

# MF73T-1 High Power NTC Thermistor

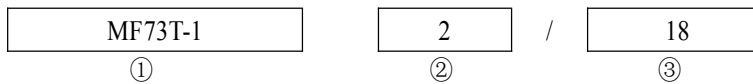
## 1. General

### ✧ Description

The MF73T-1 series High Power NTC Thermistor provide inrush current suppression for sensitive electronics. Connecting a MF73T-1 in series with the power source will limit the current surges typically created at turn on.



### ✧ Type designation (example)



- ① Type : MF72 Power NTC Thermistor
- ② Rated zero-power resistance is 2 Ohm
- ③ Steady state current : 18A

### ✧ Characteristics

- Small size, high power, reliable surge current protection.
- High material constant (B value),
- Low residual resistance
- High steady state current, long lasting, high reliability
- Convenient for PCB installation, wide operating range

### ✧ Application

- Can be installed into the power circuits of:
- High power switching power supplies, Power conversion, UPS power.
- High power battery charger, electric vehicle battery charger.
- High power LED light, high power electronic energy saving lamps and other lamps.

## MF73T-1 High Power NTC Thermistor

➤ Dimension(Unit:mm)

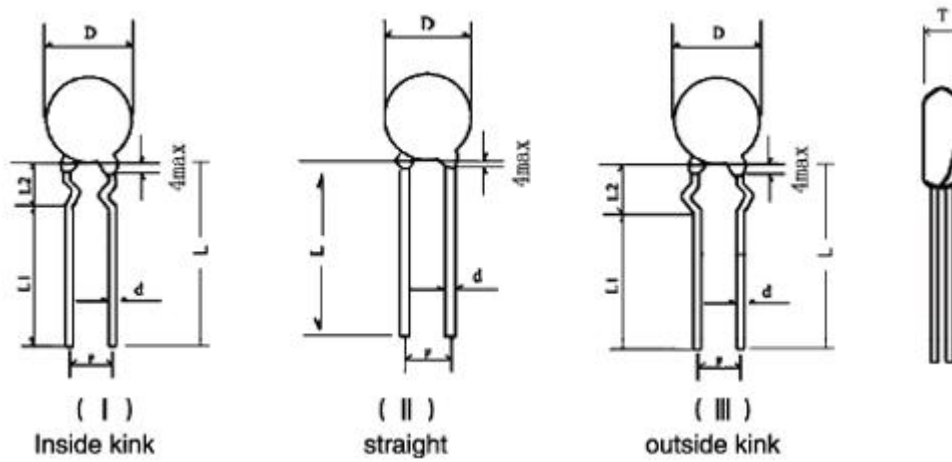


Illustration: In general, the long bent lead wire is used, see figure II \* Standard

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	D15	D20	D25	D30		D35	
Chip Dimensions	∅ 15	∅ 20	∅ 25	∅ 30		∅ 35	
(Dmax) Overall Diameter (mm)	17.5	22.5	29	36		41	
(Tmax) Thickness (mm)	6	7	8	8.5		10	
(F ± 1.5) Pitch (mm)	7.5	10.0	10.0	10.0	* 18	18	
(d ± 0.05) Dia of Leads (mm)	0.8	1.0	1.0	1.2	* 1.6	1.8	* 2.0
(L) min Length of Leads (mm)	25	25	25	25		25	
(L1) min Length of Leads (mm)	17	17	17				
Standard Leads Figure	(I) Inside kink	(II) Straight	(II) Straight	(II) Straight		(II) Straight	
Optional Leads Figure	(II) Straight	(III) Outside kink	(III) Outside kink				
Weight (g). Approx	3.1	6.2	8.8	20.5		28.8	

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### ➤ Specifications

Working Temperature: -55~200°C

Part NO. MF73T-1	Res +20% (Ω)	Max. Steady State Current I <sub>max</sub> (A)	Approx. R of MaxCurrent R <sub>max</sub> (Ω)
<b>ø15mm Chip Diameter</b> <b>Max Rated Power P<sub>max</sub> (W): 3.5</b> <b>Dissipation Coefficient (mW/°C): ≥ 22</b> <b>Thermal Time Constant (S): ≤ 75</b>			
1.3/10	1.3	10	0.034
1.5/10	1.5	10	0.036
2.5/9.5	2.5	9.5	0.044
5/8	5	8	0.058
6/7	6	7	0.069
7/7	7	7	0.078
8/7	8	7	0.084
10/7	10	7	0.098
12/6	12	6	0.116
15/6	16	6	0.129
20/6	20	6	0.136
30/5	30	5	0.165
47/4	47	4	0.257
120/2.5	120	2.5	0.652

