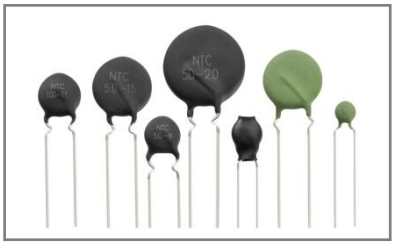
■NTC THERMISTOR



This is a negative temperature coefficient resistor, its resistance value decreases with the increase of the ambient temperature, this kind of thermistor is made by manganese, nickel, copper, cobalt and iron two or more kinds of metal oxides after forming and sintering at high temperature (about 1100℃-1400℃), the NTC thermistor series for the suppression of inrush current plug-in type.

◆Feature

*Small size, large power, strong ability to inhibit inrush current
*Fast reaction time
*High in B value and low in residual current;
Long service life and high reliability;
High coefficient of safety and wide range of application

◆Application

Conversion power supply, switch power, UPS power, Kinds of electric heter, electronic energy-saving lamps, electronic ballast etc all kinds of power cicuit proterction of electronic equipments, filament proterction of CRT, bulb and other lighting lamps.

◆Safety Certification

TUV 认证（证书编号：B 103063 0001 Rev.2.0）

TUV recognized (File# B 103063 0001 Rev.2.0)

CQC 认证（证书编号：CQC19001213590）

CQC recognized (File# CQC19001213590)

UL 认证 （证书编号：E214084）

UL recognized (File# E214084)

◆Part Number

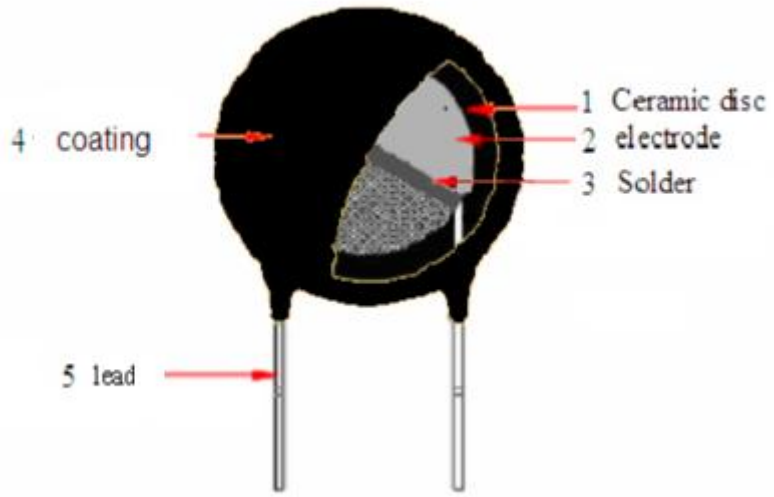
NTC	100	D11	M	F	2	E	3	S000	B	NN
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪

* Part Number Code Description

NO	Description							
①	Negative Temperature Cofficien							
②	Resistance Value Code(R25)	2R5	5R0	100	101	···		
		2.5Ω	5Ω	10Ω	100Ω	···		
③	Diameter	D05	D07	D09	D11	D13	D15	D20
		φ5mm	φ7mm	φ9mm	φ11mm	φ13mm	φ15mm	φ20mm
④	Tolerance	K		L		M		
		±10%		±15%		±20%		
⑤	Lead Style	A	F	B	C	H	L	P	W
		Straight	Inside Kink	Outside Kink	Y Type	Side Kink	Narrow Mouthed	P Type	W Type
⑥	Lead Spacing	1		2		3	4		
		5.0mm		7.5mm		10.0mm	4.0mm		
⑦	Lead Materia	E				U			
		Tin copper clad steel lead wire				Tin plated copper wire			
⑧	Lead Diameter	1	2	3	4	5	7		
		Φ0.5mm	Φ0.6mm	Φ0.8mm	Φ1.0mm	Φ0.7mm	Φ0.75mm		
⑨	Packing Method	S000		C030		H160			
		Bulk/Long Lead		Bulk/Short Lead		Tape			
				C030=3.0mm		H160:H_0=16mm			
				C045=4.5mm		H180:H_0=18mm			
				C100=10mm ···		H200:H_0=20mm ···			
⑩	Color	B				G			
		Black(Phenolic resin)				Green(Silicone resin)			
⑪	Internal code								
Note	NTC100D11MF2E3S000BNN corresponding safety model is NTC 10D-11,Safety mode resistance Value :10=10Ω； 100Ω=100Ω,Part Number resistance Value 100=10*10^0=10Ω； 101=10*10^1=100Ω							

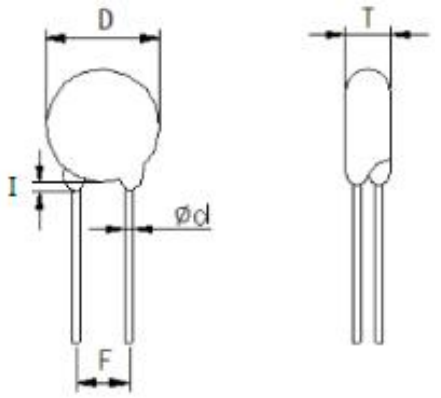
◆Structure And Dimensions

* Construction and main materials of products



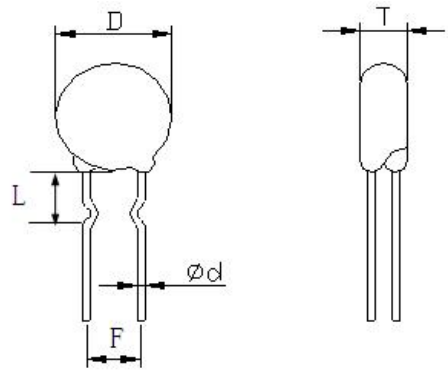
NO	The main structure	Material composition
1	Ceramic disc	Mn、Ni、Cu
2	Electrode	Ag
3	Solder	Sn、Ag、Cu
4	Coating	Silicone resin
		Phenolic resin
5	Lead	tinned lead

* Bull Structure And Dimensions



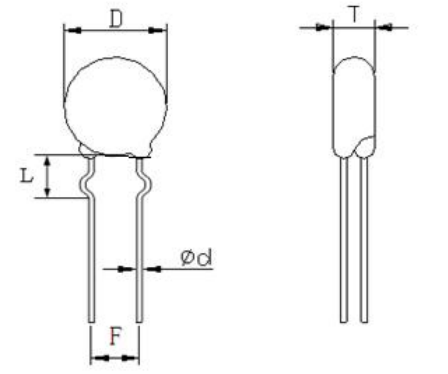
A Straight

model	D_{MAX}	F	φ d	I_{MAX}	T_{MAX}
D-5	6.5	5.0±0.5	Φ0.6±0.05	2.0	5.0
D-7	8.5	5.0±0.5	Φ0.6±0.05	2.0	5.0
D-9	9.5	7.5±0.5	Φ0.8±0.05	2.5	5.0
D-11	11.5	7.5±0.5	Φ0.8±0.05	3.0	5.0
D-13	14.5	7.5±0.5	Φ0.8±0.05	3.0	6.0
D-15	16.5	7.5±0.5	Φ0.8±0.05	3.0	6.0
D-20	22.0	10±1.0	Φ1.0±0.05	3.0	7.0



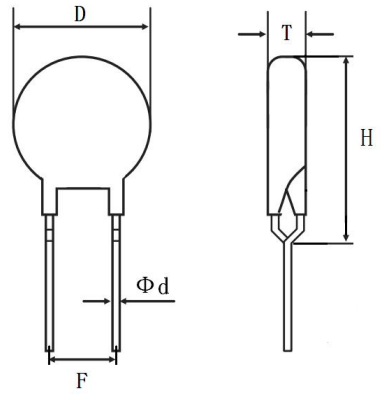
F Inside Kink

model	D_{MAX}	F	φ d	L	T_{MAX}
D-5	6.5	5.0±0.5	Φ0.6±0.05	5.0±2.0	5.0
D-7	8.5	5.0±0.5	Φ0.6±0.05	5.0±2.0	5.0
D-9	9.5	7.5±0.5	Φ0.8±0.05	5.0±2.0	5.0
D-11	11.5	7.5±0.5	Φ0.8±0.05	5.0±2.0	5.0
D-13	14.5	7.5±0.5	Φ0.8±0.05	5.0±2.0	6.0
D-15	16.5	7.5±0.5	Φ0.8±0.05	5.0±2.0	6.0
D-20	22.0	10±1.0	Φ1.0±0.05	5.0±2.0	7.0



