

Description

This is a Negative Temperature Coefficient Resistor Whose resistance changes with ambient temperature changes. Thermistor comprises 2 or 4 kinds of metal oxides of iron, nickel, cobalt, manganese and copper, being shaped and Sintered at high temperature(1200°C to 1500°C)

Features

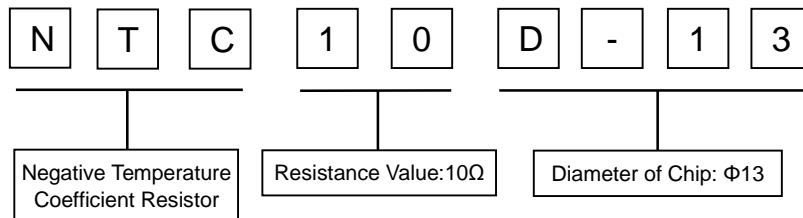
- I Small size, large power, strong capacity of suppression of inrush current
- I Fast response
- I Big material constant(B value),small residual resistance
- I Long life and high reliability
- I Complete series, wide applications



Applications

- I Switching power-supply, switch power ,ups power
- I Electronic energy saving lamps electronic ballast and all kinds of electric heater
- I All kinds of RT, display
- I Bulb and other lighting lamps

Part Number Code



Materials

Item	name
Wrapper	Modified phenolic resin
Down-lead	CP Wire
Coating color	Black



Parameters of Technology

Model	R ₂₅ (Ω)	Max. steady State current (A)	Residual Resistance (Ω)	Dissipation factor (mw/°C)	Thermal time Constant (s)	Operating Temperature (°C)	
NTC5D-5	5	1	0.35	6	20	-40~+150	
NTC10D-5	10	0.7	0.77	6	20		
NTC60D-5	60	0.5	1.88	6	18		
NTC200D-5	200	0.1	18.7	6	18		
NTC5D-7	5	2	0.28	10	30		
NTC8D-7	8	1	0.54	9	28		
NTC10D-7	10	1	0.62	9	27		
NTC12D-7	12	1	0.82	9	27		
NTC16D-7	16	0.7	1.00	9	27		
NTC22D-7	22	0.6	1.11	9	27		
NTC33D-7	33	0.5	1.49	10	28		
NTC200D-7	200	0.2	11.65	11	28		
NTC3D-9	3	4	0.12	11	35		-40~+175
NTC4D-9	4	3	0.19	11	35		
NTC5D-9	5	3	0.21	11	34		
NTC6D-9	6	2	0.32	11	34		
NTC8D-9	8	2	0.40	11	32		
NTC10D-9	10	2	0.46	11	32		
NTC12D-9	12	1	0.66	11	32		
NTC15D-9	15	1	0.80	11	31		
NTC20D-9	20	1	0.88	11	30		
NTC22D-9	22	1	0.95	11	30		
NTC33D-9	33	1	1.12	11	30		
NTC50D-9	50	1	1.25	11	30		
NTC80D-9	80	0.8	2.01	11	30		
NTC120D-9	120	0.8	3.02	11	30		
NTC200D-9	200	0.5	5.01	11	30		
NTC2.5D-11	2.5	5	0.10	13	43	-40~+175	
NTC3D-11	3	5	0.10	13	43		
NTC4D-11	4	4	0.15	13	44		
NTC5D-11	5	4	0.16	13	45		
NTC6D-11	6	3	0.24	13	45		
NTC8D-11	8	3	0.25	14	47		
NTC10D-11	10	3	0.28	14	47		
NTC12D-11	12	2	0.46	14	48		
NTC16D-11	16	2	0.47	14	50		
NTC20D-11	20	2	0.51	15	52		
NTC22D-11	22	2	0.56	15	52		
NTC30D-11	30	1.5	0.67	15	52		
NTC50D-11	50	1.5	1.02	15	52		
NTC60D-11	60	1.5	1.22	15	52		
NTC80D-11	80	1.2	1.66	15	52		



