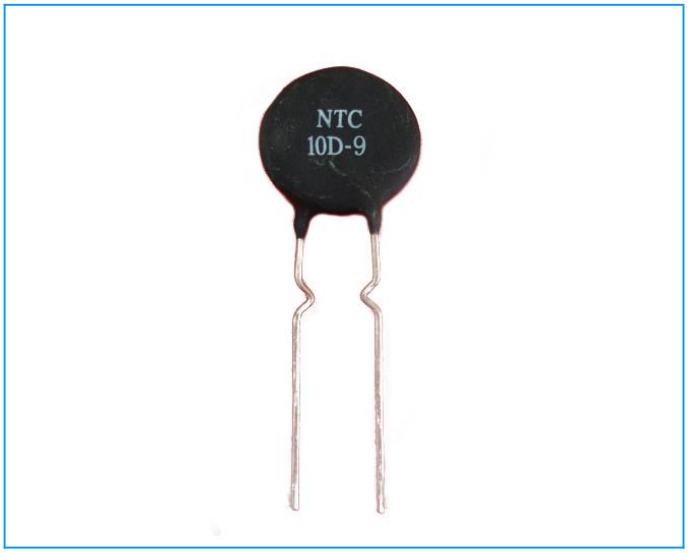
SOCAY

Surge-Arrestor Negative Temperature Coefficient Thermistor

SCNxxD-9 Series

Outline

This is a Negative Temperature Coefficient Resistor Whose resistance changes with ambient temperature changes.Thermistor comprises 2 or 4 kinds of metal oxides of iron,nickel,cobalt, manganese and copper, being shaped and sintered at high temperature(1200 ℃ to 1500 ℃).



Features

- Small in size,high-powered, and very capable of bringing down the surge current;
- Quick in reaction;
- High in B value and low in residual current;Long service life and high reliability;High coefficient of safety and wide range of application.

Applications

Conversion power supply, switch power, UPS power, Kinds of electric heater, electronic energy-saving lamps, electronic ballast etc all kinds of power circuit protection of electronic equipments, filament protection of CRT, bulb and other lighting lamps.

Part Number Code

SCN	10	D - 9
(1)	(2)	(3)

(1) SCN: Socay Negative Temperature Cofficient Resistor.
(2) 10: Resistance Value:10Ω.
(3) D-9: Diameter of Chip: Φ9.

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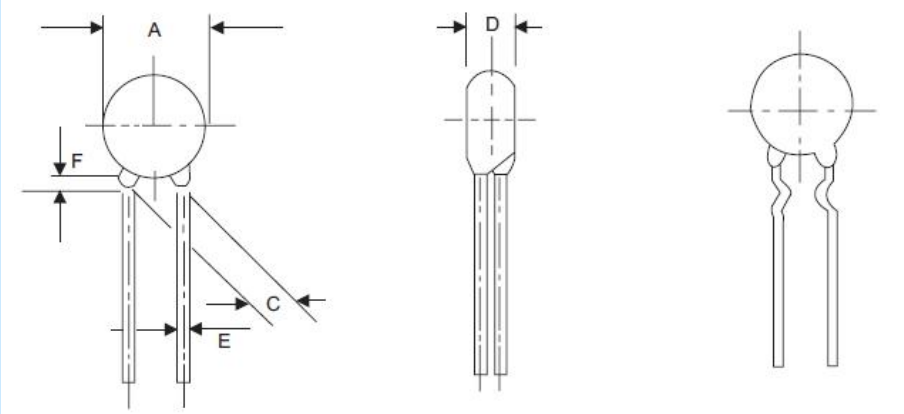
Electrical Characteristics

Part Number	R25℃ ±20%	Max Steady Current	Approx R Of Max Current	Power Dissipation Coefficient	Time Constant
	(Ω)	(A)	(Ω)	(mW/℃)	(s)
SCN2.5D-9	2.5	4	0.128	11	35
SCN3D-9	3	4	0.133	11	35
SCN5D-9	5	3	0.236	11	35
SCN8D-9	8	2	0.382	11	34
SCN10D-9	10	2	0.476	11	34
SCN16D-9	16	1	0.688	11	32
SCN22D-9	22	1	0.899	11	30
SCN25D-9	25	1	0.914	12	30
SCN35D-9	35	1	1.103	12	30
SCN50D-9	50	1	1.265	11	30
SCN60D-9	60	1	1.521	11	30
SCN80D-9	80	0.8	2.108	11	30
SCN100D-9	100	0.8	2.576	11	30
SCN120D-9	120	0.8	3.115	11	30
SCN200D-9	200	0.5	5.900	10	32
SCN300D-9	300	0.5	9.150	10	32

Dimensions (Unit: mm)



Type	D-9
A_{MAX}	10.5
C ± 1	7.5
D_{MAX}	5
E ± 0.05	0.8
F_{MAX}	3

Note: “E”value may be 0.6 for resistors for which the chip's diameter is ≤ 13 and the working current is ≤ 2A.

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Critical Technical Parameters of NTC Thermistor

◆ Rt---Resistance Value at Zero-power

It's a resistance which is got at a fixed temperature on a basis of a testing power which causes resistance to Vary in a range which can be ignored in relation to the total testing eror.

◆ R_{25}---Resistance Value at Rated Zero-power

The design resistance of the thermistor usually refers to the resistance value got at Zero-power at 25 ℃ , which is usually indicated on the thermistor.

◆ B Value

B value stands for the thermal exponent at a negative temperature coefficient. It's defined as a ratio of the balance between the natural logarithms of resistance values at zero-power to the balance between the reciprocals of the two temperatures.The formula is as below:

$$B=\ln\frac{R_{T1}}{R_{t2}}/(\frac{1}{T_1}-\frac{1}{T_2}\neq\frac{T_1T_2}{T_2-T_1}\ln\frac{R_{T1}}{R_{T2}}$$

In this formula: R_{T1} is the resistance at Zero-power when the temperature is T_1,R_{T2} is the resistance at Zero-power when the temperature is T_2 Unless otherwise specified,B value is got by calculating the Zero-power resistances at 25℃ (298.15K) and 50 ℃ (323.15K) . It's not a firm constant within the range of working temperature.

Resistance-to-Temperature Coefficient at Zero-power.It refers to the ratio of changes of a thermistor. Resistance value at Zero-powerwhen The temperature, to the resistance value at Zero-power The formula is as below:

$$\alpha_T=\frac{1}{R_T}\frac{DR_T}{DT}=-\frac{B}{T_2}$$

In this formula, "α " stands for the resistance-temperature coefficient at Zero-power when the temperature is T:

R_T stands for the resistance value at Zero-power when the temperature is T.

T stands for the temperature(in K).

B stands for B value.

◆ Max steady state current.

The maximum allowable continuous current passing through thermistor at 25℃.

◆ Dissipation Coefficient δ

It's the ratio of the changes with a thermistor dissipation power, in a pre-set ambient temperature, to the changes with the temperature. The formula is as below: δ= △P/△Tδ changes in response when the ambient temperature changes, within the ranges of the working temperature.

◆ Thermal Time Constant

At Zero-power and when amutatio occurs with the temperature,the time "t", which is-spent for finishing 63.2% of the gap between the beginning temperature and the ending temperature in the thermistor. is directly proportional to"C",the heat capacity of the thermistor, and is inversely proportional to δ, the dissip ation

constant. That is " τ=C/δ" .