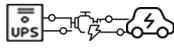


Heat Sink Temperature Sensor

■ Application



Transistor Heat Sink
Temperature Monitoring.



Motor Controller in UPS
and EV Automotives



CPU Heatsink Monitoring
In Electronic Devices

■ Features

- Good thermal coupling to the surface
Surface mount or clip on style .
- Mounting hardware / contact area
- Long term stability & ruggedness
- Customisable lead lengths, insulation type, connector options, mounting form (probe, clip, adhesive patch, embedded) available depending on design requirement.

■ Options Available

- Temperature range — make sure the sensor covers the lowest and highest expected temperatures (including extremes like deep freeze or defrost) with margin.
- Tolerance classes: e.g., $\pm 1\%$, $\pm 3\%$ on $R_{(25)}$ and $\pm 1\%$ or $\pm 2\%$ on Beta, depending on cost/accuracy.

■ Dimensions



■ Electrical Data (Resistance and Beta Values)

Resistance At 25°C (Ω)	Beta Value (25°C/85°C) (Unit :K)	Resistance At 25°C (Ω)	Beta Value (25°C/85°C) (Unit :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 103 R1 E30 K H 161 3930		Beta Value @ (25 ° C/85 ° C)	
Product Category		3930	3930 K
STTS NTC THERMISTOR TEMPERATURE SENSOR SERIES		3977	3977 K
		3435	3435 K
Resistance Value @25 ° C (In Ohm Unit)		Wire Length	
111	11000 Ohm	311	310 MM
103	10000 Ohm	451	450 MM
302	3000 Ohm	501	500 MM
Resistance Value Tolerance		Wire Gauge	
R1	1% Tolerance in Resistance Value	M	AWG 22
R2	2% Tolerance in Resistance Value	P	AWG 20
R3	3% Tolerance in Resistance Value	H	AWG 26
Encapsulation		Wire Gauge	
E30	3 MM Nickel Plated Brass Ring Terminal.	E143	AWG 21
E31	4 MM Nickel Plated Brass Ring Terminal.	E143	AWG 21
E48	6 MM Nickel Plated Brass Ring Terminal.	E143	AWG 21
Wire Type			
K	PTFE Multistrand Copper Wire		
V	PVC Twin Parallel Copper Wire		
AA	FEP Multistrand Copper Wire		