Parameters of Technology

Model	R ₂₅ (Ω)	Max. steady State current (A)	Residual Resistance (Ω)	Dissipation factor (mw/°C)	Thermal time Constant (s)	Operating Temperature (°C)
NTC1.3D-13	1.3	7	0.06	13	60	-40~+200
NTC2.5D-13	2.5	6	0.088	13	60	
NTC3D-13	3	6	0.092	14	60	
NTC4D-13	4	5	0.12	15	67	
NTC5D-13	5	5	0.125	15	68	
NTC6D-13	6	4	0.17	15	65	
NTC7D-13	7	4	0.188	15	65	
NTC8D-13	8	4	0.194	15	65	
NTC10D-13	10	4	0.206	15	65	
NTC12D-13	12	3	0.316	16	65	
NTC15D-13	15	3	0.335	16	65	
NTC20D-13	20	3	0.372	16	65	
NTC30D-13	30	2.5	0.517	16	65	
NTC47D-13	47	2	0.81	17	65	
NTC2.5D-15	2.5	8	0.071	18	76	
NTC3D-15	3	7	0.075	18	76	
NTC5D-15	5	6	0.112	20	76	
NTC6D-15	6	5	0.155	20	80	
NTC7D-15	7	5	0.173	20	80	
NTC8D-15	8	5	0.178	20	80	
NTC10D-15	10	5	0.18	20	75	
NTC12D-15	12	4	0.25	20	75	
NTC15D-15	15	4	0.268	21	85	
NTC20D-15	20	4	0.288	17	86	
NTC30D-15	30	3.5	0.438	18	75	
NTC47D-15	47	3	0.68	21	86	
NTC50D-15	50	3	0.72	21	86	
NTC1.3D-20	1.3	9	0.037	24	113	
NTC2.5D-20	2.5	8	0.049	24	113	
NTC3D-20	3	8	0.055	24	113	
NTC5D-20	5	7	0.087	23	113	
NTC8D-20	8	6	0.142	25	114	
NTC10D-20	10	6	0.162	24	114	
NTC12D-20	12	5	0.195	24	114	
NTC16D-20	16	5	0.212	25	115	
NTC20D-20	20	4	0.231	26	115	



Storage condition

Temperature	-10℃~+40℃
Humidity	≤70%RH
Term	≤12 months (First-in/ First-out)
Place	<ol style="list-style-type: none"> 1. Do not exposing the components to the following conditions, otherwise, it may result in deterioration of characteristics 2. Corrosive gas or deoxidizing gas 3. Flammable and explosive gases 4. Oil, water and chemical liquid 5. Under the sunlight

Notes: Do not apply the components under the following conditions, otherwise, it may result in deterioration of characteristics, destruction of components or in the worst case to catching fire: 1. Exceeding I_{max} 2. Exceeding rated temperature range 3. Inferior thermal dissipation. Due to badly inferior thermal dissipation, some part of the components body will become overheated and then be damaged

properties of products

Mechanical Characteristics		
Item	Specification	Test Conditions & Methods
Solder-ability	The terminals shall be uniformly tinned, and its area≥95%	Dipping the NTC terminals to a depth of 15mm in a soldering bath of 240-245℃ and to the place of 6mm far from NTC body for 2-3s (See IEC68-2-20 /GB2423.28 Ta)
Resistance To Soldering Heat	No visible mechanical damage. $\Delta R/RN \leq 20\%$ ($\Delta R = RN - RN' $)	Dipping the NTC terminals to a depth of 15mm in a soldering bath of 265±5℃ and to the place for 6mm below from NTC body for 10±1s. After recovering 4-5h under 25±2℃. The rated zero power resistance value RN' shall be measured. (See IEC68-2-20 /GB2423.28 Tb)
Strength of lead terminal	No break out $\Delta R/RN \leq 20\%$ ($\Delta R = RN - RN' $)	Fasten the body and apply a force gradually to each lead until 10N and then keep for 10sec, Hold body and apply a force to each lead until 90° slowly at 5N in the direction of lead axis and then keep for 10sec, and do this in the opposite direction repeat for other terminal. After recovering 4-5h under 25±2℃, the rated zero power resistance value RN' shall be measured. (See IEC68-2-21/GB2423.29 Ua / Ub)