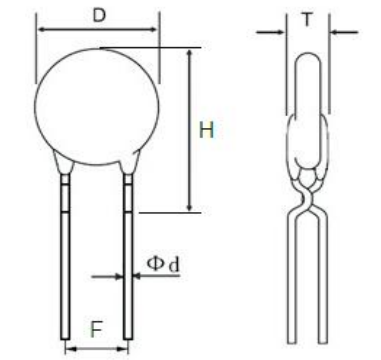
F Outside Kink

model	D_{MAX}	F	φ d	L	T_{MAX}
D-5	6.5	5.0±0.5	Φ0.6±0.05	5.0±2.0	5.0
D-7	8.5	5.0±0.5	Φ0.6±0.05	5.0±2.0	5.0
D-9	9.5	7.5±0.5	Φ0.8±0.05	5.0±2.0	5.0
D-11	11.5	7.5±0.5	Φ0.8±0.05	5.0±2.0	5.0
D-13	14.5	7.5±0.5	Φ0.8±0.05	5.0±2.0	6.0
D-15	16.5	7.5±0.5	Φ0.8±0.05	5.0±2.0	6.0
D-20	22.0	10±1.0	Φ1.0±0.05	5.0±2.0	7.0



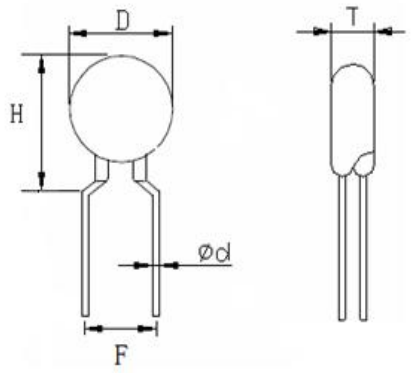
Y Type

model	D_{MAX}	F	φ d	H_{MAX}	T_{MAX}
D-5	6.5	5.0±0.5	Φ0.6±0.05	11.0	5.0
D-7	8.5	5.0±0.5	Φ0.6±0.05	13.0	5.0
D-9	9.5	7.5±0.5	Φ0.8±0.05	15.0	5.0
D-11	11.5	7.5±0.5	Φ0.8±0.05	17.0	5.0
D-13	14.5	7.5±0.5	Φ0.8±0.05	20.0	6.0
D-15	16.5	7.5±0.5	Φ0.8±0.05	22.0	6.0
D-20	22.0	10±1.0	Φ1.0±0.05	28.0	7.0



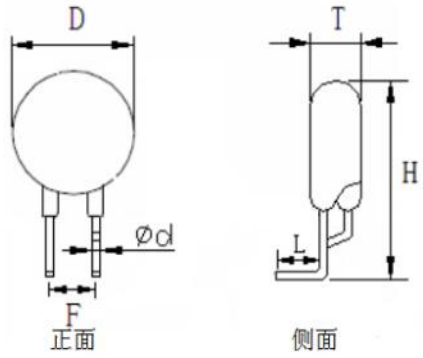
H Side Kink

model	D_{MAX}	F	φ d	H_{MAX}	T_{MAX}
D-9	9.5	7.5±0.5	Φ0.8±0.05	15.0	5.0
D-11	11.5	7.5±0.5	Φ0.8±0.05	17.0	5.0
D-13	14.5	7.5±0.5	Φ0.8±0.05	20.0	6.0
D-15	16.5	7.5±0.5	Φ0.8±0.05	22.0	6.0
D-20	22.0	10±1.0	Φ1.0±0.05	28.0	7.0



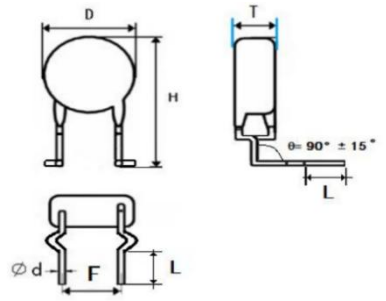
L Narrow Mouthed

model	D_{MAX}	F	φ d	H_{MAX}	T_{MAX}
D-5	6.5	5.0±0.5	Φ0.6±0.05	9.0	5.0



P Type

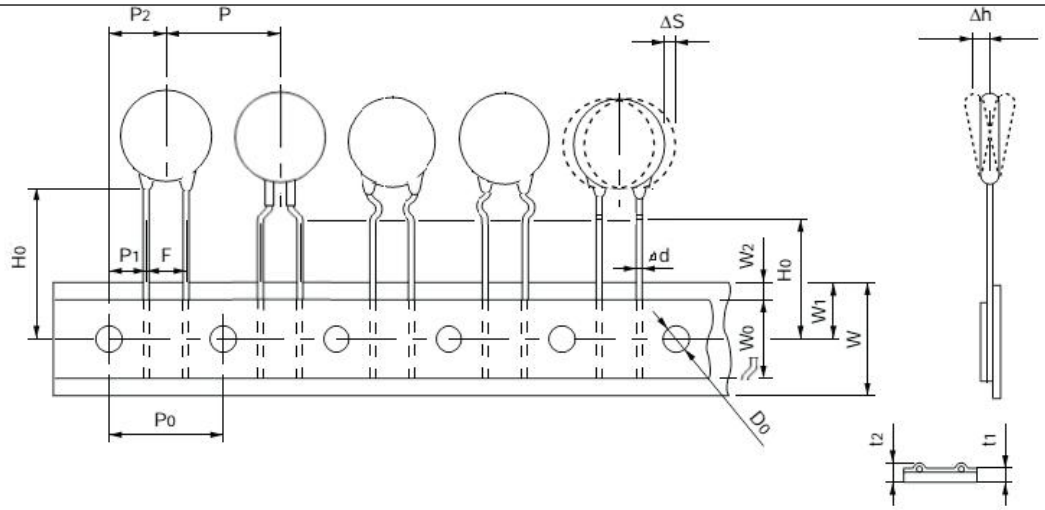
model	D_{MAX}	F	φ d	H_{MAX}	L	T_{MAX}
D-5	6.5	5.0±0.5	Φ0.6±0.05	12.0	3.5±0.5	5.0
D-7	8.5	5.0±0.5	Φ0.6±0.05	14.5	3.5±0.5	5.0
D-9	9.5	7.5±0.5	Φ0.8±0.05	15.5	3.5±0.5	5.0
D-11	11.5	7.5±0.5	Φ0.8±0.05	18.0	3.5±0.5	5.0
D-13	14.5	7.5±0.5	Φ0.8±0.05	20.5	3.5±0.5	6.0
D-15	16.5	7.5±0.5	Φ0.8±0.05	22.5	3.5±0.5	6.0
D-20	22.0	10±1.0	Φ1.0±0.05	28.0	3.5±0.5	7.0



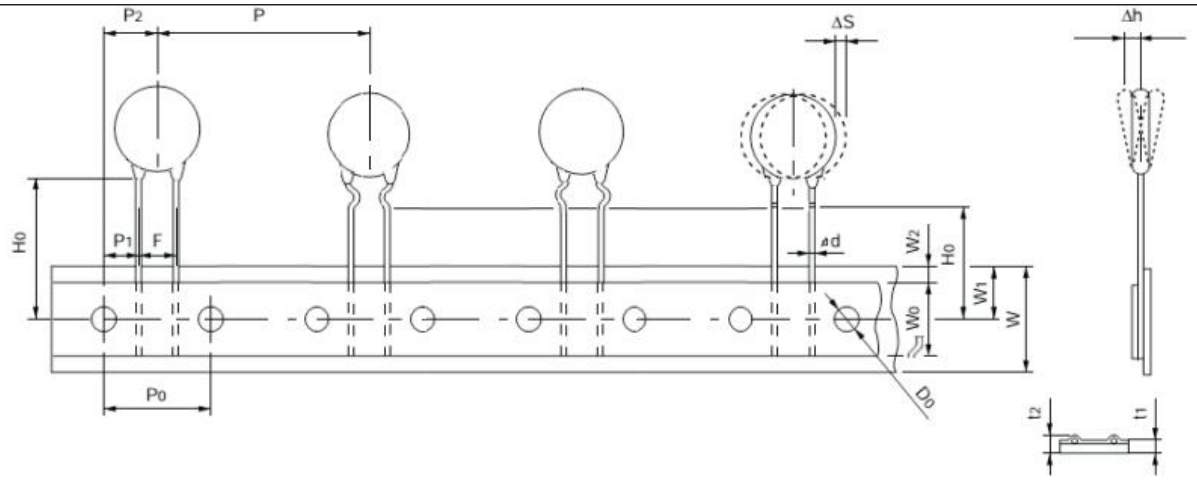
W Type

model	D_{MAX}	F	ϕd	H_{MAX}	L	T_{MAX}
D-5	6.5	5.0±0.5	Φ0.6±0.05	12.0	3.5±0.5	5.0
D-7	8.5	5.0±0.5	Φ0.6±0.05	14.5	3.5±0.5	5.0
D-9	9.5	7.5±0.5	Φ0.8±0.05	15.5	3.5±0.5	5.0
D-11	11.5	7.5±0.5	Φ0.8±0.05	18.0	3.5±0.5	5.0
D-13	14.5	7.5±0.5	Φ0.8±0.05	20.5	3.5±0.5	6.0
D-15	16.5	7.5±0.5	Φ0.8±0.05	22.5	3.5±0.5	6.0
D-20	22.0	10±1.0	Φ1.0±0.05	28.0	3.5±0.5	7.0

