



# NTC Thermistor Temperature Sensing/Compensation

PCB Mounted Radial type Thermistor Sensor for Temperature Compensation and Measurement

## Registered office

Zen Triad Door no. 18/331/32, 2nd Floor EDENS Complex, Kanjani Road,  
Chungam, Thrissur, Kerala, India, Pin - 680 004.  
Office PH: +91 8086861017, +91 6282940030

## Manufacturing unit:

ZENTRIAD ELECTROLINK CORP  
Industrial Development Plot No : 3  
Varavoor Industrial Estate Thalssery Road Varavoor  
8086861017 kerala

ZENTRIAD  
Second Floor, 500 SQ.FEET, Plot No:- E-69, Hall No.5, GIDC Road, Sector  
26, Gandhinagar, Gujarat, Pin-382028  
Mob: +91-8980802380, +91-9778170597

## Features

- RoHS compliant
- Halogen-Free (HF) series are available
- Body size:  $\Phi$ 4.6mm to  $\Phi$ 6.0mm
- Radial lead with /without any Insulation
- Cost effective
- Operating temperature range:  $-40^{\circ}\text{C} \sim +140^{\circ}\text{C}$
- Wide resistance range

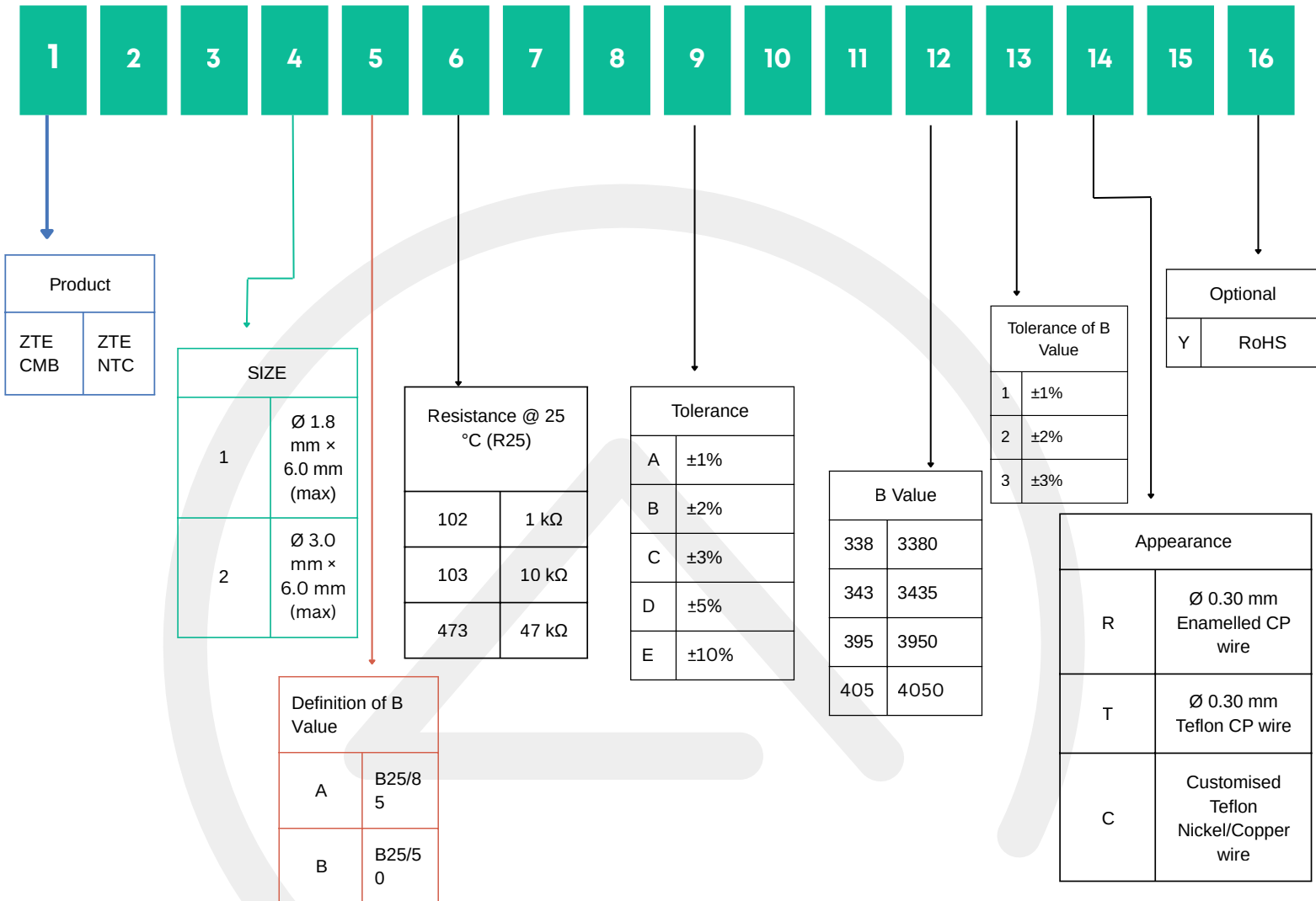


## Applications

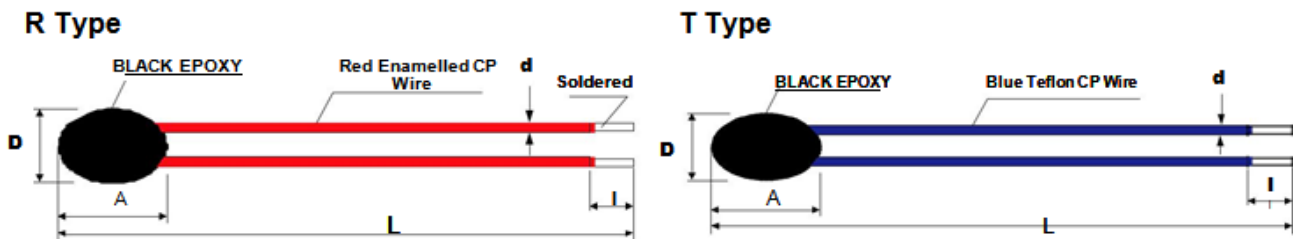
- Home appliances
- Computers
