

RoHS Compliance

DAIN

SPECIFICATION

Supplier:

B. P. IMPEX PRIVATE LIMITED

Part Name

NTC Thermistor for Limiting Inrush Current

Model

10D-9

Approvals

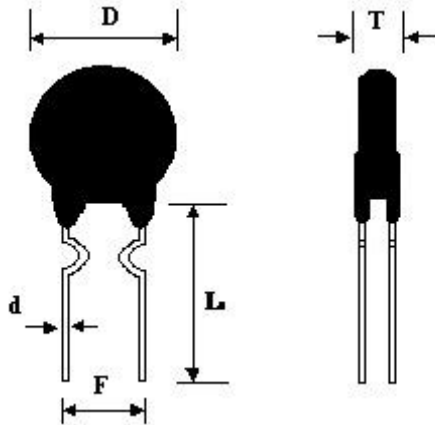
Customer Material Number

Manufacturer			Customer		
Edition	Verified	Approved	Admit	Verified	Approved

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1. APPEARANCE

1-1. Dimensions (mm)



1-2. Marking

▲
NTC
10D-9

1-3. Coating

- Nocoating
 Coating

Material

- PF resin
 Silicon
 Epoxy
 Others

Color

- Green
 Gray
 Tan
 Black
 Blue

1-4. Leads

- Tin-plated copper wire
 Tin-plated steel wire
 Straight Axis-formed
 In-Forming Out-Forming

$D_{Max}: 11$

$T_{Max}: 6.0$

$F: 7.5 \pm 1.0$

$d: 0.6 \pm 0.06$

$L: > 25$

2. Parameters of Technology

Rated Zero-Power Resistance (R ₂₅) : Ω	10	Appendix explained in detail
(B _{25/85}) : B(□K) Material Constant	2800	Appendix explained in detail
Max. Steady State Current (A)	2	Appendix explained in detail
Thermal Dissipation Constant (mW/□C)	≥11	Appendix explained in detail
Thermal Time Constant □ (s)	≤35	Appendix explained in detail
Operating Temperature Range (□C)	-40°C—+150°C	

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3. INSPECTION

3-1. Lot Inspection

Sampling with IEC410 / DIN ISO 2859-1 (GB/T2828.1-2003) ; Testing with SPEC.NO.: 10D-9

Indicators Project	IL	AQL	Indicators Project	IL	AQL
Appearance	II	0.65	Rated Zero-Power Resistance R _N	II	0.65
Idering-ability	S-2	2.5	Max.Steady State Current (A)	S-2	2.5

4. STORAGE CONDITIONS :

4-1. Temperature : -10°C ~ +40°C

4-2. Humidity : ≤70%RH

4-3. Term: ≤6months(First-in/First-out)

4-4. Place

Do not exposing the components to the following conditions, otherwise, it may result in deterioration of characteristics. :

- 1) Corrosive gas or deoxidizing gas.
- 2) Flammable and explosive gases.
- 3) Oil, water and chemical liquid.
- 4) Under the sunlight.

