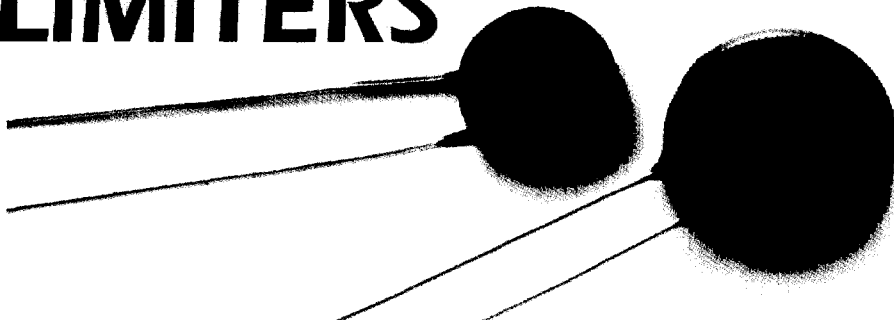


CERAMIC CURRENT LIMITERS



Background: A popular application for PTC thermistors is self-resetting current limiting. Some refer to PTC's as solid state fuses. However, these "fuses" do not require replacement after tripping and are useful for a countless number of trip cycles. This can be a definite advantage in equipment that is hard to service or has a high maintenance cost associated with it.

How does a PTC Thermistor limit current? As long as the current does not exceed the hold current, think of the PTC as a fixed resistor. This is not entirely true, but for practical purposes, please consider it for a moment. When the current level exceeds the trip current, usually as the result of a fault in the circuit, the PTC will heat up to a point above its switch temperature. When this hap-

pens, the resistance increases dramatically — usually several orders of magnitude. The PTC will continue to increase in resistance until the majority of the supply voltage is dropped across the PTC. While in the high resistance state, since the PTC is not a perfect open circuit, a small amount of residual current will still flow through the device. This residual current is, fortunately, a small percentage of the normal hold current. The PTC stays at the high resistance state until the overcurrent situation is corrected and part is allowed to cool.

Additional Specifications:

-TR suffix to the part number designates tape and reel per EIA-468-B. Some slight deviation may be required due to lead spacing which is

ELECTRICAL SPECIFICATIONS

PART NUMBER	R25-OHMS	TOL +/- %	VDC MAX.	HOLD 1	THRES. 1	TRIP 1	RESIDUAL	SWITCH
				MA	MA	MA	MA	MA
150Q80112	750	33	200	5	7	10	1.5	50
165Q80113	750	33	300[*]	7	10	14	1.5	65
180Q10230	1000	40	500[*]	8	12	16	1.5	80
165Q12201	1250	20	300[*]	9	14	18	2	65
180Q50100	500	33	500[*]	15	22	30	2	80
140D10102	100	40	30	17	26	34	1	40
160D10116	100	40	100	17	25	34	4.5	60
CCL020.01	105	30	125	20	29	40	6	128
175Q15114	150	30	75	20	31	40	4	75
180D10113	100	40	40	22	33	44	9	80
170D10117	100	40	70	26	40	52	6	70
185D10102	100	20	30[**]	35	49	70	13	85
CCL060.01	60	33	150	60	88	120	8	128
180D22012	22	30	28	63	95	126	25	80
200D65011	65	38	100	80	120	160	10	100
225D28011	28	27	50	87	130	174	15	125
CCL100.01	30	33	150	100	135	200	11	128
CCL140.01	55	30	150	105	148	210	13	128
227D60010	60	40	48	106	160	212	30	127
200D11011	11	54	50	113	170	226	20	100
200D10001	10	20	40	120	180	240	20	100
CCL150.01	17	30	150	125	180	250	14	128
CCL300.01	7.5	33	70	175	285	350	25	128
200D10002	9.5	26	150	183	275	366	18	100
CCL450.01	9	33	100	300	440	600	30	128
228D04001	4.7	15	40	320	480	640	35	128
228D02001	1.8	30	25	700	1050	1400	200	128

* Max VDC for 1 minute only

** a 70VDC version is also available

not always to 0.1" increments.
Please note "Q" style parts are not available taped and reeled.

Coating is a blue epoxy, UL-94VO type.

