

**POWER  
THERMISTOR  
SERIES**

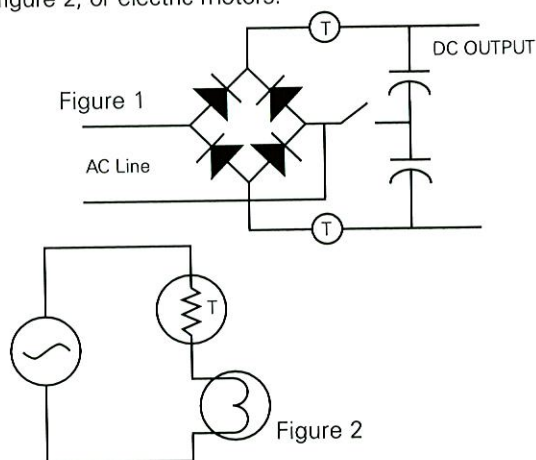
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## INTRODUCTION

The Power Thermistor is a device for suppressing current surges to an electrical circuit. In-rush current in switch mode power supplies can cause fuses to be blown, breakers to trip, or switch contacts to become welded. This can be prevented by using Power Thermistor in the circuit, as shown in Figure 1. When the circuit is energized, the filter capacitors behave as a short circuit until joule heating causes the resistance to drop by a factor of 10 to 100, becoming insignificant. This behavior, the Power Thermistors exhibits, can also be utilized to protect other devices that exhibit low initial resistance from inrush current, such as filaments, as shown in figure 2, or electric motors.



## Applications

- Inrush current limiting in peripheral communication equipment, monitors, PC's, SMPS.
- Soft-start motors, e.g. in vacuum cleaners
- Circuit Applications requiring high continuous currents
- Useable in series connection up to 250 Vrms

## Features

- High reliability and minimized age drift, low-cost and wide applications
- Black silicone coated thermistor disk
- Straight or inside kinked leads with tinned, nickel plated copper wire.
- Useable in series connections up to max. 290Vrms (Steady state 270Vrms)
- Available in ammo pack
- Resistance tolerance <20% available upon request
- U.L. Approval (E156388)
- CSA Approval (LR87961)

## Standard Marking

Minimum marking information shall consist of an abbreviated style designation and the manufacturer's initials "MDC":

For example:  
MDC  
259

Where:  
259 - Resistance code

## Thermistor Style Designation

1. **Maida Development Company**
2. **Material Identifier**, NTC Thermistor
3. **Resistance Code**, two significant figures and a one digit multiplier (see Resistance Code Table) e.g. 401 is 400 Ohms
4. **Tolerance Code** (see Tolerance Code Table)
5. **Nominal Disk Diameter** (mm)
6. **Lead Configuration Code** (refer to lead table)
7. **Packaging Code** - Left blank Bulk, T for Ammo Pack

Resistance Code Table

0	1	2	3	4	5	6	7	8	9
$10^0$	$10^1$	$10^2$	$10^3$	$10^4$	$10^5$	$10^6$	$10^7$	$10^{-2}$	$10^{-1}$

Tolerance Code Table

F	G	H	J	K	L	M	N	Q
$\pm 1\%$	$\pm 2\%$	$\pm 3\%$	$\pm 5\%$	$\pm 10\%$	$\pm 15\%$	$\pm 20\%$	$\pm 25\%$	$\pm 30\%$

## How to Order the Power Thermistor Series

The following specification table provides a way to match the Maida style number to a thermistor that provides the necessary specifications for a specific application. Once the necessary specifications for a specific application. Once the general style number is obtained, it will be necessary to determine the required lead configuration. Refer to the lead configuration table and add the required code to the Maida style number when ordering. Some custom lead configurations are available. Contact our engineering department for additional information.

The Power Thermistors are available in bulk and ammo pack packaging only. Contact our engineering department for additional information.

### Electrical Characteristics

Type No.	Nominal Resistance at 25°C (ohms)	Max. Steady State Current (Amps)	Thermal Dissipation Constant (mW/°C)	Thermal Time Constant (Sec.)	Nominal B Constant 25/85°C ±3%
MN509M-7	5.0	3.0	9	35	3000
MN809M-7	8.0	2.5	9	35	2950
MN100M-7	10.0	2.3	9	32	3000
MN120M-7	12.0	2.3	10	30	3000
MN160M-7	16.0	2.0	12	30	3050
MN220M-7	22.0	1.5	10	32	3000
MN300M-7	30.0	1.5	10	32	3100
MN500M-7	50.0	1.2	8	28	3100
MN309M-9	3.0	4.0	11	42	2950
MN509M-9	5.0	3.8	11	42	2050
MN809M-9	8.0	3.5	12	43	3000
MN100M-9	10.0	3.0	12	50	2950
MN120M-9	12.0	3.0	12	40	3000
MN160M-9	16.0	2.5	11	44	3100
MN220M-9	22.0	2.0	10	46	3200
MN500M-9	50.0	1.4	10	44	3200
MN309M-11	3.0	5.0	12	45	2900
MN509M-11	5.0	4.0	13	45	2950
MN809M-11	8.0	3.5	14	45	3000
MN100M-11	10.0	3.0	14	45	3000
MN120M-11	12.0	3.0	14	48	3100
MN160M-11	16.0	2.8	14	50	3150
MN250M 11	25.0	2.5	13	53	3200
MN309M-13	3.0	5.3	14	45	3000
MN509M-13	5.0	5.0	15	70	3000
MN809M-13	8.0	4.0	16	65	3050
MN100M-13	10.0	3.8	17	60	2950
MN160M-13	16.0	3.0	19	55	3200
MN180M-13	18.0	2.8	18	60	3100
MN500M-13	50.0	2.0	15	75	3400
MN259M-15	2.5	7.0	21	63	2900
MN309M-15	3.0	6.7	21	70	2950
MN509M-15	5.0	6.5	20	75	3000
MN809M-15	8.0	5.5	20	78	3000
MN100M-15	10.0	5.0	19	80	3100
MN160M-15	16.0	4.0	17	87	3150
MN200M-15	20.0	3.0	15	90	3200
MN300M-15	30.0	2.5	16	95	3300
MN508M-22	0.5	16.0	24	107	2940
MN109M-22	1.0	16.0	24	107	2950
MN159M-22	1.5	14.0	25	106	2950
MN259M-22	2.5	8.5	23	105	2950
MN309M-22	3.0	8.0	24	100	3050
MN509M-22	5.0	6.7	25	85	3100
MN709M-22	7.0	6.0	27	87	3130
MN100M-22	10.0	5.5	29	90	3150
MN120M-22	12.0	5.3	30	92	3200

\*Resistance tolerance is 20% for standard device.

\*B constant tolerance is ±10% for standard device. The B constant is calculated from the no load resistance at 25°C to 85°C

The maximum permissible current is the value of the current at which the temperature is 180°C