NTC Thermistor：XNC5 Series

XNC NTC Thermistor for Temperature -controlled/ Compensation

XNC5 Features

1. RoHS compliant
2. Halogen-Free (HF) series are available
3. Body size: Φ5mm
4. Radial lead resin coated
5. Operating temperature range: -30℃~+125℃
6. Wide resistance range
7. Cost effective

■ Recommended Applications

1. Home appliances
2. Automotive electronics
3. Computers
4. Switch mode power supplies
5. Adapters

■ Part Number Code

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
X	N	C	3	1	0	3	F	A	3	4	D	1	S	0	0
XINGXIANG NTC Thermistor XNC Series			Size 3:3mm 4:4mm 5:5mm		Zero Power Resistance at 25℃ (R25) 103:10*10^3 Ω		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 Ther fisrst two digits are unchanged and the latter represents twso 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%…	Appearance I:inner Kink S:straight lead		Optional suffix

■ Structure and Dimensions

尺寸（mm）(Size)

D	L1	L	F	T	d
Max4.5	1.5±0.2	Min25	2.5±1.0	Max3.0	0.45±0.06
Max6.5	1.5±0.2	Min25	2.5±1.0	Max5.0	0.45±0.06

NTC Thermistor：XNC5 Series

XNC NTC Thermistor for Temperature -controlled/ Compensation

Electrical Characteristics

Part No.	Zero Power Resistance at 25°C	Tolerance of R_{25}	$B_{25/50}$ Value	Max. Power Dissipation at 25℃	Dissipation Factor	Thermal Time Constant	Operating Temperature Range
	R_{25}(Ω)	(±%)	(K)	P_{max}(mW)	δ(mW/°C)	τ (Sec.)	T_L~T_U(°C)
XNC505□	5	10, 15 , 20	2400	450	Approx. 4.5	Approx. 10	-55~+125
XNC5010□	10		2800				
XNC5015□	15		2800				
XNC5020□	20		2800				
XNC5025□	25		2900				
XNC5045□	45		3100				
XNC550□	50		3100				
XNC5060□	60		3100				
XNC5085□	85		3200				
XNC5090□	90		3200				
XNC5101□	100		3200				
XNC5121□	120		3300				
XNC5151□	150		3300				
XNC5201□	200		3500				
XNC5221□	220		3500				
XNC5251□	250		3500				
XNC5301□	300		3800				
XNC5471□	470		3500				
XNC5501□	500		3700				
XNC5681□	680		3800				
XNC5701□	700		3800				
XNC5102□	1000		3800				
XNC5152□	1500		3950				
XNC5202□	2000		4000				
XNC5222□	2200		4000				
XNC5252□	2500		4000				
XNC5302□	3000		4000				
XNC5332□	3300		4000				
XNC5402□	4000		4000				
XNC5472□	4700		4500				
XNC5502□	5000		3950				
XNC5602□	6000		4500				
XNC5682□	6800		4500				
XNC5802□	8000		4500				
XNC5103□	10000	5, 10, 15	4500				
XNC5123□	12000		4500				
XNC5153□	15000		4150				
XNC5203□	20000		4250				
XNC5303□	30000		4250				
XNC5473□	47000		4300				
XNC5503□	50000		4300				
XNC5104□	100000		4400				
XNC5154□	150000		4500				
XNC5204□	200000		4600				
XNC5224□	220000		4600				
XNC5474□	470000		4750				

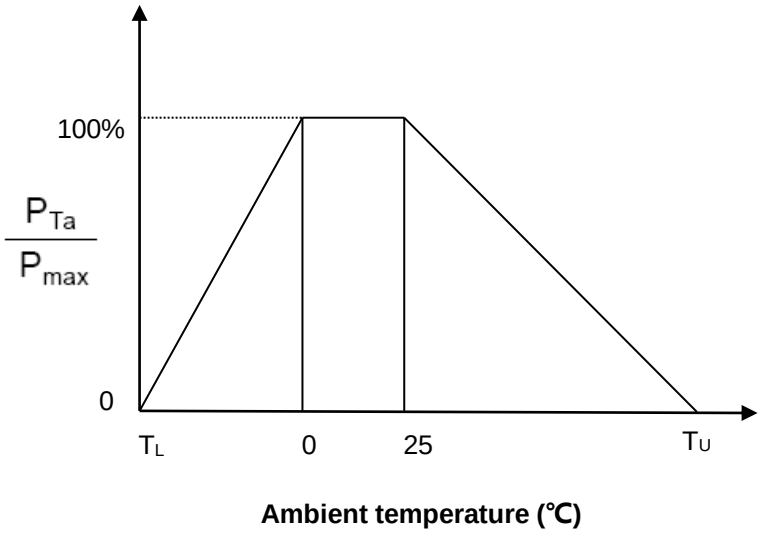
Note 1: □ = Tolerance of R_{25}

Note 2: Special specifications are available upon request.

NTC Thermistor：XNC5 Series

XNC NTC Thermistor for Temperature -controlled/ Compensation

■ Max. Power Dissipation Derating Curve



T_U : Maximum operating temperature (℃)

T_L : Minimum operating temperature (℃)

For example:

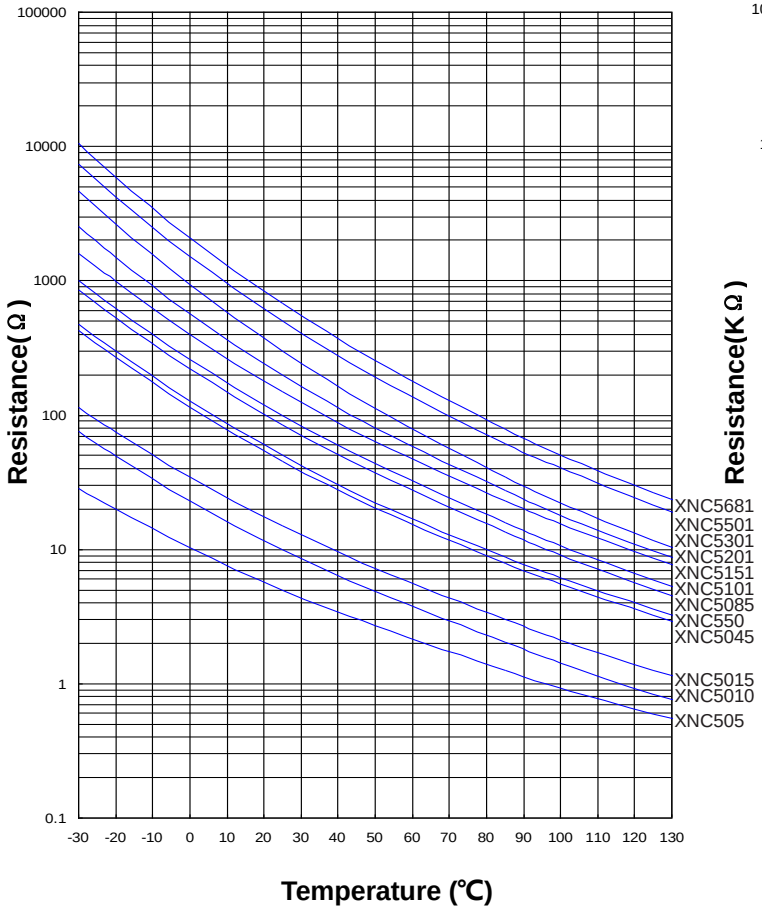
Ambient temperature (Ta) = 55℃

Maximum operating temperature (T_U) = 125℃

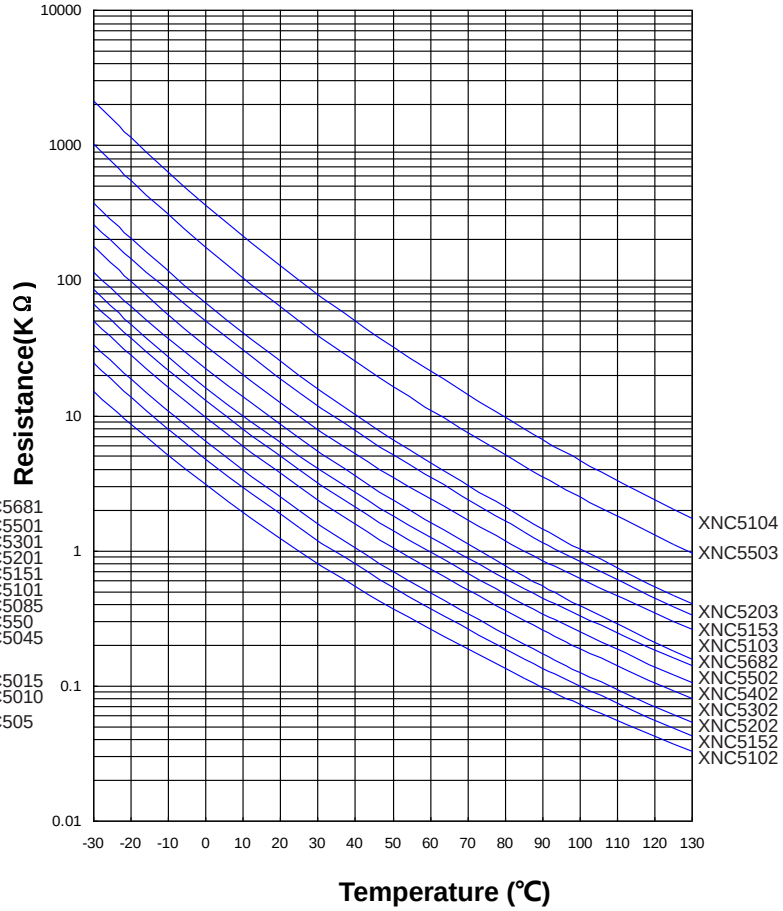
$P_{Ta} = (T_U\text{-}Ta)/(T_U\text{-}25)\times Pmax = 70\%\ Pmax$

■ R-T Characteristic Curves (representative)

XNC505~XNC5681

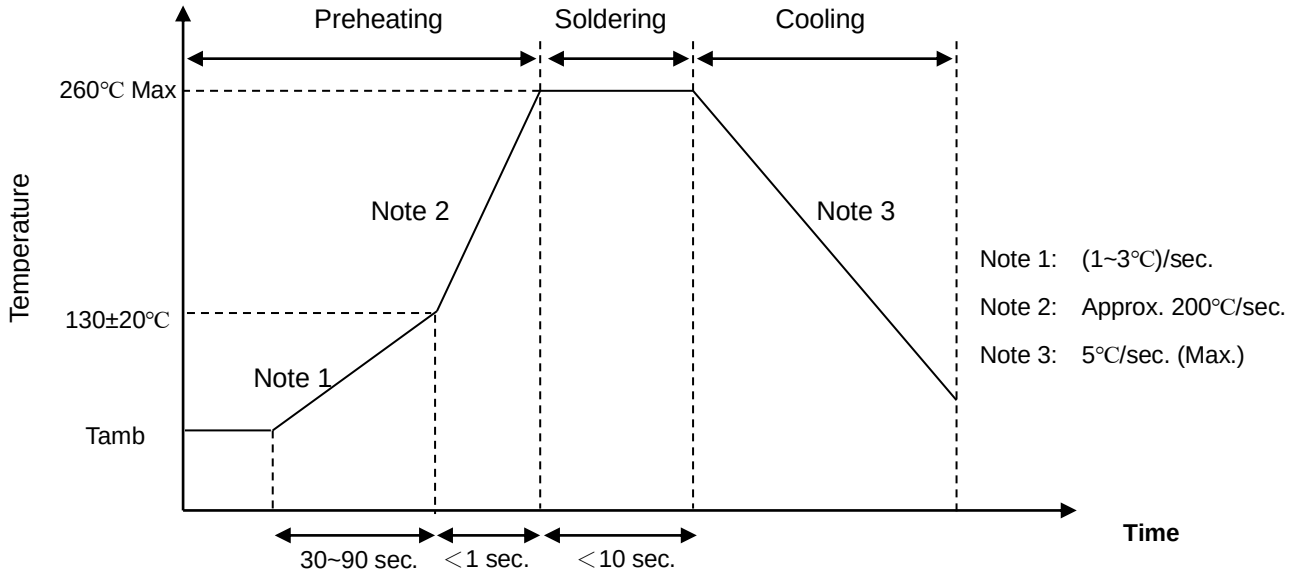


XNC5102~XNC5104



■ Soldering Recommendation

● Wave Soldering Profile



Caution: It had better to keep the minimum distance as 6mm between the bottom of the thermistor body and PCB surface to prevent component damage.

