

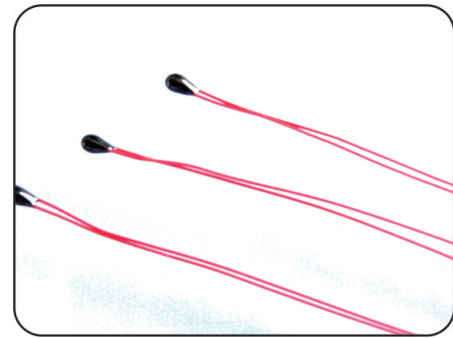
NTC Thermistor : JPTR Series



Epoxy Bead Type for Temperature Sensing/Compensation

■ Features

1. RoHS compliant
2. Halogen-Free (HF) series are available
3. Body size: Ø1.3mm, Ø2.6mm
4. Radial lead resin coated
5. Long leads for easy sensor placement
6. Operating temperature range: -40°C ~ +100°C
7. Wide resistance range



■ Recommended Applications

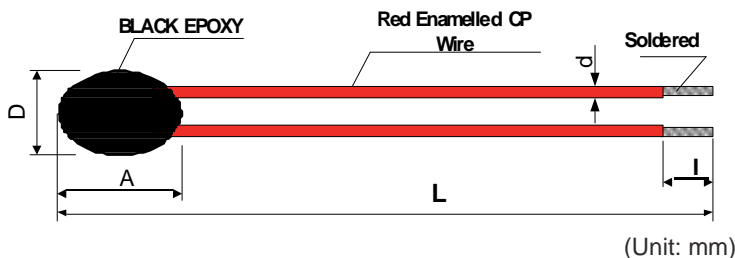
1. Home appliances
2. Computers
3. Battery packs
4. Thermometers

■ Part Number Code

1		2		3		.4		5		6		7		8		9		10		11		12		13		14		15		16	
Product Type		Size		Definition of B Value						Tolerance of R₂₅		B Value		Tolerance of B Value		Optional Suffix															
JPTR	NTC Thermistor JPTR Series	1	Ø1.3mm x 4.0mm (max.)	A	B _{25/85}	F	±1%	338	3380	1	±1%	Y	RoHS Compliant	Appearance																	
		2	Ø1.6mm x 4.0mm (max.)	B	B _{25/50}	G	±2%	34D	3435	2	±2%	H	RoHS + HF Compliant	R	Ø0.28mm Red Enamelled CP Wire																
						H	±3%	395	3950	3	±3%			T	Ø0.30mm Blue Teflon CP Wire																
						J	±5%	39H	3975																						
						K	±10%	405	4050																						
								Zero Power Resistance at 25°C (R₂₅)																							
								102	1KΩ																						
								103	10KΩ																						
								473	47KΩ																						

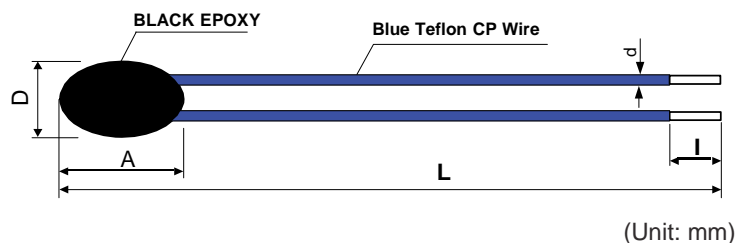
■ Structure and Dimensions

R Type



(Unit: mm)

T Type



(Unit: mm)

Series	Dmax.	Amax.	d	L	I
JPTR1	1.3	4.0	0.28±0.02	(30~300)±5	2±0.5
JPTR2	1.6	4.0			

Series	Dmax.	Amax.	d	L	I
JPTR1	1.3	4.0	0.30±0.02	(30~300)±5	2±0.5

Note: D: 1.5mm is available upon request.

