NTC Thermistor：XNS Series

SMD NTC Thermistor for Temperature -controlled/Measure

XNS Features

1. RoHS & HF compliant
2. EIA size: 0201, 0402, 0603, 0805
3. Highly reliable structure
4. Operating temperature range: -40 ~ +125 ℃
5. Wide resistance range
6. Cost effective

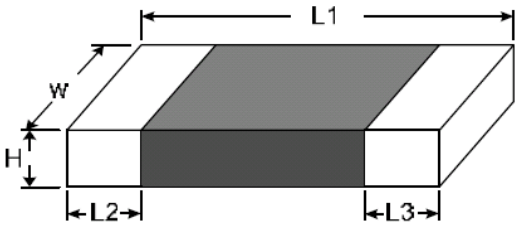
■ Recommended Applications

1. Battery pack
2. Motherboard/ Notebook computer/ Personal computer
3. Liquid crystal display
4. Cellular phones
5. Bluetooth headset

■ Part Number Code

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
X	N	S	1	1	0	3	F	A	3	4	D	1	A	0	0
XINGXIANG NTC Thermistor XNS Series			Size 0:0402 1:0603 2:0805 3:1206 4:1210 5:1812 A:0201	Zero Power Resistance at 25℃ (R25) 103:10×10³Ω			Tolerance of R25 F:1% G:2% H:3% J:5% K:10% A:0.5% B:0.75%	Definition of B Value A:B25/85 B:B25/50 X:special	B Value the first two digits are unchanged and the latter represents two digits.1:10…9:90 A:15 B:25 …I:95 example 34D:3435 395:3950			Tolerance of B value 1:1% 2:2% 3:3% …	optional suffix		

■ Structure and Dimensions



(Unit: mm)

Part No.	Size	L1.	W	H max.	L2 & L3
XNSA	0201	0.60±0.05	0.30±0.05	0.35	0.15±0.05
XNS0	0402	1.00±0.15	0.50±0.10	0.60	0.20±0.10
XNS1	0603	1.60±0.15	0.80±0.15	0.95	0.40±0.15
XNS2	0805	2.00±0.20	1.25±0.20	1.20	0.40±0.20
XNS3	1206	3.2±0.20	1.6±0.20	1.5	0.40±0.20

■ Electrical Characteristics

Part No.	Zero Power Resistance at 25°C	Tolerance of R_{25}	B Value		Tolerance of B value	Max. Power Dissipation at 25℃	Dissipation Factor	Thermal Time Constant	Operating Temperature Range
	R_{25}(KΩ)	(±%)	(K)		(±%)	P_{max}(mW)	δ(mW/°C)	τ(Sec.)	T_L~T_U(°C)
XNSA682□A34D*	6.8	1、2、3 5、10	25/85	3435	1、2、3	140	Approx. 1.4	Approx. 1.2	-40 ~ +125
XNSA103□A34D*	10			3435					
XNSA104□B425*	100		25/50	4250					
XNSA224□B450*	220			4500					
XNS0103□A34D*	10	1、2、3 5、10	25/85	3435	1、2、3	170	Approx. 1.7	Approx. 2.0	-40 ~ +125
XNS0103□A391*	10			3910					
XNS0223□A393*	22			3930					
XNS0333□A393*	33			3930					
XNS0473□A393*	47			3930					

