MF72 Power NTC Thermistor

1. General

✧ Description

The MF72 series Power NTC Thermistors provide inrush current suppression for sensitive electronics. Connecting a MF72 in series with the power source will limit the current surges typically created at turn on. Once the circuit is energized the resistance of the MF72 will decrease rapidly to a very low value, power consumption can be ignored and there will be no effect on normal operating current. Using the MF72 Power NTC Thermistor is a most cost-effective way to curb surge current and protect sensitive electronics from damage.

✧ Type designation (example)

MF72	2.5	D	20
①	②		③

①Type : MF72 Power NTC Thermistor
② Resistance is 2.5 Ohm
③ Nominal diameter : 20mm

✧ Characteristics

- Small Size and fast response
- High Power handling capability
- Fast response to surge current
- High material constant (B value)
- Low residual resistance
- Wide operating temperature range -55 to +200C
- R25 allowable tolerance is ±20%
- Long-term Stability and Reliability

✧ Application

Can be installed into the power circuits of:

- Power supplies and inverters
- Uninterruptible Power Supplies
- Energy saving lamps
- Electronic Ballasts
- Filament Protection of various types of lamps
- Some types of heaters

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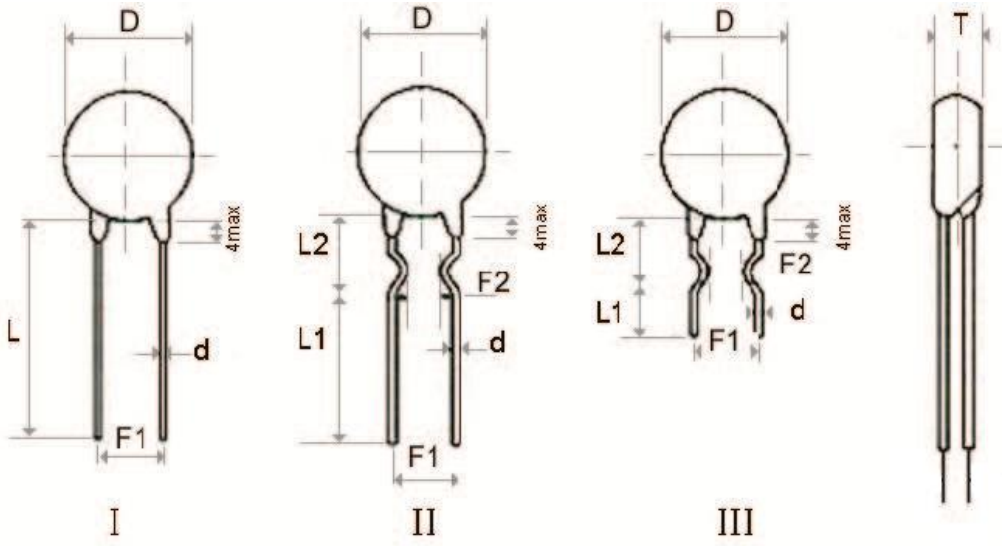
➢ **Dimension(Unit:mm)**



Part No./Dim (mm)/Sym	Dmax	Tmax	d +/- 0.05 Fig. II/I	F_1 +/-1 Fig. II/I	F_2 +/-1.5 Fig. II/III	Straight Lead Wire	Curved Lead Wire	
						L1min. Fig. II/III	L_1min	L_2+/-2
MF72- D5	7	5	0.6/0.45	5/2.5	3	25 *	17/5	5
MF72- D7	9	5	0.6	5	3	25	17/5	5
MF72- D9	11	5.5	0.8/0.6	7.5/5	5/3	25	17/5	8
MF72- D11	13	5.5	0.8	7.5/5	5/3	25	17/5	8
MF72- D13	15.5	6	0.8	7.5	5	25	17/5	5
MF72- D15	17.5	6	0.8	10/7.5	5	25	17/5	5
MF72- D20	22.5	7	1.0	10/7.5	/	25 *	/	/
MF72- D25	27.5	8	1.0	10	/	25 *	/	/
Remark	L1min., 17/5 17 indicates the long bent lead wire, 5 indicates the short bent lead wire (Fig. III) Illustration: In general, the long bent lead wire is used, see figure II Add suffix "L" + Fig. # to specify optional leads. * Straight Leads Are Standard							