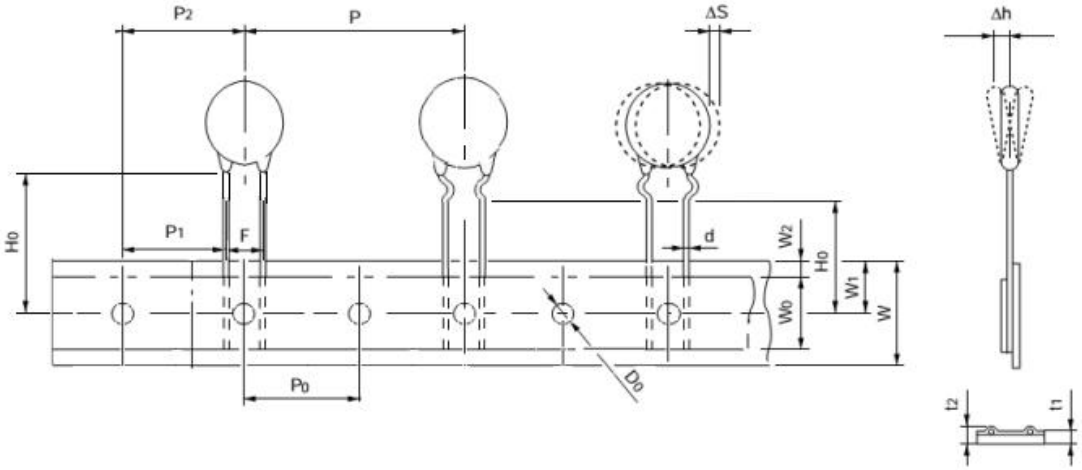
＊ Taping Structure And Dimensions

Fig NO.	Drawing
A	

model	Symbol	P0	P1	P2	P	H0	F	d	D0
D-5、D-7、D-9、D-11（F=5.0）	Dimensions	12.7	3.85	6.35	12.7	16.0	5.0	0.6/0.8	4.0
	Tolerance	±0.3	±0.7	±1.3	±1.0	±1.0	±0.5	±0.05	±0.2
	Symbol	W0	W1	W2	W	ΔS	Δh	t_1	t_2
	Dimensions	10.0	9.0	3	18.0	2.0	2.0	0.6	1.6
	Tolerance	Min	±0.5	Max	+1.0/-0.5	Max	Max	±0.2	Max
model	Symbol	P0	P1	P2	P	H0	F	d	D0
D-9、D-11、D-13（F=7.5）	Dimensions	15.0	3.75	7.5	15.0	16.0	7.5	0.8	4.0
	Tolerance	±0.5	±0.7	±1.5	±1.0	±1.0	±0.5	±0.05	±0.2
	Symbol	W0	W1	W2	W	ΔS	Δh	t1	t2
	Dimensions	10.0 Min	9.0	3 Max	18.0	2.0 Max	2.0 Max	0.6	1.6 Max
	Tolerance	Min	±0.5	Max	+1.0/-0.5	Max	Max	±0.2	Max

Fig NO.	Drawing
B	

model	Symbol	P0	P1	P2	P	H0	F	d	D0
D-15 (F=7.5)	Dimensions	15.0	3.75	7.5	30.0	16.0	7.5	0.8	4.0
	Tolerance	±0.5	±0.7	±1.5	±1.0	±1.0	±0.5	±0.05	±0.2
	Symbol	W0	W1	W2	W	ΔS	Δh	t1	t2
	Dimensions	12.5	9.0	3	18.0	2.0	2.0	0.6	1.6
	Tolerance	Min	±0.5	Max	+1.0/-0.5	Max	Max	±0.2	Max

Fig NO.	Drawing
C	

model	Symbol	P0	P1	P2	P	H0	F	d	D0
D-15、D-20 (F=7.5/10.0)	Dimensions	12.7	8.95	12.7	25.4	16.0	7.5/10.0	0.8/1.0	4.0
	Tolerance	±0.5	±0.7	±1.3	±1.0	±1.0	±1.0	±0.05	±0.2
	Symbol	W0	W1	W2	W	ΔS	ΔH	t1	t2
	Dimensions	12.5	9.0	3	18.0	2.0	2.0	0.6	2.0
	Tolerance	Min	±0.5	Max	+1.0/-0.5	Max	Max	±0.2	Max

◆Performance Specification

Model	R25 (Ω)	@25°C Max. Steady current (A)	@25℃ Approx R of Max.current (Ω)	@240 VAC Max. Allowable capacitance (μF)	B value (K)	Power Dissipation coefficient (mW/℃)	Time Constant (s)	Max. Power Rating (W)	Operating Temperature Range (℃)
NTC 4D-5	4	2	0.415	100	2500	7	17	1.8	-40~150
NTC 5D-5	5	2	0.429	100	2600				
NTC 6D-5	6	2	0.458	100	2600				
NTC 8D-5	8	1	1.089	100	2600				
NTC 9D-5	9	1	1.112	100	2600				
NTC 10D-5	10	1	1.126	100	2600				
NTC 12D-5	12	1	1.184	100	2600				
NTC 15D-5	15	1	1.202	100	2600				
NTC 16D-5	16	0.7	1.253	100	2600				
NTC 20D-5	20	0.6	1.275	100	2700				
NTC 22D-5	22	0.6	1.313	68	2700				
NTC 30D-5	30	0.5	1.429	68	2800				
NTC 33D-5	33	0.5	1.466	68	2800				
NTC 50D-5	50	0.5	1.727	68	2800				
NTC 60D-5	60	0.5	1.878	68	2800				
NTC 2.5D-7	2.5	3	0.205	100	2500	11	27	2.0	-40~150
NTC 3D-7	3	2.3	0.245	100	2600				
NTC 3.3D-7	3.3	2.3	0.245	100	2600				
NTC 4.7D-7	4.7	2.3	0.259	100	2700				
NTC 5D-7	5	2.3	0.273	100	2700				
NTC 8D-7	8	2	0.436	100	2700				
NTC 10D-7	10	1.5	0.572	100	2700				
NTC 12D-7	12	1.5	0.745	100	2700				
NTC 15D-7	15	1.5	0.846	100	2700				
NTC 16D-7	16	1.5	0.897	100	2700				
NTC 20D-7	20	0.8	0.995	100	2800				
NTC 22D-7	22	0.8	1.096	100	2800				
NTC 30D-7	30	0.7	1.345	100	2900				
NTC 33D-7	33	0.7	1.475	100	2900				
NTC 1.5D-9	1.5	4	0.145	150	2500	12	38	2.3	-40~170
NTC 2D-9	2	4	0.145	150	2500				
NTC 2.5D-9	2.5	4	0.145	150	2600				
NTC 3D-9	3	4	0.150	150	2600				
NTC 4D-9	4	3	0.190	220	2600				
NTC 4.7D-9	4.7	3	0.246	220	2700				
NTC 5D-9	5	3	0.261	220	2700				
NTC 6D-9	6	3	0.283	220	2700				
NTC 7D-9	7	3	0.287	220	2700				
NTC 8D-9	8	2.2	0.520	220	2700				
NTC 10D-9	10	2	0.542	220	2700				
NTC 12D-9	12	2	0.545	220	2800				
NTC 15D-9	15	2	0.548	150	2800				
NTC 16D-9	16	2	0.570	150	2800				
NTC 20D-9	20	1	0.864	150	2800				
NTC 22D-9	22	1	0.950	150	2800				

