



MF73T-1 High Power NTC Thermistor

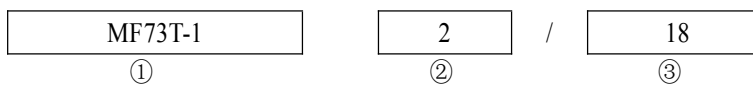
1. General

✧ 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 : MF73T-1 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.

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➤ Dimension(Unit:mm)

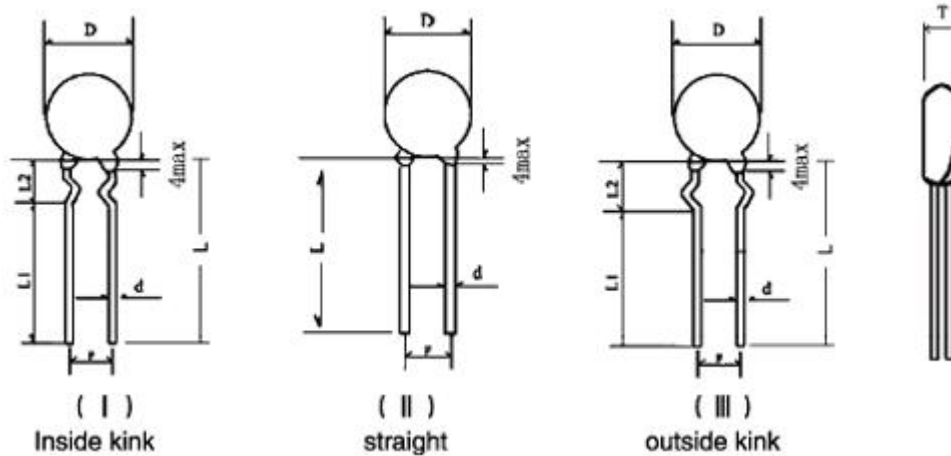


Illustration: In general, the long bent lead wire is used, see figure II * Standard

Body size	Φ3	Φ5	Φ8	Φ10	Φ13	Φ15	Φ17	Φ22	Φ29	Φ35	Φ40	Φ45
Dmax	4.5	7	11	13	15.5	17.5	22.5	29	35	40	45	
Tmax	4.5	5	5.5	6	6	6	7	8	10	12	12	
F	2.5 ±1	2.5 ±1	7.5 ±1	7.5 ±1	7.5 ±1	7.5 ±1	10.0 ±1	10.0 ±1	18± 1.5	18± 1.5	18± 1.5	
(d±0.05)	0.4 5	0.4 5	0.8	0.8	0.8	0.8	1.0	1.0	1.6	2.0	2.0/ 2.6	
L	25	25	25	25	25	25	25	25	25	25	25	25
L1	/	/	17	17	17	17	17	17	/	/	/	
Normal lead structure	Straight (II)	Straight (II)	Inside kink (I)	Inside kink (I)	Inside kink (I)	Inside kink (I)	Straight (II)	Straight (II)	Straight (II)	Straight (II)	Straight (II)	
Abnormal lead structure	/	/	Straight (II)	Straight (II)	Straight (II)	Straight (II)	Outside kink (III)	Outside kink (III)				

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MF73T-2

Body size	Φ20	Φ25	Φ30	Φ35	Φ40
Diameter	22.5	29	35	40	45
Thickness	10	12	15	18	18
Pitch	10.0	10.0	18	18	18
d±0.05) /Lead diameter	1.2	1.2	1.6	2	2.0/2.6
Lead length min	17	17	17	17	17
Height (A) max	38	40	55	58	60
Normal lead structure	Y Kink				

Note: 2.6mm lead would be applied when I_{max} is above 32A for D40

➤ Specifications

Working Temperature:

D3-D5: -40~+150C

D8-D10: -40~+170C

D13-D40: -40~+200C

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MF73T-1 High Power NTC Thermistor

本体直径/Body diameter Φ 3mm

P/N	R25 \pm 20%(Ω)	Thermal sensitive index B \pm 10%(K)	Max steady state current I _{max} (A)	Approx R of Max current R _{max} (Ω)	Max power dissipation P _{max} (W)	Thermal time constant (mW/C)	Thermal time constant (s)	Max impulse capacitance (μ F)240VAC
MF73T-1 5/2	5	2500	2	0.493	1.5	\geq 8	\leq 15	100
MF73T-1 10/1	10	2600	1	1.223				100
MF73T-1 20/0.7	20	2600	0.7	3.011				100

