SPECIFICATION

CUSTOMER :

PART NAME : **POWER NTC THERMISTOR**

PART NUMBER : **NTC 10D-9**

ISSUE DATE :

REV NO. :

REV DATE :

APPROVAL

CLIENT		**MANUFACTURER**	
Quality Dep.		Design	YULIAN LI
Production Dep.		Check	ZHIYUAN REN
Engineering Dep.		Approval	YUN CHEN

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Revised Record Sheet

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1. Description

1) Applications

- INRUSH CURRENT LIMITING IN PERIPHERAL COMMUNICATION EQUIPMENT, MONITOR, PCs, SMPS.
- SOFT-START MOTORS, e.g. IN VACUUM CLEANERS
- CIRCUIT APPLICATIONS REQUIRING HIGH CONTINUOUS CURRENTS
- USEABLE IN SERIES CONNECTION UP TO 240Vrms

2) Features

- HIGH RELIABILITY AND MINIMIZED AGE DRIFT, LOW-COST AND WIDE APPLICATIONS
- BLCAK PHENOLIC RESIN COATED THERMISTOR DISK
- STRAIGHT OR IN/OUT KINKED OR CUTTED LEADS OF TIN PLATED
- USEABLE IN SERIES CONNECTIONS UP TO MAX.250Vrms (STEADY STATE 240Vrms)
- AVAILABLE ON TAPE
- RESISTANCE TOLERANCE <±20% AVAILABLE UPON REQUEST

3) Certificates

ISO9001:2008 Certificate

2. Part Number Code

Example:

NTC	**10**	**D**	**7**	**M**	**I**	**170**	**P**
1)	2)	3)	4)	5)	6)	7)	8)

No.	Item	Digit	Specification
1)	Products Type	NTC	POWER NTC THERMISTOR
2)	Zero Power Resistance	10	10Ω
3)	Shape	D	Round
4)	Diameter of Element	9	Φ11mm max
5)	The tolerance of Resistance	M	± 20%
6)	Lead Type	I	Inner Kink内弯
7)	Lead Length	170	17mm Lead
8)	Type of Coating	P	Phenolic Coating酚醛

1) NSE's MF72 Power NTC Thermistor

2) Zero Power Resistance :

2.5 – 2.5Ω / **5** – 5Ω / **10** – 10Ω / **15** – 15Ω

3) Shape: D = Round Type, S=Square Type

4) Diameter of Element(Disc) :
05- 5mm / **07**- 7mm / **9**- 9mm / **11**- 11mm / **15**- 15mm / **20**- 20mm

5) The Tolerance of Resistance :
J = ±5% , **K**= ±10%, **L**=±15%, **M**= ±20%

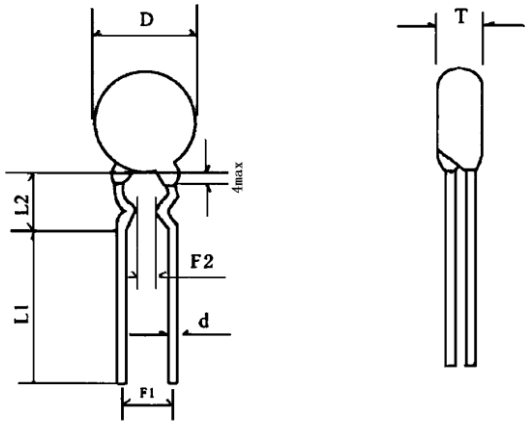
6) Lead Type :
S = Straight 直脚 / **O** = Outward Kink 外弯 / **I** = Inner Kink 内弯 / **L** = L-Bending 轴弯

7) Lead Length :
037 = 3.7mm / 040 = 4.0mm / 060 = 6.mm / 105 = 10.5mm / 250 = 25mm/170=17mm

8) Coating-Type **: S** = Silicon Coating 硅树脂/ **E** = Epoxy Coating 环氧/**P**=Phenolic Coating 酚

