

Description

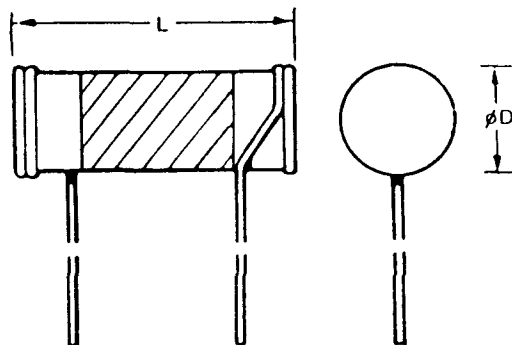
Uninsulated rods of broad resistance tolerance commonly known as "Brimistors" primarily intended for surge suppression and compensation for resistance variation in associated components.

○ NTC Thermistors

INDUSTRIAL/CONSUMER

TYPE **CZ**

Outline



Temperature Measurement & Control

Temperature Compensation

Surge Suppression - Time Delay

NOMINAL

Type	L mm	øD mm	R ₀ Ω	R ₂₅ * Ω	R ₅₀ Ω	R _{typ} † Ω	at I _{max} ‡ A	I _{pk} β A	E _{max} ¥ V
CZ1	32	8	8.3k	3.2k	1.4k	44	0.3	0.6	25
CZ2	22	6	12.5k	4.6k	1.85k	38	0.3	0.4	30
CZ3	8	5	3.5k	1.2k	560	35	0.2	0.3	13.5
CZ4	38	11	1.7k	680	320	10	0.8	2.0	14.7
CZ6	32	10	6k	2.6k	1.1k	27	0.45	0.7	23
CZ8	16	8	3.7k	1.3k	620	30	0.3	0.6	15.6
CZ9	16	8	800	300	130	3.7	1.0	1.3	7.8
CZ10	8	2.4	26k	9.2k	4k	148	0.075	0.15	19.5
CZ11	32	10	280	120	65	2.5	1.5	2.5	5.8
CZ12	38	11	240	106	53	1.5	2.5	4.0	6.4
CZ13	22	12	950	380	180	6.0	0.8	1.2	7.5
CZ14	29	5	470k	138k	46k	800	0.05	0.075	125
CZ19	38	11	1.7k	680	320	10	0.8	2.0	4.7
CZ25	22	10	200	85	44	2.0	1.5	2.5	4.0
CZ30	25	10	90	40	22	1.6	1.9	-	3.9

* Tolerance on the resistance at 25°C is ± 33% .

‡ In ambient temperatures less than 50°C.

¥ At 25°C.

† In an ambience of 25°C. At higher temperature this figure will be lower.

β Duration less than 20ms.

Typical Brimistor Applications

Time Delay of Relays

Type of rod thermistor depends on the operating voltage and delay time required.

Protection of Rectifiers

Direct current up to 75mA	CZ10
" " " 100mA	CZ1
" " of 100 to 200 mA	CZ6
" " over 200 mA	CZ4

Protection from Switch-on Surges of Mains Transformers

The CZ9 is recommended, with a shunt resistor if required.

Protection of Projector Lamps

Lamp Wattage	Supply Voltage	Cooling* Time	Suitable Brimistor
500	200-250	12 minutes	CZ12
250	105-125	12 "	CZ12
300	200-250	10 "	CZ11
150	105-125	10 "	CZ11
150	200-250	6 "	CZ9
75	105-125	6 "	CZ9
and below			

* This is the time necessary to allow the Brimistor to cool sufficiently to give adequate protection at the next switch-on. It will not in this time cool to room temperature or maximum resistance. It is a convenience if the Brimistor can be switched out of circuit as soon as the lamp is lit . It can then be cooling while the projector is operating.

PRECAUTIONS IN USE

CURRENT RATING:

The maximum operating current (I max) is a design centre rating which allows for the normally expected supply voltage variations at ambient temperatures up to 50°C.

The maximum instantaneous current (I pk) cannot be exceeded without damaging the thermistor. Should this maximum value be likely to be exceeded at switch-on, the thermistor should be shunted by a suitable resistor to ensure a slower rate of rise during warm-up.

VOLTAGE RATING:

The voltage applied to a rod thermistor should not exceed Emax when the source resistance is less than 0.0125 (1/80) of the thermistor's cold resistance. Even when this condition is fulfilled, the maximum instantaneous current (I pk) must not be exceeded.

UNSUITABLE FOR PARALLEL OPERATION:

Because the most minute difference in resistance between the thermistors will result in rapidly increasing imbalance of current sharing they should NOT be used in parallel. They may be used in series.

HUMIDITY:

As these resistors are not sealed against moisture after prolonged storage in high humidity the resistance may change from its normal value. Once in operation, it will revert to its normal values.

HEAT WARNING:

In positioning the thermistor it should be remembered that the body temperature may reach 155°C under normal operating conditions and adequate spacing from other components is necessary. Operating a thermistor within a confined or thermally insulated space may cause damage to the device itself. Forced air cooling is not advisable as cracking or shattering may occur owing to the creation of excessive thermal gradients within the body of the device.

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