Model	R25 (Ω)	@25°C Max. Steady current (A)	@25℃ Approx R of Max.current (Ω)	@240 VAC Max. Allowable capacitance (μF)	B value (K)	Power Dissipation coefficient (mW/℃)	Time Constant (s)	Max. Power Rating (W)	Operating Temperature Range (℃)
NTC 25D-9	25	1	0.986	100	2900	12	38	2.3	-40~170
NTC 30D-9	30	1	1.022	100	2900				
NTC 33D-9	33	1	1.124	100	2900				
NTC 50D-9	50	1	1.252	100	2900				
NTC 60D-9	60	0.8	1.502	100	3000				
NTC 80D-9	80	0.8	2.010	100	3000				
NTC 100D-9	100	0.8	2.516	100	3000				
NTC 120D-9	120	0.8	3.015	100	3000				
NTC 200D-9	200	0.5	5.007	100	3100				
NTC 300D-9	300	0.5	6.105	100	3200				
NTC 1D-11	1	5	0.091	470	2500	13	43	2.4	-40~170
NTC 1.3D-11	1.3	5	0.110	470	2500				
NTC 1.5D-11	1.5	5	0.120	470	2500				
NTC 2D-11	2	5	0.120	470	2500				
NTC 2.5D-11	2.5	5	0.120	470	2600				
NTC 3D-11	3	5	0.127	560	2600				
NTC 4D-11	4	4	0.161	560	2700				
NTC 5D-11	5	4	0.180	470	2700				
NTC 6.8D-11	6.8	3	0.270	330	2700				
NTC 8D-11	8	3	0.278	330	2800				
NTC 10D-11	10	3	0.297	330	2800				
NTC 12D-11	12	3	0.301	470	2800				
NTC 13D-11	13	3	0.356	330	2800				
NTC 15D-11	15	2.5	0.442	330	2800				
NTC 16D-11	16	2.5	0.471	330	2800				
NTC 20D-11	20	2	0.646	330	2900				
NTC 22D-11	22	2	0.659	330	2900				
NTC 25D-11	25	2	0.674	330	2900				
NTC 30D-11	30	2	0.700	330	2900				
NTC 33D-11	33	2	0.708	330	3000				
NTC 47D-11	47	2	0.720	330	3000				
NTC 50D-11	50	2	0.813	330	3000				
NTC 60D-11	60	1.5	1.215	220	3000				
NTC 80D-11	80	1.2	1.656	220	3100				
NTC 100D-11	100	1.2	2.218	220	3100				
NTC 120D-11	120	1.2	2.330	220	3100				
NTC 1D-13	1	7	0.088	560	2600	18	66	3.1	-40~200
NTC 1.3D-13	1.3	7	0.094	560	2600				
NTC 1.5D-13	1.5	6	0.084	560	2600				
NTC 2.5D-13	2.5	6	0.094	560	2700				
NTC 3D-13	3	6	0.104	560	2700				
NTC 4D-13	4	5	0.132	560	2700				
NTC 4.7D-13	4.7	5	0.158	560	2800				
NTC 5D-13	5	5	0.166	560	2800				
NTC 6D-13	6	4	0.177	470	2800				
NTC 7D-13	7	4	0.184	470	2800				
NTC 8D-13	8	4	0.206	470	2800				
NTC 10D-13	10	4	0.217	470	2900				

Model	R25 (Ω)	@25°C Max. Steady current (A)	@25℃ Approx R of Max.current (Ω)	@240 VAC Max. Allowable capacitance (μF)	B value (K)	Power Dissipation coefficient (mW/℃)	Time Constant (s)	Max. Power Rating (W)	Operating Temperature Range (℃)
NTC 12D-13	12	4	0.230	560	2900	18	66	3.1	-40~200
NTC 15D-13	15	3	0.343	560	2900				
NTC 16D-13	16	3	0.348	560	2900				
NTC 18D-13	18	3	0.365	560	2900				
NTC 20D-13	20	3	0.410	470	3000				
NTC 22D-13	22	3	0.453	470	3000				
NTC 30D-13	30	2.5	0.517	470	3000				
NTC 33D-13	33	2.5	0.554	470	3100				
NTC 47D-13	47	2.5	0.663	470	3100				
NTC 60D-13	60	2	1.002	470	3200				
NTC 120D-13	120	1.5	2.124	470	3300				
NTC 0.7D-15	0.7	8	0.055	680	2600	21	75	3.6	-40~200
NTC 1D-15	1	9	0.060	680	2600				
NTC 1.3D-15	1.3	8	0.064	680	2600				
NTC 1.5D-15	1.5	8	0.068	820	2600				
NTC 2D-15	2	8	0.078	680	2600				
NTC 2.2D-15	2.2	8	0.083	680	2600				
NTC 2.5D-15	2.5	8	0.086	680	2700				
NTC 3D-15	3	7	0.091	820	2700				
NTC 4D-15	4	6	0.117	820	2800				
NTC 5D-15	5	6	0.121	820	2800				
NTC 6D-15	6	5	0.159	680	2800				
NTC 7D-15	7	5	0.161	820	2900				
NTC 8D-15	8	5	0.165	680	2900				
NTC 10D-15	10	5	0.178	820	2900				
NTC 12D-15	12	5	0.185	680	2900				
NTC 15D-15	15	4	0.261	820	3000				
NTC 16D-15	16	4	0.265	820	3000				
NTC 18D-15	18	4	0.273	680	3000				
NTC 20D-15	20	4	0.283	820	3000				
NTC 22D-15	22	4	0.308	560	3000				
NTC 25D-15	25	3.5	0.398	680	3100				
NTC 30D-15	30	3.5	0.425	680	3100				
NTC 33D-15	33	3.5	0.454	560	3100				
NTC 40D-15	40	3	0.511	680	3100				
NTC 47D-15	47	3	0.517	680	3200				
NTC 80D-15	80	2.5	0.693	560	3300				
NTC 120D-15	120	2	1.010	560	3500				
NTC 1D-20	1	13	0.035	1000	2600	28	113	4.9	-40~200
NTC 1.3D-20	1.3	11	0.037	1000	2600				
NTC 1.5D-20	1.5	10.5	0.041	1000	2600				
NTC 2D-20	2	10	0.062	1000	2700				
NTC 2.5D-20	2.5	9	0.073	1000	2800				
NTC 3D-20	3	8.5	0.078	1000	2800				

Model	R25 (Ω)	@25°C Max. Steady current (A)	@25℃ Approx R of Max.current (Ω)	@240 VAC Max. Allowable capacitance (μF)	B value (K)	Power Dissipation coefficient (mW/℃)	Time Constant (s)	Max. Power Rating (W)	Operating Temperature Range (℃)
NTC 4D-20	4	8	0.080	1000	2900	28	113	4.9	-40~200
NTC 4.7D-20	4.7	7.5	0.114	1000	2900				
NTC 5D-20	5	7.5	0.118	1000	2900				
NTC 6D-20	6	7	0.120	1000	2900				
NTC 6.8D-20	6.8	6.5	0.130	1000	2900				
NTC 7D-20	7	6.5	0.132	1000	2900				
NTC 8D-20	8	6	0.161	1000	3000				
NTC 10D-20	10	6	0.162	1000	3000				
NTC 12D-20	12	5.5	0.180	1000	3000				
NTC 13D-20	13	5.5	0.195	1000	3000				
NTC 15D-20	15	5	0.205	1000	3100				
NTC 16D-20	16	5	0.212	1000	3100				
NTC 18D-20	18	4.5	0.260	1000	3100				
NTC 20D-20	20	4.5	0.275	1000	3100				
NTC 25D-20	25	4	0.365	1000	3100				
NTC 30D-20	30	4	0.398	1000	3200				
NTC 47D-20	47	4	0.497	1000	3300				
NTC1D-25	1	20	0.020	1200	2700	30	130	7.0	-40~200
NTC 1.5D-25	1.5	18.5	0.023	1200	2700				
NTC 2D-25	2	18	0.025	1200	2700				
NTC2.5D-25	2.5	15	0.032	1200	2800				
NTC3D-25	3	14.5	0.042	1200	2800				
NTC 4D-25	4	14	0.044	1200	2900				
NTC 4.7D-25	4.7	13	0.052	1200	2900				
NTC 5D-25	5	12	0.061	1200	2900				
NTC 6.8D-25	6.8	10.5	0.082	1200	3000				
NTC 7D-25	7	10	0.092	1200	3000				
NTC 8D-25	8	9	0.115	1200	3100				
NTC 10D-25	10	8	0.141	1200	3100				
NTC 12D-25	12	7.5	0.164	1200	3100				
NTC 15D-25	15	6.5	0.210	1200	3200				
NTC 18D-25	18	5.5	0.231	1200	3200				
NTC 20D-25	20	5	0.270	1200	3200				
NTC1D-30	1	30	0.016	1500	2800	40	190	8.0	-40~200
NTC 1.5D-30	1.5	25	0.020	1500	2800				
NTC 2D-30	2	23	0.022	1500	2900				
NTC2.5D-30	2.5	18	0.030	1500	2900				
NTC3D-30	3	17	0.035	1500	2900				
NTC 4D-30	4	16	0.048	1500	3000				
NTC 4.7D-30	4.7	15	0.055	1500	3000				
NTC 5D-30	5	14	0.057	1500	3000				
NTC 6.8D-30	6.8	12	0.077	1500	3100				
NTC 7D-30	7	11.5	0.084	1500	3100				
NTC 8D-30	8	10.5	0.100	1500	3100				
NTC 10D-30	10	10	0.115	1500	3100				
NTC 12D-30	12	9	0.142	1500	3200				
NTC 15D-30	15	8	0.175	1500	3200				
NTC 18D-30	18	7	0.210	1500	3300				

