

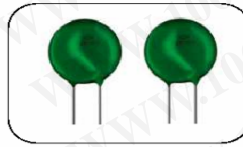
NTC Thermistor: SCK Series

Power Thermistor for Limiting Inrush Current



Features

1. RoHS & Halogen Free (HF) compliant
2. Body size: $\Phi 5\text{mm} \sim \Phi 30\text{mm}$
3. Radial lead resin coated
4. High power rating
5. Wide resistance range
6. Cost effective
7. Operating temperature range:
 $\Phi 5\text{mm}: -40^\circ\text{C} \sim +150^\circ\text{C}$
 $\Phi 8 \sim \Phi 10\text{mm}: -40^\circ\text{C} \sim +170^\circ\text{C}$
 $\Phi 13\text{mm} \sim \Phi 30\text{mm}: -40^\circ\text{C} \sim +200^\circ\text{C}$
8. Agency recognition: UL / cUL / TUV / CSA / CQC



Recommended Applications

1. Switch mode power supply
2. Electric motor
3. Transformer
4. Adapter
5. Projector
6. Halogen lamp
7. LED driver circuit

Part Number Code

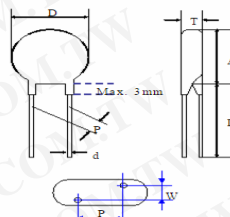
$\Phi 5\text{mm} \sim \Phi 15\text{mm}$

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Product Type	Body Size	Zero Power Resistance at 25°C (R ₂₅)	Max Steady State Current at 25°C	Tolerance of R ₂₅	Appearance	Optional Suffix									
THINKING SCK NTC Thermistor SCK Series	05 $\Phi 5\text{mm}$ 08 $\Phi 8\text{mm}$ 10 $\Phi 10\text{mm}$ 13 $\Phi 13\text{mm}$ 15 $\Phi 15\text{mm}$	R ₂₅ < 100 0R3 0.5Ω 2R5 2.5Ω 08 8Ω 20 20Ω 120 120Ω	X3 0.3A 2X 2.5A 8 8A 10 10A	L $\pm 15\%$ M $\pm 20\%$ N $\pm 25\%$	S Straight lead F Y kink lead T L kink lead	Y RoHS & HF Compliant									

$\Phi 20\text{mm} \sim \Phi 30\text{mm}$

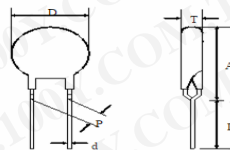
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Product Type	Body Size	Zero Power Resistance at 25°C (R ₂₅)	Tolerance of R ₂₅	Appearance	Packaging	Optional Suffix								
THINKING SCK NTC Thermistor SCK Series	20 $\Phi 20\text{mm}$ 25 $\Phi 25\text{mm}$ 30 $\Phi 30\text{mm}$	R ₂₅ < 100 0R7 0.7Ω 2R5 2.5Ω R ₂₅ ≥ 100 100:10Ω 470:47Ω 471:470Ω	L $\pm 15\%$ M $\pm 20\%$ N $\pm 25\%$	S Straight lead F Y kink lead T L kink lead	B Bulk	Y RoHS & HF Compliant (For SCK05 ~ SCK20 use) H RoHS & HF Compliant (For SCK25 and SCK30 use)								

S Type (Straight Lead)



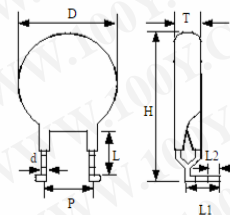
Series	D	P	d	Amax	Lmin	T	W
SCK05	4.5~6.5	4±0.5	0.8±0.02	6.5	31	2.0~5.0	1.9±0.2
SCK08	6.0~9.5	5±0.5	0.8±0.02	9.5	31	2.5~5.0	2.1±0.3
SCK10	9.0~11.5	5±0.5	0.8±0.02	11.5	31	2.5~5.0	2.1±0.3
SCK13	11.5~14.5	7.5±0.5	0.8±0.02	14.5	30	2.5~6.0	2.3±0.3
SCK15	13.0~16.5	7.5±0.5	1.0±0.02	16.5	29	3.0~6.0	2.5±0.3
SCK20	18.0~21.5	7.5±0.5	1.0±0.02	21.5	26	3.5~6.0	2.6±0.3
SCK25	23.0~29.0	7.5±1	1.0±0.02	29.0	25	4.0~6.0	3.1±0.5
SCK30	30.0~36.0	7.5±1	1.0±0.02	36.0	23	4.0~6.0	3.1±0.5

F Type (Y Kink Lead)