● Recommended Reworking Conditions with Soldering Iron

Item	Conditions
Temperature of Soldering Iron-tip	360℃ (max.)
Soldering Time	3 sec. (max.)
Distance from Thermistor	2 mm (min.)

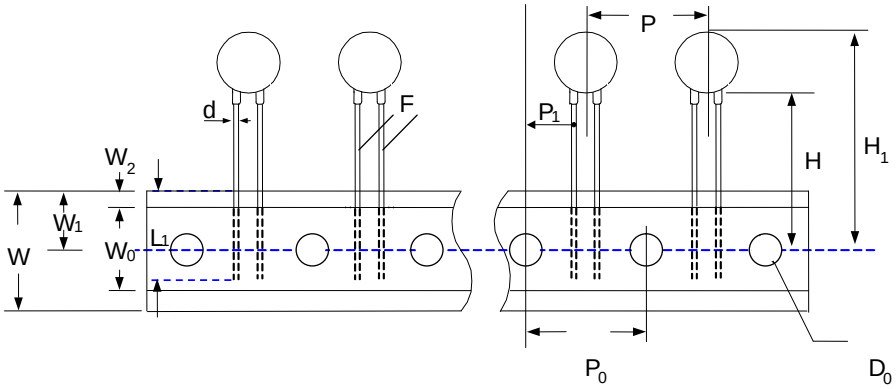
■ Reliability

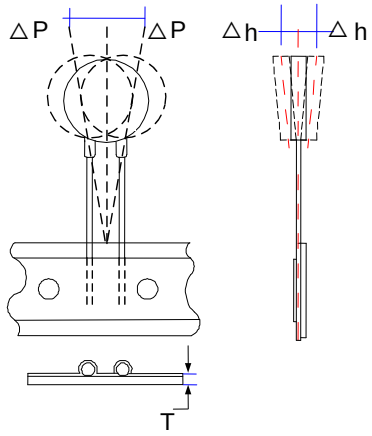
<table>
<tr><th>Item</th><th>Standard</th><th>Test conditions / Methods</th><th>Specifications</th></tr>
<tr><td>Tensile Strength of Terminals</td><td>IEC 60068-2-21</td><td>Gradually apply the specified force and keep the unit fixed for 10±1 sec.
<table><tr><th>Terminal diameter (mm)</th><th>Force (Kg)</th></tr><tr><td>0.3<d≦0.5</td><td>0.5</td></tr></table></td><td>No visible damage</td></tr>
<tr><td>Bending Strength of Terminals</td><td>IEC 60068-2-21</td><td>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.
<table><tr><th>Terminal diameter (mm)</th><th>Force (Kg)</th></tr><tr><td>0.3<d≦0.5</td><td>0.25</td></tr></table></td><td>No visible damage</td></tr>
<tr><td>Solderability</td><td>IEC 60068-2-20</td><td>245 ± 3℃ , 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>IEC 60068-2-20</td><td>260 ± 3℃ , 10 ± 1 sec.</td><td>No visible damage
$|\triangle R_{25}/R_{25}| \leqq 3\ \%$</td></tr>
<tr><td>High Temperature Storage</td><td>IEC 600068-2-2</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>IEC 60068-2-78</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>IEC 60068-2-14</td><td>The conditions shown below shall be repeated 5 cycles.
<table><tr><th>Step</th><th>Temperature (℃)</th><th>Period (minutes)</th></tr><tr><td>1</td><td>-30 ± 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 6539-1 4.26.3</td><td>25 ± 5℃, Pmax. , 1000± 24 hrs</td><td>No visible damage
$|\triangle R_{25}/R_{25}| \leqq 5\ \%$</td></tr>
<tr><td>Insulation Test</td><td>MIL-STD-202F -Method 302</td><td>1000 V_{DC} , 1 min</td><td>≧500 MΩ</td></tr>
</table>

■ **Packaging**

● **Taping Specification :**

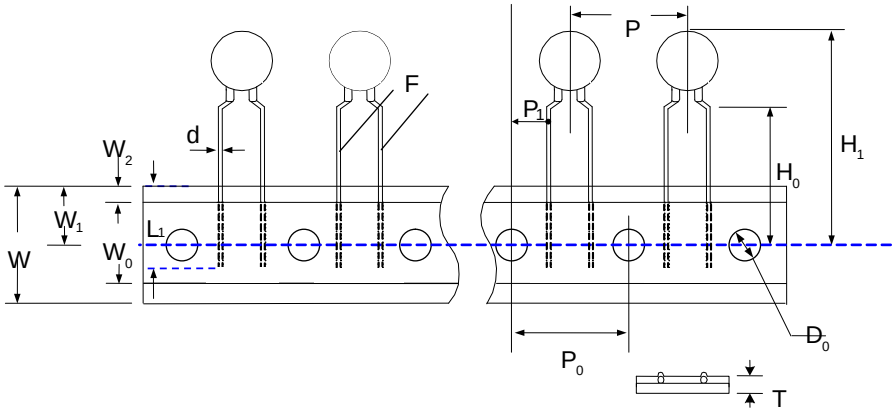
S Type (Straight Lead)

