KOA SPEER ELECTRONICS, INC.

EU RoHS COMPLIANT

spec sheet

SS-250 R5
AHA 8/16/12

ISO 9001:2000 CERTIFIED
TS-16949 CERTIFIED

Thick Film Linear Positive Tempco Thermistor

LA73 Type

1. Features

- Twenty-five specifiable temperature characteristics
- Products with lead-free terminations meet EU RoHS requirements. Pb located in glass material, electrode and resistor element is exempt per Annex 1, exemption 5 of EU directive 2005/95/EC
- Marking: Black three-digit on orange body color

2. Dimensions

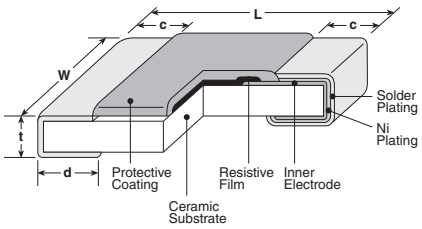

Table 1

Dimensions - inches (mm)					
Part	**L**	**W**	**c**	**d**	**t**
1J (0603)	0.063±0.008 (1.6±0.2)	0.031±0.004 (0.8±0.1)	0.012±0.004 (0.3±0.1)	0.012±0.004 (0.3±0.1)	0.02±0.004 (0.5±0.1)
2A (0805)	0.079±0.008 (2.0±0.2)	0.049±0.004 (1.25±0.1)	0.016±0.008 (0.4±0.2)	0.012± $^{+0.008}_{-0.004}$ (0.3± $^{+0.2}_{-0.1}$)	0.02±0.004 (0.5±0.1)
2B (1206)	0.126±0.008 (3.2±0.2)	0.063±0.008 (1.6±0.2)	0.02±0.008 (0.5±0.3)	0.016± $^{+0.008}_{-0.004}$ (0.4± $^{+0.2}_{-0.1}$)	0.024±0.004 (0.6±0.1)

3. Type Designation

The type designation shall be in the following form:

LA73	1J	T	TD	101	J	3300
Type	Size Code	Termination Material	Packaging	Resistance Value	Tolerance	T.C.R.
	1J: 0603 2A: 0805 2B: 1206	T: Sn (Other termination styles available, contact factory for options)	TD: 7" paper (5,000 pieces/reel)	2 significant figures + 1 multiplier	J: ±5%	

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4. Standard Applications

Table 1

Part Designation	Thermal Dissipation Constant (mW/°C)	Rated Ambient Temperature	Max. Working Voltage (V)
LA731J	7.6	+70°C	25
LA732A	8.2		50
LA732B	9.0		50

Operating Temp. Range: -55°C - +125°C

Table 2

Resistance Range E-12			T.C.R. Tolerance	T.C.R. (ppm/°C) Max.	Resistance Tolerance
LA731J	**LA732A**	**LA732B**			
1KΩ - 10KΩ	1KΩ - 10KΩ	1KΩ - 10KΩ	±200ppm/°C	1000	J: ±5%
680Ω - 6.8KΩ	680Ω - 6.8KΩ	680Ω - 6.8KΩ		1200	
470Ω - 4.7KΩ	470Ω - 4.7KΩ	470Ω - 4.7KΩ		1400	
470Ω - 3.9KΩ	470Ω - 3.9KΩ	470Ω - 3.9KΩ		1600	
330Ω - 2.7KΩ	330Ω - 2.7KΩ	330Ω - 2.7KΩ		1800	
330Ω - 2.7KΩ	330Ω - 2.7KΩ	330Ω - 2.7KΩ		2000	
220Ω - 1.8KΩ	220Ω - 1.8KΩ	220Ω - 1.8KΩ	±10%	2200	
220Ω - 1.2KΩ	220Ω - 1.2KΩ	220Ω - 1.2KΩ		2400	
100Ω - 1.2KΩ	100Ω - 1.2KΩ	100Ω - 1.2KΩ		2600	
100Ω - 390Ω	100Ω - 390Ω	100Ω - 390Ω		2800	
68Ω - 220Ω	68Ω - 220Ω	68Ω - 220Ω		3000	
33Ω - 120Ω	33Ω - 120Ω	33Ω - 120Ω		3300	
22Ω - 82Ω	22Ω - 82Ω	22Ω - 82Ω		3600	

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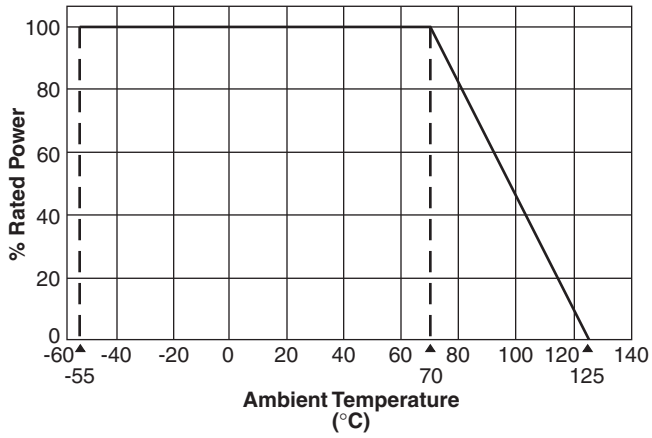
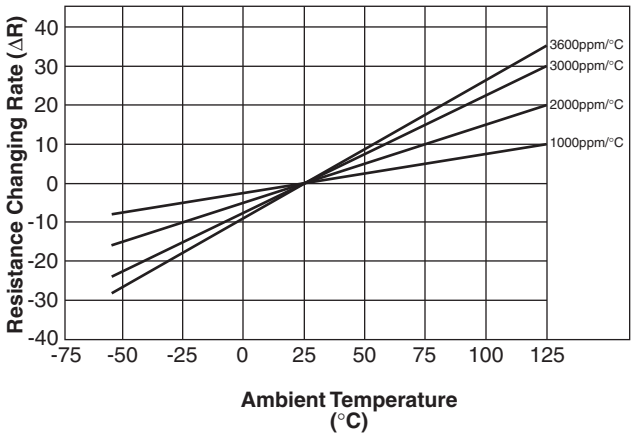
6. Environmental Applications