Electrical Characteristics		
Item	Specification	Test Conditions & Methods
Rated Zero-Power Resistance RN (Ω)	RN \pm 20%	Ambient temp. Range:25 \pm 2 $^{\circ}$ C (TA). Testing voltage: 1.5VDC After placing for 1~2 hours under TA, the resistance value shall be measured
Thermal Dissipation Constant δ (mW/ $^{\circ}$ C)	\geq 17	The thermal dissipation constant(δ) could be calculated by the ratio of a change in power dissipation(Δ P) of the thermistor to a change in temperature(Δ T) of the thermistor at a specified ambient temperature
Thermal Time Constant T(s)	\leq 80	The time(τ) shall be measured within which the temperature change of NTC thermistor is reached at 63.2% of the ambient temperature change under zero power condition
Material Constant B	$B = T_1 T_2 / (T_2 - T_1) \times \ln(R_1 / R_2)$	R1 , R2 is zero-power resistance at T1 , T2 T1 = 298.15 K(25 $^{\circ}$ C) T2 = 323.15 K(50 $^{\circ}$ C)
Max. Steady State Current (A)	visible mechanical damage. Δ RN / RN \leq 20% (Δ R = RN-RN')	ambient temperature:25 \pm 2 $^{\circ}$ C Testing Time: min 100h
Reliability Test		
Item	Specification	Test Conditions & Methods
Temp. Cycling Testing	No visible mechanical damage. Δ RN / RN \leq 20% (Δ R = RN-RN')	Ta:-40 \pm 3 $^{\circ}$ C/ 30min \rightarrow 25 \pm 2 $^{\circ}$ C/ 5min \rightarrow Tb:200 \pm 3 $^{\circ}$ C/30min \rightarrow 25 \pm 2 $^{\circ}$ C/ 5min Cycles: 5times After recovering 4~5 h under 25 \pm 2 $^{\circ}$ C, the rated zero power resistance value RN' shall be measured.
Electrical Cycling Testing	No visible mechanical damage. Δ RN / RN \leq 20% (Δ R = RN-RN')	Ambient temp. Range:25 \pm 2 $^{\circ}$ C. Cycles: 1,000times On / Off: 1m / 5m Test Current: 6.0A After recovering 4~5h under 25 \pm 2 $^{\circ}$ C, the rated zero power resistance value RN' shall be measured.
LoadLife (Endurance) Testing	No visible mechanical damage. Δ RN / RN \leq 20% (Δ R = RN-RN')	Ambient temp. Range:25 \pm 2 $^{\circ}$ C; 6.0A/ 1,000 \pm 24h After recovering 4~5 h under 25 \pm 2 $^{\circ}$ C, the rated zero power resistance value RN' shall be measured.
Humidity Testing	No visible mechanical damage. Δ RN / RN \leq 20% (Δ R = RN-RN')	Ambient temp. range : 40 \pm 2 $^{\circ}$ C,R.H.:93 \pm 3% , Energized time:1000 \pm 24 h After recovering 4~5 h under 25 \pm 2 $^{\circ}$ C, the rated zero power resistance value RN' shall be measured