醛树脂

3. Structure and Dimensions



D	L_1	F_1	T	d
Max 11.0	Max 17	5.0±1	Max6.0	0.6±0.05

4. Electrical Characteristics

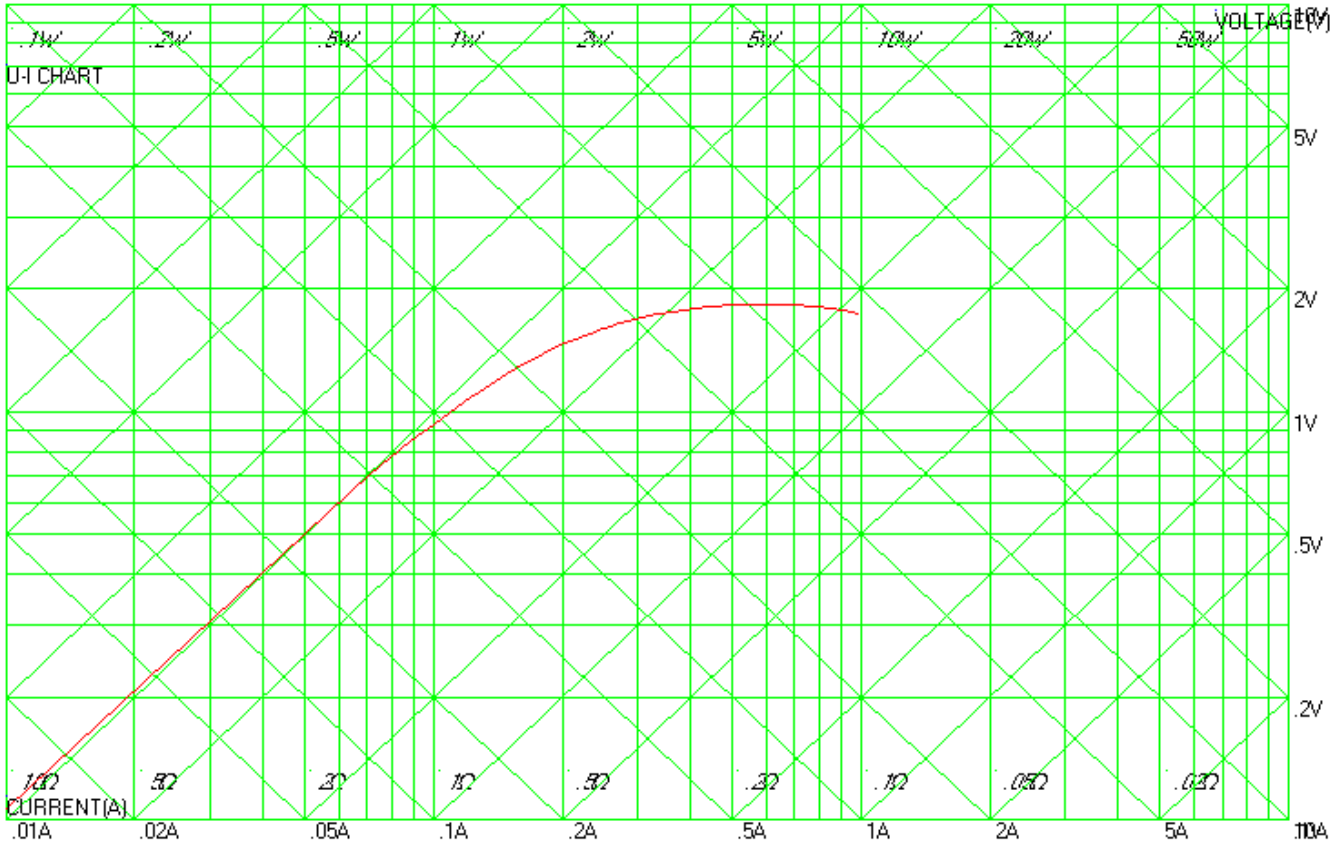
No.	Item	Characteristics
1	Zero power resistance @25℃(Ω)	10±20%
2	Max steady state current(A)	2
3	Thermal dissipation coefficient（mw/℃）	11min
4	Thermal time constant（S）	35max
5	Operating temperature（℃）	- 40 ~ +150
6	B value（K）	2800 ±10%