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XNS0503□A395*	50			3950					
XNS0683□A405*	68			4050					
XNS0104□A39H*	100			3975					
XNS0224□A405*	220			4050					
XNS0474□A409*	470			4090					
XNS0474□B470*	470	5、10	25/50	4700	2、3				
XNS1202□A340*	2	1、2、3、5、10	25/85	3400	1、2、3	210	Approx 2.1	Approx 3.1	-40~+125
XNS1222□A34D*	2.2			3435					
XNS1222□B395*	2.2	5、10	25/50	3950	2、3				
XNS1472□A34D*	4.7	1、2、3、5、10	25/85	3435	1、2、3				
XNS1472□A367*	4.7			3670					
XNS1502□A34D*	5			3435					
XNS1682□A34D*	6.8			3435					
XNS1682□A430*	6.8	5、10		4300	2、3				
XNS1103□A34D*	10	1、2、3、5、10		3435	1、2、3				
XNS1103□A39H*	10			3975					
XNS1103□B425*	10		25/50	4250	2、3				
XNS1123□A380*	12		25/85	3800	1、2、3				
XNS1153□A395*	15			3950					
XNS1223□A39H*	22			3975					
XNS1333□A39H*	33			3975					
XNS1473□A39H*	47			3975					
XNS1503□A39H*	50			3975					
XNS1683□A39H*	68			3975					
XNS1104□A405*	100			4050					
XNS1104□B425*	100		25/50	4250	2、3				
XNS1104□A436*	100		25/85	4360	1、2、3				
XNS1154□A406*	150			4060					
XNS1204□A410*	200			4100					
XNS1224□A410*	220			4100					
XNS1334□A415*	330			4150					
XNS1474□A410*	470			4100					
XNS1474□B446*	470		25/50	4460	2、3				
XNS2102□A320*	1	1、2、3、5、10	25/85	3200	1、2、3	240	Approx 2.4	Approx 5.4	-40~+125
XNS2472□A34D*	4.7			3435					
XNS2502□A34D*	5			3435					
XNS2682□A34D*	6.8			3435					
XNS2103□A34D*	10			3435					
XNS2103□A380*	10			3800					
XNS2103□A39H*	10			3975					
XNS2153□A395*	15			3950					
XNS2203□A395*	20			3950					
XNS2223□A380*	22			3800					
XNS2223□A39H*	22			3975					
XNS2303□A39H*	30			3975					
XNS2473□A39H*	47			3975					

■ Electrical Characteristics

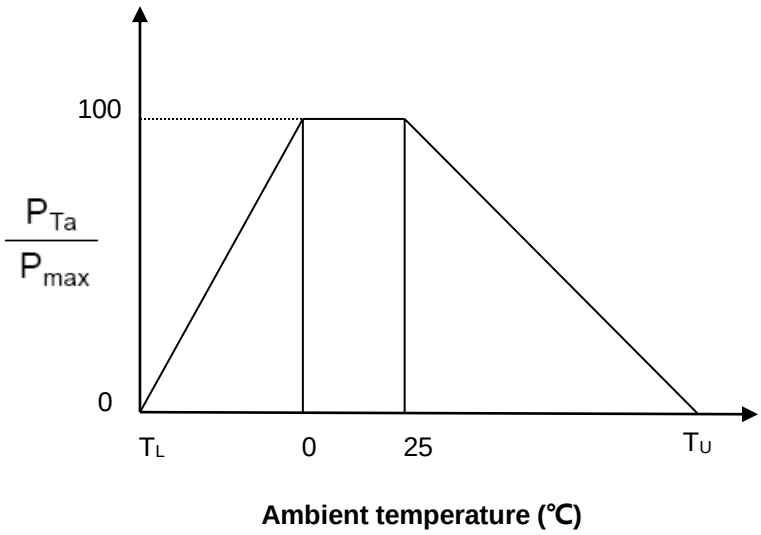
Part No.	Zero Power Resistance at 25°C	Tolerance of R_{25}	B Value		Tolerance of B value	Max. Power Dissipation at 25℃	Dissipation Factor	Thermal Time Constant	Operating Temperature Range
	R_{25}(KΩ)	(±%)	(K)		(±%)	P_{max}(mW)	δ(mW/°C)	τ(Sec.)	T_L~T_U(°C)
XNS2503□A39H*	50	1、2、3、5、10	25/85	3975	1、2、3	240	Approx 2.4	Approx 5.4	-40~+125
XNS2683□A39H*	68			3975					
XNS2104□A405*	100			4050					
XNS2204□A410*	200			4100					
XNS2224□A410*	220			4100					

Note 1: □ = Tolerance of R_{25}

Note 2: * = Tolerance of B value

*Special specifications are available upon request

■ **Max. Power Dissipation Derating Curve**



T_U：Maximum operating temperature (℃)

T_L：Minimum operating temperature (℃)

