

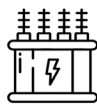
Coil And Winding Thermistor Sensor



■ Application



Coil Winding Protection
Temperature Monitoring
In Electric Motor



Coil Winding Protection
In Transformer



Traction Motor Coil
Winding Protection in
EV Automobile

■ Features

- Small compact sensor size and Fast thermal response
- Long-term stability and Excellent thermal cycling endurance
- Long term stability & ruggedness
- Good vibration resistance for motor winding applications

■ Options Available

- Resistance tolerance : Available in $\pm 1\%$, $\pm 2\%$, and $\pm 5\%$.
- Encapsulation : Options include epoxy powder coated in blue (E01), black (E02), or golden yellow (E70).
- Non-standard lead lengths.
- Alternative resistance ratings.
- Rated temperatures and tolerances.

■ Dimensions



■ Electrical Data (Resistance and Beta Values)

Resistance At 25°C (Ω)	Beta Value (25°C/85°C) (K)	Resistance At 25°C (Ω)	Beta Value (25°C/85°C) (K)
2000	3540	20000	4000
2057	3540	30000	4050
2800	3900	47000	4100
3000	3977	49300	3960
4700	3977	50000	4100
5000	3977	100000	4400
10000	3977	170000	4250

■ Rated Temp and Dissipation Factor

Heat capacity (Cth) :			$\approx 18 \text{ mJ/K}$
Lower Temperature :	-40°C	Dissipation factor in air(δ_{th}) :	approx 1.5 mW/K
Upper Temperature :	140°C	Beta Tolerance ($\Delta\beta/\beta_N$) :	$\pm 1\%$, $\pm 2\%$, $\pm 3\%$.
Max Permissible Power at 25°C :	60 mW	Resistance Tolerance ($\Delta R/R_N$) :	$\pm 0.5\%$, $\pm 1\%$, $\pm 2\%$, $\pm 5\%$
Rated Temperature (TN) :	25°C	Thermal cooling time constant in air (τ_c) :	$\approx 12s$

■ Reliability Data

Test	Standard	Test Conditions	Change In R	Remarks
Storage in dry heat	IEC 60068-2- 2	Storage at upper category temp T: 100°C t: 1000 h	<2%	No Visible Damage
Storage in damp heat, steady state	IEC 60068 - 2- 78	Temp of air: 40 °C Relative humidity of air: 93 % Duration: 56 days	<2%	No Visible Damage
Storage in coldness		Storage at lower category temp T: -30 °C t: 1000 h	<2%	No Visible Damage
Vibration resistance	IEC 60068-2-6	Frequency range: 5 to 500 Hz Amplitude: 7.5 mm, 2 g Duration: 3 x 8 h	<3%	No Visible Damage
Long-term stability (empirical value)		Temperature: 200 °C t: 10000 h	<3%	No Visible Damage
Voltage proof Test		1250 V AC, 1 s	<3%	No Flashover
Insulation test		The sensors are placed in a vessel containing metallic balls of 1 mm diameter (with total immersed head). The applied voltage is 100 V DC.		Above 1000 M Ω
Rapid temperature cycling	IEC 60068 - 2- 14	Lower test temp : -30°C Upper test temp : 150°C Time to change from Low to Up Temp : <30s Number of cycles: 1000 Medium: air	<2%	No Visible Damage

■ Ordering Codes For Sensor

STTS 174 R5 E01 K H 101 4250									
Product Category									
STTS	NTC THERMISTOR TEMPERATURE SENSOR ELEMENT SERIES								
Resistance Value @25 °C (In Ohm Unit)									
174	170000 Ohm								
103	10000 Ohm								
302	3000 Ohm								
Resistance Value Tolerance									
R1	1% Tolerance in Resistance Value								
R2	2% Tolerance in Resistance Value								
R5	5% Tolerance in Resistance Value								
Encapsulation									
E01	Blue Epoxy Powder Coating								
E02	Epoxy Dip Coating								
E03	6 MM Nickel Plated Brass Ring Terminal.								
Wire Type									
K	PTFE Multi strand copper wire								
AA	Multi strand copper wire								
AG	Tinned Copper Clad Steel Wire								
Beta Value @ (25 °C/85 °C)									
4250	4250 K								
3977	3977 K								
3435	3435 K								
Wire Length									
340	34 MM								
451	450 MM								
501	500 MM								
Wire Gauge									
L	AWG 23								
A	AWG 32								
H	AWG 26								