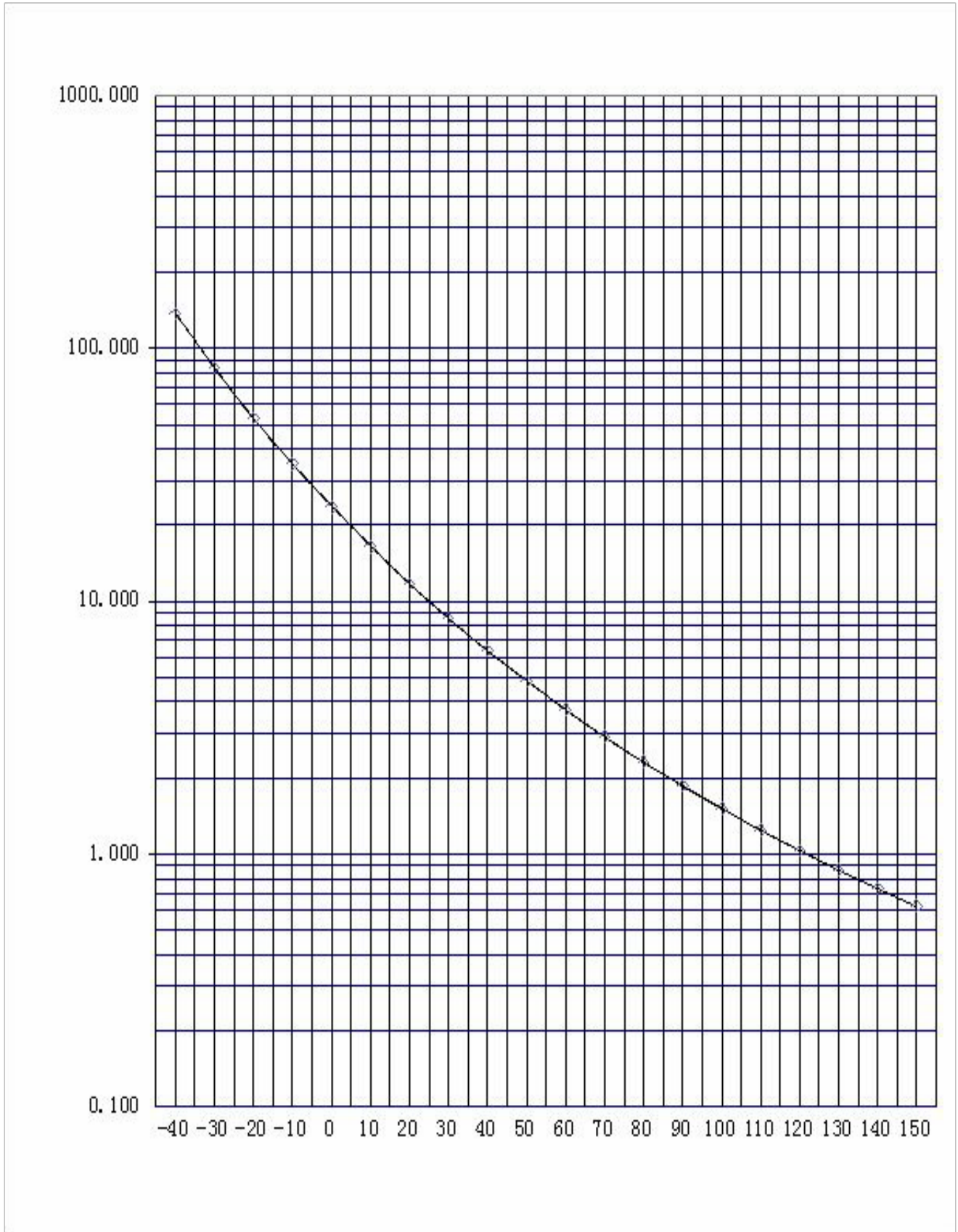
4-5. Handling after seal open: After unpacking of the minimum package, reseal it promptly or store it inside a sealed container with a drying agent.

5. WARNING

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.)

6. R/T curve



Appendix

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1. MECHANICAL CHARACTERISTICS					
Item	Specification	Test Conditions & Methods			
1-1. Solder-ability	The terminals shall be uniformly tinned, and its area $\geq 95\%$	Dipping the NTC terminals to a depth of 15mm in a soldering bath of $235 \pm 5^\circ\text{C}$ and to the place of 6mm far from NTC body for 2-3s (See IEC68-2-20 /GB2423.28 Ta)			
1-2. Resistance To Soldering Heat	No visible mechanical damage. $\Delta R/R_N \leq 20\%$ ($\Delta R = R_N - R_{N'} $)	Dipping the NTC terminals to a depth of 15mm in a soldering bath of $260 \pm 5^\circ\text{C}$ and to the place for 6mm below from NTC body for $10 \pm 1\text{s}$. After recovering 4-5h under $25 \pm 2^\circ\text{C}$. The rated zero power resistance value $R_{N'}$ shall be measured. (See IEC68-2-20 /GB2423.28 Tb)			
1-3. Strength of lead terminal	No breakout $\Delta R/R_N \leq 20\%$ ($\Delta R = R_N - R_{N'} $)	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 $25 \pm 2^\circ\text{C}$, the rated zero power resistance value $R_{N'}$ shall be measured. (See IEC68-2-21/GB2423.29 Ua / Ub)			