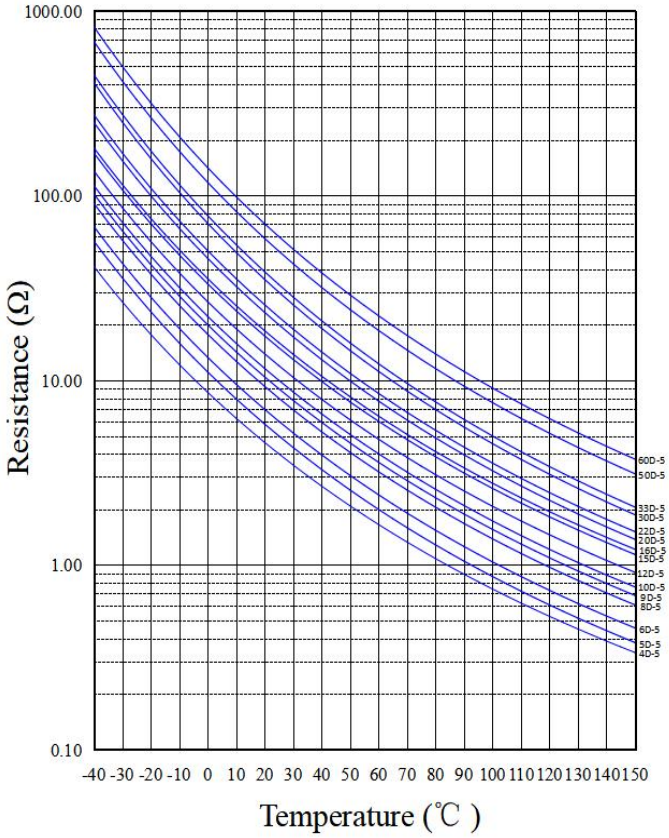
NTC 20D-30	20	6	0.233	1500	3300				

◆Reliability Test Method

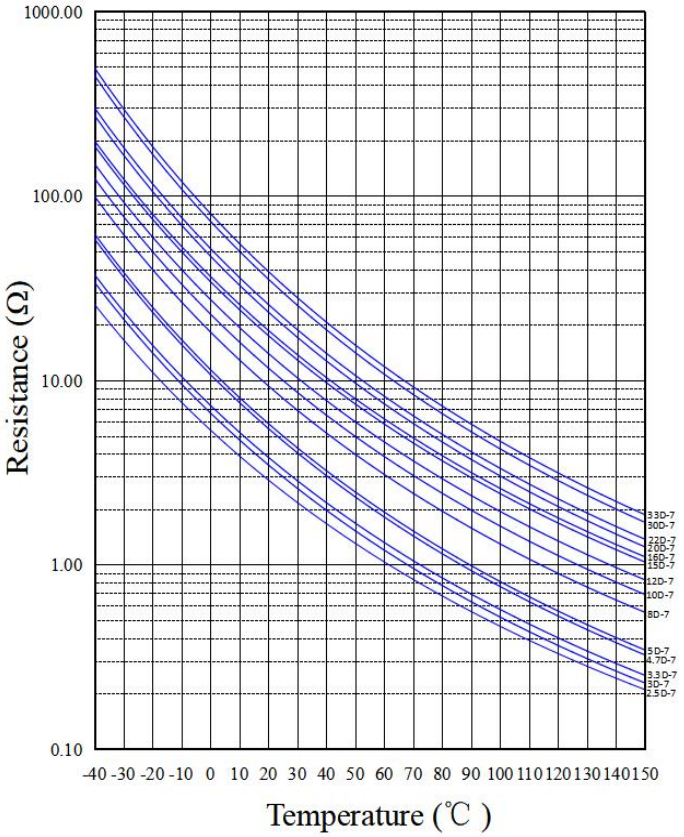
<table>
<tr><th>Item</th><th>Test conditions</th><th>Specification request</th></tr>
<tr><td>1．Tensile Strength of Lead Wire Terminal</td><td>The load is gradually applied to each terminal of Thermistor until the force of the following table in the axial direction with fixing Thermistor body itself and this load is kept for 10±1 sec.
<table>
<tr><td>Terminal diameter (mm)</td><td>Force (N)</td></tr>
<tr><td>0.5<d≤0.8</td><td>10.0</td></tr>
<tr><td>0.8<d≤1.25</td><td>20.0</td></tr>
</table></td><td>No break out and damage
Resistance change:within ±10%</td></tr>
<tr><td>2．Bending Strength of Lead Wire Terminal</td><td>Thermistor is held so that it is perpendicular to the lead wire with the following lead hanging in the axial direction of the lead wire.
The lead wire is slowly bent to 90° and returned.
Then it is slowly bent in the opposite direction and returned to original state.
<table>
<tr><td>Terminal diameter (mm)</td><td>Force (N)</td></tr>
<tr><td>0.5<d≤0.8</td><td>5.0</td></tr>
<tr><td>0.8<d≤1.25</td><td>10.0</td></tr>
</table></td><td>Lead wire does not come off
Resistance change:within ±10%</td></tr>
<tr><td>3．vibration</td><td>Frequency:10~55 Hz
Amplitude modulation:0.75 mm
Dirction and time:X、Y and Z direction for 2 hrs each</td><td>No substantial damage</td></tr>
<tr><td>4．Solderability</td><td>Soldering trough
Temperature: 245±5℃
Time: 3±0.5 s</td><td>Covered termination: ≥95%</td></tr>
<tr><td>5．Solder ability</td><td>the leadwinres shall be dipped in a molten solder of 260 ± 5 ℃ for 10 ± 1 seconds up to the point 4.0 ± 0.8mm.after the specimen shall be left at room ambient temperature for 24 hours,the resistance shall be measured</td><td>Resistance change:within ±10%</td></tr>
<tr><td>6．Dry heat
(high temperature storage)</td><td>Specimen shall be subjected to an ambient of 150±2℃ for 1000+48hours.and after the specimen
shall be left at room ambient for 1 to 2 hours,the resistance shall be measured</td><td>Resistance change:
within ±20%</td></tr>
<tr><td>7．Cold
(low temperature storage)</td><td>Specimen shall be subjected to an ambient of -40±3℃
For 1000+48 hours.and after the specimen
shall be left at room ambient for 1 to 2 hours,the resistance shall be measured</td><td>Resistance change:
within ±20%</td></tr>
<tr><td>8．humidity test</td><td>40±2℃ 90~95%RH,1000 hrs</td><td>Resistance change: within ±20%</td></tr>
</table>

9．Temp Cycle test	-40˚C/30 ´ —→ 25˚C/5 ´ —→ +150˚C/30 ´ —→ 25˚C/5 ´ 5 cycles	Resistance change: within ±20%
10．Max Current	①25±5˚C，Imax, 1min ON / 5 min OFF x100 0 times ②25±5˚C，Imax, 1000h	Resistance change: within ±20%