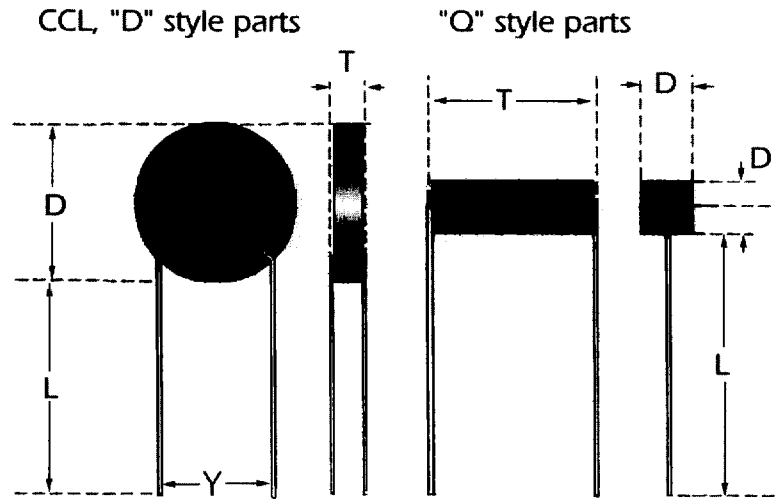
Solderability is to MIL-STD-202, method 208.

Resistance to Solder Heat is 260+/-5°C for 10+/-2 seconds per MIL-STD-202, method 210.

Terminal Strength is to MIL-STD-202, method 211, test condition A and C, 2.25 lbs. min.

Mechanical shock: All parts will survive a 1.4 meter drop to a concrete floor without noticeable mechanical or electrical damage.

PHYSICAL DIMENSION KEY



d = lead diameter
x = coating thickness

NOMINAL DIMENSIONS

150Q80112	0	0.31	28	0.3	NO	.09X0.1	2.3X3.8	0.32	8.1	4	102
165Q80113	0	0.31	28	0.3	NO	.09X0.1	2.3X3.8	0.32	8.1	4	102
180Q10230	0	0.4	22	0.6	NO	.115X0.1	2.9X3.8	0.48	12.2	1	25
165Q12201	0	0.31	28	0.3	NO	0.19X0.15	2.3X3.8	0.33	8.4	0.75	19
180Q50100	0	0.4	22	0.6	NO	0.19X0.19	4.8X4.8	0.44	11.1	1.5	38
140D10102	0.1	0.1	24	0.5	YES	0.24	6.1	0.14	3.6	1.5	38
160D10116	0.1	0.1	24	0.5	YES	0.24	6.1	0.14	3.6	1.5	38
CCL020.01	0.1	0.1	24	0.5	YES	0.275	7	0.175	4.4	1.5	38
175Q15114	0	0.16	28	0.3	NO	.295X0.0	7.5X2.3	0.17	4.3	4	102
180D10113	0.06	0.1	24	0.5	YES	0.34	8.6	0.24	6.1	1.5	38
170D10117	0.08	0.1	24	0.5	YES	0.28	7.1	0.18	4.6	1.5	38
185D10102	0.1	0.1	24	0.5	YES	0.32	8.1	0.2	5.1	1.5	38
CCL060.01	0.22	0.25	22	0.6	YES	0.42	10.7	0.25	6.4	1.5	38
180D22012	0.07	0.2	20	0.8	YES	0.4	10.1	0.18	4.6	1.25	32
200D65011	0.2	0.25	22	0.6	YES	0.4	10.1	0.275	7	1.5	38
225D28011	0.09	0.125	24	0.5	YES	0.26	6.6	0.2	5.1	1.5	38
CCL100.01	0.13	0.25	22	0.6	YES	0.46	11.7	0.2	5.1	1.5	38
CCL140.01	0.13	0.25	22	0.6	YES	0.55	14	0.18	4.6	1.5	38
227D60010	0.13	0.25	22	0.6	YES	0.6	15.2	0.18	4.6	1.5	38
200D11011	0.075	0.25	22	0.6	YES	0.31	7.9	0.12	3	1.5	38
200D10001	0.075	0.25	22	0.6	NO	0.3	7.6	0.1	2.5	1.5	38
CCL150.01	0.15	0.25	22	0.6	YES	0.42	10.7	0.22	5.6	1.5	38
CCL300.01	0.07	0.25	22	0.6	YES	0.52	13.2	0.14	3.6	1.5	38
200D10002	0.135	0.25	22	0.6	YES	0.8	20.3	0.22	5.6	1.5	38
CCL450.01	0.14	0.25	20	0.8	YES	0.67	17	0.21	5.3	1.5	38
228D04001	0.07	0.25	22	0.6	YES	0.55	14	0.15	3.8	1.5	38
228D02001	0.09	0.25	18	1	YES	0.7	18	0.2	5.1	1.85	47