- Automotive Electronics
- Adapters
- Switch Mode Power Supply
- LED Drive Circuits



# Part Numbering



# Models and Dimensions



SERIES ZTE CMB	D (mm)	A (mm)	D (mm)	L (mm)	l (mm)
R TYPE	1.8	6.0	$0.3 + 0.02$	$70 + 5$	$2.0 + 0.5$
T TYPE	3.0	6.0	$0.3 + 0.02$	$70 + 5$	$2.0 + 0.5$

Note: Customised Dimension in Diameter and wire type upon request.

# Electrical Characteristics 1

Part No.	Zero Power Resistance at 25°C	Tolerance of R25	B Value	Tolerance of B value	Max.Power Dissipation at 25 °C	Dissipation factor	ThermalTime Constant	Temperature RangeOperating	Safety Approvals		
	R25 (KΩ)	(±%)	(K)	(±%)	Pmax(mW)	Δ (mW/°C)	T (Sec.)	TL~TU (°C)	UL	cUL	
ZTECMB1(2)A202□36D*	2	2,3,5	25/85	3600	2,3	45	≥1	≤10	-40 ~ +100	Y	Y
ZTECMB1(2)A502□34D*	5			3435						Y	Y
ZTECMB1(2)A502□395*	5			3950						Y	Y
ZTECMB1(2)A103□34D*	10			3435						Y	Y
ZTECMB1(2)A103□39H*	10			3975						Y	Y
ZTECMB1(2)A153□39H*	15			3975						Y	Y
ZTECMB1(2)A203□39H*	20			3975						Y	Y
ZTECMB1(2)A503□395*	58			3950						Y	Y
ZTECMB1(2)A683□34D*	60			4250						Y	Y
ZTECMB1(2)A104□436*	100			4360						Y	Y

