

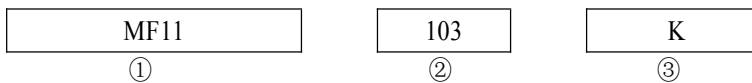
MF11 Temperature Compensation NTC Thermistor

General

Description

Temperature Compensation NTC Thermistor. The MF11 series of NTC Thermistors is designed for temperature measurement and the temperature compensation of measurement instruments and electronic circuits.

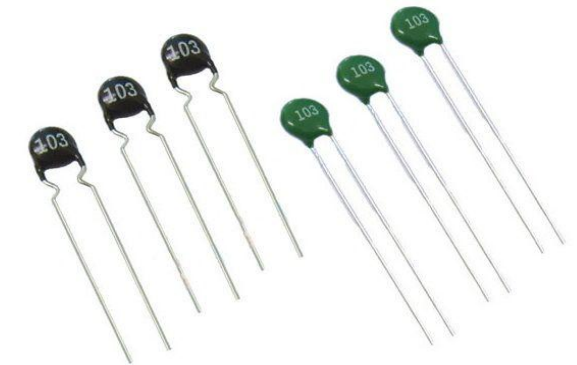
Type designation (example)



- ① Type : MF11 Temperature Compensation NTC Thermistor
- ② Rated resistance: 103 - 10KOhm
- ③ Nominal resistance tolerance : J-±5% K-±10% L-±15% M-±20%

✧ Characteristics

- Broad range of resistance
- Wide choice of B values
- Standard tolerances: ±5%, ±10%, ±15%, ±20%
- B Value tolerance: ±10%
- Available in all standard R values
- Measuring power $\leq 0.5\text{mW}$
- Dissipation Constant $\geq 4.5\text{mW}/^\circ\text{C}$
- Time Constant of ≤ 30 seconds
- Rated Power: 0.45W
- Long-term Stability and Reliability
- Good level of Tolerance and Interchangeability
- Temperature Range: -35°C to 125°C

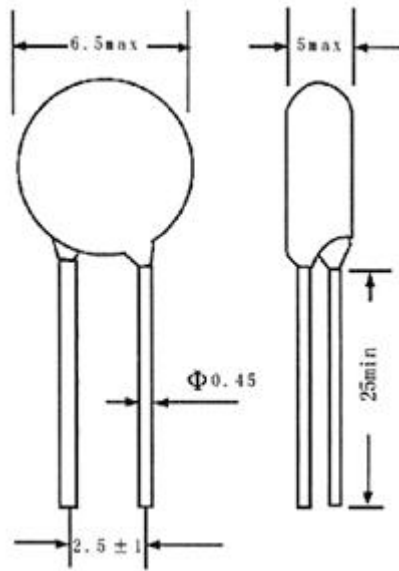


✧ Application

- Temperature Measurement
- Temperature Compensation of Electronic Circuits.

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➤ **Dimension(Unit:mm)**



✧ **Specifications**

Part No	B Value (25/50fC)		Rated zero-power resistance at 25fC	
	Rated Value (K)	Allowable Tolerance (%)	Resistance range (Ω)	Allowable Tolerance (%)
MF11	2600	+/-10	5-7	+/- 5 +/- 10 +/-15 +/- 20
	2800		8-24	
	3000		25-119	
	3200		120-359	
	3600		360-1400	
	3950		1500-5900	
	4050		6000-12000	
	4150		13000-17000	
	4250		18000-44000	
	4300		45000-79000	
	4400		80000-144000	
	4500		145000-199000	
	4600		200000-299000	
	4750		300000-500000	

➤ Remark: We can produce thermistors according to your special requirements.

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✧ Mechanical Requirements

Item	Requirements	Test Method
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 $245\pm 5^{\circ}\text{C}$ and to the place of 6mm far from NTC body for $3\pm 0.5\text{s}$ (See IEC68-2-20 /GB2423.28 Ta)
2.Resistance To Soldering Heat	No visible mechanical damage. $\Delta R/RN \leq 20\%$ ($\Delta R = RN - RN' $)	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 $3\pm 0.5\text{s}$.After recovering 4-5h under $25\pm 2^{\circ}\text{C}$. The rated zero power resistance value RN' shall be measured. (See IEC68-2-20 /GB2423.28 Tb)
3.Strength of lead terminal	No break out $\Delta R/RN \leq 20\%$ ($\Delta R = RN - RN' $)	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 RN' shall be measured. (See IEC68-2-21/GB2423.29 Ua / Ub)

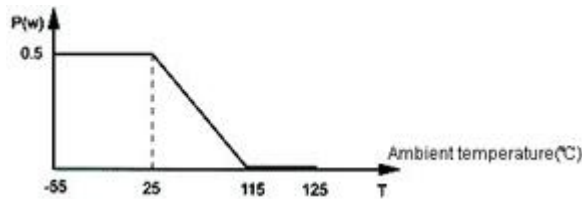
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✧ Reliability Test

Item	Requirements	Test Method
1.Temp. Cycling Testing	No visible mechanical damage. $\Delta RN / RN \leq 20\%$ ($\Delta R = RN - RN' $)	Ta: $-40 \pm 3^{\circ}\text{C} / 30\text{min} \rightarrow 25 \pm 2^{\circ}\text{C} / 5\text{min} \rightarrow$ Tb: $160 \pm 3^{\circ}\text{C} / 30\text{min} \rightarrow 25 \pm 2^{\circ}\text{C} / 5\text{min}$ Cycles: 5times After recovering 4~5 h under $25 \pm 2^{\circ}\text{C}$, the rated zero power resistance value RN' shall be measured.
2.Electrical Cycling Testing		Ambient temp. Range: $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$. Cycles: 2,000times On / Off: 5 s / 55 s Test Current: 7A After recovering 4~5h under $25 \pm 2^{\circ}\text{C}$, the rated zero power resistance value RN' shall be measured.
3.LoadLife (Endurance) Testing		Ambient temp. Range: $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$; 7A/ 1,000 \pm 24h After recovering 4~5 h under $25 \pm 2^{\circ}\text{C}$, the rated zero power resistance value RN' shall be measured.
4. Humidity Testing	No visible mechanical damage. $\Delta RN / RN \leq 20\%$ ($\Delta R = RN - RN' $)	Ambient temp. range : $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ R.H.: $93 \pm 3\%$, Energized time: 1000 ± 24 h After recovering 4~5 h under $25 \pm 2^{\circ}\text{C}$, the rated zero power resistance value RN' shall be measured.

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✧ Power-Consumption Curve



✧ STORAGE CONDITIONS:

- Temperature: $-10^{\circ}\text{C} \sim +40^{\circ}\text{C}$
- Humidity: $\leq 70\% \text{RH}$
- Term: ≤ 6 months (First-in/ First-out)
- 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.

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

✧ 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.

- Exceeding I_{max} .
- Exceeding rated temperature range.
- Inferior thermal dissipation (Due to badly inferior thermal dissipation, some part of the components body will become overheated and then be damaged.)