

FEATURES

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



CHARACTERISTIC

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

APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003

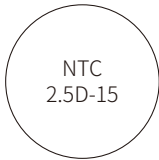
TECHNICAL PARAMETERS

Type Number	R_{25} (Ω)	Max.steady State current (A)	Residual Resistance (Ω)	Dissipation factor (mW/°C)	Thermal time Constant (s)	Operating Temperature (°C)
5DG-5	5	1	0.35	6	20	-40~+150
8DG-5	8	0.7	0.77			
10DG-5	10	0.7	0.77			
20DG-5	20	0.5	0.997			
33DG-5	33	0.5	1.88			
5DG-7	5	2	0.28	9	30	-40~+150
8DG-7	8	1	0.77			
10DG-7	10	1	0.77			
12DG-7	12	1	0.82			
16DG-7	16	0.7	1.00			
20DG-7	20	0.6	1.11			
22DG-7	22	0.6	1.11			
33DG-7	33	0.5	1.49			

Type Number	R ₂₅ (Ω)	Max.steady State current (A)	Residual Resistance (Ω)	Dissipation factor (mW/°C)	Thermal time Constant (s)	Operating Temperature (°C)
3DG-9	3	4	0.12	11	35	-40~+175
5DG-9	5	3	0.21			
6DG-9	6	2	0.32			
8DG-9	8	2	0.40			
10DG-9	10	2	0.46			
12DG-9	12	1	0.66			
15DG-9	15	1	0.80			
16DG-9	16	1	0.80			
20DG-9	20	1	0.88			
22DG-9	22	1	0.95			
33DG-9	33	1	1.12			
50DG-9	50	1	1.25			
100DG-9	100	0.8	3.02			
120DG-9	120	0.8	3.02			
2.5DG-11	2.5	5	0.10	14	50	-40~+175
3DG-11	3	5	0.10			
5DG-11	5	4	0.16			
8DG-11	8	3	0.25			
10DG-11	10	3	0.28			
12DG-11	12	2	0.46			
15DG-11	15	2	0.47			
16DG-11	16	2	0.47			
20DG-11	20	2	0.51			
22DG-11	22	2	0.56			
33DG-11	33	1.5	0.67			
47DG-11	47	1.5	1.02			
50DG-11	50	1.5	1.22			
2.5DG-13	2.5	6	0.088	15	68	-40~+200
3DG-13	3	6	0.092			
4.7DG-13	4.7	5	0.12			
5DG-13	5	5	0.125			
8DG-13	8	4	0.194			
10DG-13	10	4	0.206			
16DG-13	16	3	0.335			
18DG-13	18	3	0.372			

Type Number	R ₂₅ (Ω)	Max.steady State current (A)	Residual Resistance (Ω)	Dissipation factor (mW/°C)	Thermal time Constant (s)	Operating Temperature (°C)
20DG-13	20	3	0.372	15	68	-40~+200
30DG-13	30	2.5	0.517			
47DG-13	47	2	0.81			
1.5DG-15	1.5	8	0.071	18	86	-40~+200
2.5DG-15	2.5	8	0.071			
3DG-15	3	7	0.075			
5DG-15	5	6	0.112			
7DG-15	7	5	0.173			
8DG-15	8	5	0.178			
10DG-15	10	5	0.18			
15DG-15	15	4	0.268			
16DG-15	16	4	0.268			
18DG-15	18	4	0.288			
20DG-15	20	4	0.288			
30DG-15	30	3.5	0.438			
47DG-15	47	3	0.68			
50DG-15	50	3	0.72			
1.3DG-20	1.3	9	0.037	24	113	-40~+200
1.5DG-20	1.5	9	0.037			
2.5DG-20	2.5	8	0.055			
3DG-20	3	8	0.055			
5DG-20	5	7	0.087			
8DG-20	8	6	0.142			
10DG-20	10	6	0.162			
16DG-20	16	5	0.212			
20DG-20	20	5	0.212			

PARAMETERS OF TECHNOLOGY

Marking		
	NTC	NTC thermistor
	2.5	2.5Ω
	D	Disk-Type
	15	14±1(mm)

