NTC POWER THERMISTOR SERIES :

NTC THERMISTOR-INRUSH CURRENT LIMITING DEVICES

Unictron NTC Thermistor(JNR) devices are made of a specially formulated metal oxide ceramic material which is capable of suppressing high inrush current surges.

JNR devices, being of relatively high resistance, shall limit the inrush current for 1 - 2 seconds during which time the device decreased in resistance substantially to a point where its voltage drop is negligible. The devices are especially useful in power supplies (see FigA) because of the extremely low impedance of the capacitor being charged, of which the bridge is usually subjected to an exceedingly high current surge at turn-on point.

FEATURES

- High inrush current restriction effect.
- Small power loss in stationary state.
  (Normally 1W or less than 50W power.)
- High thermal and electrical stability.
- Wide selection of electrical characteristics.

APPLICATIONS EXAMPLE

As shown in Fig. B, the current surge can be eliminated by placing a NTC thermistor in serieswith a filament string.Yet, if the resistance of one NTC thermistor does not provide sufficient inrush current limiting functions for your application, two or more may be used in series or in separate legs of the supply circuit(Fig. A). Be noticed, the thermistor can not be used in parallel since one unit will tend to conduct nearly all the current available. Thus, JNR thermistor may be used in the AC(point Al or A2) or the DC(point Dl or D2) locations in the circuit.(See Fig. A)

The resistance of NTC thermistor is designed higher than the total resistance of filaments hen the circuit is turned on. As current begins flowing,the thermistor shall immediately"self-heat".Then,in 1~2 seconds, its resistance will be reduced to a minimum and become insignificant to the total resistance of a circuit. With the same concept, current surges in electric motors can be held to minimum. Fig. C shows a typical motor' s tum on surge bef ore and after the application of a JNR thermistor to the circuit.