# Electrical Characteristics 2

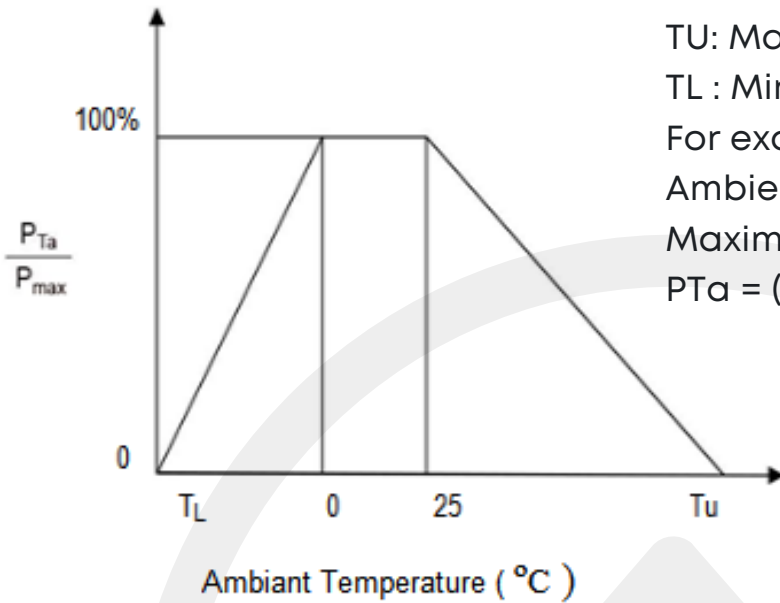
Part No.	Zero Power Resistance at 25°C	Tolerance of R25	B Value	Tolerance of B value	Max.Power Dissipation at 25 °C	Dissipation factor	ThermalTime Constant	Temperature RangeOperating	Safety Approvals		
	R25 (KΩ)	(±%)	(K)	(±%)	Pmax(mW)	Δ (mW/°C)	T (Sec.)	TL~TU (°C)	UL	cUL	
ZTECMB1(2)A212□390*	2.1	2,3,5	25/85	3900	2,3	45	≥1	≤10	-40 ~ +100	Y	Y
ZTECMB1(2)A272□39H*	2.7			3977						Y	Y
ZTECMB1(2)A502□395*	5			3950						Y	Y
ZTECMB1(2)A103□34D*	10			3435						Y	Y
ZTECMB1(2)A103□39H*	10			3975						Y	Y
ZTECMB1(2)A153□39H*	15			3975						Y	Y
ZTECMB1(2)A203□39H*	20			3975						Y	Y
ZTECMB1(2)A503□395*	50			3950						Y	Y
ZTECMB1(2)A473□402*	47			4020						Y	Y
ZTECMB1(2)A104□436*	100			4360						Y	Y

Note 1 : □ = Tolerance of R25

\* = Tolerance of B value

Note 2: Special Mechanical and Electrical specifications are available upon request.

# Maximum Power Dissipation Derating Curve



TU: Maximum operating Temperature (°C)

TL : Minimum operating temperature (°C)

For example:

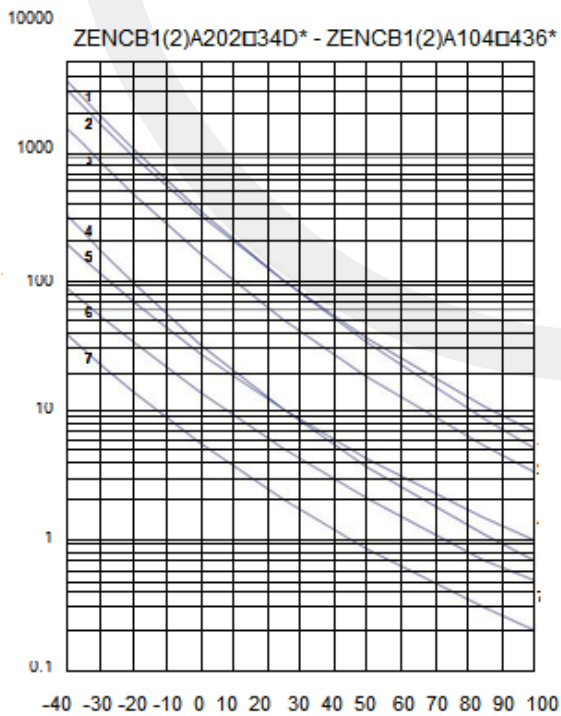
Ambient temperature( $T_a$ ) = 55°C

Maximum operating temperature( $T_U$ ) = 100°C

$P_{Ta} = (T_U - T_a) / (T_U - 25) \times P_{max} = 60\% P_{max}$

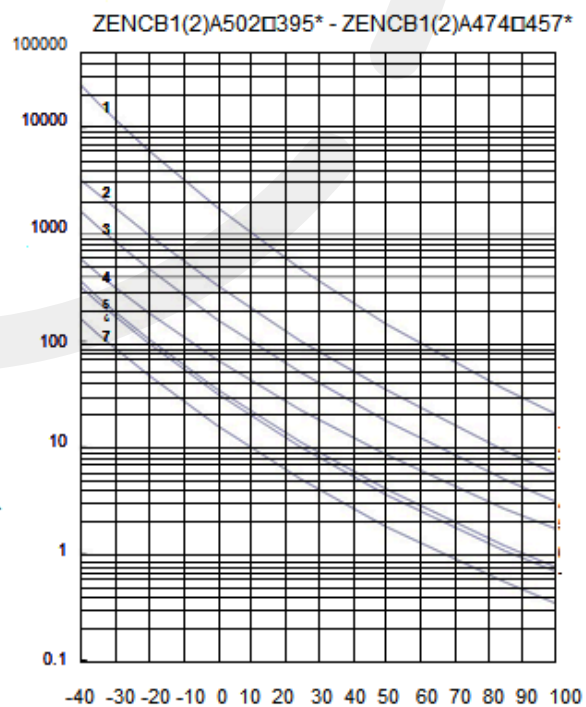
## R - T Characteristic Curve

R (KΩ)



Temperature (°C)

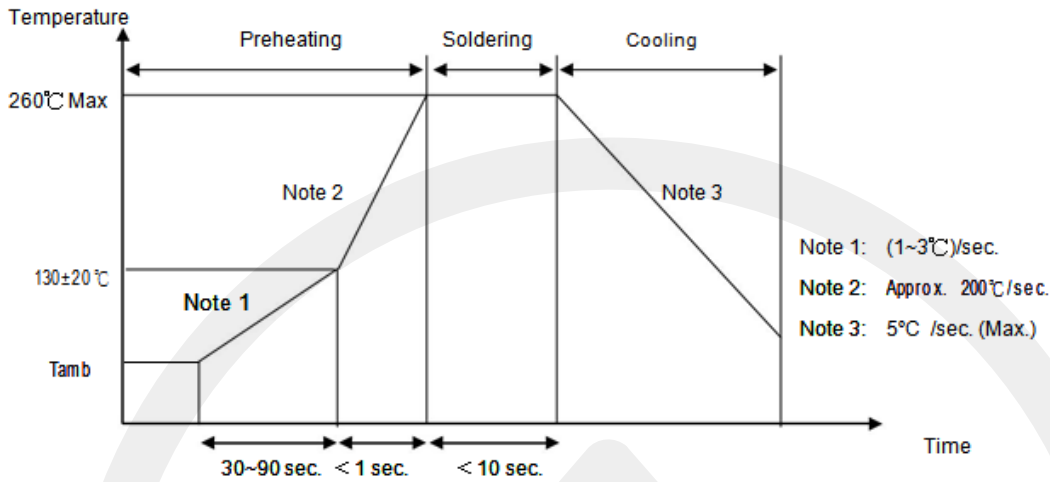
R (KΩ)



Temperature (°C)

# Soldering Recommendation

## Wave Soldering Profile



## Recommended Reworking Conditions With Soldering Iron

Item	Conditions
Temperature of Soldering Iron Tip	360°C max.
Soldering Time	3 Sec. max.
Distance from Thermistor	10mm min

