



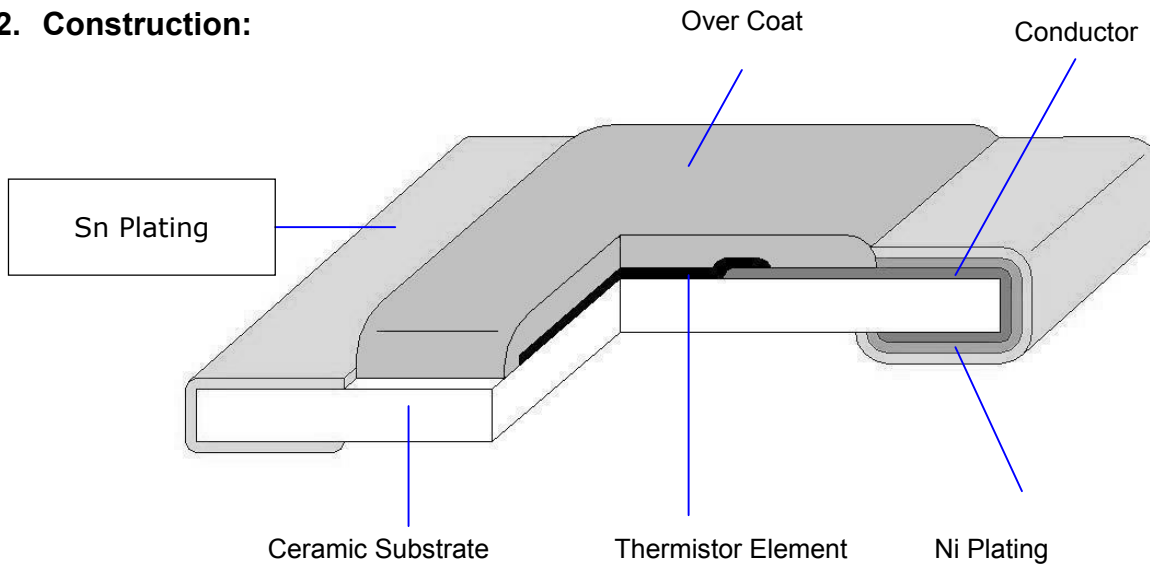
Chip NTC Thermistor

Document No	TNT-06OS001A
Issued date	2007/12/11
Page	1/8

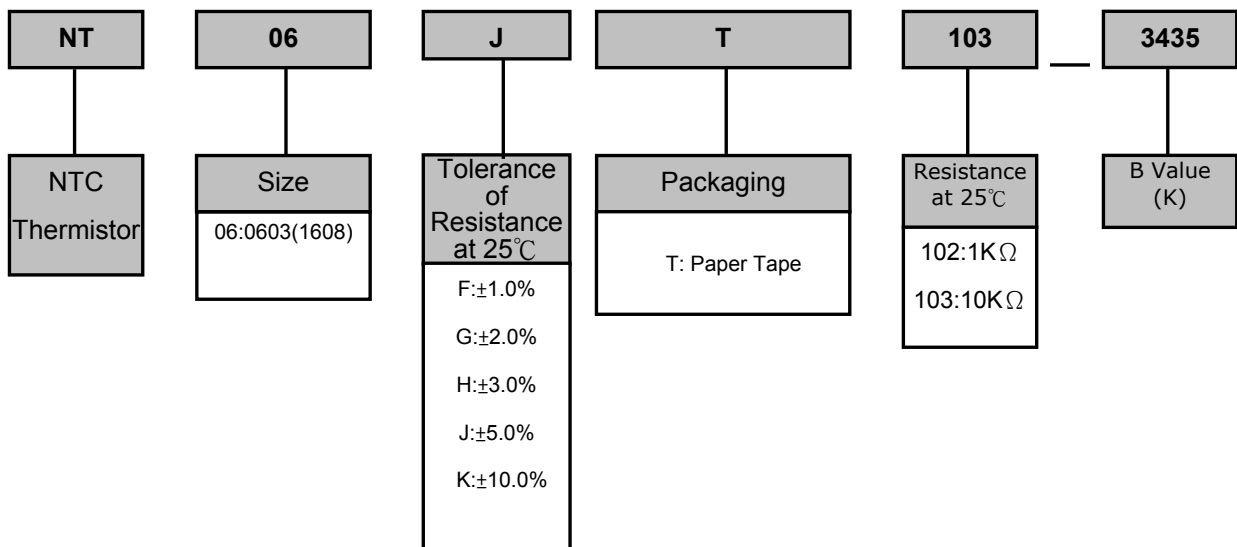
1. Scope :

This specification applies for the Lead-Free NTC thermistor series of chip NTC thermistor made by TA-I.