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➢ Specifications

Part NO.	R_{25} (Ω)	Max. Steady State Current (A)	Approx.R of Max.Cur (Ω)	Dissi,Coef. (mW/℃)	Thermal time Constant (S)	Max. Load Capacitance in uF		Operating Temp. (℃)
						120 VAC	240 VAC	
MF72-5D5	5	1	0.353	6	20	188	47	-55 to +200
MF72-10D5	10	0.7	0.771	6	20	188	47	
MF72-60D5	60	0.3	1.878	6	18	188	47	
MF72-200D5	200	0.1	18.70	6	18	88	22	
MF72-5D7	5	2	0.283	10	30	224	56	
MF72-8D7	8	1	0.539	9	28	224	56	
MF72-10D7	10	1	0.616	9	27	224	56	
MF72-12D7	12	1	0.816	9	27	224	56	

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MF72-16D7	16	0.7	1.003	9	27	224	56
MF72-22D7	22	0.6	1.108	9	27	224	56
MF72-33D7	33	0.5	1.485	10	28	188	47
MF72-200D7	200	0.2	11.65	11	28	188	47
MF72-3D9	3	4	0.120	11	35	272	68
MF72-4D9	4	3	0.190	11	35	272	68
MF72-5D9	5	3	0.210	11	34	272	68
MF72-6D9	6	2	0.315	11	34	272	68
MF72-8D9	8	2	0.400	11	32	400	100
MF72-10D9	10	2	0.458	11	32	400	100
MF72-12D9	12	1	0.652	11	32	400	100
MF72-16D9	16	1	0.802	11	31	400	100
MF72-20D9	20	1	0.864	11	30	600	150

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MF72-22D9	22	1	0.950	11	30	600	150
MF72-30D9	30	1	1.022	11	30	600	150
MF72-33D9	33	1	1.124	11	30	600	150
MF72-50D9	50	1	1.252	11	30	600	150
MF72-60D9	60	0.8	1.502	11	30	600	150
MF72-80D9	80	0.8	2.010	11	30	272	68
MF72-120D9	120	0.8	3.015	11	30	272	68
MF72-200D9	200	0.5	5.007	11	32	188	47
MF72-400D9	400	0.2	30.30	11	32	188	47
MF72-2.5D11	2.5	5	0.095	13	43	600	150
MF72-3D11	3	5	0.100	13	43	600	150
MF72-4D11	4	4	0.150	13	44	600	150
MF72-5D11	5	4	0.156	13	45	600	150

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MF72-6D11	6	3	0.240	13	45	800	220	
MF72-8D11	8	3	0.255	14	47	800	220	
MF72-10D11	10	3	0.275	14	47	800	220	
MF72-12D11	12	2	0.462	14	48	800	220	
MF72-16D11	16	2	0.470	14	50	800	220	
MF72-20D11	20	2	0.512	15	52	800	220	
MF72-22D11	22	2	0.563	15	52	800	220	
MF72-30D11	30	1.5	0.667	15	52	800	220	
MF72-33D11	33	1.5	0.734	15	52	800	220	
MF72-50D11	50	1.5	1.021	15	52	800	220	
MF72-60D11	60	1.5	1.215	15	52	800	220	
MF72-80D11	80	1.2	1.656	15	52	600	150	
MF72-1.3D13	1.3	7	0.062	13	60	880	220	