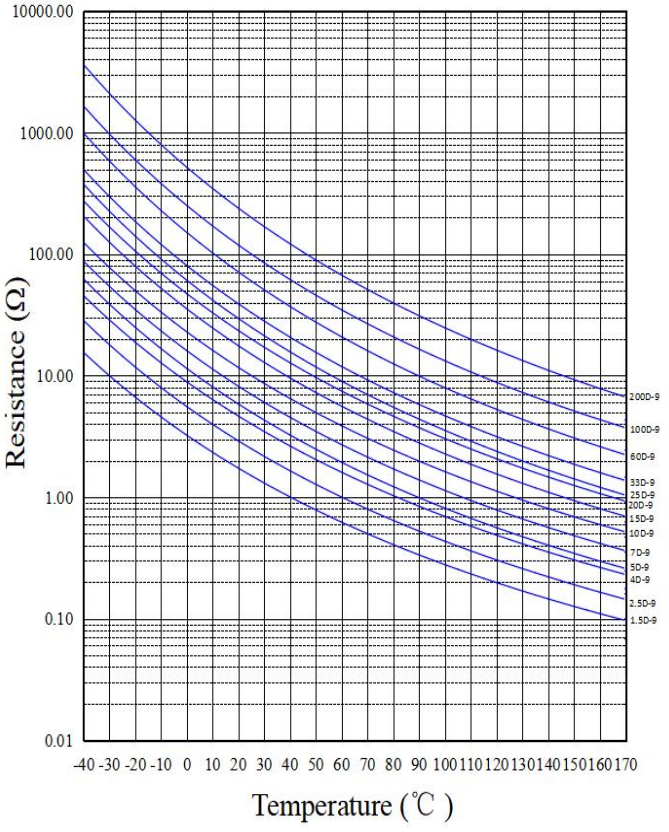
◆ R-T Characteristic Curves

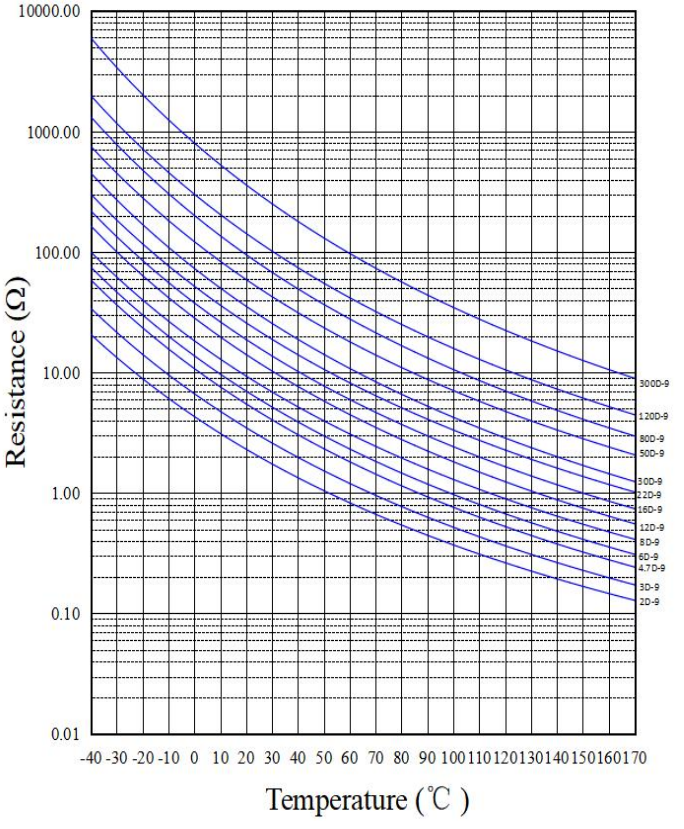


D-5 series R-T Characteristic Curves

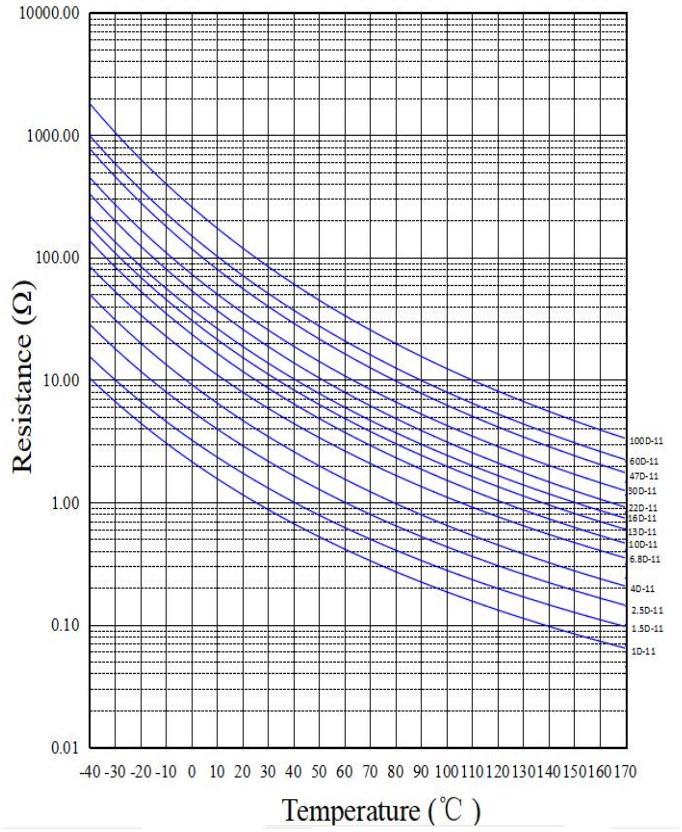


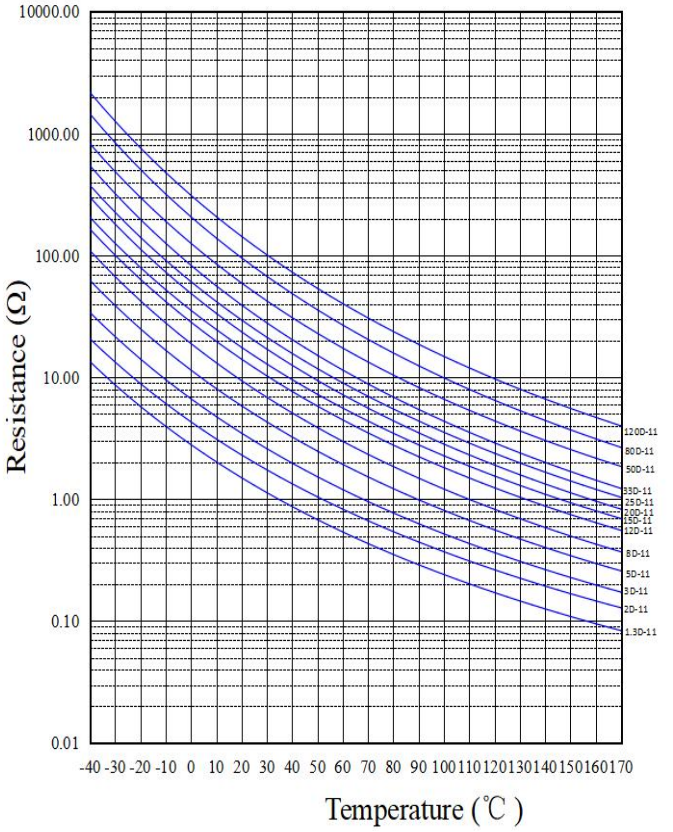
D-7 series R-T Characteristic Curves



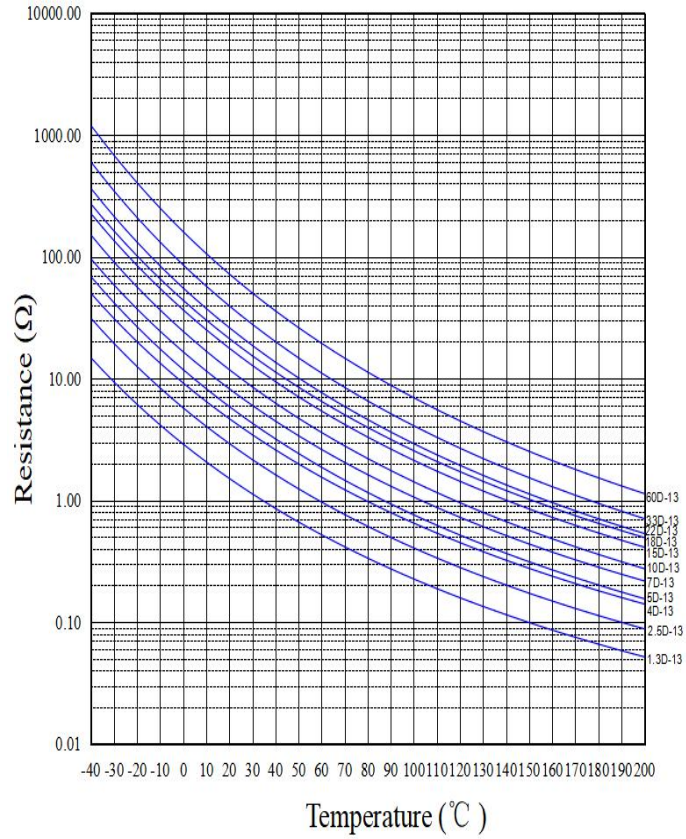


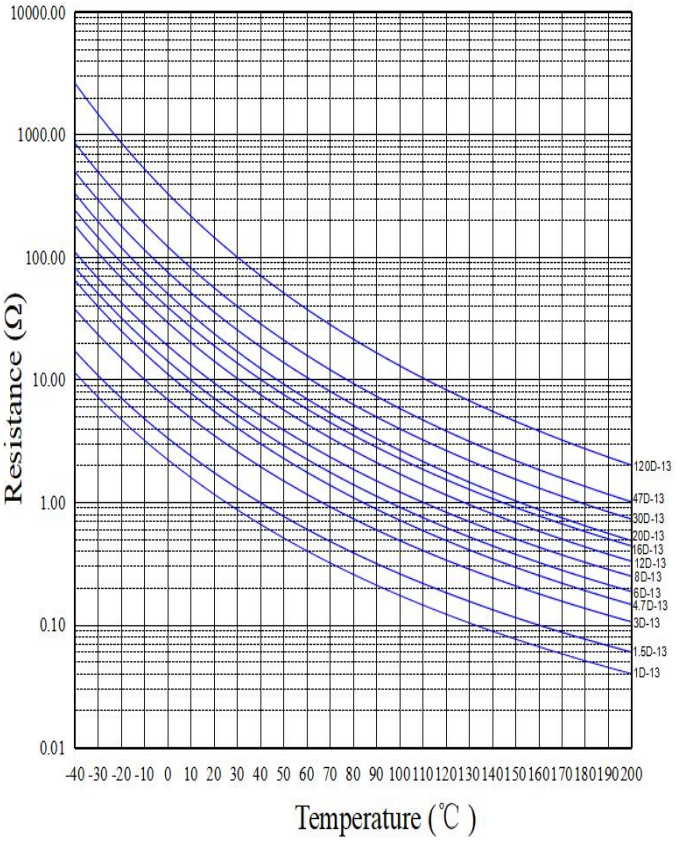
D-9 series R-T Characteristic Curves



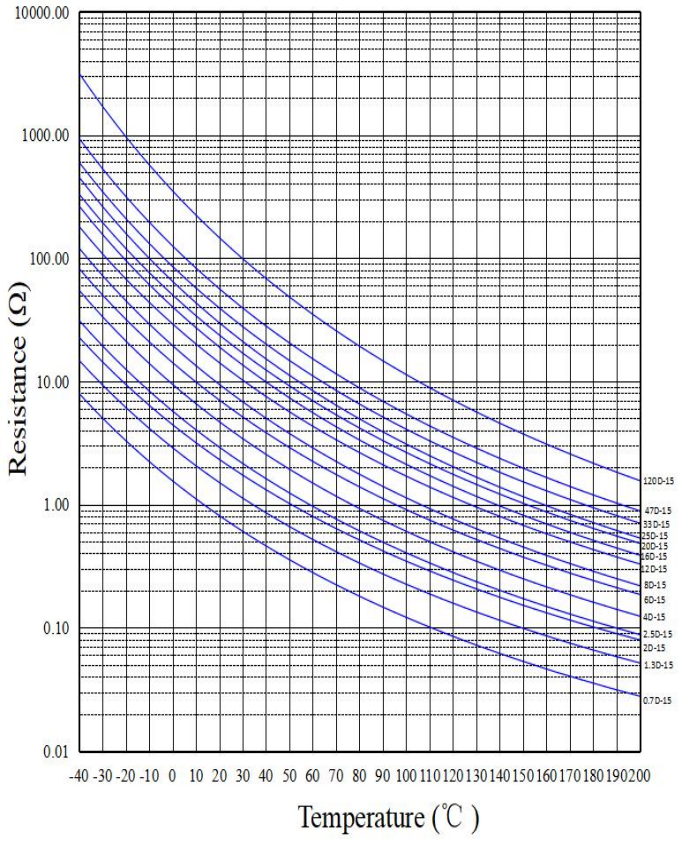


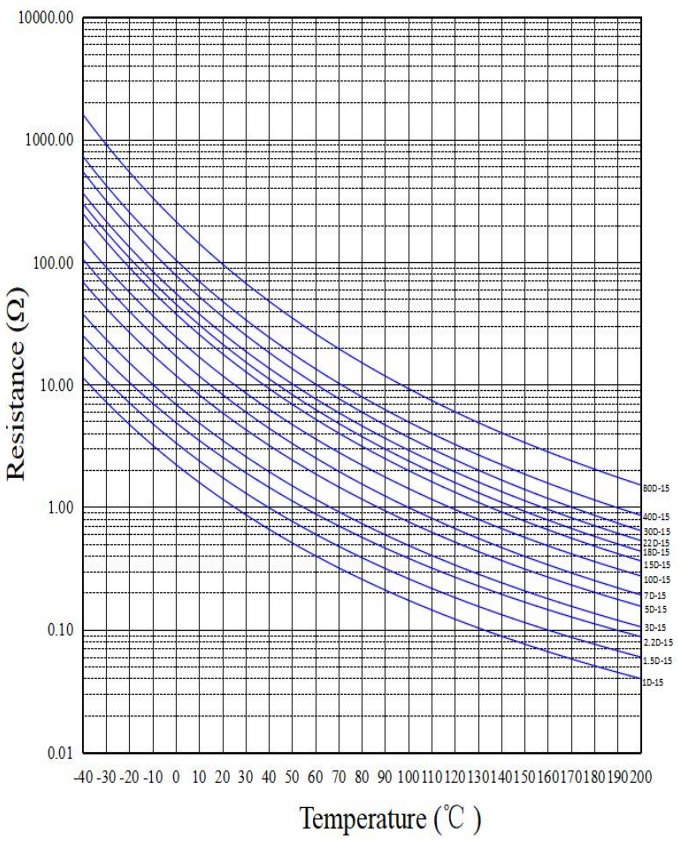
D-11 series R-T Characteristic Curves



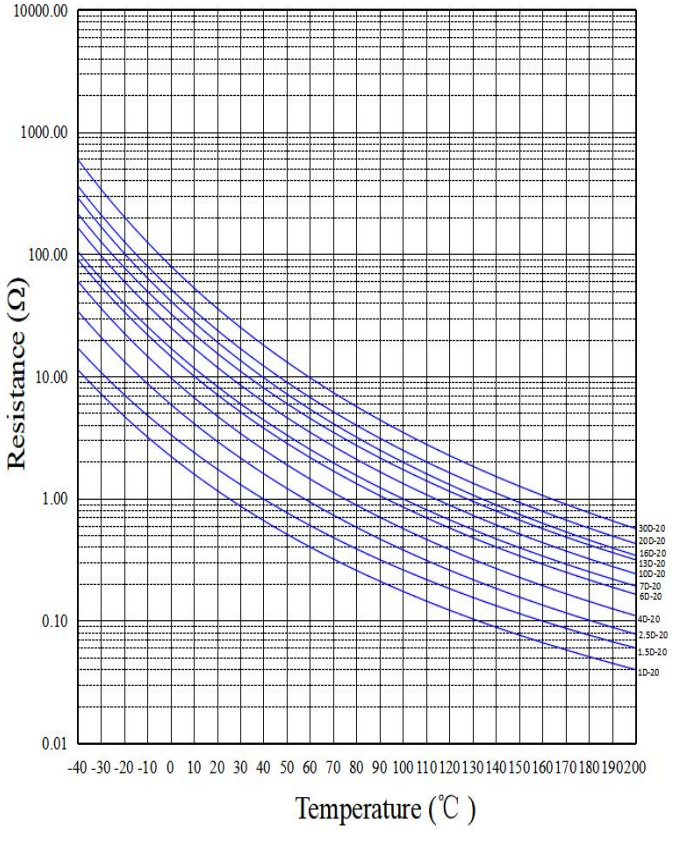


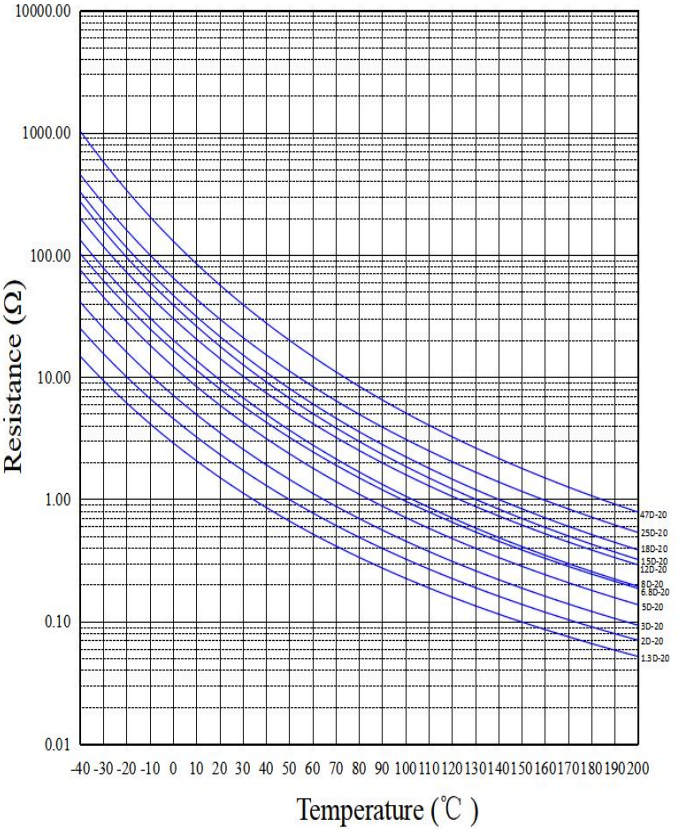
D-13 series R-T Characteristic Curves





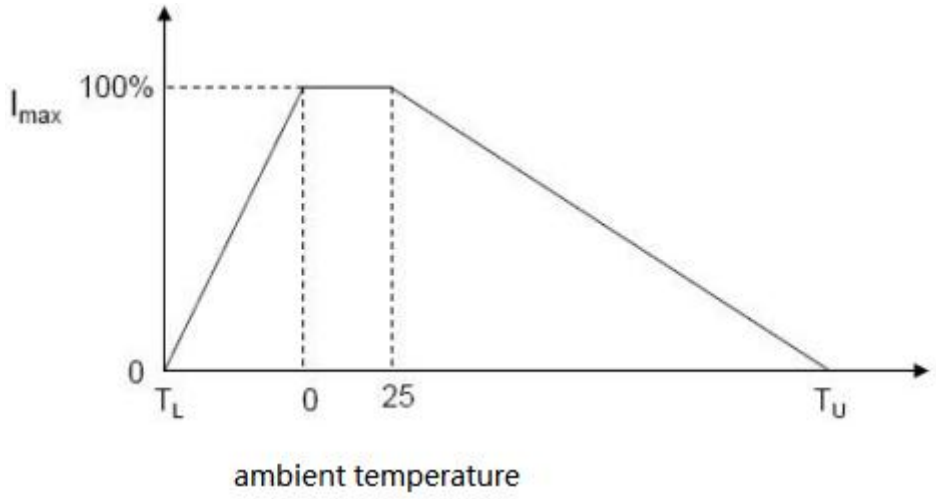
D-15 series R-T Characteristic Curves





D-20 series R-T Characteristic Curves

◆ Max. Current Derating Curve



Ta: Ambient temperature during operation