2. Construction:



3. Type Designation:

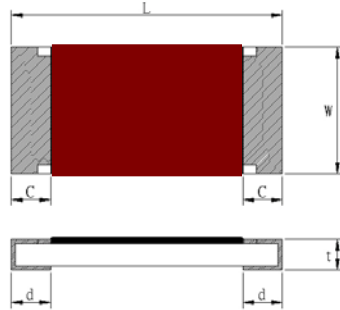




Chip NTC Thermistor

Document No	TNT-06OS001A
Issued date	2007/12/11
Page	2/8

4. Dimensions:



Unit: mm

Type (Inch Size code)	Dimensions (mm)				
	L	W	C	d	t
NT06(0603)	1.60±0.10	0.80±0.10	0.30±0.20	0.30±0.2	0.45±0.1

5. Applications and ratings

Part Designation	Zero Power Resistance at 25°C (KΩ)	Tolerance of Resistance (±%)	*B _{25/85} value (K)	Tolerance of B value (±%)	** Zero power current at 25°C (mA)	Power Rated at 25°C (mW)	Typical Thermal Time Constant (sec)	Typical Dissipation Constant (mW/°C)	Operation Temperature range (°C)
NT06□T102_3100	1.0	1、2、3、5、10	3100	3	0.100	5	≤5	3.0	-40~125
NT06□T152_3100	1.5		3100		0.081				
NT06□T202_3400	2		3400		0.070				
NT06□T222_3400	2.2		3400		0.067				
NT06□T332_3400	3.3		3400		0.055				
NT06□T472_3435	4.7		3435		0.046				
NT06□T502_3435	5		3435		0.044				
NT06□T682_3435	6.8		3435		0.038				
NT06□T103_3435	10		3435		0.031				
NT06□T223_3950	22		3950		0.021				
NT06□T333_3950	33		3950		0.017				
NT06□T473_3950	47		3950		0.014				
NT06□T503_4000	50		4000		0.014				
NT06□T683_4000	68		4000		0.012				
NT06□T104_4000	100		4000		0.010				
NT06□T204_4000	200		4000		0.007				
NT06□T224_4000	220		4000		0.006				
NT06□T474_4350	470		4350		0.004				

Note* : 1. □ : Resistance Tolerance Code.



Chip NTC Thermistor

Document No	TNT-06OS001A
Issued date	2007/12/11
Page	3/8

$$2. B_{25/85} = \frac{\ln\left(\frac{R_{25}}{R_{85}}\right)}{\frac{1}{298.15} - \frac{1}{358.15}}$$

R_{25} =Resistance at 25°C
 R_{85} =Resistance at 85°C

max. power dissipation can be calculated by the following equation :

$$P_{\max} = \delta (T_2 - T_1)$$

δ :thermal dissipation constant

T_1 :ambient temperature

T_2 :specific temperature

example:

For NT06FT103_3435

$$P_{\max} = \delta (T_2 - T_1)$$

$$= 3\text{mw}/^\circ\text{C} * (125 - 25)$$

$$= 3\text{mw}/^\circ\text{C} * 100^\circ\text{C}$$

$$= 300\text{mw}$$

Note **

1. Zero power operation current is recommended condition, at or below which self-heating can be avoided and most accurate resistance value can be obtained.



Chip NTC Thermistor

Document No	TNT-06OS001A
Issued date	2007/12/11
Page	4/8

6. Reliability Tests:

Items	Standard	Requirements	Test Conditions
Solderability	IEC68-2-20	More than 95% of the terminal electrode Shall be covered with new solder.	235±5°C, 2±0.5sec 245°C±5°C, 2±0.5second (Lead Free)
Resistance to solder heat	IEC68-2-20	1.No serious mechanical damage 2. $\Delta R \leq \pm 3\%$ (ref. to initial value)	260±5°C, 5±1sec
Damp Heat	IEC68-2-3	1.No serious mechanical damage 2. $\Delta R \leq 3\%$ (ref. to initial value)	1. 40 ±2°C, 90%~95%RH, 1000 ± 24 hr 2. measuring resistance after sample kept at room temp. for 24 hr
Thermal Shock	IEC68-2-14	1.No serious mechanical damage 2. $\Delta R \leq 3\%$	1.cycle : min. -40 ± 5°C (30min) → 25°C ±5°C (5min) → max. 125± 5°C (30min) → 25± 5°C (5min) 2.the cycles are repeated 100 times
High Temp. Storage	IEC68-2-20	1.No serious mechanical damage 2. $\Delta R \leq 5\%$	1.Temp.: max. 125 ± 2°C 2.Time : 1000Hrs ± 2Hrs measuring resistance after sample kept at room temp. for 24 hr
Life Test	CNS5550	1.No serious mechanical damage 2. $\Delta R \leq 3\%$	1.Temp.:max 25± 5°C Loading Zero power current 2.Time : 1000Hrs ± 24Hrs Let it sit at R.T, for 24Hrs then Measure
Robustness of Termination (Bending)	JIS-C5202-6.1	1. $\Delta R \leq 3\%$	3mm deflection, duration 30 sec.