For example：

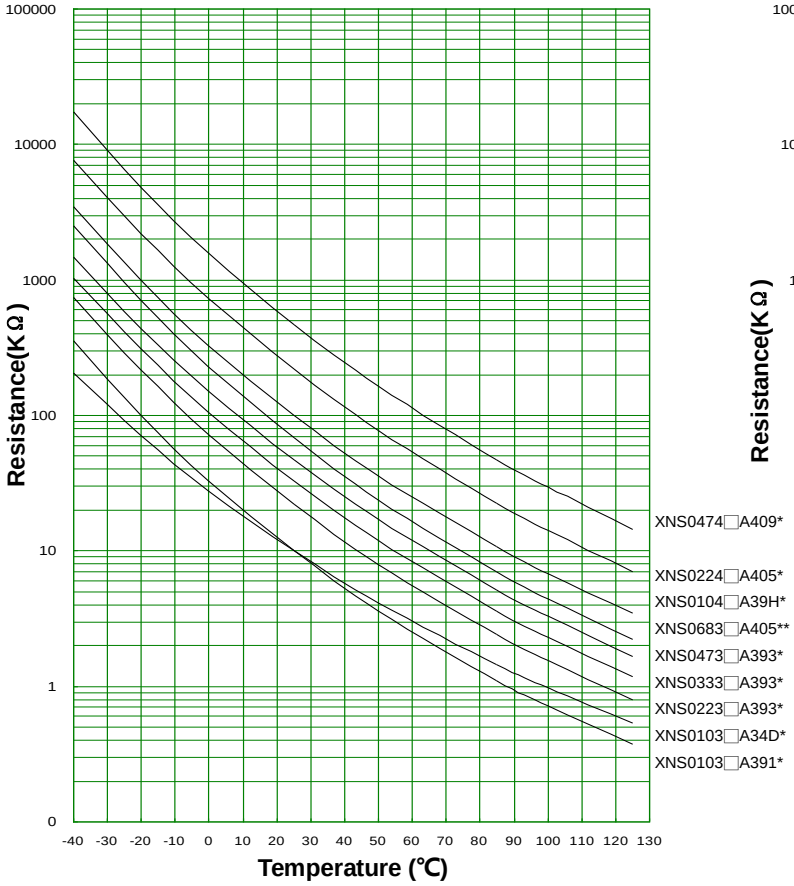
Ambient temperature (Ta)=55℃

Maximum operating temperature (T_U)＝125℃

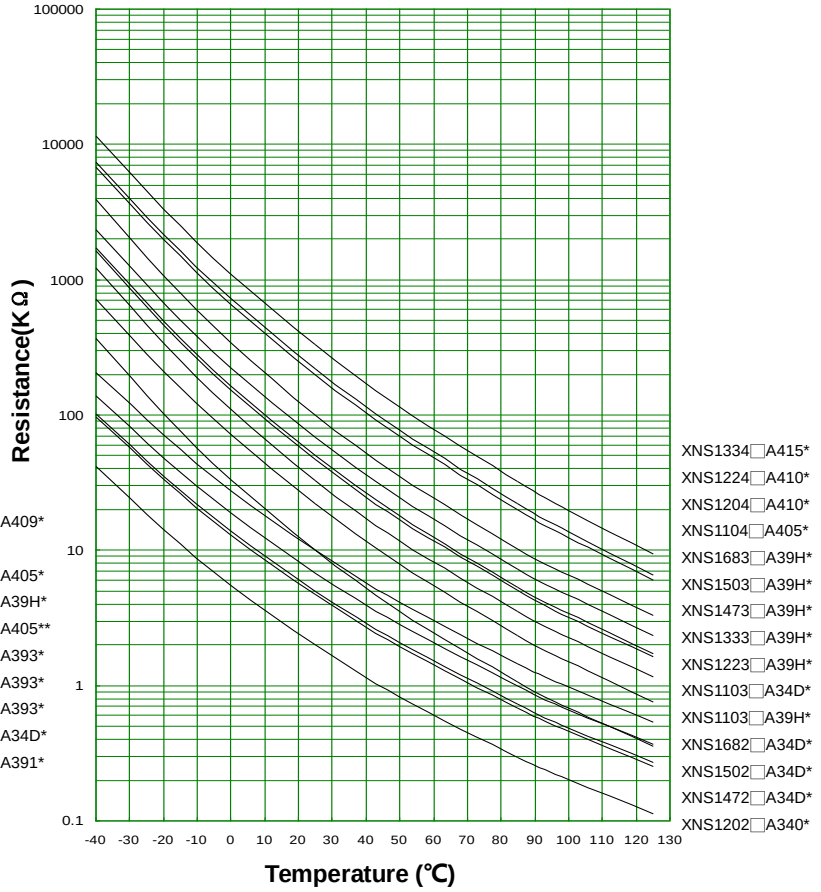
$P_{Ta}=(T_U-Ta)/(T_U-25)\times Pmax$＝70% Pmax