PARAMETERS OF TECHNOLOGY

1.	Zero Power Resistance at 25°C(Ω)	2.5±20%
2.	Thermal Time Constant (S)	86
3.	Thermal Dissipation Constant (mW/°C)	18
4.	Operating Temperature (°C)	-40 ~+200
5.	Max Steady State Current (A)	8
6.	Maximum allowable capacity value (240Vac)	820uF
7.	Insulation resistance: 1000 MΩ ohm, the terminal of the thermistor connected as an electrode, metal foil as another electrode, 100V ± 15V DC voltage is applied between the two electrodes measure the insulation resistance between the two electrodes, the voltage applied to the time of 1min, the insulation resistance of not less than 1000 MΩ	
8.	High voltage terminal: thermistor connected as an electrode, metal foil as another electrode in two electrode applied between a frequency of 40Hz-60Hz, AC voltage and insulation voltage of 1.4 times the provisions (AC500V) for the duration of the peak voltage, 60s + 5S, the rate of voltage should be similar to the 100V / s thermistor applied gradually, there should be no breakdown or arcing	
9.	B Value	2600±10%
Using the following formula $B = \left[\frac{T_a \times T_b}{T_b - T_a} \right] \times \ln(R_a / R_b)$ or: $B = 2.303 \times \left[\frac{T_a \times T_b}{T_b - T_a} \right] \times \log(R_a / R_b)$ B-- constant (unit K) Ra- Zero power resistance (unit Ω) measured at temperature Ta(unit K) Rb- Zero power resistance (unit Ω) measured at temperature Tb(unit K) Ta=298.15K Tb=358.15K B value is the material coefficient or thermal index, B value is decided by the size of the material properties, allowing the + 5% tolerance range of B value, B value influence the size of the material properties; the B values are different, the residual resistance of different sizes, continuous working temperature rise is also different; the bigger the B value, the residual resistance is small when the temperature rise is small.		

PRINCIPLE OF THERMAL RESISTOR IS CHOSEN

1.	Thermistor maximum operating current> loop operating current
2.	Nominal resistance values of thermal resistance $R \geq 1.414 * E / I_m$ E is the line voltage I_m a surge current In general, the switching power supply, switching power supplies, uninterruptible power supplies, power inverter and other times operating current $I_m = 100$ For the filament heater circuit like $I_m = 30$ times the operating current
3.	B The larger the value, the smaller the residual resistance, the smaller the temperature rise during operation.
4.	Thermal time constant and dissipation factor as both mutually dependent relationship, not to say that one or the greater the value, the better the smaller the better, but the product of the two greater the heat capacity of the thermistor greater, then resistance to surge current, the stronger
5.	When the power supply circuit for the thermistor is mainly used to suppress large inrush current at power-on, a large inrush current is the capacitor discharge, the filter to be installed in the tank circuit capacitance matching is a very critical condition to ensure that the thermistor circuit can play a role in security protection, so the power supply design requirements for manufacturers should also take full account of this factor.
6.	Through the circuit maximum operating voltage and maximum starting current and other parameters can use the formula $R = U / I$ calculated the resistance value range
7.	These principles may choose to lock the NTC thermistor corresponding model, if your company has special design needs with our technical department to discuss

STORAGE CONDITION

1.	Temperature	-10°C~+40°C
	Humidity	≤70%RH
	Term	≤1 year (First-in/ First-out)
	Place	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
2.	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 firedestruction of components or in the worst case,to catching fire	
3.	Exceeding I _{max}	
4.	Exceeding rated temperature range	
5.	Inferior thermal dissipation, Due to badly inferior thermal dissipation, some part of the components body will become overheated and then be damaged	