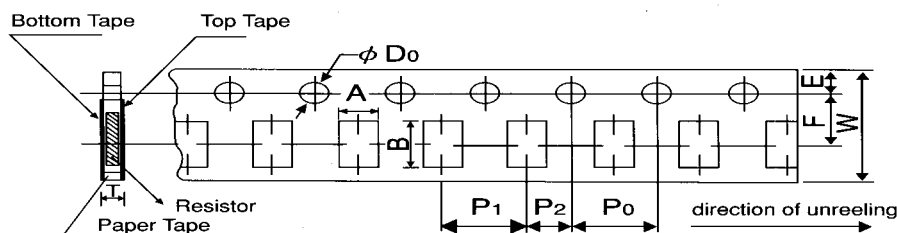
7. Marking

No marking for NT series

8. Taping & Reel

8.1.1 Taping Dimensions

4mm pitch paper



Packing	Type	A	B	W	F	E	P ₁	P ₂	P ₀	D ₀	T
Paper Tape	NT06	1.1±0.1	1.9±0.1	8.0±0.2	3.5±0.05	1.75±0.1	4.0±0.1	2.0±0.05	4.0±0.1	$\phi 1.5$ +0.1 -0	0.64±0.1



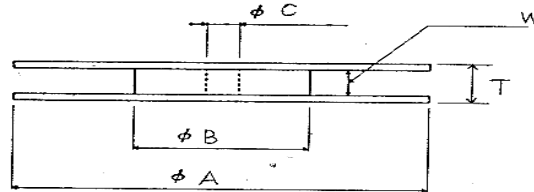
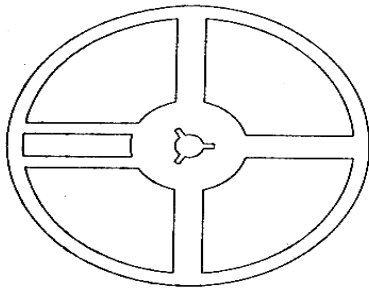
Chip NTC Thermistor