Tu: Maximum operating temperature

TL: Minimum operating temperature

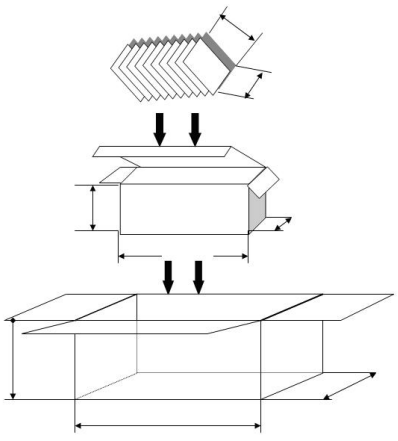
≥25℃: $I_{Ta} = [1-(Ta-25)/(Tu-25)] \times Imax$

≤0℃ : $I_{Ta} = (Ta- T_L)/(0- T_L) \times Imax$

◆Packaging

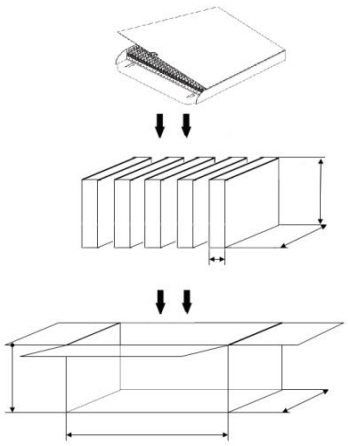
* Bulk

model	Quantity	
	Bluk / Plastic bag	
	Long Lead	Short Lead
D-5	1000PCS	1000PCS
D-7	1000PCS	1000PCS
D-9	500PCS	1000PCS
D-11	500PCS	1000PCS
D-13	400PCS	500PCS
D-15	300PCS	500PCS
D-20	200PCS	200PCS



* **Tape**

model	Quantity
	Tape / Paper Box
D-5	1500PCS
D-7	1500PCS
D-9（P0=15,d=0.8）	1000PCS
D-9（P0=12.7,d=0.6,except Y type lead）	1500PCS
D-11（P0=15,d=0.8）	1000PCS
D-11（P0=12.7,d=0.6,except Y type lead）	1500PCS
D-13	1000PCS
D-15	800PCS
D-20	500PCS

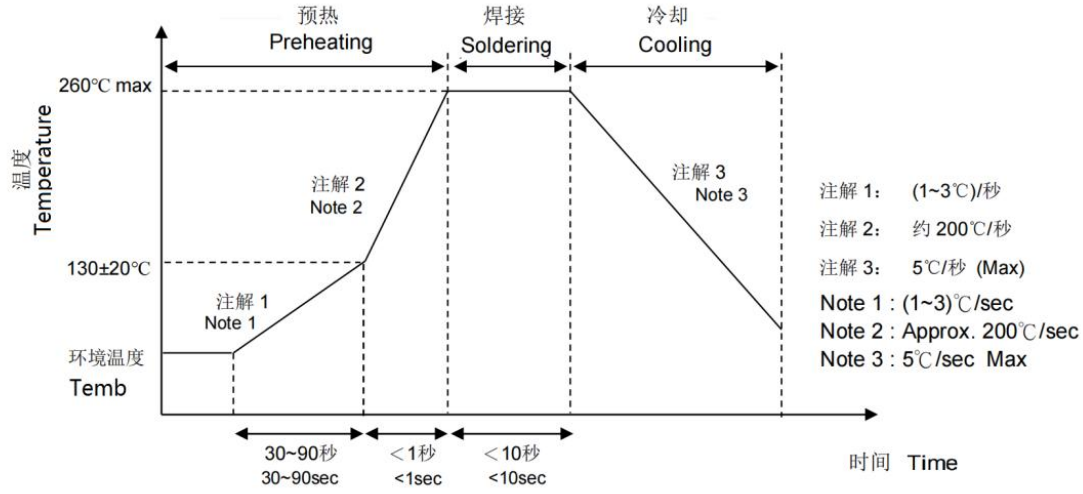


◆ Environmental Protection Statement

* We provide all NTC thermistor materials conform to the requirements of ROHS directive, Halogen Free and the Reach regulation, please rest assured to use.

◆Soldering Recommendation

* Wave soldering profile



* Iron soldering

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

◆Storage Methods

* Components must be stored in a clean, ventilated, non-corrosive gases warehouse; Unless otherwise specified, the warehouse temperature and relative humidity must meet the following requirements: a.Temperature: 5 ~ 30 ℃;b. Relative humidity: 20% ~ 75%; Period of Storage：1 year。

◆Precautions For Use

* Working environment temperature should be within the prescribed scope of technical conditions.
* Near a fever or flammable components should not be installed, it is better to have more than 3 mm intervals, so as not to damage the components.
* Please wear gloves when the contact pin.