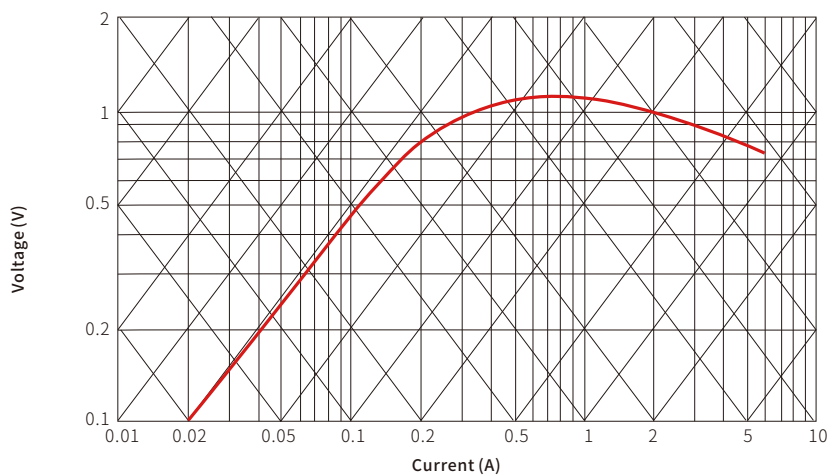
PROPERTIES OF PRODUCTS

Item	Specification	Test Conditions & Methods
Solder-ability	Surface area of tin ≥95%	260±3°C、3±0.3sec
Resistance To Soldering Heat	No visible mechanical damage. $\Delta R/R_N \leq 20\%$ ($\Delta R = R_N - R_N' $)	265±3°C、10±1sec
Strength of lead terminal	No break out $\Delta R/R_N \leq 20\%$ ($\Delta R = R_N - R_N' $)	Horizontal tension (10±1 Sec pull at the end of both conductors in horizontal direction) Lead line diameter (mm) Tension (kg) 0.5<d≤0.8 1.0 0.8<d≤1.25 2.0
Free fall	$\Delta R/R_N \leq 10\%$ ($\Delta R = R_N - R_N' $)	NTC thermistor fell vertically from 1 m to cement floor 3 times, and recovered 5 min at room temperature after test
Vibration	$\Delta R/R_N \leq 10\%$ ($\Delta R = R_N - R_N' $)	The frequency range :10 Hz-500Hz, Amplitude :0.75 mm 2 vibrations in each h three directions
High temperature storage	$\Delta R/R_N \leq 20\%$	Tu ±5°C、1000±24hrs
Low temperature storage	$\Delta R/R_N \leq 20\%$	TL ±5°C、1000±24hrs
Rated Zero-Power Resistance RN (Ω)	2.5±20%	Ambient temp. Range:25°C±1°C(T _A). Testing voltage: 1.5VDC After placing for 1~2 hours under T _A , the resistance value shall be measured
Thermal Dissipation Constant	≈18	The thermal dissipation constant(δ) could be calculated by the ratio of a change in power dissipation(ΔP) of the thermistor to a change in temperature(ΔT) of the thermistor at a specified ambient temperature
Thermal Time Constant	≈86	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	$B = \frac{2600 \pm 10\%}{R_1/R_2} \times \ln \frac{T_1}{T_2}$	R1, R2 is zero-power resistance at T ₁ , T ₂ T ₁ = 298.15 K(25°C) T ₂ = 323.15 K(50°C)

