## 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)

| MF73T-1 | | 2 | / | 18 |
|---|---|---|---|---|
| ① | | ② | | ③ |

①Type : 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.

➢ **Dimension(Unit:mm)**

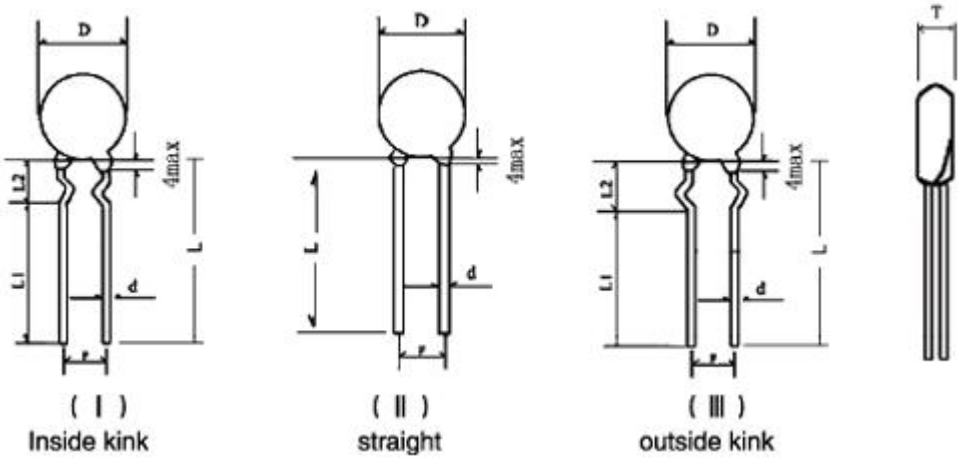


Illustration:In general, the long bent lead wire is used, see figure II * Standard

# MF73T-1 High Power NTC Thermistor

| | D15 | D20 | D25 | D30 | | D35 | |
|---|---|---|---|---|---|---|---|
| Chip Dimensions | ø 15 | ø 20 | ø 25 | ø 30 | | ø 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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*** Customization is available according to customer's requirements**

## ➢ Specifications

**Working Temperature: -55~200℃**

| Part NO. MF73T-1 | Res +20% (Ω) | Max. Steady State Current Imax (A) | Approx. R of MaxCurrent Rmax (Ω) |
|---|---|---|---|
| ø15mm Chip Diameter<br>Max Rated Power Pmax (W): 3.5<br>Dissipation Coefficient (mW/℃): ≥ 22<br>Thermal Time Constant (S): ≤ 75 | | | |
| 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 |

| Part NO.<br>MF73T-1 | Res +20%<br>(Ω) | Max. Steady<br>State Current<br>Imax (A) | Approx. R<br>of MaxCurrent<br>Rmax (Ω) |
|---|---|---|---|
| ø20mm Chip Diameter<br>Max Rated Power Pmax (W): 5.0<br>Dissipation Coefficient (mW/℃): ≥ 28<br>Thermal Time Constant (S): ≤ 110 | | | |
| 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 |

| Part NO.<br>MF73T-1 | Res +20%<br>(Ω) | Max. Steady<br>State Current<br>Imax (A) | Approx. R<br>of MaxCurrent<br>Rmax (Ω) |
|---|---|---|---|
| ø25mm Chip Diameter<br>Max Rated Power Pmax (W): 7.0<br>Dissipation Coefficient (mW/℃): ≥ 30<br>Thermal Time Constant (S): ≤ 130 | | | |
| 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 |

| Part NO.<br>MF73T-1 | Res +20%<br>(Ω) | Max. Steady<br>State Current<br>Imax (A) | Approx. R<br>of MaxCurrent<br>Rmax (Ω) |
|---|---|---|---|
| ø30mm Chip Diameter<br>Max Rated Power Pmax (W): 8.0<br>Dissipation Coefficient (mW/℃): ≥ 40<br>Thermal Time Constant (S): ≤ 190 | | | |
| 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 |

| Part NO. MF73T-1 | Res +20% (Ω) | Max. Steady State Current Imax (A) | Approx. R of MaxCurrent Rmax (Ω) |
|---|---|---|---|
| ø35mm Chip Diameter<br>Max Rated Power Pmax (W): 9.0<br>Dissipation Coefficient (mW/℃): ≥ 55<br>Thermal Time Constant (S): ≤ 280 | | | |
| 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 |

## ✧ Mechanical Requirements

| Item | Requirements | Test Method |
|---|---|---|
| 1.Solder-ability | The terminals shall be uniformly tinned, and its area≥95% | Dipping theNTC terminals to a depth of 15mm in a soldering bath of 245±5℃ and to the place of 6mm far from NTC body for 3±0.5s (See IEC68-2-20 /GB2423.28 Ta ) |
| 2.Resistance To Soldering Heat | No visible mechanical damage.<br>ΔR/RN ≤20%<br>(ΔR = ｜RN-RN'｜) | Dipping the NTC terminals to a depth of 15mm in a soldering bath of 260±5℃ and to the place for 6mm below from NTC body for 3±0.5s.After recovering4-5h under 25±2℃. The rated zero power resistance value RN' shall be measured.<br>(See IEC68-2-20 /GB2423.28 Tb) |
| 3.Strength of lead terminal | No break out<br>ΔR/RN ≤20%<br>(ΔR = ｜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±2℃, the rated zero power resistance value RN' shall be measured.<br>(See IEC68-2-21/GB2423.29 Ua / Ub) |

## ✧ Reliability Test

| Item | Requirements | Test Method |
|---|---|---|
| 1.Temp. Cycling Testing | No visible mechanical damage.<br>ΔRN / RN ≤20%<br>(ΔR = \| RN-RN' \| ) | Ta:-40±3℃/ 30min→25±2℃/ 5min→<br>Tb:160±3℃/ 30min→25±2℃/ 5min<br>Cycles: 5times<br>After recovering 4~5 h under 25±2℃, the rated zero power resistance value RN' shall be measured. |
| 2.Electrical Cycling Testing | | Ambient temp. Range:25℃±2℃.<br>Cycles: 2,000times On / Off: 5 s / 55 s<br>Test Current: 7A<br>After recovering 4~5h under 25±2℃, the rated zero power resistance value RN' shall be measured. |
| 3.LoadLife<br>( Endurance ) Testing | | Ambient temp. Range:25℃±2℃; 7A/ 1,000±24h<br>After recovering 4~5 h under 25±2℃, the rated zero power resistance value RN' shall be measured. |
| 4. Humidity Testing | No visible mechanical damage.<br>ΔRN / RN ≤20%<br>(ΔR = \| RN-RN' \| ) | Ambient temp. range : 40℃±2℃<br>R.H.:93±3% , Energized time:1000±24 h<br>After recovering 4~5 h under 25±2℃, the rated zero power resistance value RN' shall be measured. |

## ✧ STORAGE CONDITIONS:

➢ Temperature: -10℃～+40℃

- Humidity: ≤70%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 Imax.
- 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.)