## MF73T-1 High Power NTC Thermistor

Part NO. MF73T-1	Res +20% ( $\Omega$ )	Max. Steady State Current I <sub>max</sub> (A)	Approx. R of MaxCurrent R <sub>max</sub> ( $\Omega$ )
<b>ø20mm Chip Diameter</b> <b>Max Rated Power P<sub>max</sub> (W): 5.0</b> <b>Dissipation Coefficient (mW/°C): <math>\geq 28</math></b> <b>Thermal Time Constant (S): <math>\leq 110</math></b>			
0.7/16	0.7	16	0.026
1/16	1	16	0.027
1.5/15	1.5	15	0.030
2/14	2	14	0.035
2.5/13	2.5	13	0.038
3/12	3	12	0.040
4/12	4	12	0.043
4.7/12	4.7	12	0.046
5/12	5	12	0.047
6/11	6	11	0.052
6.8/10	6.8	10	0.055
7/9	7	9	0.056
10/8	10	8	0.085
12/7.5	12	7.5	0.098
15/7	15	7	0.112
18/7	18	7	0.123
20/7	20	7	0.132

## MF73T-1 High Power NTC Thermistor

Part NO. MF73T-1	Res +20% ( $\Omega$ )	Max. Steady State Current I <sub>max</sub> (A)	Approx. R of MaxCurrent R <sub>max</sub> ( $\Omega$ )
<p><math>\phi</math>25mm Chip Diameter                      Max Rated Power P<sub>max</sub> (W): 7.0                      Dissipation Coefficient (mW/°C): <math>\geq 30</math>                      Thermal Time Constant (S): <math>\leq 130</math></p>			
0.5/22	0.5	22	0.017
0.7/22	0.7	22	0.017
1/20	1	20	0.021
1.5/19	1.5	19	0.024
2/18	2	18	0.026
2.5/16	2.5	16	0.029
3/15.5	3	15.5	0.032
4/15	4	15	0.039
4.7/14	4.7	14	0.044
5/14	5	14	0.047
6.8/12	6.8	12	0.061
7/11	7	11	0.064
8/10	8	10	0.079
10/10	10	10	0.084
12/9	12	9	0.102
15/8	15	8	0.117
18/8	18	8	0.132
20/8	20	8	0.132

## MF73T-1 High Power NTC Thermistor

Part NO. MF73T-1	Res +20% ( $\Omega$ )	Max. Steady State Current I <sub>max</sub> (A)	Approx. R of MaxCurrent R <sub>max</sub> ( $\Omega$ )
<b>ø30mm Chip Diameter</b> <b>Max Rated Power P<sub>max</sub> (W): 8.0</b> <b>Dissipation Coefficient (mW/°C): <math>\geq 40</math></b> <b>Thermal Time Constant (S): <math>\leq 190</math></b>			
0.5/30	0.5	30	0.013
1/30	1	30	0.014
1.5/25	1.5	25	0.016
2/23	2	23	0.019
2.5/20	2.5	20	0.023
3/19.5	3	19.5	0.026
4/19	4	19	0.031
4.7/18	4.7	18	0.035
5/17	5	17	0.037
6.8/16	6.8	16	0.043
7/15	7	15	0.044
8/14	8	14	0.049
10/13	10	13	0.056
12/12	12	12	0.067
15/11	15	11	0.078
18/10	18	10	0.092
29/9	20	9	0.113

## MF73T-1 High Power NTC Thermistor

Part NO. MF73T-1	Res +20% ( $\Omega$ )	Max. Steady State Current I <sub>max</sub> (A)	Approx. R of MaxCurrent R <sub>max</sub> ( $\Omega$ )
<b>ø35mm Chip Diameter</b> <b>Max Rated Power P<sub>max</sub> (W): 9.0</b> <b>Dissipation Coefficient (mW/°C): <math>\geq 55</math></b> <b>Thermal Time Constant (S): <math>\leq 280</math></b>			
0.5/32	0.5	32	0.01
1/32	1	32	0.011
1.5/28	1.5	28	0.013
2/25	2	25	0.017
2.5/23	2.5	23	0.020
3/22	3	22	0.023
4/21	4	21	0.026
4.7/20	4.7	20	0.029
5/19	5	19	0.030
6.8/18	6.8	18	0.035
7/17	7	17	0.037
8/16	8	16	0.041
10/15	10	15	0.045
12/14	12	14	0.051
15/13	15	13	0.060
18/11	18	11	0.072
20/10	20	10	0.089



## MF73T-1 High Power NTC Thermistor

### ✧ 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 $90^{\circ}$ 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 $RN'$ shall be measured. (See IEC68-2-21/GB2423.29 Ua / Ub)

## MF73T-1 High Power NTC Thermistor

### ✧ 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: $1000 \pm 24$ 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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### ❖ STORAGE CONDITIONS:

- Temperature:  $-10^{\circ}\text{C} \sim +40^{\circ}\text{C}$
- Humidity:  $\leq 70\% \text{RH}$
- Term:  $\leq 6$  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  $I_{\text{max}}$ .
- 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.)