本体直径/Body diameter Φ 5mm

P/N	R25 \pm 20%(Ω)	Thermal sensitive index B \pm 10%(K)	Max steady state current I _{max} (A)	Approx R of Max current R _{max} (Ω)	Max power dissipation P _{max} (W)	Thermal time constant (mW/C)	Thermal time constant (s)	Max impulse capacitance (μ F)240VAC
MF73T-1 1/3.5	1	2500	3.5	0.92	1.8	\geq 9	\leq 25	110
MF73T-1 10/2	10	2600	2	0.542				110
MF73T-1 20/1	20	2600	1	1.544				110
MF73T-1 30/1	30	2600	1	1.715				68

本体直径/Body diameter Φ 8mm

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P/N	R25±20%(Ω)	Thermal sensitive index B±10%(K)	Max steady state current I _{max} (A)	Approx R of Max current R _{max} (Ω)	Max power dissipation P _{max} (W)	Thermal time constant (mW/C)	Thermal time constant (s)	Max impulse capacitance (uF)240VAC
MF73T-1 0.7/7	0.7	2500	7	0.032	2.3	≥10	≤42	220
MF73T-1 10/2	1	2600	6	0.04				220
MF73T-1 20/1	8	2600	3	0.278				220
MF73T-1 30/1	10	2600	3	0.297				220

本体直径/Body diameter Φ10mm

P/N	R25±20%(Ω)	Thermal sensitive index B±10%(K)	Max steady state current I _{max} (A)	Approx R of Max current R _{max} (Ω)	Max power dissipation P _{max} (W)	Thermal time constant (mW/C)	Thermal time constant (s)	Max impulse capacitance (uF)240VAC
MF73T-1 0.7/8	0.7	2600	8	0.041	2.5	≥12	≤50	470
MF73T-1 5/5	5	2800	5	0.1				470
MF73T-1 10/4	10	2800	4	0.175				470
MF73T-1 30/1	20	3000	3	0.27				330

本体直径/Body diameter Φ13mm

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P/N	R25±20%(Ω)	Thermal sensitive index B±10%(K)	Max steady state current I _{max} (A)	Approx R of Max current R _{max} (Ω)	Max power dissipation P _{max} (W)	Thermal time constant (mW/C)	Thermal time constant (s)	Max impulse capacitance (uF)240VAC
MF73T-1 1/9	1	2600	9	0.032	3.2	≥13	≤65	680
MF73T-1 3/8	3	2600	8	0.052				680
MF73T-1 10/6	10	3000	6	0.126				560
MF73T-1 20/4	20	3200	4	0.192				560

本体直径/Body diameter Φ15mm

P/N	R25±20%(Ω)	Thermal sensitive index B±10%(K)	Max steady state current I _{max} (A)	Approx R of Max current R _{max} (Ω)	Max power dissipation P _{max} (W)	Thermal time constant (mW/C)	Thermal time constant (s)	Max impulse capacitance (uF)240VAC
MF73T-1 0.7/11	0.7	2600	11	0.024	3.6	≥22	≤75	1000
MF73T-1 1.5/10	1.5	2600	10	0.036				820
MF73T-1 3/9	3	2800	9	0.046				820
MF73T-1 10/7	10	3200	7	0.098				680

本体直径/Body

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diameter $\Phi 20\text{mm}$

P/N	R25 \pm 20%(Ω)	Thermal sensitive index B \pm 10%(K)	Max steady state current I _{max} (A)	Approx R of Max current R _{max} (Ω)	Max power dissipation P _{max} (W)	Thermal time constant (mW/C)	Thermal time constant (s)	Max impulse capacitance (uF)240VAC
MF73T-1 0.7/16	0.7	2600	16	0.026	5	≥ 28	≤ 110	1500
MF73T-2 0.7/16	0.7	2600	16	0.026				3000
MF73T-1 2/14	2	2600	14	0.035				1500
MF73T-2 2/14	2	2600	14	0.035				3000
MF73T-1 10/8	10	3000	8	0.085				1000
MF73T-2 10/8	10	3000	8	0.085				1500