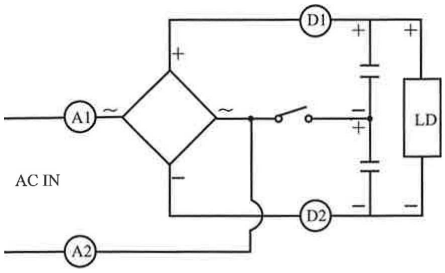

Fig.A

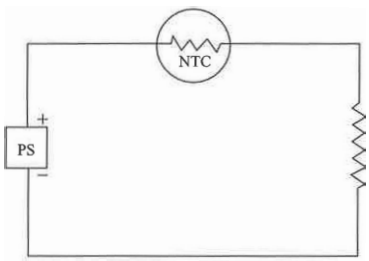

Fig.B

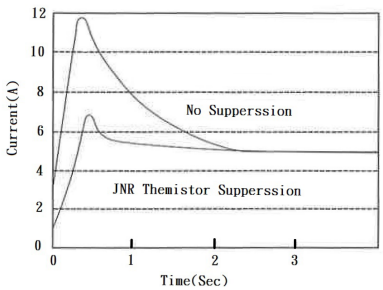

Fig.C

UNICTRON NTC Thermistor(JNR) devices are TYPE 5ø ~ 20ø SERIES SPECIFICATION

Part No	Resistance at 25°C	Imax	RImax	Maximum Capacitance AC240V	Pmax typical	Dissipation factor typical	Thermal time constant typical	Rated temperature	Safety Approvals			
	(Ohms)	(Amps)	(Ω)	(μF)	(W)	δ (mW/°C)	(sec.)	T_L~T_U °C				
05S100 L	10.0	1.0	0.975	100	1.2	9.5	25	-40~+150	V	V	V	
05S200 L	20.0	0.3	0.283	100					V	V	V	
08S040 M	4.0	2.0	0.345	220	2.0	Approx. 13.5	Approx. 33.5	-40~+170	V	V	V	V
08S4R7 M	4.7	3.0	0.405	220					V	V	V	V
08S050 M	5.0	3.0	0.238	220					V	V	V	V
08S060 L	6.0	3.0	0.284	220					V	V	V	V
08S070 L	7.0	2.0	0.445	220					V	V	V	V
08S080 L	8.0	2.0	0.658	220					V	V	V	V
08S100 L	10.0	3.0	0.280	220					V	V	V	V
08S150 L	15.0	2.0	0.567	100					V	V	V	V
08S180 L	18.0	2.0	0.747	100					V	V	V	V
08S200 L	20.0	1.0	1.157	100					V	V	V	V
08S220 L	22.0	1.0	1.279	100					V	V	V	V
08S300 L	30.0	0.5	4.087	100					V	V	V	V
10S1R0 M	1.0	5.0	0.081	470	2.1	Approx. 15	Approx. 45	-40~+170	V	V	V	V
10S1R3 M	1.3	5.0	0.083	330					V	V	V	V
10S1R5 M	1.5	5.0	0.092	330					V	V	V	V
10S2R0 M	2.0	5.0	0.123	470					V	V	V	V
10S2R5 M	2.5	5.0	0.118	470					V	V	V	V
10S030 M	3.0	4.0	0.136	560					V	V	V	V
10S040 M	4.0	4.0	0.160	560					V	V	V	V
10S050 M	5.0	4.0	0.176	470					V	V	V	V
10S060 L	6.0	3.0	0.260	330					V	V	V	V
10S6R8 L	6.8	3.0	0.288	330					V	V	V	V
10S070 L	7.0	3.0	0.297	330					V	V	V	V
10S080 L	8.0	3.0	0.329	330					V	V	V	V
10S100 L	10.0	3.0	0.343	330					V	V	V	V
10S120 L	12.0	2.5	0.307	470					V	V	V	V
10S130 L	13.0	2.5	0.333	330					V	V	V	V
10S150 L	15.0	2.5	0.407	330					V	V	V	V
10S160 L	16.0	2.5	0.410	330					V	V	V	V
10S200 L	20.0	2.0	0.576	330					V	V	V	V
10S220 L	22.0	2.0	0.627	220					V	V	V	V
10S250 L	25.0	2.0	0.712	330					V	V	V	V
10S300 L	30.0	2.0	0.844	330					V	V	V	V
10S470 L	47.0	2.0	0.795	330					V	V	V	V
10S500 L	50.0	2.0	0.905	330					V	V	V	V
10S800 L	80.0	1.0	2.217	390					V	V	V	V
10S101 L	100.0	1.0	2.275	220					V	V	V	V
10S121 L	120.0	1.0	2.693	390					V	V	V	V
13S1R0 M	1.0	3.0	0.171	560	2.9	Approx. 19.5	Approx. 68	-40~+200	V	V	V	V
13S1R3 M	1.3	7.0	0.080	470					V	V	V	V
13S2R0 M	2.0	5.0	0.090	470					V	V	V	V
13S2R5 M	2.5	6.0	0.096	560					V	V	V	V
13S030 M	3.0	5.0	0.102	560					V	V	V	V
13S040 M	4.0	5.0	0.124	560					V	V	V	V
13S4R7 M	4.7	5.0	0.146	560					V	V	V	V
13S050 M	5.0	5.0	0.155	560					V	V	V	V
13S060 L	6.0	5.0	0.180	470					V	V	V	V
13S070 L	7.0	4.0	0.204	470					V	V	V	V
13S080 L	8.0	4.0	0.230	470					V	V	V	V
13S100 L	10.0	4.0	0.207	470					V	V	V	V
13S120 L	12.0	3.0	0.302	560					V	V	V	V
13S150 L	15.0	3.0	0.317	560					V	V	V	V
13S160 L	16.0	3.0	0.338	560					V	V	V	V

Note：M = Tolerance of R_{25} ±20%， L = Tolerance of R_{25} ±15%　(Specifications are subject to change without prior notice.)