■ R-T Characteristic Curves (representative)

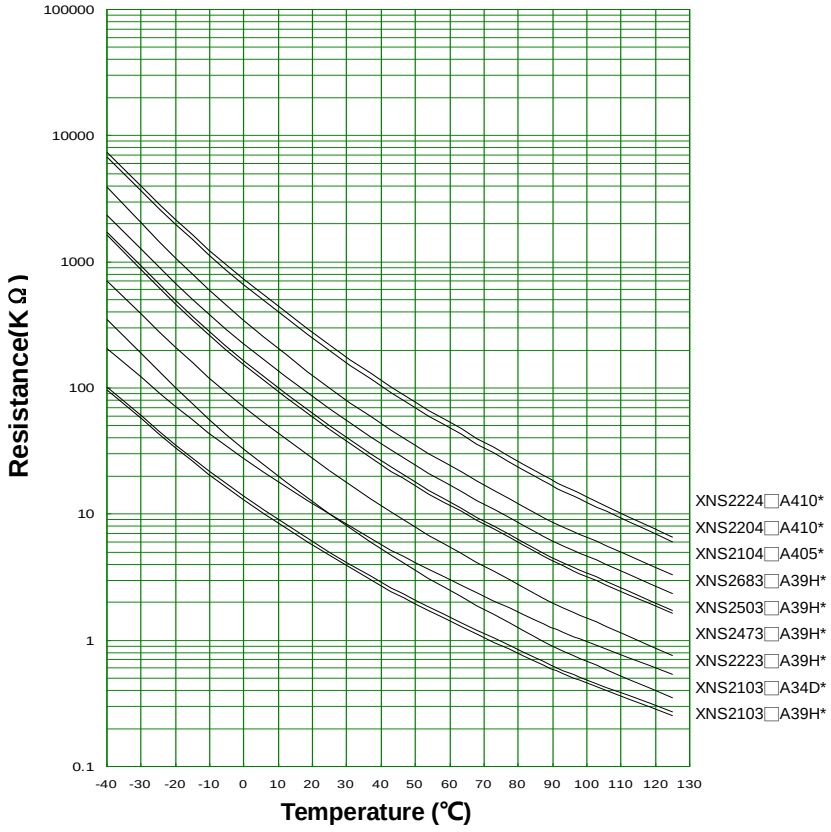
XNS0103□A391* ~ XNS0474□A409*



XNS1202□A340* ~ XNS1334□A415*

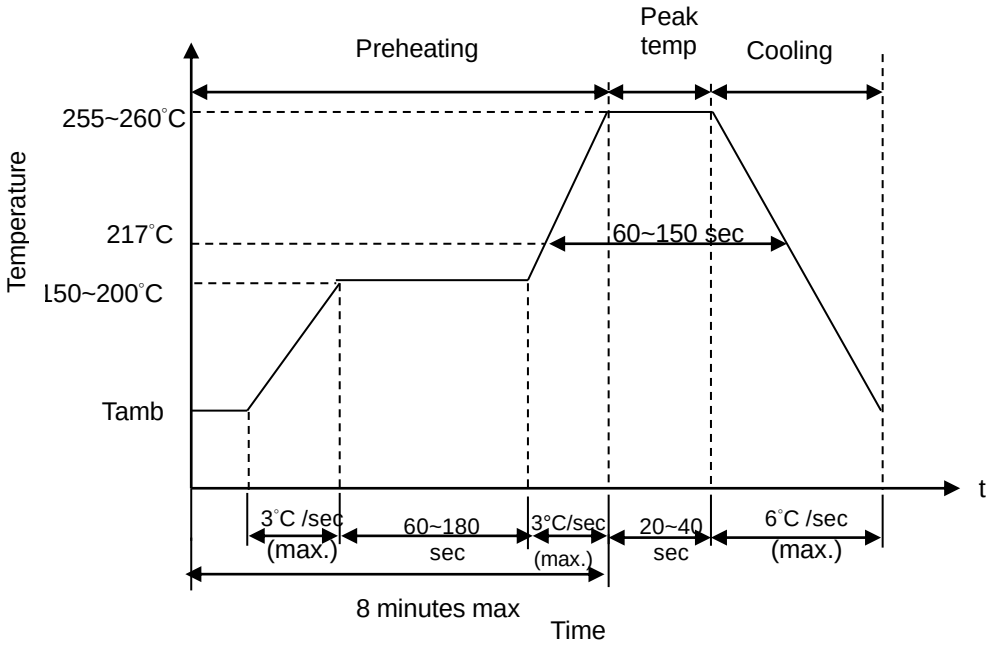


XNS2472□A34D* ~ XNS2224□A410*



■ Soldering Recommendation

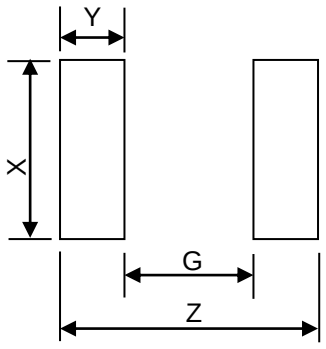
● IR-reflow Soldering Profile



● Reworking Conditions with Soldering Iron

Item	Conditions
Temperature of Soldering Iron-tip	360℃(max.)
Soldering Time	3 sec (max.)
Diameter of Soldering Iron-tip	Φ3mm (max.)

■ Recommended Soldering Pad Dimensions



Size	Z (mm)	G (mm)	X (mm)	Y (mm)
0201	0.8	0.3	0.3	0.25
0402	1.7	0.5	0.6	0.6
0603	3.0	1.0	1.0	1.0
0805	3.4	1.0	1.4	1.2

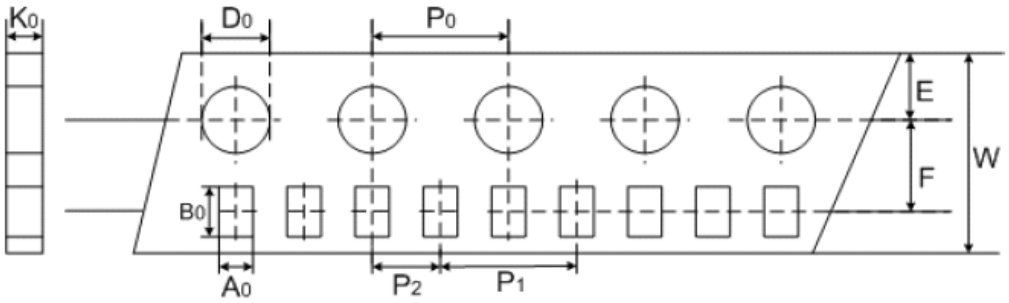
■ Reliability

<table>
<tr><th>Item</th><th>Standard</th><th>Test conditions / Methods</th><th>Specifications</th></tr>
<tr><td>Solderability</td><td>IEC60068-2-58</td><td>245 ± 5℃, 3 ± 0.3 sec</td><td>At least 95% of terminal electrode is covered by new solder</td></tr>
<tr><td>Resistance to Soldering Heat</td><td>IEC60068-2-58</td><td>260 ± 5℃, 10 ± 1 sec.</td><td>No visible damage