5. Terminology And General Specifications

Terminology	Descriptions	Specifications
Zero power resistance	At 25℃, it is the resistance measured by the measuring power which causes the resistance change that can be ignored relative to the whole measuring error.	See rating table
B value	B value can be derived by measuring the resistance at 25℃(R_1) and 50℃(R_2) and calculating by following formula: $B=\frac{T_1\times T_2}{T_2-T_1}\times 1n(\frac{R_{T1}}{R_{T2}})$	See rating table
Max steady state	The maximum allowable current at loading to max operation	See rating table

current	temperature in 25℃ ambient。	
Thermal dissipation coefficient	At rated ambient temperature, it is the ratio of consumption power change rate of thermistor to the change of the corresponding temperature.	See rating table
Thermal time constant	At zero power, it is measured as time in seconds which needed for thermistor temperature change of 63.2% difference between initial and final thermistor temperature when the temperature breaks.	See rating table
Operating temperature	Operating temperature range without derating.	-55℃~+200℃
Specified temperature	Temperature range when the current working.	-55℃~+200℃
Load life	Thermistor shall be stored for 1000±2 hours at room temperature, after that the thermistor shall be returned to and stabilized at room temp.	No obvious damage △ R/R≤±20%
Temperature cycle	At -55±3℃ for 30min and at +200±2℃ for 30min, after 5 cycle, then return to and stabilize at room ambient temperature.	No obvious damage △ R/R≤±20%
Moisture resistance	Thermistor shall be stored at 40±2℃, 93±3% RH for 48±2h, then returned to and stabilized at room ambient temperature for 1h.	No obvious damage， No puncture and spark ， Insulation R ＞100MΩ △ R/R≤±20%
Lead full strength	After applying the 20N load in the axial direction for 10sec.	No obvious damage △ R/R≤±20%
Soldering heat	The lead wire shall be dipped into solder bath of 265±5℃ for 5±1sec with 6mm space from the body, then return to and stabilized at room ambient.	No obvious damage △ R/R≤±20%
Soldering	The lead wire shall be dipped into solder bath of 235±5℃ for 3sec.	More than 95% solderability
Surge current life	Thermistor shall be subjected to the following 2000 cycles, surge current: max steady state current interval: 15 seconds. after the cycles, the thermistor shall be returned to original state。	△ R/R≤±20%
Withstanding voltage	Applied voltage AC:1000V Time: 1min, voltage passing between the lead wire and the insulation part.	No puncture and spark
Insulation resistance	Applied voltage DC:500V Time:1min	No obvious damage ≥500MΩ
Storage at High Temp	Temp: 85±2℃ Time: 96～100hours	No obvious damage △ R/R≤±20%