Graph of Characteristics

Figure 1 - Graph of Resistance vs. Temperature

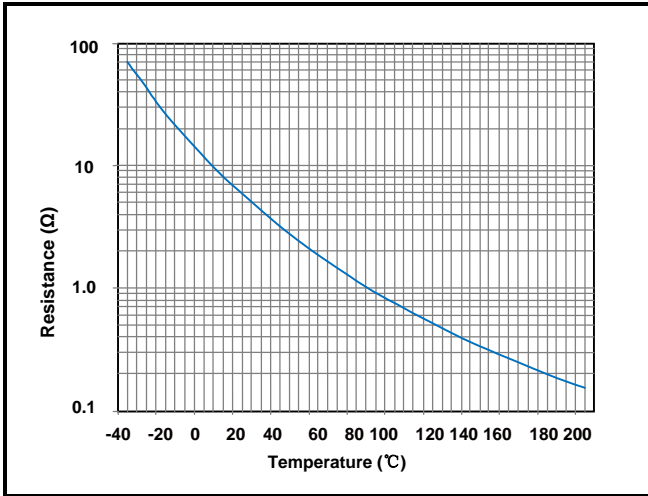
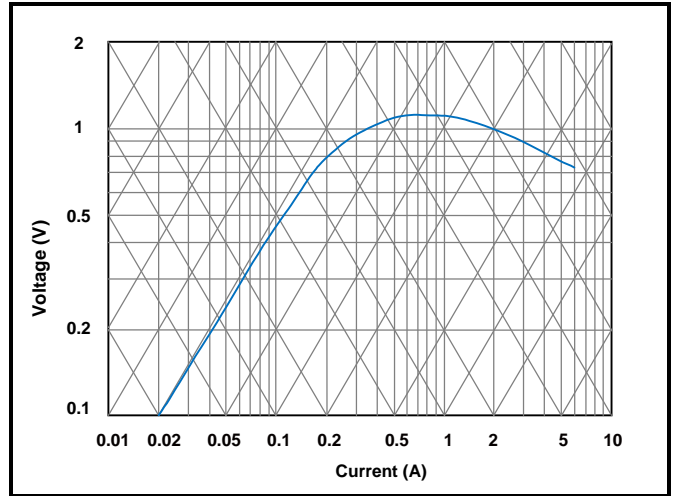
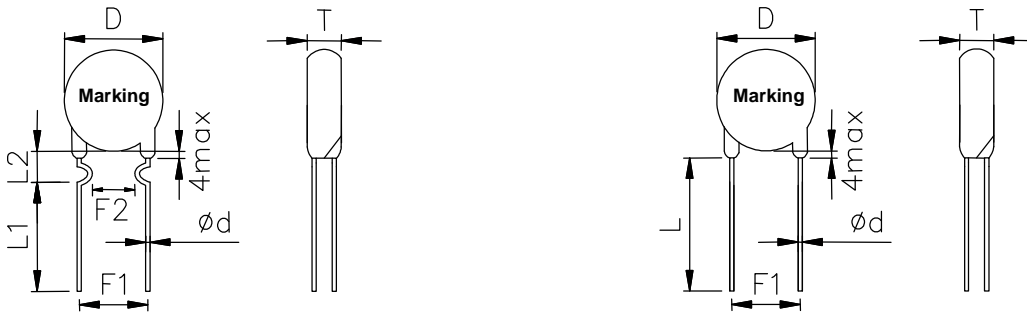


Figure 2 - Graph of Voltage vs. Current



Product Dimensions



Dimension	Dimensions (mm)								
	D(max)	T(max)	Φd±0.05	F1±1	F2±1.5	Straight Lead Wire		Curved Lead Wire	
						L(min)	L1±1	L2±2	
NTCxxD-5	7	5	0.55	5	3				
NTCxxD-7	9	5	0.55	5	3				
NTCxxD-9	11	5.5	0.75 / 0.55	7.5 / 5	5 / 3				
NTCxxD-11	13	5.5	0.75	7.5 / 5	5 / 3	15		3.0~20	7 / 4
NTCxxD-13	15.5	6	0.75	7.5	5				
NTCxxD-15	17.5	6	0.75	10 / 7.5	5				
NTCxxD-20	22.5	7	1	10 / 7.5	/	15		/	/

Packaging

Dimension	Bag (pcs)	Inside the box (pcs)	carton (pcs)
NTCxxD-5	1000	3000	18000
NTCxxD-7	1000	3000	18000
NTCxxD-9	500	2000	12000
NTCxxD-11	500	1500	9000
NTCxxD-13	250	1000	6000
NTCxxD-15	250	1000	6000
NTCxxD-20	100	400	2400