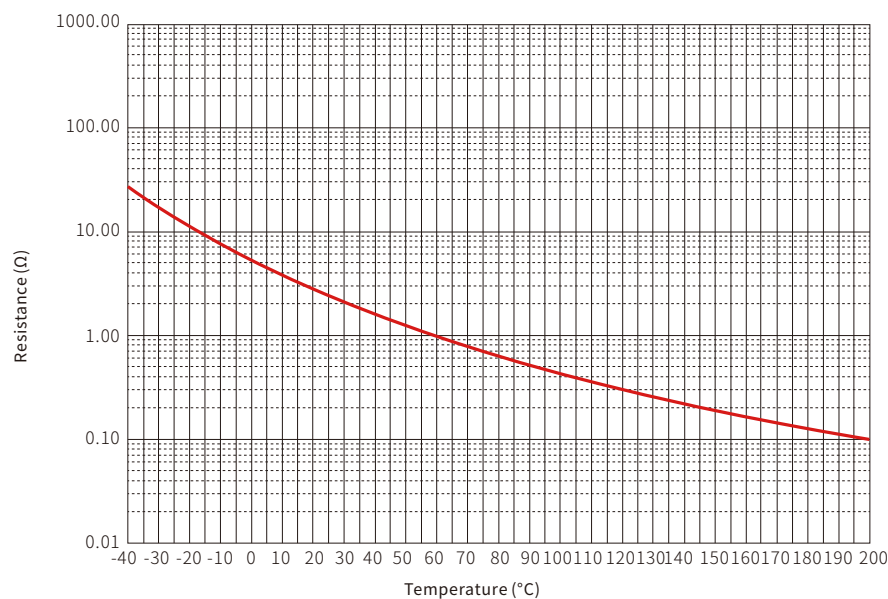
Item	Specification	Test Conditions & Methods															
Max.Steady State Current	visible mechanical damage $\Delta R_N / R_N \leq 20\%$ ($\Delta R = R_N - R_N' $)	25°C±2°C Ambient temp. Range 8A Testing Current															
Temperature change	No visible mechanical damage. $\Delta R_N / R_N \leq 20\%$ ($\Delta R = R_N - R_N' $)	5 Cycle <table border="1"> <thead> <tr> <th>Step</th><th>Temperature(°C)</th><th>Time(min)</th></tr> </thead> <tbody> <tr> <td>1</td><td>Tu±2</td><td>30±3</td></tr> <tr> <td>2</td><td>Room</td><td>5±3</td></tr> <tr> <td>3</td><td>TL±2</td><td>30±3</td></tr> <tr> <td>4</td><td>Room</td><td>5±3</td></tr> </tbody> </table>	Step	Temperature(°C)	Time(min)	1	Tu±2	30±3	2	Room	5±3	3	TL±2	30±3	4	Room	5±3
Step	Temperature(°C)	Time(min)															
1	Tu±2	30±3															
2	Room	5±3															
3	TL±2	30±3															
4	Room	5±3															
Electrical Cycling Testing	No visible mechanical damage. $\Delta R_N / R_N \leq 20\%$ ($\Delta R = R_N - R_N' $)	Ambient temp. Range:25°C±2°C. Cycles: 1,000times On / Off: 1m / 5m Test Current:8.0 A After recovering 4~5h under 25±2°C, the rated zero power resistance value RN' shall be measured.															
LoadLife (Endurance) Testing	No visible mechanical damage. $\Delta R_N / R_N \leq 20\%$ ($\Delta R = R_N - R_N' $)	Ambient temp. Range:25°C±2°C; 8.0A/ 1,000±24hAfter recovering 4~5 h under 25±2°C, the rated zero power resistance value RN' shall be measured															
Steady state	No visible damage, insulation resistance meets the requirements $\Delta R_N / R_N \leq 20\%$ ($\Delta R = R_N - R_N' $)	40±2°C, 93%RH,1000H															