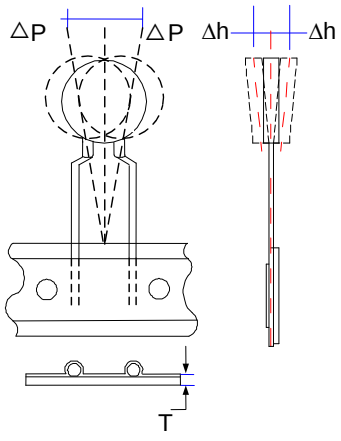




Taping Dimension	P_0	F	P	P_1	H	H_1	d	W_0	W_1	W_2	W	△P	△h	L_1	D_0	T
	±0.3	±0.5	±1	±0.7	+2/-0	Max.	±0.02	±1	+0.75 /-0.5	Max.	+1/ -0.5	Max.	Max.	Min.	±0.2	±0.2
P_0:12.7	12.7	3.5	12.7	4.60	18	28	0.5	12	9	3	18	1	2	9	4	0.6
P_0:15.0	15.0	3.5	15.0	5.75	18	28	0.5	12	9	3	18	1	2	9	4	0.6

I Type (Kink Lead)





Taping Dimension	P_0	F	P	P_1	H_0	H_1	d	W_0	W_1	W_2	W	△P	△h	L_1	D_0	T
	±0.3	±0.5	±1	±0.7	±0.5	Max.	±0.02	±1	+0.75 /-0.5	Max.	+1/ -0.5	Max.	Max.	Min.	±0.2	±0.2
P_0:12.7	12.7	5.0	12.7	3.85	16	28	0.5	12	9	3	18	1	2	9	4	0.6
P_0:15.0	15.0	5.0	15.0	5.00	16	28	0.5	12	9	3	18	1	2	9	4	0.6

NTC Thermistor：XNC5 Series

XNC NTC Thermistor for Temperature -controlled/ Compensation

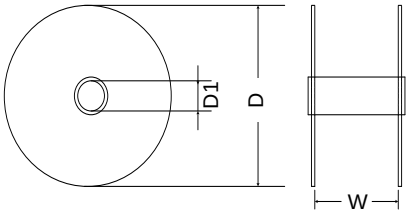
■ Quantity

● Bulk Packing

Series	Standard Lead Type Quantity (pcs/bag)	Cut Lead Type Quantity (pcs/bag)
XNC5	250	500

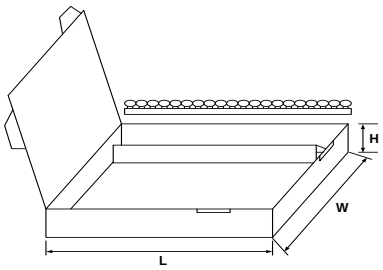
● Reel Packing:

Series	D (mm)	D1 (mm)	W (mm)	Quantity (pcs/reel)
XNC5	340±10	31±1	46±1	2,500



● Ammo Packing:

Series	Quantity (pcs/box)
XNC5	2,000



L	W	H
348mm	275mm	60mm

■ Warehouse Storage Conditions of Products

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

NTC Thermistor：XNC3 Series

XNC NTC Thermistor for Temperature -controlled/ Compensation

XNC3 Features

1. RoHS compliant
2. Halogen-Free(HF) series are available
3. Body size: Φ3mm
4. Radial lead resin coated
5. Operating temperature range: -40℃~+125℃
6. Wide resistance range
7. Cost effective

■ Recommended Applications

1. Home appliances
2. Computers
3. Digital meters
4. Switch mode power supplies
5. Adapters

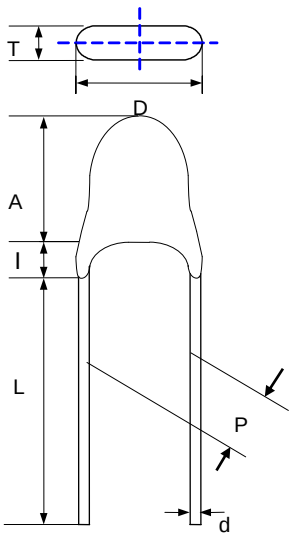
■ Part Number Code

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
X	N	C	3	1	0	3	F	A	3	4	D	1	S	0	0
XINGXIANG NTC Thermistor XNC Series			Size 3:3mm 4:4mm 5:5mm	Zero Power Resistance at 25℃ (R25) $103:10*10^3$ Ω			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 Ther fisrst two digits are unchanged and the latter represents twso 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%…	Appearance I:inner Kink S:straight lead	Optional suffix	

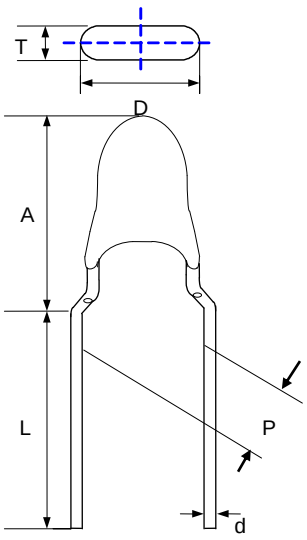
NTC Thermistor：XNC3 Series

XNC NTC Thermistor for Temperature -controlled/ Compensation

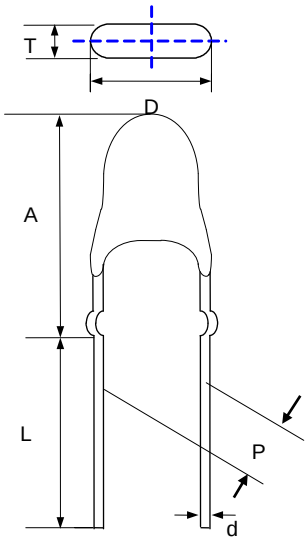
■ Structure and Dimensions



Straight Lead



Wider Kink



Outer Kink

(Unit: mm)

Lead Type	P	$D_{max.}$	$T_{max.}$	$A_{max.}$	$I_{max.}$	L	d
Straight Lead	2.54±0.5	4	3	5	3	30~40	0.5±0.02
	5±0.5	6.5	5	7	3		
Wider Kink	2.54±0.5	4	3	6	--		
	5±0.5	4	3	10	--		
Outer Kink	2.54±0.5	4	3	13.5	--	24.5~34.5	