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2.ELECTRICAL CHARACTERISTICS

2-1.Test Conditions & Method

Items	Spec.	Test Conditions & Methods
2-1-1.Rated Zero-Power Resistance $R_N (\Omega)$	$10.0 \pm 20\%$	Ambient temp. Range: $25^\circ\text{C} \pm 2^\circ\text{C} (T_A)$. Testing voltage: 1.5VDC After placing for 1~2 hours under T_A , the resistance value shall be measured.
2-1-2.Thermal Dissipation Constant (mW/°C)	≥ 11	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
2-1-3.Thermal Time Constant τ (s)	≤ 35	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
2-1-4.Material Constant B (°K)	$2800 \pm 5\%$ $B = T_1 T_2 / (T_2 - T_1) \times L_n$ (R_1/R_2)	R_1, R_2 is zero-power resistance at T_1, T_2 $T_1 = 298.15^\circ\text{K} (25^\circ\text{C}) \quad T_2 = 358.15^\circ\text{K} (85^\circ\text{C})$
2-1-5.Max.Steady State Current (A)	2.0A No visible mechanical damage. $\Delta R_N / R_N$ $\leq 20\%$ ($\Delta R = R_N - R_N' $)	Ambient temp. Range : $25^\circ\text{C} \pm 2^\circ\text{C}$. Testing Current : 2.0A

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3. Reliability Test (Periodic Testing Project)

Items	Spec.	Test Conditions & Methods
*3-1. Temp. Cycling Testing	<p>No visible mechanical damage.</p> $\Delta R_N / R_N \leq 20\%$ $(\Delta R = R_N - R_N')$	<p>Ta: $-40 \pm 5^\circ\text{C} / 30\text{min} \rightarrow 25 \pm 2^\circ\text{C} / 5\text{min} \rightarrow$ Tb: $150 \pm 5^\circ\text{C} / 30\text{min} \rightarrow 25 \pm 2^\circ\text{C} / 5\text{min}$ Cycles: 5times</p> <p>After recovering 4~5 h under $25 \pm 2^\circ\text{C}$, the rated zero power resistance value R_N' shall be measured.</p>
*3-2. Electrical Cycling Testing	<p>No visible mechanical damage.</p> $\Delta R_N / R_N \leq 20\%$ $(\Delta R = R_N - R_N')$	<p>Ambient temp. Range: $25^\circ\text{C} \pm 2^\circ\text{C}$. Cycles: 1,000times On/Off: 1m/5m Test Current 2.0A</p> <p>After recovering 4~5h under $25 \pm 2^\circ\text{C}$, the rated zero power resistance value R_N' shall be measured.</p>
*3-3. Load Life (Endurance) Testing	<p>No visible mechanical damage.</p> $\Delta R_N / R_N \leq 20\%$ $(\Delta R = R_N - R_N')$	<p>Ambient temp. Range: $25^\circ\text{C} \pm 2^\circ\text{C}$; 2.0A/1,000 \pm 24h</p> <p>After recovering 4~5 h under $25 \pm 2^\circ\text{C}$, the rated zero power resistance value R_N' shall be measured.</p>
*4-3. Humidity Testing	<p>No visible mechanical damage.</p> $\Delta R_N / R_N \leq 20\%$ $(\Delta R = R_N - R_N')$	<p>Ambient temp. range : $40^\circ\text{C} \pm 2^\circ\text{C}$ R.H.: $93 \pm 3\%$, Energized time: 1000 ± 24 h</p> <p>After recovering 4~5 h under $25 \pm 2^\circ\text{C}$, the rated zero power resistance value R_N' shall be measured.</p>