CHARACTERISTIC CURVES

Graph of Voltage vs. Current



Graph of Resistance vs. Temperature



R-T chart

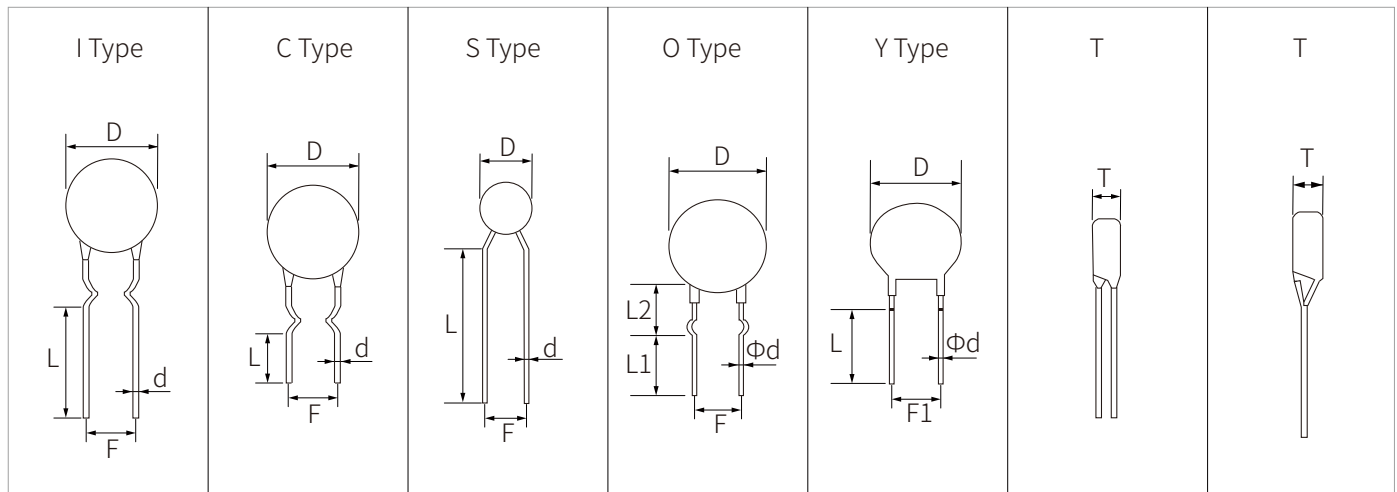
Temp°C	Resistance Ω			Temp°C	Resistance Ω		
	lower limiting value	Central value	upper-limit value		lower limiting value	Central value	upper-limit value
-40.0	17.84	28.43	43.51	-21.0	8.37	12.27	17.26
-39.0	17.09	27.11	41.29	-20.0	8.07	11.78	16.51
-38.0	16.38	25.86	39.20	-19.0	7.78	11.31	15.79
-37.0	15.70	24.68	37.23	-18.0	7.51	10.87	15.11
-36.0	15.06	23.56	35.37	-17.0	7.24	10.45	14.46
-35.0	14.45	22.50	33.63	-16.0	6.99	10.04	13.85
-34.0	13.87	21.49	31.98	-15.0	6.75	9.66	13.26
-33.0	13.31	20.54	30.43	-14.0	6.52	9.29	12.71
-32.0	12.78	19.64	28.96	-13.0	6.29	8.94	12.18
-31.0	12.28	18.78	27.58	-12.0	6.08	8.60	11.68
-30.0	11.80	17.97	26.27	-11.0	5.88	8.28	11.20
-29.0	11.35	17.20	25.03	-10.0	5.68	7.97	10.75
-28.0	10.91	16.47	23.87	-9.0	5.49	7.68	10.31
-27.0	10.50	15.78	22.76	-8.0	5.31	7.40	9.90
-26.0	10.10	15.12	21.72	-7.0	5.14	7.13	9.51
-25.0	9.72	14.49	20.73	-6.0	4.97	6.88	9.13
-24.0	9.36	13.89	19.79	-5.0	4.81	6.63	8.77
-23.0	9.02	13.32	18.90	-4.0	4.66	6.40	8.43
-22.0	8.69	12.78	18.06	-3.0	4.51	6.17	8.11

Temp°C	Resistance Ω			Temp°C	Resistance Ω		
	lower limiting value	Central value	upper-limit value		lower limiting value	Central value	upper-limit value
-2.0	4.37	5.96	7.80	33.0	1.56	1.99	2.44
-1.0	4.23	5.75	7.50	34.0	1.51	1.94	2.38
0.0	4.10	5.55	7.22	35.0	1.46	1.88	2.33
1.0	3.98	5.36	6.95	36.0	1.42	1.83	2.27
2.0	3.85	5.18	6.69	37.0	1.38	1.78	2.21
3.0	3.74	5.01	6.44	38.0	1.34	1.74	2.16
4.0	3.62	4.84	6.21	39.0	1.30	1.69	2.11
5.0	3.52	4.68	5.98	40.0	1.26	1.65	2.06
6.0	3.41	4.53	5.76	41.0	1.23	1.60	2.01
7.0	3.31	4.38	5.56	42.0	1.19	1.56	1.96
8.0	3.21	4.24	5.36	43.0	1.16	1.52	1.92
9.0	3.12	4.10	5.17	44.0	1.13	1.48	1.87
10.0	3.03	3.97	4.99	45.0	1.09	1.44	1.83
11.0	2.94	3.84	4.81	46.0	1.06	1.41	1.79
12.0	2.86	3.72	4.65	47.0	1.03	1.37	1.75
13.0	2.78	3.60	4.49	48.0	1.01	1.34	1.71
14.0	2.70	3.49	4.33	49.0	0.98	1.31	1.67
15.0	2.63	3.38	4.19	50.0	0.95	1.27	1.63
16.0	2.55	3.28	4.04	51.0	0.93	1.24	1.60
17.0	2.48	3.18	3.91	52.0	0.90	1.21	1.56
18.0	2.42	3.08	3.78	53.0	0.88	1.18	1.53
19.0	2.35	2.99	3.65	54.0	0.85	1.15	1.50
20.0	2.29	2.90	3.53	55.0	0.83	1.13	1.46
21.0	2.23	2.81	3.42	56.0	0.81	1.10	1.43
22.0	2.17	2.73	3.31	57.0	0.79	1.07	1.40
23.0	2.11	2.65	3.20	58.0	0.77	1.05	1.37
24.0	2.05	2.57	3.10	59.0	0.75	1.02	1.34
25.0	2.00	2.50	3.00	60.0	0.73	1.00	1.32
26.0	1.94	2.43	2.92	61.0	0.71	0.98	1.29
27.0	1.88	2.36	2.85	62.0	0.69	0.95	1.26
28.0	1.82	2.29	2.77	63.0	0.68	0.93	1.24
29.0	1.76	2.23	2.70	64.0	0.66	0.91	1.21
30.0	1.71	2.17	2.64	65.0	0.64	0.89	1.19
31.0	1.66	2.10	2.57	66.0	0.63	0.87	1.16
32.0	1.60	2.05	2.51	67.0	0.61	0.85	1.14