NTC Thermistor：XNC3 Series

XNC NTC Thermistor for Temperature -controlled/ Compensation

■ 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)
XNC3A901□39D*	0.9	1、2、3、5	25/85	3935	2、3	150	≧2.5	≦18	-40~+125
XNC3A102□39D*	1			3935					
XNC3A152□39D*	1.5			3935					
XNC3A202□39H*	2			3975					
XNC3A222□39H*	2.2			3975					
XNC3A272□39H*	2.7			3975					
XNC3A302□39H*	3			3975					
XNC3A332□39H*	3.3			3975					
XNC3A472□39H*	4.7			3975	1、2、3				
XNC3A482□395*	4.8			3950					
XNC3A482□39H*	4.8			3975					
XNC3A502□39H*	5			3975					
XNC3A682□39H*	6.8			3975					
XNC3A103□34D*	10			3435					
XNC3A103□374*	10			3740					
XNC3A103□39H*	10			3975					
XNC3A123□374*	12			3740					
XNC3A153□374*	15			3740					
XNC3A203□374*	20			3740					
XNC3A203□426*	20			4260					
XNC3A223□374*	22			3740					
XNC3A333□409*	33			4090					
XNC3A473□409*	47			4090					
XNC3A503□39H*	50			3975					
XNC3A503□406*	50			4060					
XNC3A683□419*	68			4190					
XNC3A104□419*	100			4190					
XNC3A104□436*	100			4360					
XNC3A154□437*	150			4370					
XNC3A204□385*	200			3850					
XNC3A224□437*	220			4370					
XNC3A334□457*	330			4570					
XNC3A474□457*	470			4570					
XNC3A474□520*	470			5200	3				
XNC3B202□350*	2		25/50	3500	2、3				
XNC3B473□39D*	47			3935	1、2、3				
XNC3B503□440*	50			4400	2、3				
XNC3B434□507*	430			5070					
XNC3B474□520*	470			5200	3				

Note 1: □ = Tolerance of R_{25}

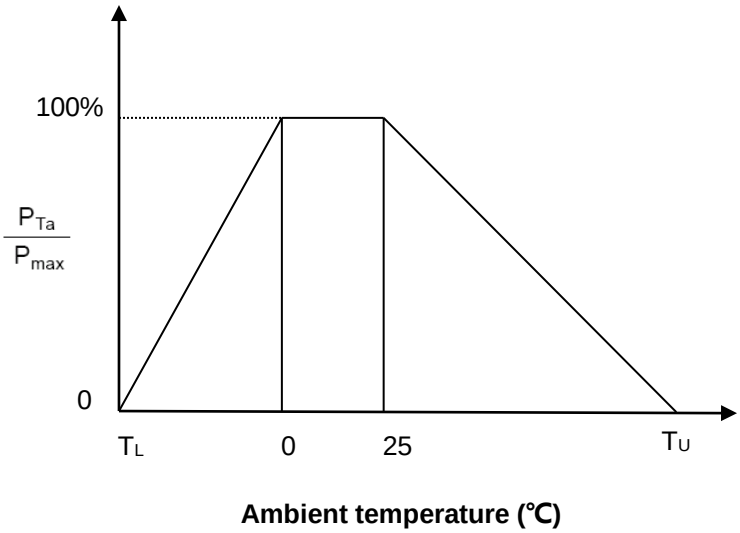
* = Tolerance of B value

Note 2: Special specifications are available upon request.

■ Max. Power Dissipation Derating Curve

NTC Thermistor：XNC3 Series

XNC NTC Thermistor for Temperature -controlled/ Compensation



T_U : Maximum operating temperature (℃)

T_L : Minimum operating temperature (℃)

For example:

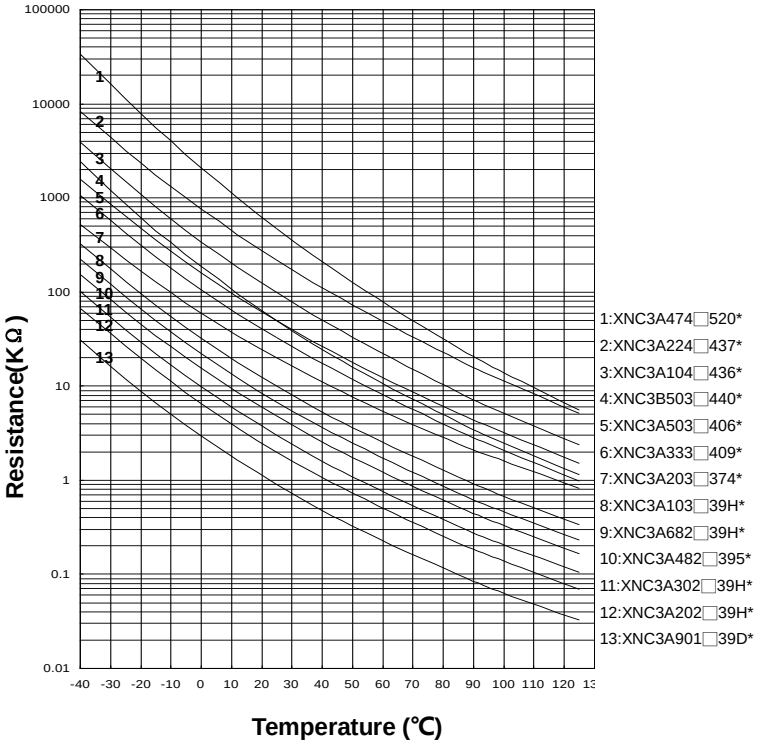
Ambient temperature(Ta) = 55℃

Maximum operating temperature(T_U) = 125℃

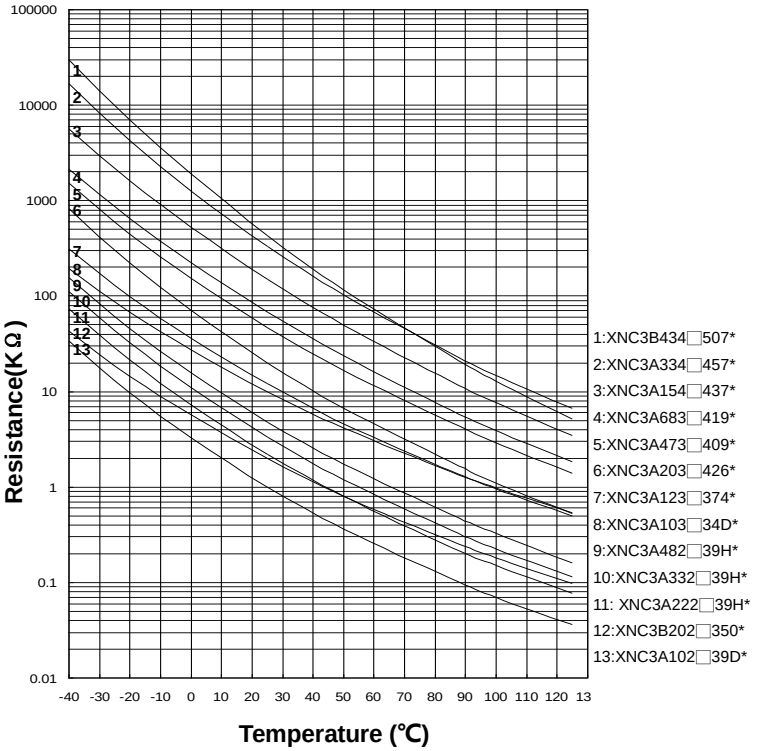
P_{Ta} = (T_U-Ta)/(T_U-25)×Pmax = 70% Pmax

■ R-T Characteristic Curves

XNC3A901□39D*~ XNC3A474□520*

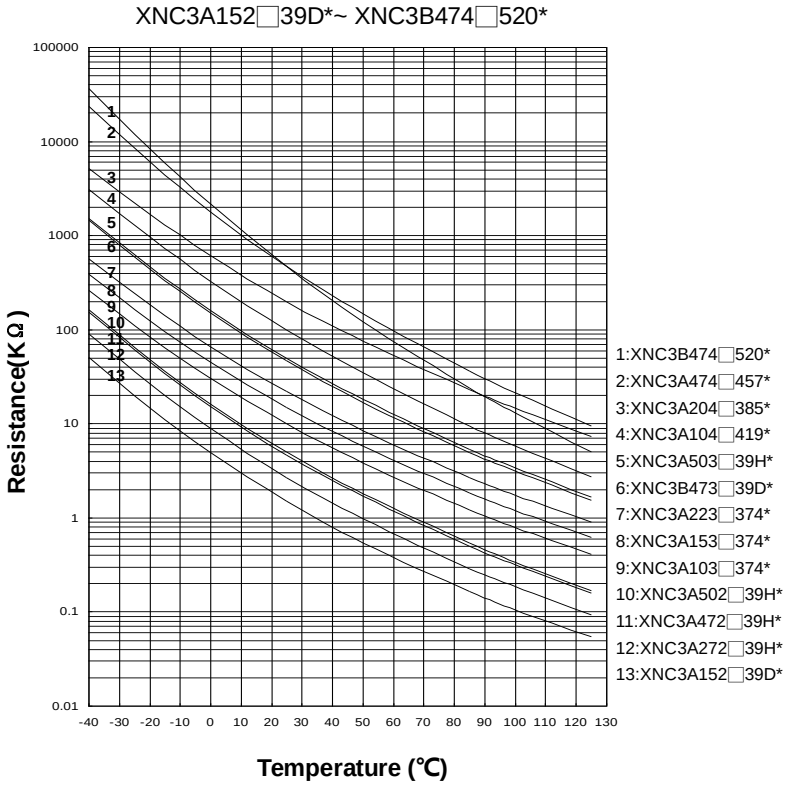


XNC3A102□39D*~ XNC3B434□507*



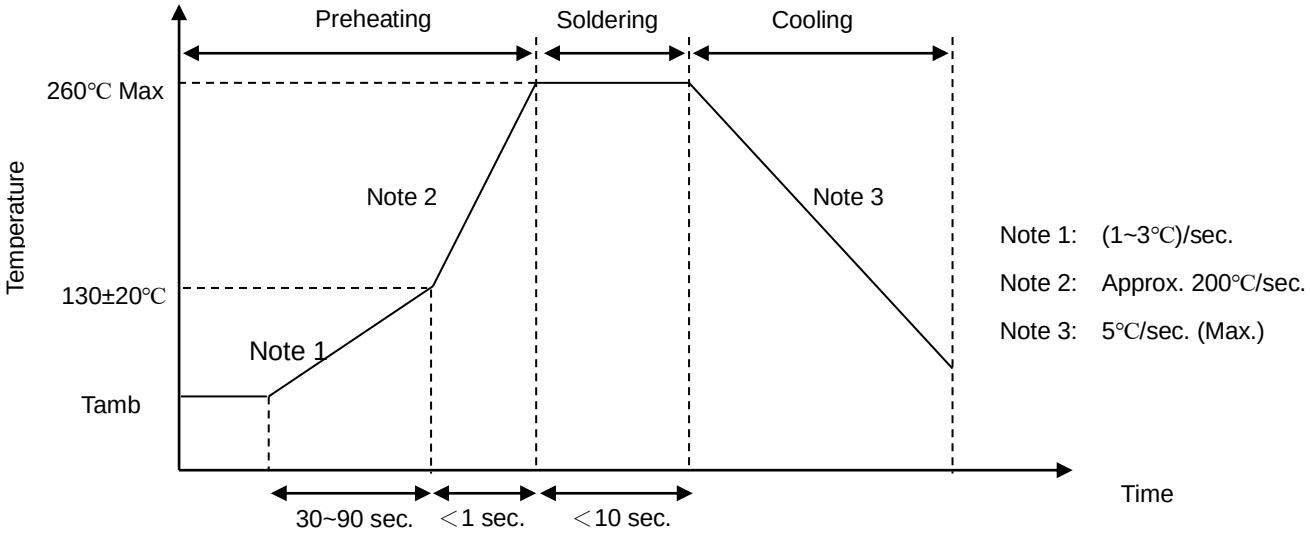
NTC Thermistor：XNC3 Series

XNC NTC Thermistor for Temperature -controlled/ Compensation



■ Soldering Recommendation

● Wave Soldering Profile



● Recommended Reworking Conditions with Soldering Iron

Item	Conditions
Temperature of Soldering Iron-tip	360℃ (max.)
Soldering Time	3 sec. (max.)
Distance from Thermistor	2 mm (min.)