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MF72-1.5D13	1.5	7	0.073	13	60	880	220	
MF72-2.5D13	2.5	6	0.088	13	60	880	220	
MF72-3D13	3	6	0.092	14	60	880	220	
MF72-4D13	4	5	0.120	15	67	880	220	
MF72-5D13	5	5	0.125	15	68	880	220	
MF72-6D13	6	4	0.170	15	65	880	220	
MF72-7D13	7	4	0.188	15	65	1320	330	
MF72-8D13	8	4	0.194	15	60	1320	330	
MF72-10D13	10	4	0.206	15	65	1320	330	
MF72-12D13	12	3	0.316	16	65	1320	330	
MF72-15D13	15	3	0.335	16	60	1320	330	
MF72-16D13	16	3	0.338	16	60	1320	330	
MF72-20D13	20	3	0.372	16	65	1320	330	

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MF72-30D13	30	2.5	0.517	16	65	1320	330
MF72-47D13	47	2	0.810	17	65	880	220
MF72-120D13	120	1.2	2.124	16	65	880	220
MF72-1.3D15	1.3	8	0.048	18	68	1320	330
MF72-1.5D15	1.5	8	0.052	19	69	1320	330
MF72-3D15	3	7	0.075	18	76	1320	330
MF72-5D15	5	6	0.112	20	76	1880	470
MF72-6D15	6	5	0.155	20	80	1880	470
MF72-7D15	7	5	0.173	20	80	1880	470
MF72-8D15	8	5	0.178	20	80	1880	470
MF72-10D15	10	5	0.180	20	75	1880	470
MF72-12D15	12	4	0.250	20	75	1880	470
MF72-15D15	15	4	0.268	21	85	1880	470

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MF72-16D15	16	4	0.276	21	70	1880	470
MF72-20D15	20	4	0.288	17	86	1880	470
MF72-30D15	30	3.5	0.438	18	75	1320	330
MF72-47D15	47	3	0.680	21	86	1320	330
MF72-120D15	120	1.8	1.652	22	87	1320	330
MF72-0.7D20	0.7	11	0.018	25	89	1880	470
MF72-1.3D20	1.3	9	0.037	24	88	1880	470
MF72-3D20	3	8	0.055	24	88	1880	470
MF72-5D20	5	7	0.087	23	87	2240	560
MF72-6D20	6	6	0.113	25	103	2240	560
MF72-8D20	8	6	0.142	25	105	2240	560
MF72-10D20	10	6	0.162	24	102	2240	560
MF72-12D20	12	5	0.195	24	100	2720	680

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MF72-16D20	**16**	**5**	**0.212**	**25**	**100**	**2720**	**680**	
MF72-0.7D25	**0.7**	**12**	**0.014**	**30**	**120**	**2240**	**560**	
MF72-1.5D25	**1.5**	**10**	**0.027**	**30**	**121**	**2240**	**560**	
MF72-3D25	**3**	**9**	**0.044**	**32**	**124**	**2240**	**560**	
MF72-5D25	**5**	**8**	**0.070**	**32**	**125**	**2720**	**680**	
MF72-8D25	**8**	**7**	**0.114**	**33**	**125**	**2720**	**680**	
MF72-10D25	**10**	**7**	**0.130**	**32**	**125**	**2720**	**680**	
MF72-12D25	**12**	**6**	**0.156**	**32**	**126**	**3280**	**820**	
MF72-16D25	**16**	**6**	**0.160**	**35**	**126**	**3280**	**820**	

Note: Unless otherwise specified, the allowable tolerance of R25 is +/- 20%

Specifications may change without notice.

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✧ 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. ΔR/RN ≤20% (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. (See IEC68-2-20 /GB2423.28 Tb)
3.Strength of lead terminal	No break out ΔR/RN ≤20% (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. (See IEC68-2-21/GB2423.29 Ua / Ub)

✧ Reliability Test

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

✧ Package

➢ Bulk Packaging:

Series	Quantity/poly bag
MF72- D5	1000
MF72- D7	1000
MF72- D9	1000
MF72- D11	500
MF72- D13	500
MF72- D15	500
MF72- D20	250
MF72- D25	250

✧ 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.)