本体直径/Body diameter $\Phi 25\text{mm}$

P/N	R25 \pm 20%(Ω)	Thermal sensitive index B \pm 10%(K)	Max steady state current I _{max} (A)	Approx R of Max current R _{max} (Ω)	Max power dissipation P _{max} (W)	Thermal time constant (mW/C)	Thermal time constant (s)	Max impulse capacitance (uF)240VAC
MF73T-1 0.5/22	0.5	2600	22	0.017	7	≥ 30	≤ 130	2200
MF73T-2 0.5/22	0.5	2600	22	0.017				3500
MF73T-1 2/18	2	2600	18	0.026				2200

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MF73T-2 2/18	2	2600	18	0.026				3500
MF73T-1 10/10	10	3200	10	0.084				1200

本体直径/Body diameter Φ 30mm

P/N	R25 \pm 20%(Ω)	Thermal sensitive index B \pm 10%(K)	Max steady state current I _{max} (A)	Approx R of Max current R _{max} (Ω)	Max power dissipation P _{max} (W)	Thermal time constant (mW/C)	Thermal time constant (s)	Max impulse capacitance (uF)240VAC
MF73T-1 0.5/30	0.5	2600	30	0.013	8	\geq 40	\leq 190	3000
MF73T-2 0.5/30	0.5	2600	30	0.013				4700
MF73T-1 4/19	4	2800	19	0.031				2200
MF73T-2 4/19	4	2800	19	0.031				4700
MF73T-1 10/13	10	3200	13	0.056				1500
MF73T-2 10/13	10	3200	13	0.056				3300
MF73T-1 20/9	20	3200	9	0.113				1500

本体直径/Body diameter Φ 35mm

P/N	R25 \pm 20%(Ω)	Thermal sensitive index B \pm 10%(K)	Max steady state current	Approx R of Max current R _{max}	Max power dissipation P _{max} (W)	Thermal time constant (m	Thermal time constant (s)	Max impulse capacitance (uF)240VAC
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			$I_{max}(A)$	$R_{25}(\Omega)$		W/C)		
MF73T-1 1/32	1	2600	32	0.013	9	≥45	≤280	3300
MF73T-2 1/32	1	2600	32	0.013				4700
MF73T-1 4/21	4	2800	21	0.031				3000
MF73T-2 4/21	4	2800	21	0.031				4700
MF73T-1 5/19	5	3000	19	0.056				3000
MF73T-1 10/15	10	3200	15	0.056				2200
MF73T-2 10/15	10	3200	15	0.113				3300

本体直径/Body diameter $\Phi 40mm$

P/N	$R_{25\pm 20\%}(\Omega)$	Thermal sensitive index $B\pm 10\%(K)$	Max steady state current $I_{max}(A)$	Approx R of Max current $R_{max}(\Omega)$	Max power dissipation $P_{max}(W)$	Thermal time constant (m W/C)	Thermal time constant (s)	Max impulse capacitance (uF)240VAC
MF73T-1 0.2/40	0.2	2600	40	0.005	12	≥55	≤450	4700
MF73T-2 0.2/40	0.2	2600	40	0.005				8000
MF73T-1 1/40	1	2600	40	0.01				4700
MF73T-2 1/40	1	2600	40	0.01				6800
MF73T-1 5/25	5	3000	25	0.028				3300
MF73T-2 5/25	5	3000	25	0.02				4700

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				8			
MF73T-1 10/19	10	3200	19	0.03 8			3000
MF73T-2 10/19	10	3200	19	0.03 8			4700
MF73T-1 20/13	20	3200	13	0.07 5			3000

✧ 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 $^{\circ}$ C and to the place of 6mm far from NTC body for 3 \pm 0.5s (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 $^{\circ}$ C and to the place for 6mm below from NTC body for 3 \pm 0.5s.After recovering 4-5h under 25 \pm 2 $^{\circ}$ 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 $^{\circ}$ C, the rated zero power resistance value RN' shall be measured. (See IEC68-2-21/GB2423.29 Ua / Ub)

✧ Reliability Test

Item	Requirements	Test Method
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1.Temp. Testing	Cycling	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 Testing	Cycling		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.

❖ 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

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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.)

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