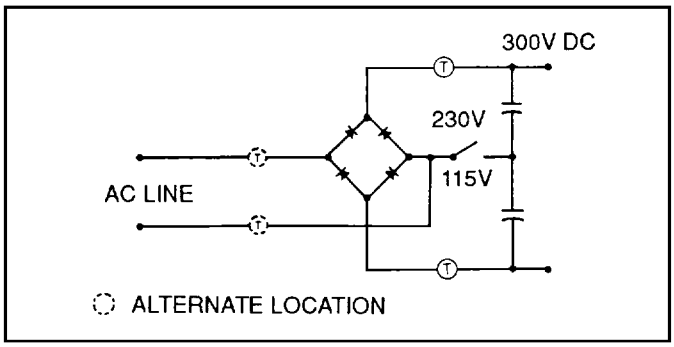
NTC THERMISTORS:
INRUSH CURRENT LIMITERS



The circuit diagram above displays a typical way to limit inrush current.

Protection against extremely high peak inrush current, especially in AC/DC switching power supplies, is now available with Keystone Thermometrics Inrush Current Limiters. These special NTC thermistors effectively control surge currents because the thermal time constant of the current limiter is longer than the electrical time constant (RC) of the thermistor and the capacitor.

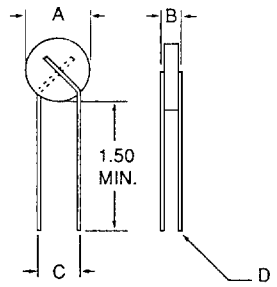


FIG. 1

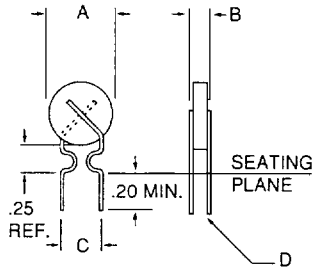


FIG. 2 (SUFFIX A)

All inrush current limiters are insulated with a protective coating. Optional lead designs available upon request.

Note: For Figure 2 design add "A" suffix to type. (Example: CL-10A.)

Type Fig. 1	R_0 @ 25°C ±25% (ohms)	Max.* Steady State Current amps (RMS)	A max. (in.)	B max. (in.)	C ref. (in.)	D (AWG)	C_x (max.)** μ farads @ 120 VAC	C_x (max.)** μ farads @ 240 VAC	Eqn. Const. for Res. Under Load*** X	Y	Current Range Min. I / Max. I	Approx. Res. Under Load at % Max. Rated Current 25%	50%	75%	100%	Diss. Const. (mW/°C)	Time Const. (sec.)
CL-10	0.7	12	0.77	0.22	0.328	18	8200	2000	0.50	-1.18	$4.0 \le I \le 12$	.14	.06	.04	.02	25	100
CL-20	1.3	8	0.55	0.21	0.328	18	2400	600	0.60	-1.25	$3.0 \le I \le 8.0$	.25	.09	.06	.04	15	60
CL-30	2.5	8	0.77	0.22	0.328	18	6000	1500	0.81	-1.25	$2.5 \le I \le 8.0$	.34	.14	.09	.06	25	100
CL-40	5	6	0.77	0.22	0.328	18	5200	1300	1.09	-1.27	$1.5 \le I \le 6.0$	.65	.27	.16	.11	25	100
CL-50	7	5	0.77	0.26	0.328	18	5000	1250	1.28	-1.27	$1.5 \le I \le 5.0$	.96	.40	.24	.16	25	120
CL-60	10	5	0.77	0.22	0.328	18	5000	1250	1.45	-1.30	$1.2 \le I \le 5.0$	1.09	.44	.26	.18	25	100
CL-70	16	4	0.77	0.22	0.328	18	5000	1250	1.55	-1.26	$1.0 \le I \le 4.0$	1.55	.65	.39	.27	25	100
CL-80	47	3	0.77	0.22	0.328	18	5000	1250	2.03	-1.29	$0.5 \le I \le 3.0$	2.94	1.20	.71	.49	25	100
CL-90	120	2	0.93	0.22	0.328	18	5000	1250	3.04	-1.36	$0.5 \le I \le 2.0$	7.80	3.04	1.75	1.18	30	120
CL-100	0.5	16	0.93	0.22	0.328	18	12000	3000	0.44	-1.12	$4.0 \le I \le 16$	.09	.04	.03	.02	30	120
CL-110	10	3.2	0.40	0.17	0.250	24	600	150	0.83	-1.29	$0.7 \le I \le 3.2$	1.10	.45	.27	.18	8	30
CL-120	10	1.7	0.40	0.17	0.250	24	600	150	0.61	-1.09	$0.4 \le I \le 1.7$	1.55	.73	.46	.34	4	90
CL-130	50	1.6	0.45	0.17	0.250	24	600	150	1.45	-1.38	$0.4 \le I \le 1.6$	5.13	1.97	1.13	.75	8	30
CL-140	50	1.1	0.45	0.17	0.250	24	600	150	1.01	-1.28	$0.2 \le I \le 1.1$	5.27	2.17	1.28	.89	4	90
CL-150	5	4.7	0.55	0.18	0.328	22	1600	400	0.81	-1.26	$1.0 \le I \le 4.7$	.66	.27	.16	.11	15	110
CL-160	5	2.8	0.55	0.18	0.328	22	1600	400	0.60	-1.05	$0.8 \le I \le 2.8$	.87	.42	.27	.20	9	130
CL-170	16	2.7	0.55	0.18	0.328	22	1600	400	1.18	-1.28	$0.5 \le I \le 2.7$	1.95	.80	.48	.33	15	110
CL-180	16	1.7	0.55	0.18	0.328	22	1600	400	0.92	-1.18	$0.4 \le I \le 1.7$	2.52	1.11	.69	.49	9	130
CL-190	25	2.4	0.55	0.18	0.328	22	800	170	1.33	-1.34	$0.5 \le I \le 2.4$	2.63	1.04	.60	.41	15	110
CL-200	25	1.7	0.55	0.18	0.328	22	800	170	0.95	-1.24	$0.4 \le I \le 1.7$	2.74	1.18	.70	.49	9	130
CL-210	30	1.5	0.40	0.20	0.250	24	600	150	1.02	-1.35	$0.3 \le I \le 1.5$	3.83	1.50	.87	.60	8	30

* These values are suggested maximums based on the thermistor in 25°C ambient without air flow.

Current ratings can be increased depending on the magnitude of air flow.

** These ratings are suggested maximums. Contact Keystone Thermometrics Engineering Department for assistance in applications exceeding these ratings.

*** To determine the resistance value under load, use $R = XI^Y$ where X and Y are constants in the table above and I is the current (amps).

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