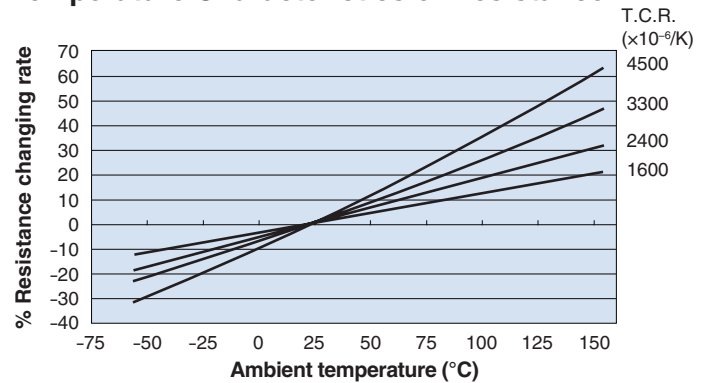
### environmental applications

#### Derating Curve



For resistors operated at an ambient temperature of 85°C or above, a power rating shall be derated in accordance with the above derating curve.

#### Temperature Characteristics of Resistance



### Approximate Expression for Resistance-Temperature Characteristics

Values are not guaranteed but typical.

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

$R_T$ : T°C  
 $R_{25}$ : Resistance value at 25°C  
 $T$ : Ambient temperature (°C)  
 $C_0, C_1, C_2$ : Constants

T.C.R. (x10 <sup>-6</sup> /K)	C <sub>0</sub>	C <sub>1</sub>	C <sub>2</sub>
3000	0.9288	0.0028	1.9983x10 <sup>-6</sup>
3300	0.9232	0.0030	2.9980x10 <sup>-6</sup>
3600	0.9175	0.0032	4.0000x10 <sup>-6</sup>
3900	0.9099	0.0035	4.0064x10 <sup>-6</sup>
4200	0.9026	0.0038	3.9964x10 <sup>-6</sup>
4500	0.8948	0.0041	4.0064x10 <sup>-6</sup>

thermal sensors

### Performance Characteristics

Parameters	Performance Requirements $\Delta R \pm (\% + 0.05\Omega)$		Test Methods
	Limit	Typical	
Resistance	Within specified tolerance	-	25°C
T.C.R.	Within specified T.C.R.	-	+25°C/+75°C
Overload (Short Time)	1%	0.02%	Rated voltage x 2.5 or Max. overload Vol., whichever is lower, for 5 seconds
Resistance to Soldering Heat	1%	0.10%	260°C ± 5°C, 10 seconds ± 1 second
Rapid Change of Temperature	2% : TCR ≤ +3300 5% : TCR ≥ +3600	0.53% 2.59%	-55°C (30min.)/+155°C (30min.), 1000 cycles
Moisture Resistance	3%	0.15%	85°C ± 2°C, 85% ± 5% RH, 1/10 rated power, 1.5h ON/0.5h OFF cycle. 1000 hours
Endurance at 85°C	2% : TCR ≤ +3300 5% : TCR ≥ +3600	0.30% 0.76%	85°C ± 2°C, 1000 hours 1.5h ON/0.5h OFF cycle.
High Temperature Load Life	2% : TCR ≤ +3300 5% : TCR ≥ +3600	0.40% 2.17%	125°C, Rated voltage, 1000 hours
High temperature Exposure	2% : TCR ≤ +3300 5% : TCR ≥ +3600	0.81% 3.20%	155°C, 1000h
Low Temperature Exposure	2%	-0.10%	-55°C, 1000h

Please pay attention not to be applied ESD, it may cause of resistance change.

### Actual Value (Out of guarantee)

Test Items	Reference	Test Methods
ESD	500V	Human Body Model, 100pF, 1.5kΩ