UNICTRON NTC Thermistor(JNR) devices are TYPE 5ø ~ 20ø SERIES SPECIFICATION

Part No	Resistance at 25°C	Imax	RImax	Maximum Capacitance AC240V	Pmax typical	Dissipation factor typical	Thermal time constant typical	Rated temperature	Safety Approvals			
	(Ohms)	(Amps)	(Ω)	(μF)	(W)	δ (mW/°C)	(sec.)	T_L~T_U °C				
13S180 L	18.0	3.0	0.360	560	2.9	Approx. 19.5	Approx. 68	-40~+200	v	v	v	v
13S200 L	20.0	3.0	0.400	470					v	v	v	v
13S250 L	25.0	2.0	0.763	560					v	v	v	v
13S500 L	50.0	2.0	0.636	560					v	v	v	v
15S1R0 M	1.0	8.0	0.038	680					v	v	v	v
15S1R3 M	1.3	8.0	0.053	680					v	v	v	v
15S1R5 M	1.5	8.0	0.058	800					v	v	v	v
15S2R0 M	2.0	8.0	0.077	680					v	v	v	v
15S2R5 M	2.5	8.0	0.074	680					v	v	v	v
15S030 M	3.0	7.0	0.095	820					v	v	v	v
15S040 M	4.0	6.0	0.129	800					v	v	v	v
15S4R7 M	4.7	6.0	0.120	820					v	v	v	v
15S050 M	5.0	6.0	0.128	820					v	v	v	v
15S060 L	6.0	5.0	0.157	680					v	v	v	v
15S070 L	7.0	5.0	0.135	820					v	v	v	v
15S080 L	8.0	5.0	0.179	680					v	v	v	v
15S100 L	10.0	5.0	0.194	820	3.5	Approx. 23	Approx. 97	-40~+200	v	v	v	v
15S120 L	12.0	4.0	0.233	680					v	v	v	v
15S150 L	15.0	4.0	0.231	820					v	v	v	v
15S160 L	16.0	4.0	0.247	820					v	v	v	v
15S180 L	18.0	4.0	0.280	680					v	v	v	v
15S200 L	20.0	4.0	0.285	820					v	v	v	v
15S220 L	22.0	4.0	0.317	560					v	v	v	v
15S250 L	25.0	3.0	0.415	680					v	v	v	v
15S300 L	30.0	3.0	0.449	680					v	v	v	v
15S400 L	40.0	3.0	0.500	1000					v	v	v	v
15S470 L	47.0	3.0	0.524	1000					v	v	v	v
15S800 L	80.0	2.5	0.699	680					v	v	v	v
15S121 L	120.0	2.0	1.042	1000					v	v	v	v
15S221 L	220.0	1.0	3.455	1500					v	v	v	v
20S0R7 M	0.7	12.0	0.038	1000	4.28	Approx. 28.5	Approx. 135	-40~+200	v	v	v	v
20S1R0 M	1.0	12.0	0.039	1000					v	v	v	v
20S1R3 M	1.3	8.0	0.038	1000					v	v	v	v
20S1R5 M	1.5	10.5	0.042	1000					v	v	v	v
20S2R0 M	2.0	10.0	0.059	1000					v	v	v	v
20S2R5 M	2.5	9.0	0.083	1000					v	v	v	v
20S030 M	3.0	8.5	0.100	1000					v	v	v	v
20S040 M	4.0	8.0	0.076	1000					v	v	v	v
20S4R7 M	4.7	7.5	0.113	1000					v	v	v	v
20S050 M	5.0	7.5	0.118	1000					v	v	v	v
20S060 L	6.0	7.0	0.138	1000					v	v	v	v
20S6R8 L	6.8	6.5	0.151	1000					v	v	v	v
20S070 L	7.0	6.5	0.155	1000					v	v	v	v
20S080 L	8.0	6.0	0.178	1000					v	v	v	v
20S100 L	10.0	6.0	0.203	1000					v	v	v	v
20S120 L	12.0	5.0	0.204	1000					v	v	v	v
20S130 L	13.0	5.0	0.221	1000					v	v	v	v
20S150 L	15.0	4.5	0.255	1000					v	v	v	v
20S200 L	20.0	4.0	0.308	1000					v	v	v	v
20S121 L	120	2.0	1.075	1500					v	v	v	v

Note：M = Tolerance of R_{25} ±20% , L = Tolerance of R_{25} ±15% (Specifications are subject to change without prior notice.)

Application notes for UL,TUV and CQC recognized components related standards

Standard NO	UL/CUL	TUV	CQC
	UL 1434	EN 60539-1:2008	GB/T6663.1-2007
File NO	E171531	R50236285	CQC10001050816