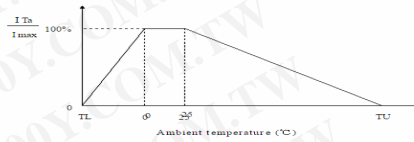


Series	D	P	d	Amax	Lmin	T
SCK05	4.5~6.5	4±0.5	0.8±0.02	11.0	29	2.0~5.0
SCK08	6.0~9.5	5±0.5	0.8±0.02	13.0	29	2.5~5.0
SCK10	9.0~11.5	5±0.5	0.8±0.02	15.0	29	2.5~5.0
SCK13	11.5~14.5	7.5±0.5	0.8±0.02	17.5	27	2.5~6.0
SCK15	13.0~16.5	7.5±0.5	1.0±0.02	19.0	26	3.0~6.0
SCK20	18.0~21.5	7.5±0.5	1.0±0.02	24.5	25	3.5~6.0
SCK25	23.0~29.0	7.5±1	1.0±0.02	35.0	22	4.0~6.0
SCK30	30.0~36.0	7.5±1	1.0±0.02	42.0	22	4.0~6.0

T Type (Y Kink 90° Bend and Outer Kink Lead)



Series	D	P	d	T	L	Hmax	L1	L2
SCK08	6.0~9.5	5±0.5	0.8±0.02	2.5~5.0	5.0±0.5	15	7.8±1.0	3.5±0.5
SCK10	9.0~11.5	5±0.5	0.8±0.02	2.5~5.0	5.0±0.5	17	7.8±1.0	3.5±0.5
SCK13	11.5~14.5	7.5±0.5	0.8±0.02	2.5~6.0	5.0±0.5	19	7.8±1.0	3.5±0.5
SCK15	13.0~16.5	7.5±0.5	1.0±0.02	3.0~6.0	4.5±0.5	21	9.0±1.0	3.5±0.5
SCK20	18.0~21.5	7.5±0.5	1.0±0.02	3.5~6.0	4.5±0.5	26	9.0±1.0	3.5±0.5

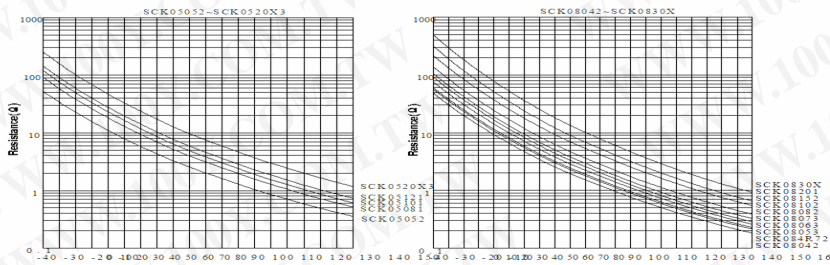


T_U : Maximum operating temperature (°C)
 T_L : Minimum operating temperature (°C)

For example:
 Ambient temperature (T_a) = 60°C
 Maximum operating temperature (T_U) = 200°C
 $I/T_a = [1 - (T_a - 25) / (T_U - 25)] \cdot I_{max} = 80\% I_{max}$

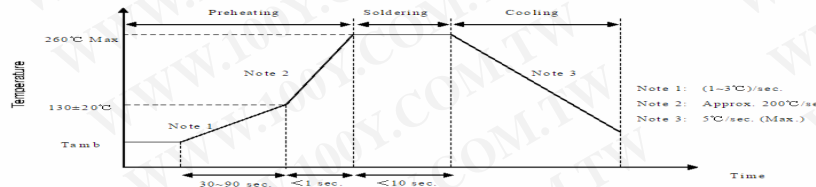
Ambient temperature (T_a) = -10°C
 Minimum operating temperature (T_L) = -40°C
 $I/T_a = [1 - (T_a - T_L) / (0 - T_L)] \cdot I_{max} = 25\% I_{max}$

R-T Characteristic Curves



Soldering Recommendation

Wave Soldering Profile



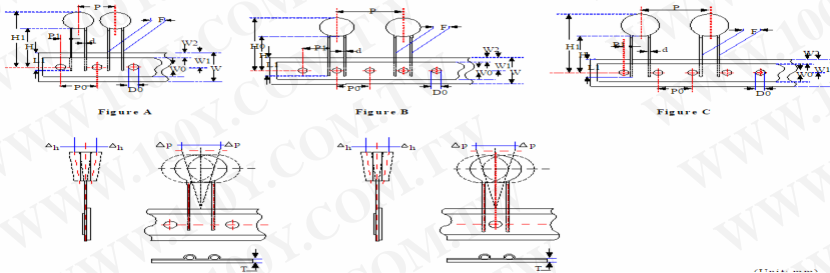
Recommended Reworking Conditions with Soldering Iron

Item	Condition
Temperature of Soldering Iron-tip	360°C (max.)
Soldering Time	3 sec. (max.)
Distance from Thermistor	2 mm (min.)