6. R/T CHARACTERISTICS & TOLERANCE



RT-TABLE

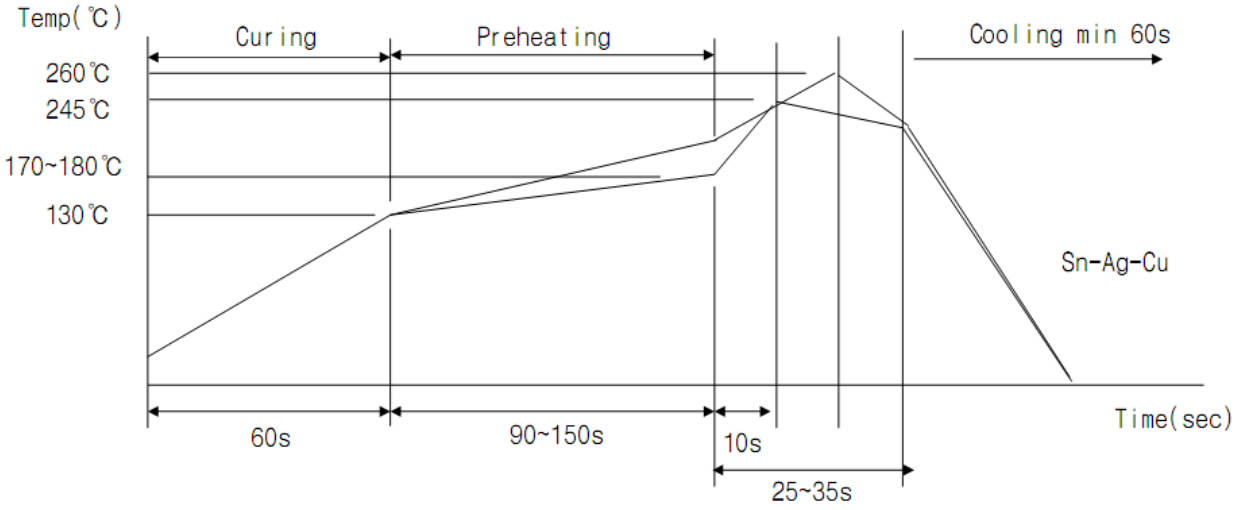
R25=10Ω B25/50=2800K

T	R	T	R	T	R	T	R	T	R	T	R	T	R
-30	83.666	-1	24.455	28	9.112	57	4.055	86	2.054	115	1.146	144	0.688
-29	79.803	0	23.6	29	8.838	58	3.953	87	2.011	116	1.125	145	0.677
-28	76.147	1	22.687	30	8.574	59	3.855	88	1.968	117	1.104	146	0.666
-27	72.685	2	21.86	31	8.319	60	3.76	89	1.926	118	1.084	147	0.655
-26	69.406	3	21.07	32	8.074	61	3.667	90	1.886	119	1.064	148	0.645
-25	66.3	4	20.314	33	7.837	62	3.577	91	1.846	120	1.045	149	0.634
-24	63.355	5	19.591	34	7.609	63	3.49	92	1.808	121	1.026	150	0.624
-23	60.563	6	18.898	35	7.389	64	3.406	93	1.771	122	1.007	151	0.614
-22	57.915	7	18.234	36	7.177	65	3.324	94	1.734	123	0.989	152	0.604
-21	55.402	8	17.599	37	6.972	66	3.244	95	1.699	124	0.972	153	0.595
-20	53.016	9	16.99	38	6.774	67	3.167	96	1.664	125	0.954	154	0.585
-19	50.751	10	16.407	39	6.584	68	3.092	97	1.63	126	0.937	155	0.6
-18	48.6	11	15.847	40	6.399	69	3.019	98	1.597	127	0.921	156	0.567
-17	46.555	12	15.311	41	6.221	70	2.949	99	1.565	128	0.905	157	0.558
-16	44.612	13	14.796	42	6.049	71	2.88	100	1.534	129	0.889	158	0.55
-15	42.764	14	14.302	43	5.883	72	2.814	101	1.504	130	0.873	159	0.541
-14	41.006	15	13.828	44	5.723	73	2.749	102	1.474	131	0.858	160	0.533
-13	39.334	16	13.373	45	5.567	74	2.686	103	1.445	132	0.843	161	0.525
-12	37.742	17	12.936	46	5.417	75	2.625	104	1.416	133	0.829	162	0.517
-11	36.226	18	12.516	47	5.272	76	2.566	105	1.389	134	0.815	163	0.509
-10	34.782	19	12.113	48	5.132	77	2.508	106	1.362	135	0.801	164	0.501
-9	33.406	20	11.725	49	4.996	78	2.452	107	1.336	136	0.787	165	0.494
-8	32.094	21	11.353	50	4.865	79	2.397	108	1.31	137	0.774	166	0.486
-7	30.844	22	10.995	51	4.738	80	2.344	109	1.285	138	0.761	167	0.479
-6	29.651	23	10.65	52	4.614	81	2.292	110	1.26	139	0.748	168	0.472
-5	28.513	24	10.318	53	4.495	82	2.242	111	1.236	140	0.736	169	0.465
-4	27.427	25	10	54	4.38	83	2.193	112	1.213	141	0.724	170	0.458
-3	26.391	26	9.692	55	4.268	84	2.146	113	1.19	142	0.712	0	0
-2	25.4	27	9.397	56	4.16	85	2.1	114	1.168	143	0.7	0	0

7. Reflow & Flow Soldering Method (Conditions)

1. Reflow Soldering Method

260℃/10sec, 245℃/20sec



2. Flow Soldering Method

260℃/10sec, 245℃/20sec