

RoHS Compliance

# DAIN

## SPECIFICATION

Supplier:

**B. P. IMPEX PRIVATE LIMITED**

Part Name

NTC Thermistor for Limiting Inrush Current

Model

100D-11

Approvals

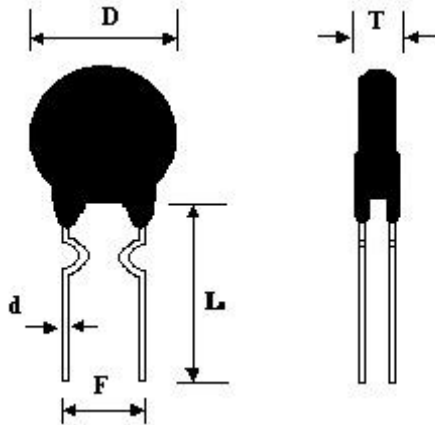
Customer Material Number

Manufacturer			Customer		
Edition	Verified	Approved	Admit	Verified	Approved

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1. APPEARANCE

1-1. Dimensions (mm)



1-2. Marking

▲  
NTC  
100D-11

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

$D_{Max}: 13$

$T_{Max}: 6.5$

$F: 7.5 \pm 1.0$

$d: 0.7 \pm 0.06$

$L: >25$

2. Parameters of Technology

Rated Zero-Power Resistance (R <sub>25</sub> ) : Ω	100	Appendix explained in detail
(B <sub>25/85</sub> ) : B(□K) Material Constant	3200	Appendix explained in detail
Max. Steady State Current (A)	1.0	Appendix explained in detail
Thermal Dissipation Constant (mW/□C)	≥13	Appendix explained in detail
Thermal Time Constant □ (s)	≤55	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.: 100D-11

Indicators Project	IL	AQL	Indicators Project	IL	AQL
Appearance	II	0.65	Rated Zero-Power Resistance R <sub>N</sub>	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.

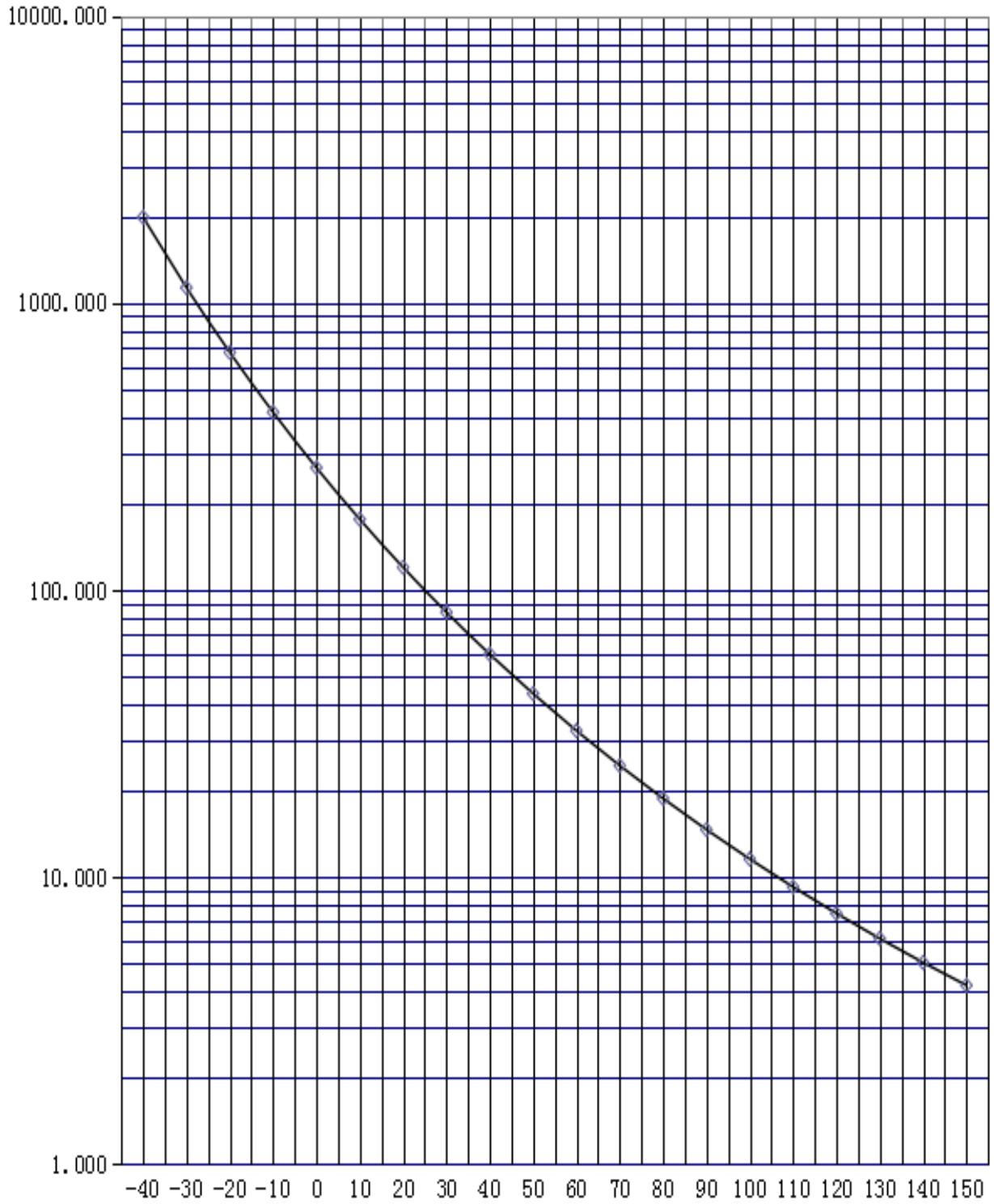
4-5. Handling after seal open: After unpacking of the minimum package, reseal it promptly or store it inside a sealed container with a drying agent.