Document No	TNT-06OS001A
Issued date	2007/12/11
Page	5/8

\Package		Paper Tape
		4 mm pitch
Style	Size	180mm/R
NT	06	5000

Unit: m

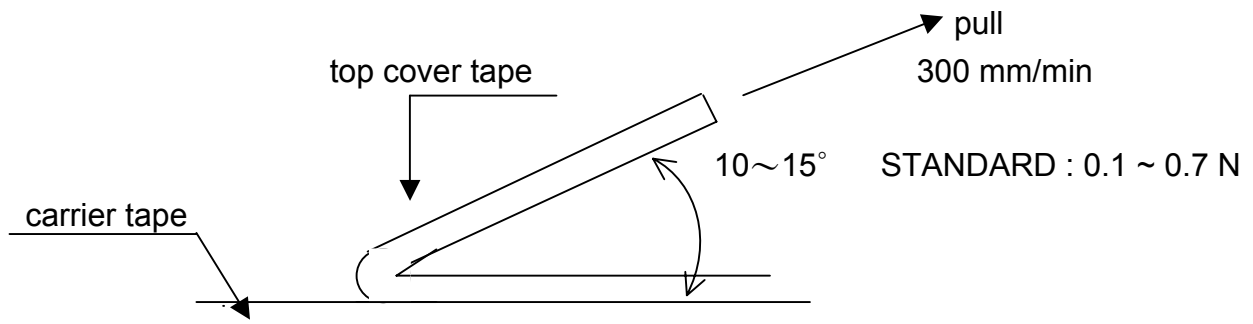
8.2 Reel Specifications



Unit: mm

Series	ϕA	ϕB	ϕC	W	T
NT06	178.0 ± 1.0	60.0 ± 1.0	13.0 ± 1.0	9.0 ± 1.0	11.5 ± 2.0

8.3 Peel –off force :



9. Storage Conditions:

Temperature: 5°C~35°C, Humidity: 40%~75%



Chip NTC Thermistor

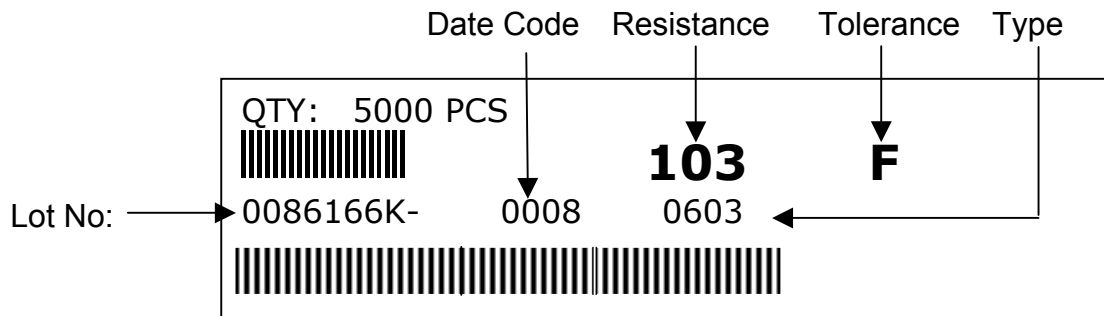
Document No	TNT-06OS001A
Issued date	2007/12/11
Page	6/8

10. Shelf Life:

2 years from manufacturing date

11. Label

11.1 Manufacture Label :



11.2 Customer Label:

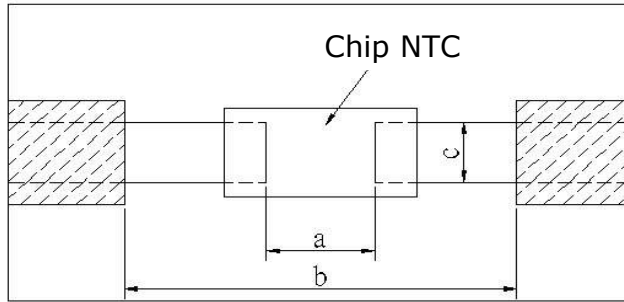




Chip NTC Thermistor

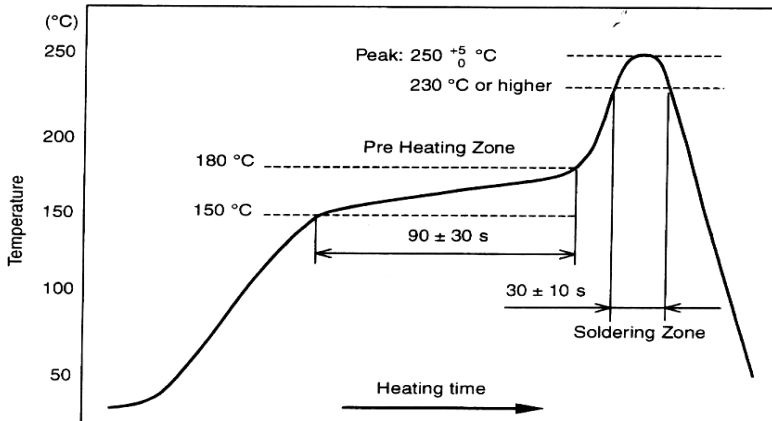
Document No	TNT-06OS001A
Issued date	2007/12/11
Page	7/8

12. Recommended land patterns



Type	Land pattern Size	Dimension		
		a	b	c
NT	06(0603)	0.7~0.9	2.0~2.2	0.8~1.0

13. Recommend IR – Reflow profile : (solder : Sn96.5 / Ag3 / Cu0.5)



Peak : $250 \begin{matrix} +5 \\ -0 \end{matrix} \text{ } ^\circ\text{C}$, 5 sec

Pre – heat Zone : 150 to 180 °C , 90±30 sec

Soldering Zone : 230°C or higher , 30±10 sec



Chip NTC Thermistor

Document No	TNT-06OS001A
Issued date	2007/12/11
Page	8/8

14. ECN

Engineering Change Notice: The customer will be informed with ECN if there is significant modification on the characteristics and materials described in Approval Sheet.

15. Manufacturing Country & City :

TA-I TECHNOLOGY CO., LTD. (Taiwan – Tao Yuan)
Tel: 886-3-3246169 Fax : 886-3-3247410

Associated companies :

- (1) FORTUNE TASK RESISTOR FACTORY (China – Dong Guan)
Tel : 86-769-83394790 Fax : 86-769-83394794
- (2) TA-I TECHNOLOGY (SU ZHOU) CO., LTD. (China – Su Zhou)
Tel :86- 512-63457879 Fax : 86-512-63457869
- (3) TAI OHM ELECTRONICS (M) SDN. BHD. (Malaysia – Pulaupinang)
Tel :604- 3900480 Fax : 604-3901481
- (4) P.T.TAI ELECTRONICS Indonesia (Indonesia – Jakarta)
Tel :002-62-21-44820254 Fax : 002-62-21-44820256