Temp°C	Resistance Ω			Temp°C	Resistance Ω		
	lower limiting value	Central value	upper-limit value		lower limiting value	Central value	upper-limit value
68.0	0.60	0.83	1.12	103.0	0.27	0.41	0.59
69.0	0.58	0.81	1.09	104.0	0.27	0.40	0.58
70.0	0.57	0.80	1.07	105.0	0.26	0.40	0.57
71.0	0.55	0.78	1.05	106.0	0.26	0.39	0.56
72.0	0.54	0.76	1.03	107.0	0.25	0.38	0.55
73.0	0.53	0.75	1.01	108.0	0.25	0.37	0.54
74.0	0.52	0.73	0.99	109.0	0.24	0.37	0.53
75.0	0.50	0.71	0.97	110.0	0.24	0.36	0.53
76.0	0.49	0.70	0.95	111.0	0.23	0.35	0.52
77.0	0.48	0.68	0.94	112.0	0.23	0.35	0.51
78.0	0.47	0.67	0.92	113.0	0.22	0.34	0.50
79.0	0.46	0.66	0.90	114.0	0.22	0.34	0.49
80.0	0.45	0.64	0.88	115.0	0.22	0.33	0.49
81.0	0.44	0.63	0.87	116.0	0.21	0.33	0.48
82.0	0.43	0.62	0.85	117.0	0.21	0.32	0.47
83.0	0.42	0.60	0.84	118.0	0.20	0.31	0.46
84.0	0.41	0.59	0.82	119.0	0.20	0.31	0.46
85.0	0.40	0.58	0.81	120.0	0.20	0.30	0.45
86.0	0.39	0.57	0.79	121.0	0.19	0.30	0.44
87.0	0.38	0.56	0.78	122.0	0.19	0.29	0.44
88.0	0.38	0.55	0.76	123.0	0.19	0.29	0.43
89.0	0.37	0.54	0.75	124.0	0.18	0.28	0.42
90.0	0.36	0.52	0.74	125.0	0.18	0.28	0.42
91.0	0.35	0.51	0.72	126.0	0.18	0.28	0.41
92.0	0.34	0.50	0.71	127.0	0.17	0.27	0.41
93.0	0.34	0.49	0.70	128.0	0.17	0.27	0.40
94.0	0.33	0.49	0.69	129.0	0.17	0.26	0.39
95.0	0.32	0.48	0.67	130.0	0.16	0.26	0.39
96.0	0.32	0.47	0.66	131.0	0.16	0.25	0.38
97.0	0.31	0.46	0.65	132.0	0.16	0.25	0.38
98.0	0.30	0.45	0.64	133.0	0.16	0.25	0.37
99.0	0.30	0.44	0.63	134.0	0.15	0.24	0.37
100.0	0.29	0.43	0.62	135.0	0.15	0.24	0.36
101.0	0.28	0.43	0.61	136.0	0.15	0.23	0.36
102.0	0.28	0.42	0.60	137.0	0.15	0.23	0.35