$|\triangle R_{25}/R_{25}| \leqq 3\ \%$</td></tr>
<tr><td>High Temperature Storage</td><td>IEC60068-2-2</td><td>125 ± 5℃, 1000 ± 24 hrs</td><td>No visible damage
$|\triangle R_{25}/R_{25}| \leqq 5\ \%$</td></tr>
<tr><td>Damp Heat, Steady State</td><td>IEC60068-2-3</td><td>40 ± 2℃ ， 90~95% RH , 1000 ± 24 hrs</td><td>No visible damage
$|\triangle R_{25}/R_{25}| \leqq 3\ \%$</td></tr>
<tr><td>Rapid Change of Temperature</td><td>IEC60068-2-14</td><td>The conditions shown below shall be repeated 5 cycles on PCB
<table>
<tr><th>Step</th><th>Temperature (℃)</th><th>Period (minutes)</th></tr>
<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>125 ± 5</td><td>30 ± 3</td></tr>
<tr><td>4</td><td>Room temperature</td><td>5 ± 3</td></tr>
</table></td><td>No visible damage
$|\triangle R_{25}/R_{25}| \leqq 3\ \%$</td></tr>
<tr><td>Max. Power Dissipation</td><td>IEC 60539-1</td><td>25 ± 5℃, Pmax. , 1000 ± 24 hrs</td><td>No visible damage
$|\triangle R_{25}/R_{25}| \leqq 5\ \%$</td></tr>
</table>