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■ Electrical Characteristics

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	Thermal Time Constant	Operating Temperature Range	Safety Approvals						
	R ₂₅ (KΩ)	(±%)	(K)		(±%)	P _{max} (mW)	α(mW/°C)	τ (Sec.)	T _L ~T _U (°C)	UL cUL	TUV					
JPTR1(2)A202□34D*	2	1,2,3,5	25/85	3435	2, 3	45	≥1	≤10	-40 ~ +100	√	√					
JPTR1(2)A502□347*	5			3470						√	√					
JPTR 1(2)A502□395*	5			3950						√	√					
JPTR 1(2)A103□34D*	10			3435	1, 2, 3					√	√					
JPTR 1(2)A103□395*	10			3950						√	√					
JPTR 1(2)A103□39H*	10			3975						√	√					
JPTR 1(2)A113□39H*	11			3975						√	√					
JPTR 1(2)A223□374*	22			3740						√	√					
JPTR 1(2)A503□395*	50			3950						√	√					
JPTR 1(2)A503□409*	50			4090						√	√					
JPTR 1(2)A104□400*	100		4000	√	√											
JPTR 1(2)A104□419*	100		4190	2, 3	√					√						
JPTR 1(2)A104□436*	100		4360		√					√						
JPTR 1(2)A474□457*	470		4570		√					√						
JPTR 1(2)B202□338*	2		25/50	2, 3	3380					2, 3	45	≥1	≤10	-40 ~ +100	√	√
JPTR 1(2)B502□342*	5				3420										√	√
JPTR 1(2)B502□390*	5				3900										√	√
JPTR 1(2)B103□338*	10			3380	1, 2, 3					√					√	
JPTR 1(2)B103□391*	10			3910						√					√	
JPTR 1(2)B103□39D*	10			3935						√					√	
JPTR 1(2)B113□39D*	11	3935		√		√										
JPTR 1(2)B223□370*	22	3700		√		√										
JPTR 1(2)B503□392*	50	3920		√		√										
JPTR1(2)B503□402*	50	4020		√		√										
JPTR 1(2)B104□39D*	100	3935		2, 3	√	√										
JPTR 1(2)B104□412*	100	4120			√	√										

Note 1: □ = Tolerance of R₂₅

* = Tolerance of B value

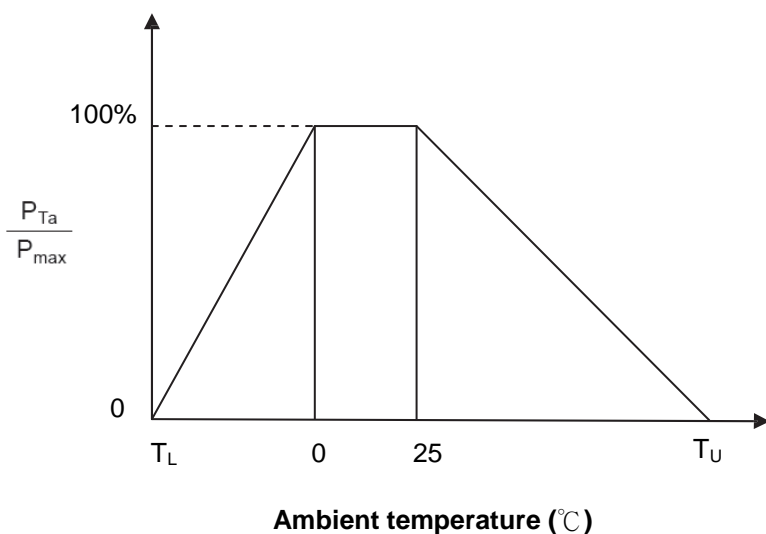
Note 3: Special specifications are available upon request.

NTC Thermistor : JPTR Series



Epoxy Bead Type for Temperature Sensing/Compensation

Max. Power Dissipation Derating Curve



T_U : Maximum operating temperature (°C)

T_L : Minimum operating temperature (°C)