6.1 Derating Curve



6.2 Temperature Characteristics



7. Approximate Expression for Resistance-Temperature Characteristics

T.C.R. ($x10^{-6}$/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}

(Values are not guaranteed but typical)

$R_T=R_{25}(C_0+C_1T+C_2T^2)$

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

8. Characteristics

Parameter	Requirement Δ R ±(% + 0.1Ω) Limit	Typical	Test Method
Resistance	Within specified tolerance	—	25°C
T.C.R.	Within specified T.C.R.	—	+25°C/+75°C
Overload (Short time)	±1.0%	±0.5%	Rated voltage x 2.5 or maximum working volume x 2 for 5 seconds, whichever is lower
Resistance to Solder Heat	±1.0%	±0.5%	260°C ± 5°C, 10 seconds ± 1 second
Rapid Change of Temperature	±1.0%	±0.5%	-55°C (30 minutes)/ +125°C (30 minutes), 100 cycles
Moisture Resistance	±3.0%	±1.5%	40°C ± 2°C, 90 - 95% RH, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle
Endurance at 70°C	±3.0%	±1.5%	70°C ± 2°C, 1000 hours, 1.5 hr ON, 0.5 hr 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.

9. Actual Value (Out of Guarantee)

Test Items	Reference	Test Method
High Temperature Exposure	±3.0%	125°C, 1000 hours
ESD	300V	Human model, 100 pF 1.5 kΩ

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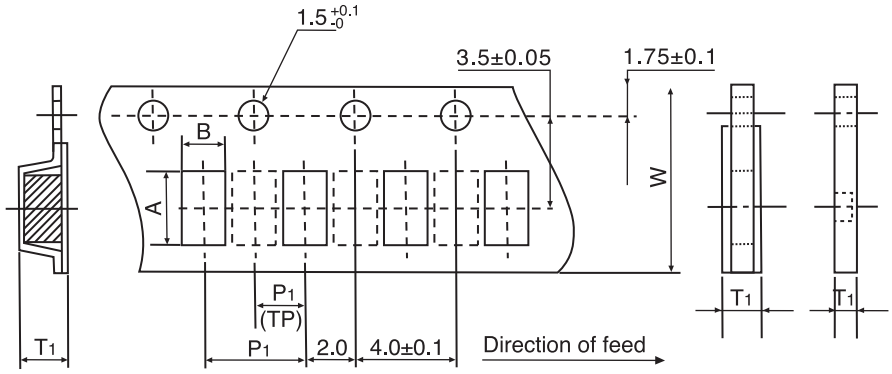
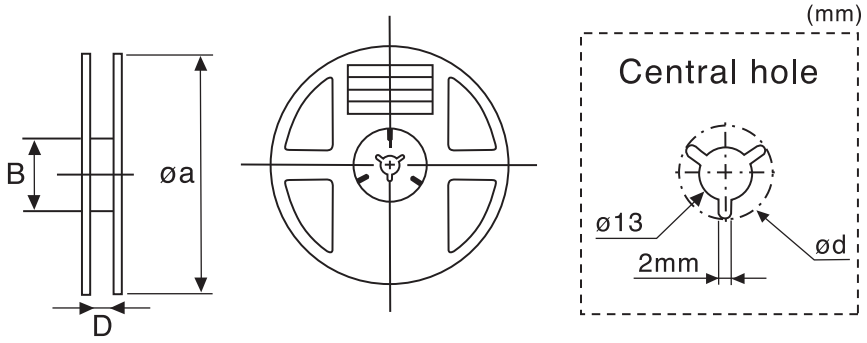
10. Packaging Specifications



(Notes) Dotted lines are applicable to only "TP."

Dimensions - inches (mm)					
Style	**A**	**B**	**W**	**P_1**	**T_1**
2A	0.75±0.004 (1.9±0.1)	0.043±0.004 (1.1±0.1)	0.31±0.008 (8.0±0.2)	0.16±0.004 (4.0±0.1)	0.024+0.008/-0 (0.6+0.2/-0)
2B	0.94±0.008 (2.4±0.2)	0.065±0.008 (1.65±0.2)			0.03+0.008/-0 (0.75+0.2/-0)
1J	0.45±0.004 (1.15±0.1)	0.026±0.004 (0.65±0.1)		0.78±0.002 (2.0±0.05)	0.018+0.004/-0 (0.45+0.1/-0)



(Notes) Reel holes, shapes and design are examples

Dimensions - inches (mm)						
Style	**Tape**		**øa**	**B**	**D**	**ød**
2A	Punched Carrier	TD	7±.078 (178±2)	2.36±.078 (60±2)	0.35±.059 (9±1.5)	.83 (21)
2B						
1J						

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