■ **Package**

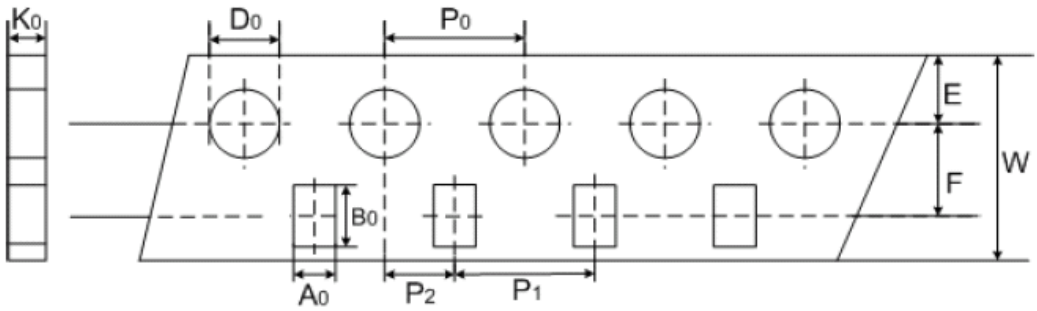
● **Taping Specification**

◆ **0201& 0402 & 0603 & 0805 type**



(Unit: mm)

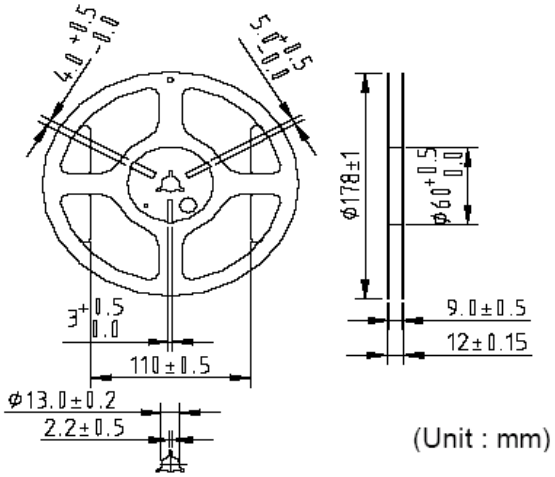
Index / Type	A_0 ±0.05	B_0 ±0.12	W ±0.2	E ±0.1	F ±0.05	P_1 ±0.1	P_2 ±0.05	P_0 ±0.1	D_0 ±0.1	K_0 ±0.1
0201	0.38	0.68	8	1.75	3.5	4	2	4	1.55	0.38
0402	0.62	1.12	8	1.75	3.5	4	2	4	1.55	0.60



(Unit: mm)

Index / Type	A_0 ±0.2	B_0 ±0.2	W ±0.2	E ±0.1	F ±0.05	P_1 ±0.1	P_2 ±0.05	P_0 ±0.1	D_0 ±0.1	K_0 ±0.1
0603	1.1	1.9	8	1.75	3.5	4	2	4	1.55	0.95
0805	1.5	2.3	8	1.75	3.5	4	2	4	1.55	0.95

■ Quantity



Type	Quantity (pcs/reel)
0201	15,000
0402	10,000
0603	4,000
0805	4,000

■ Storage Conditions of Products

- Storage Conditions :

  1. Storage Temperature: -10℃~+40℃
  2. Relative Humidity: ≦75%RH
  3. Keep away from corrosive atmosphere and sunlight.

- Shelf Life : 1 year