NTC Thermistor：XNC3 Series

XNC NTC Thermistor for Temperature -controlled/ Compensation

■ Reliability

<table>
<tr><th>Item</th><th>Standard</th><th>Test conditions / Methods</th><th>Specifications</th></tr>
<tr><td>Tensile Strength of Terminations</td><td>IEC 60068-2-21</td><td>Gradually apply the specified force and keep the unit fixed for 10±1 sec.

Terminal diameter (mm) | Force (Kg)
0.3<d≦0.5 | 0.5</td><td>No visible damage</td></tr>
<tr><td>Bending Strength of Terminations</td><td>IEC 60068-2-21</td><td>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.

Terminal diameter (mm) | Force (Kg)
0.3<d≦0.5 | 0.25</td><td>No visible damage</td></tr>
<tr><td>Solderability</td><td>IEC 60068-2-20</td><td>245±3 ℃, 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>IEC 60068-2-20</td><td>260 ± 3℃, 10 ± 1 sec.</td><td>No visible damage
$|\triangle R_{25}/R_{25}| \leqq 3\ \%$</td></tr>
<tr><td>High Temperature Storage</td><td>IEC 60068-2-2</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>IEC 60068-2-78</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>IEC 60068-2-14</td><td>The conditions shown below shall be repeated 5 cycles
<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 6539-1 4.26.3</td><td>25 ± 5℃, Pmax. , 1000 ± 24 hrs</td><td>No visible damage
$|\triangle R_{25}/R_{25}| \leqq 5\ \%$</td></tr>
</table>

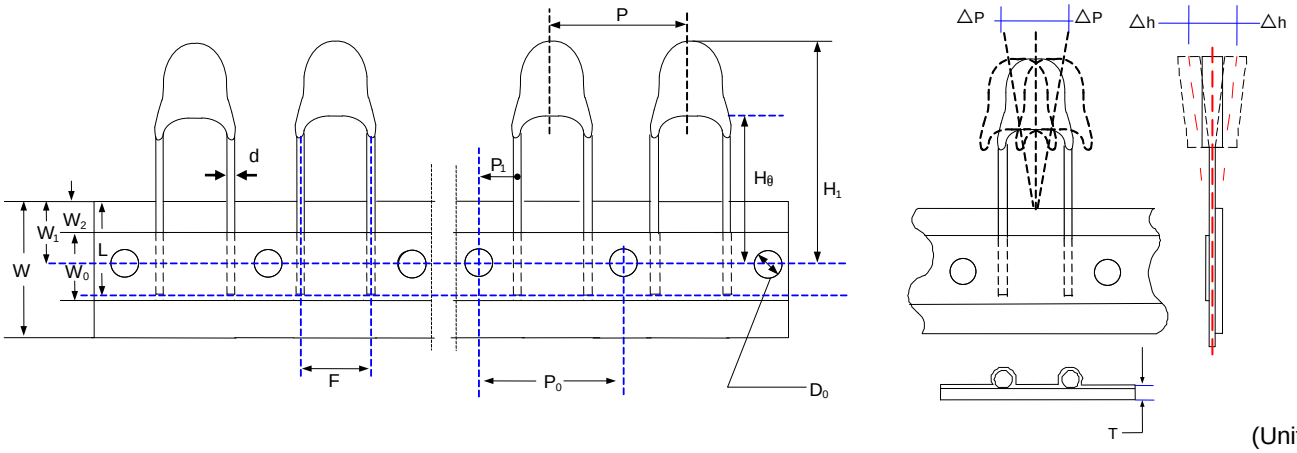
NTC Thermistor：XNC3 Series

XNC NTC Thermistor for Temperature -controlled/ Compensation

■ Packaging

● Taping Specification

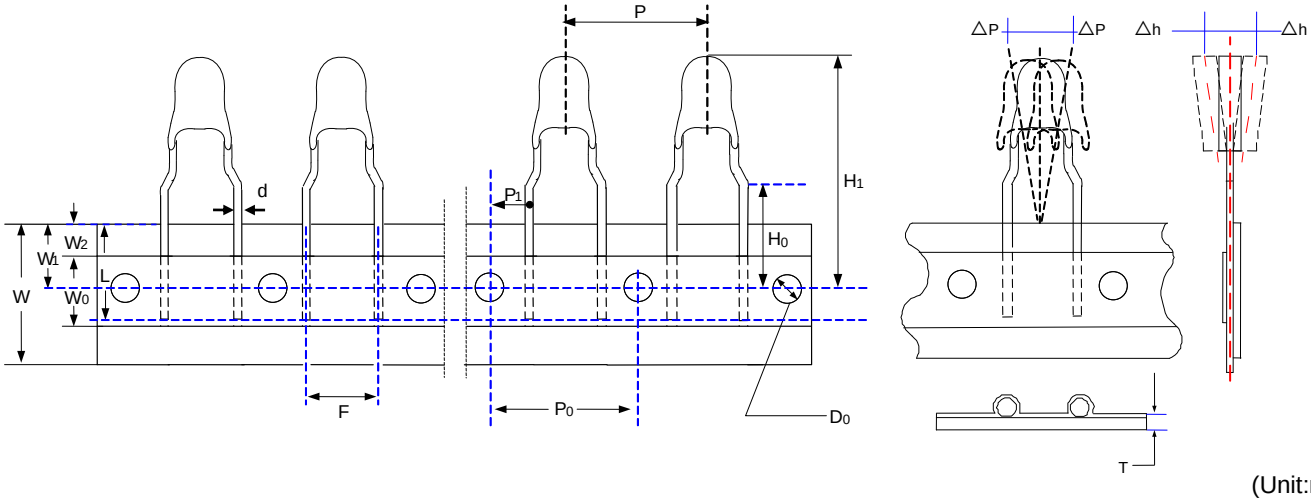
Straight Lead



(Unit:mm)