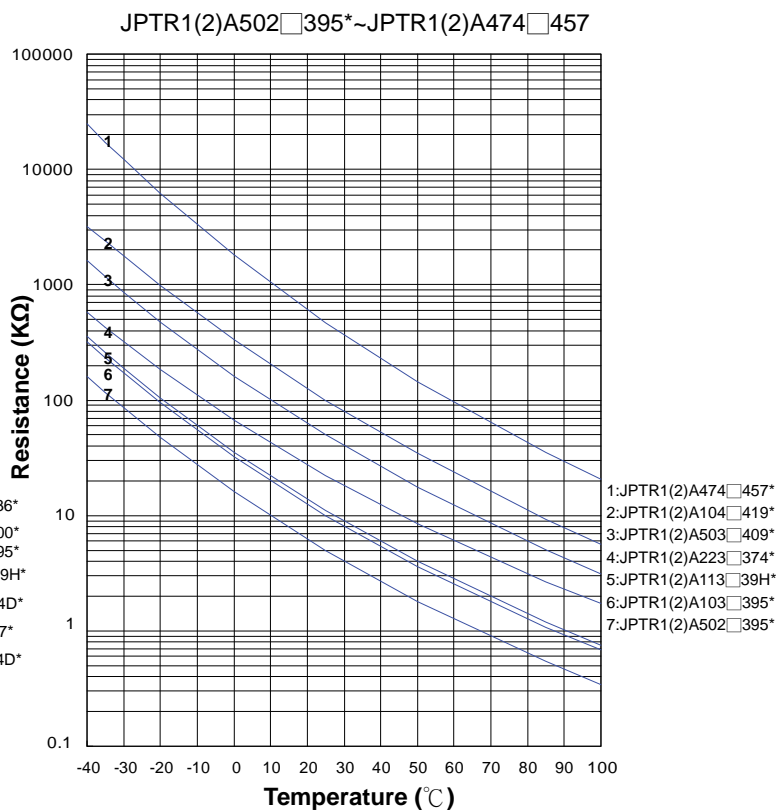
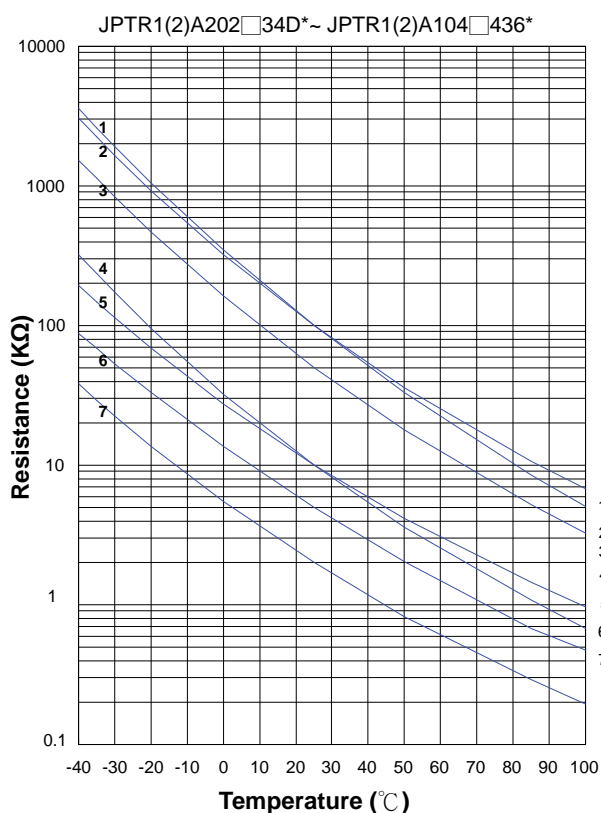
For example:

Ambient temperature(T_a) = 55°C

Maximum operating temperature(T_U) = 100°C

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

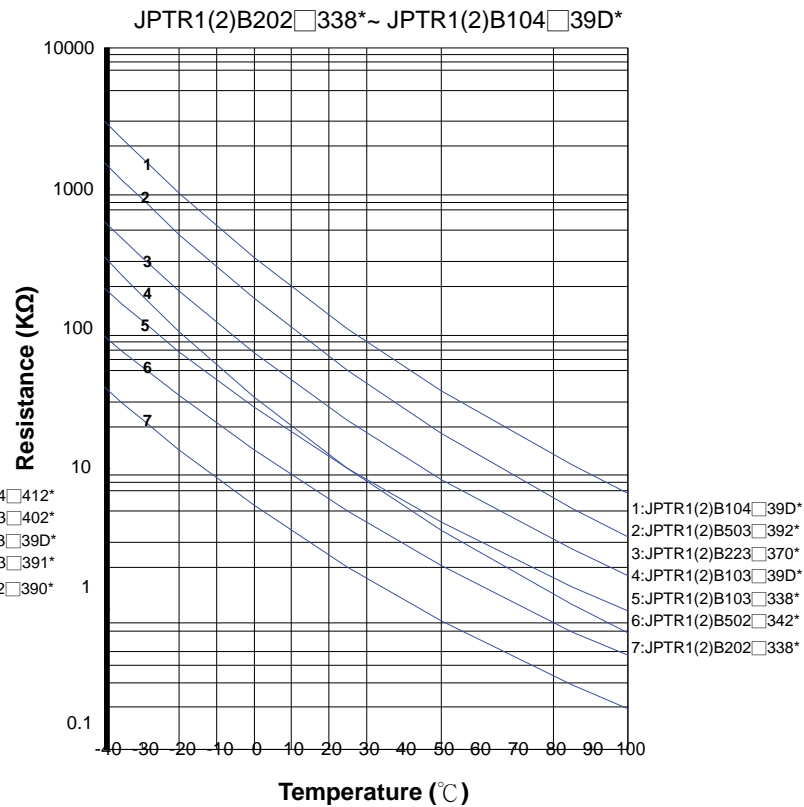
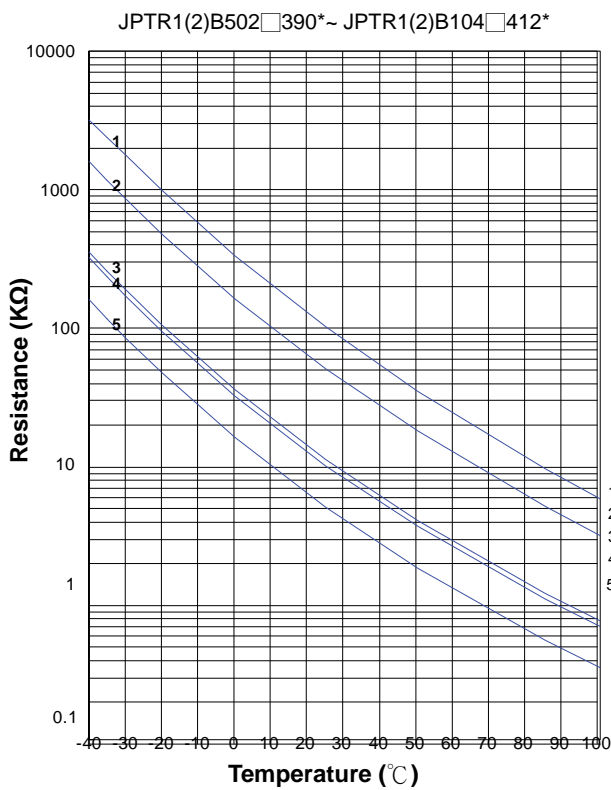
R-T Characteristic Curves