Temp°C	Resistance Ω			Temp°C	Resistance Ω		
	lower limiting value	Central value	upper-limit value		lower limiting value	Central value	upper-limit value
138.0	0.14	0.23	0.35	157.0	0.11	0.17	0.27
139.0	0.14	0.22	0.34	158.0	0.10	0.17	0.27
140.0	0.14	0.22	0.34	159.0	0.10	0.17	0.26
141.0	0.14	0.22	0.33	160.0	0.10	0.17	0.26
142.0	0.13	0.21	0.33	161.0	0.10	0.16	0.26
143.0	0.13	0.21	0.32	162.0	0.10	0.16	0.25
144.0	0.13	0.21	0.32	163.0	0.10	0.16	0.25
145.0	0.13	0.20	0.32	164.0	0.09	0.16	0.25
146.0	0.13	0.20	0.31	165.0	0.09	0.15	0.24
147.0	0.12	0.20	0.31	166.0	0.09	0.15	0.24
148.0	0.12	0.20	0.30	167.0	0.09	0.15	0.24
149.0	0.12	0.19	0.30	168.0	0.09	0.15	0.24
150.0	0.12	0.19	0.30	169.0	0.09	0.15	0.23
151.0	0.12	0.19	0.29	170.0	0.09	0.14	0.23
152.0	0.11	0.18	0.29	171.0	0.09	0.14	0.23
153.0	0.11	0.18	0.28	172.0	0.08	0.14	0.22
154.0	0.11	0.18	0.28	173.0	0.08	0.14	0.22
155.0	0.11	0.18	0.28	174.0	0.08	0.14	0.22
156.0	0.11	0.17	0.27	175.0	0.08	0.13	0.22

PACKAGE INFORMATION



Type Number	Dmax	Tmax	Φd ± 0.05	F1 ± 1	F2 ± 1.5	Straight Lead Wire	Curved Lead wire	
						L ± 1	L1 ± 0.5	L2 ± 2
NTCxxDG-5	7	5	0.55	5	3	2.8-20	2.8-20	7 or 4
NTCxxDG-7	9	5	0.55	5	3	2.8-20	2.8-20	7 or 4
NTCxxDG-9	11	5.5	0.75/0.55	7.5/5	5/3	2.8-20	2.8-20	7 or 4
NTCxxDG-11	13	5.5	0.75	7.5/5	5/3	2.8-20	2.8-20	7 or 4
NTCxxDG-13	15.5	6	0.75	7.5	5	2.8-20	2.8-20	7 or 4
NTCxxDG-15	17.5	6	0.75	10/7.5	5	2.8-20	2.8-20	7 or 4
NTCxxDG-20	22.5	7	1.0	10/7.5	7	2.8-20	2.8-20	7 or 4

NORMAL PRODUCT PACKAGING

Type Number	Bag	Inside the box	carton
NTCxxDG-5	1000 pcs	3000 pcs	18000 pcs
NTCxxDG-7	1000 pcs	3000 pcs	18000 pcs
NTCxxDG-9	500 pcs	2000 pcs	12000 pcs
NTCxxDG-11	500 pcs	1500 pcs	9000 pcs
NTCxxDG-13	250 pcs	1000 pcs	6000 pcs
NTCxxDG-15	250 pcs	1000 pcs	6000 pcs
NTCxxDG-20	100 pcs	400 pcs	2400 pcs

CUT THE FEET PRODUCT PACKAGING

Type Number	Bag	Inside the box	carton
NTCxxDG-5	1000 pcs	8000 pcs	48000 pcs
NTCxxDG-7	1000 pcs	5000 pcs	30000 pcs
NTCxxDG-9	1000 pcs	4000 pcs	24000 pcs
NTCxxDG-11	1000 pcs	3000 pcs	18000 pcs
NTCxxDG-13	500 pcs	2000 pcs	12000 pcs
NTCxxDG-15	500 pcs	1000 pcs	6000 pcs
NTCxxDG-20	100 pcs	400 pcs	2400 pcs

Headquarters

No.3387 Shendu Road
Pujiang I&E Park
Minhang Shanghai China
201000

Hotline

400-021-5756

Web

<https://www.semiware.com>

Sales Center

Tel: 86-21-3463-7458
Email: sales18@semiware.com

Customer Service

Tel: 86-21-5484-1001
Email: sales17@semiware.com

Technical Support

Tel: 86-21-3463-7654
Email: fae01@semiware.com

Complaint & Suggestions

Tel: 86-21-3463-7172
Ext: 8868
Email: cs03@semiware.com

By QR Code

Website



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