### 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<sub>max</sub>.
- 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 $90^\circ$ 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  $R_N (\Omega)$	$100.0 \pm 20\%$	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)	$\geq 13$	The thermal dissipation constant( $\delta$ ) could be calculated by the ratio of a change in power dissipation( $\Delta P$ ) of the thermistor to a change in temperature( $\Delta T$ ) of the thermistor at a specified ambient temperature
2-1-3.Thermal Time Constant  $\tau$ (s)	$\leq 55$	The time( $\tau$ ) 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)	$3200 \pm 5\%$ $B = T_1 T_2 / (T_2 - T_1) \times L_n$ ( $R_1/R_2$ )	$R_1, R_2$ 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)	1.0A  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 : 1.0A

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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: <math>-40 \pm 5^\circ\text{C} / 30\text{min} \rightarrow 25 \pm 2^\circ\text{C} / 5\text{min} \rightarrow</math> Tb: <math>150 \pm 5^\circ\text{C} / 30\text{min} \rightarrow 25 \pm 2^\circ\text{C} / 5\text{min}</math> Cycles: 5times</p> <p>After recovering 4~5 h under <math>25 \pm 2^\circ\text{C}</math>, the rated zero power resistance value <math>R_N'</math> 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: <math>25^\circ\text{C} \pm 2^\circ\text{C}</math>. Cycles: 1,000times On/Off: 1m/5m Test Current 1.0A</p> <p>After recovering 4~5h under <math>25 \pm 2^\circ\text{C}</math>, the rated zero power resistance value <math>R_N'</math> 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: <math>25^\circ\text{C} \pm 2^\circ\text{C}</math>; 1.0A/1,000 <math>\pm</math> 24h</p> <p>After recovering 4~5 h under <math>25 \pm 2^\circ\text{C}</math>, the rated zero power resistance value <math>R_N'</math> 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 : <math>40^\circ\text{C} \pm 2^\circ\text{C}</math> R.H.: <math>93 \pm 3\%</math>, Energized time: <math>1000 \pm 24</math> h</p> <p>After recovering 4~5 h under <math>25 \pm 2^\circ\text{C}</math>, the rated zero power resistance value <math>R_N'</math> shall be measured.</p>