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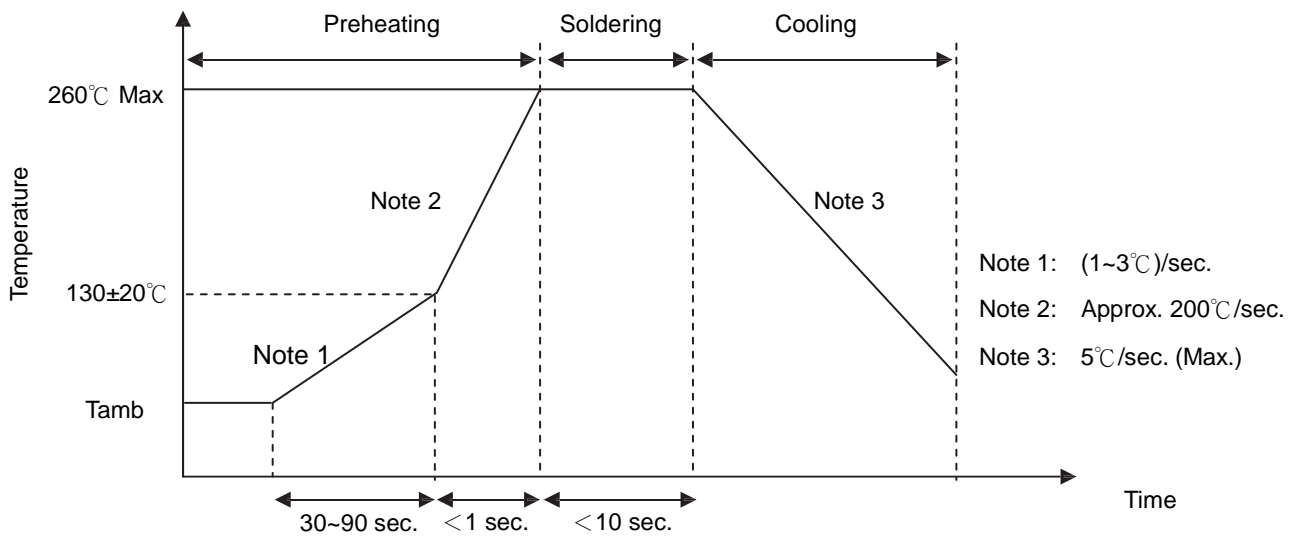


Epoxy Bead Type for Temperature Sensing/Compensation



■ 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	10 mm (min.)