Taping Dimension	P_0	F	P	P_1	H_0	H_1	d	W_0	W_1	W_2	W	△P	△h	L	D_0	T
	±0.3	±0.5	±1	±0.7	+2/-0	Max.	±0.02	±1	+0.75 /-0.5	Max.	+1/ -0.5	Max.	Max.	±1	±0.2	±0.2
P_0=12.7	12.7	2.54	12.7	5.08	18	25	0.5	12	9	3	18	1	2	10	4	0.6
	12.7	5.00	12.7	3.85	18	25	0.5	12	9	3	18	1	2	10	4	0.6
P_0=15.0	15.0	2.54	15.0	6.23	18	25	0.5	12	9	3	18	1	2	10	4	0.6
	15.0	5.00	15.0	5.00	18	25	0.5	12	9	3	18	1	2	10	4	0.6

Wider Kink



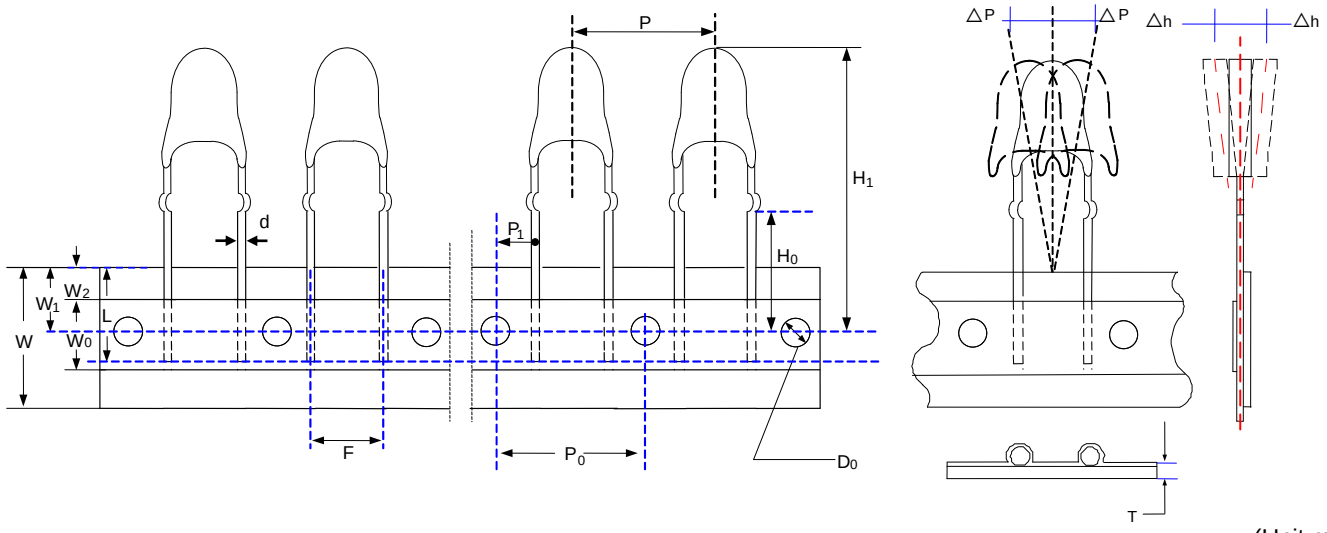
(Unit:mm)

Taping Dimension	P_0	F	P	P_1	H_0	H_1	d	W_0	W_1	W_2	W	△P	△h	L	D_0	T
	±0.3	±0.5	±1	±0.7	±0.5	Max.	±0.02	±1	+0.75 /-0.5	Max.	+1/ -0.5	Max.	Max.	±1.	±0.2	±0.2
P_0=12.7	12.7	2.54	12.7	5.08	16	26	0.5	12	9	3	18	1	2	10	4	0.6
	12.7	5.00	12.7	3.85	16	26	0.5	12	9	3	18	1	2	10	4	0.6

NTC Thermistor：XNC3 Series

XNC NTC Thermistor for Temperature -controlled/ Compensation

Outer Kink



(Unit:mm)

Taping Dimension	P_0	F	P	P_1	H_0	H_1	d	W_0	W_1	W_2	W	△P	△h	L	D_0	T
	±0.3	±0.5	±1	±0.7	±0.5	Max.	±0.02	±1	+0.75 /-0.5	Max.	+1/ -0.5	Max.	Max.	±1	±0.2	±0.2
P_0=12.7	12.7	2.54	12.7	5.08	16	26	0.5	12	9	3	18	1	2	10	4	0.6

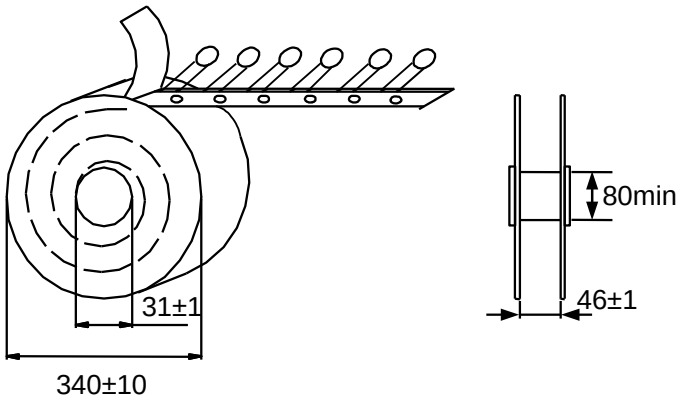
■ Quantity

● Bulk Packing

Series	Quantity (pcs/bag)
XNC3	500

● Reel Packing

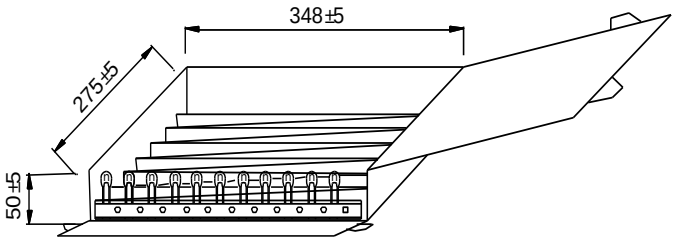
Series	Quantity (pcs/reel)
XNC3	2,500



(Unit: mm)

● Ammo Packing

Series	Quantity (pcs/box)
XNC3	2,500



■ Warehouse Storage Conditions of Products

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