# Soldering Recommendation

Item	Standard	Test conditions	Specifications															
Tensile Strength of Terminals	IEC 60068-2-21	Gradually Applied specified force and keep the Unit Fixed for 10 $\pm$ 1 sec.  <table border="0"> <tr> <td style="text-align: center;"><u>Terminal Diameter (mm)</u></td> <td style="text-align: center;"><u>Force (kg)</u></td> </tr> <tr> <td style="text-align: center;">d<math>\leq</math>0.25</td> <td style="text-align: center;">0.10</td> </tr> <tr> <td style="text-align: center;">0.25&lt;d<math>\leq</math>0.3</td> <td style="text-align: center;">0.25</td> </tr> <tr> <td style="text-align: center;">0.3&lt;d<math>\leq</math>0.5</td> <td style="text-align: center;">0.5</td> </tr> </table>	<u>Terminal Diameter (mm)</u>	<u>Force (kg)</u>	d $\leq$ 0.25	0.10	0.25<d $\leq$ 0.3	0.25	0.3<d $\leq$ 0.5	0.5	No Visible Damage							
<u>Terminal Diameter (mm)</u>	<u>Force (kg)</u>																	
d $\leq$ 0.25	0.10																	
0.25<d $\leq$ 0.3	0.25																	
0.3<d $\leq$ 0.5	0.5																	
Bending Strength of Terminals	IEC 60068-2-21	Hold specimen and apply the force specified below to each lead. Bend the specimen to 90 $^{\circ}$ , and then return to the original position. Repeat the procedure in the opposite direction.  <table border="0"> <tr> <td style="text-align: center;"><u>Terminal Diameter (mm)</u></td> <td style="text-align: center;"><u>Force (kg)</u></td> </tr> <tr> <td style="text-align: center;">d<math>\leq</math>0.25</td> <td style="text-align: center;">0.05</td> </tr> <tr> <td style="text-align: center;">0.25&lt;d<math>\leq</math>0.3</td> <td style="text-align: center;">0.125</td> </tr> <tr> <td style="text-align: center;">0.3&lt;d<math>\leq</math>0.5</td> <td style="text-align: center;">0.25</td> </tr> </table>	<u>Terminal Diameter (mm)</u>	<u>Force (kg)</u>	d $\leq$ 0.25	0.05	0.25<d $\leq$ 0.3	0.125	0.3<d $\leq$ 0.5	0.25	No Visible Damage							
<u>Terminal Diameter (mm)</u>	<u>Force (kg)</u>																	
d $\leq$ 0.25	0.05																	
0.25<d $\leq$ 0.3	0.125																	
0.3<d $\leq$ 0.5	0.25																	
Solderability	IEC 60068-2-20	<b>245 <math>\pm</math> 3<math>^{\circ}</math>C, 3 <math>\pm</math> 0.3 sec.</b>	At least 95% of terminal electrode is covered by new solder															
Resistance to soldering Heat	IEC 60068-2-20	<b>260 <math>\pm</math> 3<math>^{\circ}</math>C, 10 <math>\pm</math> 1 sec.</b>	No Visible Damage $\Delta$ R25/R25 I $\leq$ 3%															
High Temperature Storage	IEC 60068-2-2	<b>100 <math>\pm</math> 5<math>^{\circ}</math>C, 1000 <math>\pm</math> 24 hrs.</b>	No Visible Damage $\Delta$ R25/R25 I $\leq$ 5%															
Damp Heat steady state	IEC 60068-2-78	<b>40 <math>\pm</math> 2<math>^{\circ}</math>C, 90-95% RH, 1000 <math>\pm</math> 24 hrs.</b>	No Visible Damage $\Delta$ R25/R25 I $\leq$ 3%															
Rapid Change of Temp.	IEC 60068-2-14	The condition shown below shall be repeated 5 cycles  <table border="0"> <tr> <td style="text-align: center;">Step</td> <td style="text-align: center;">Temp.<math>^{\circ}</math>C</td> <td style="text-align: center;">period (minutes)</td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">-40 <math>\pm</math> 5</td> <td style="text-align: center;">30 <math>\pm</math> 3</td> </tr> <tr> <td style="text-align: center;">2</td> <td style="text-align: center;">Room Temp.</td> <td style="text-align: center;">5 <math>\pm</math> 3</td> </tr> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">100 <math>\pm</math> 5</td> <td style="text-align: center;">30 <math>\pm</math> 3</td> </tr> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">Room Temp.</td> <td style="text-align: center;">5 <math>\pm</math> 3</td> </tr> </table>	Step	Temp. $^{\circ}$ C	period (minutes)	1	-40 $\pm$ 5	30 $\pm$ 3	2	Room Temp.	5 $\pm$ 3	3	100 $\pm$ 5	30 $\pm$ 3	4	Room Temp.	5 $\pm$ 3	No Visible Damage $\Delta$ R25/R25 I $\leq$ 3%
Step	Temp. $^{\circ}$ C	period (minutes)																
1	-40 $\pm$ 5	30 $\pm$ 3																
2	Room Temp.	5 $\pm$ 3																
3	100 $\pm$ 5	30 $\pm$ 3																
4	Room Temp.	5 $\pm$ 3																
Max. Power Dissipation	IEC 60539-14.26.3	<b>25 <math>\pm</math> 5<math>^{\circ}</math>C Pmax, 1000 <math>\pm</math> 24hrs..</b>	No Visible Damage $\Delta$ R25/R25 I $\leq$ 5%															

## Packaging

Normal Packaging : 500 pcs / Poly bag

Bulk Packaging: In Carton Box

## Storage Conditions

1. Storage Temperature : -10  $^{\circ}$ C to +40 $^{\circ}$ C
2. Relative Humidity :  $\leq$ 75%RH
3. Keep Away from Corrosive Atmosphere
4. Keep Away from Direct Sunlight
5. Period of Storage : 1 year



# Manufacturing Precision Delivering Trust