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Epoxy Bead Type for Temperature Sensing/Compensation

■ Reliability

Item	Standard	Test conditions / Methods	Specifications															
Tensile Strength of Terminations	IEC 60068-2-21	<p>Gradually apply the specified force and keep the unit fixed for 10±1 sec.</p> <table border="1"> <thead> <tr> <th>Terminal diameter (mm)</th> <th>Force (Kg)</th> </tr> </thead> <tbody> <tr> <td>$d \leq 0.25$</td> <td>0.10</td> </tr> <tr> <td>$0.25 < d \leq 0.3$</td> <td>0.25</td> </tr> <tr> <td>$0.3 < d \leq 0.5$</td> <td>0.5</td> </tr> </tbody> </table>	Terminal diameter (mm)	Force (Kg)	$d \leq 0.25$	0.10	$0.25 < d \leq 0.3$	0.25	$0.3 < d \leq 0.5$	0.5	No visible damage							
Terminal diameter (mm)	Force (Kg)																	
$d \leq 0.25$	0.10																	
$0.25 < d \leq 0.3$	0.25																	
$0.3 < d \leq 0.5$	0.5																	
Bending Strength of Terminations	IEC 60068-2-21	<p>Hold specimen and apply the force specified below to each lead. Bend the specimen to 90°, and then return to the original position. Repeat the procedure in the opposite direction.</p> <table border="1"> <thead> <tr> <th>Terminal diameter (mm)</th> <th>Force (Kg)</th> </tr> </thead> <tbody> <tr> <td>$d \leq 0.25$</td> <td>0.05</td> </tr> <tr> <td>$0.25 < d \leq 0.3$</td> <td>0.125</td> </tr> <tr> <td>$0.3 < d \leq 0.5$</td> <td>0.25</td> </tr> </tbody> </table>	Terminal diameter (mm)	Force (Kg)	$d \leq 0.25$	0.05	$0.25 < d \leq 0.3$	0.125	$0.3 < d \leq 0.5$	0.25	No visible damage							
Terminal diameter (mm)	Force (Kg)																	
$d \leq 0.25$	0.05																	
$0.25 < d \leq 0.3$	0.125																	
$0.3 < d \leq 0.5$	0.25																	
Solderability	IEC 60068-2-20	245 ± 3°C, 3 ± 0.3 sec.	At least 95% of terminal electrode is covered by new solder															
Resistance to Soldering Heat	IEC 60068-2-20	260 ± 3°C, 10 ± 1 sec.	No visible damage $\Delta R_{25}/R_{25}$ ≤ 3 %															
High Temperature Storage	IEC 60068-2-2	100 ± 5°C, 1000 ± 24 hrs	No visible damage $\Delta R_{25}/R_{25}$ ≤ 5 %															
Damp Heat, Steady State	IEC 60068-2-78	40 ± 2°C, 90~95% RH, 1000 ± 24 hrs	No visible damage $\Delta R_{25}/R_{25}$ ≤ 3 %															
Rapid Change of Temperature	IEC 60068-2-14	<p>The conditions shown below shall be repeated 5 cycles.</p> <table border="1"> <thead> <tr> <th>Step</th> <th>Temperature (°C)</th> <th>Period (minutes)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-40 ± 5</td> <td>30 ± 3</td> </tr> <tr> <td>2</td> <td>Room temperature</td> <td>5 ± 3</td> </tr> <tr> <td>3</td> <td>100 ± 5</td> <td>30 ± 3</td> </tr> <tr> <td>4</td> <td>Room temperature</td> <td>5 ± 3</td> </tr> </tbody> </table>	Step	Temperature (°C)	Period (minutes)	1	-40 ± 5	30 ± 3	2	Room temperature	5 ± 3	3	100 ± 5	30 ± 3	4	Room temperature	5 ± 3	No visible damage $\Delta R_{25}/R_{25}$ ≤ 3 %
Step	Temperature (°C)	Period (minutes)																
1	-40 ± 5	30 ± 3																
2	Room temperature	5 ± 3																
3	100 ± 5	30 ± 3																
4	Room temperature	5 ± 3																
Max. Power Dissipation	IEC 60539-1 4.26.3	25 ± 5°C, Pmax., 1000 ± 24 hrs	No visible damage $\Delta R_{25}/R_{25}$ ≤ 5 %															

■ Packaging

- Bulk Packing: 500 pcs/bag

■ Warehouse Storage Conditions of Products

- Storage Conditions :
 1. Storage Temperature: -10°C ~ +40°C
 2. Relative Humidity: ≤ 75%RH
 3. Keep away from corrosive atmosphere and sunlight.
- Period of Storage : 1 year