Item	Standard	Test conditions / Methods	Specifications															
Tensile Strength of Terminals	IEC 60068-2-21	Gradually apply the specified force and keep the unit fixed for 10±1 sec. Terminal diameter (mm) Force (Kg) 0.5-d ≤ 0.80 1.0 0.8-d ≤ 1.25 2.0	Δ R25/R25 ≥ 10%															
Solderability	IEC 60068-2-20	245 ± 3°C, 3 ± 0.3 sec	At least 95% of terminal electrode is covered by new solder															
Resistance to Soldering Heat	IEC 60068-2-20	260 ± 3°C, 10 ± 1 sec	No visible damage Δ R25/R25 ≥ 10%															
High Temperature Storage	IEC 60068-2-2	$T_a = 5^\circ\text{C}$, 1000 ± 24 hrs	No visible damage Δ R25/R25 ≥ 20%															
Damp Heat, Steady State	IEC 60068-2-78	40 ± 2°C, 90-95% RH, 1000 ± 24 hrs	No visible damage Δ R25/R25 ≥ 20%															
Rapid Change of Temperature	IEC 60068-2-14	The conditions shown below shall be repeated 5 cycles. <table border="1"> <thead> <tr> <th>Step</th> <th>Temperature (°C)</th> <th>Period (minutes)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>$T_L \pm 5$</td> <td>30 ± 3</td> </tr> <tr> <td>2</td> <td>Room temperature</td> <td>5 ± 3</td> </tr> <tr> <td>3</td> <td>$T_U \pm 5$</td> <td>30 ± 3</td> </tr> <tr> <td>4</td> <td>Room temperature</td> <td>5 ± 3</td> </tr> </tbody> </table>	Step	Temperature (°C)	Period (minutes)	1	$T_L \pm 5$	30 ± 3	2	Room temperature	5 ± 3	3	$T_U \pm 5$	30 ± 3	4	Room temperature	5 ± 3	No visible damage Δ R25/R25 ≥ 20%
Step	Temperature (°C)	Period (minutes)																
1	$T_L \pm 5$	30 ± 3																
2	Room temperature	5 ± 3																
3	$T_U \pm 5$	30 ± 3																
4	Room temperature	5 ± 3																
Max. Current	IEC 60539-1 4.26.1	25 ± 5°C, I_{max} , 1000 ± 24 hrs	No visible damage Δ R25/R25 ≥ 20%															
Endurance	Specification Standard	25 ± 5°C, I_{max} , Cth, 1min ON / 5 mins OFF × 1000 cycles Cth= Capacitance at 240 Vac	No visible damage Δ R25/R25 ≥ 20%															
Insulation Test	MIL-STD-202F Method 302	1000 VDC, 1 min	≥ 500 MΩ															

Packaging

Taping Specification S (Straight lead) Type



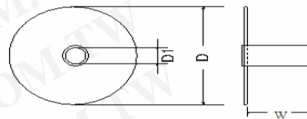
Taping Dimension	Disc Size	P0	F	P	P1	H	H1	d	W0	W1	W2	W	ΔP	Δh	L1	D0	T	Figure
		±0.3	±0.5	±1	±0.7	+2 -0	Max.	±0.02	±1.5	+0.75 -0.5	Max.	+1 -0.5	Max.	Max.	Min.	±0.2	±0.2	
P0:12.7	05	12.7	4.0	12.7	4.35	18	28	0.8	12	9	3	18	1	2	9	4	0.6	A
	08	12.7	5.0	12.7	3.85	18	30	0.8	12	9	3	18	1	2	9	4	0.6	A
	10	12.7	5.0	12.7	3.85	18	32	0.8	12	9	3	18	1	2	9	4	0.6	A
	13	12.7	7.5	25.4	8.95	18	35	0.8	12	9	3	18	1	2	9	4	0.6	B
	15	12.7	7.5	25.4	8.95	18	37	1.0	12	9	3	18	1	2	9	4	0.6	B
	20	12.7	7.5	25.4	8.95	18	42	1.0	12	9	3	18	1	2	9	4	0.6	B
P0:15.0	05	15.0	4.0	15.0	5.50	18	28	0.8	12	9	3	18	1	2	9	4	0.6	A
	08	15.0	5.0	15.0	5.00	18	30	0.8	12	9	3	18	1	2	9	4	0.6	A
	10	15.0	5.0	15.0	5.00	18	32	0.8	12	9	3	18	1	2	9	4	0.6	A
	13	15.0	7.5	15.0	3.75	18	35	0.8	12	9	3	18	1	2	9	4	0.6	A
	15	15.0	7.5	30.0	3.75	18	37	1.0	12	9	3	18	1	2	9	4	0.6	C
	20	15.0	7.5	30.0	3.75	18	42	1.0	12	9	3	18	1	2	9	4	0.6	C

□ Bulk Packing

Series	Standard Lead Type Quantity (pcs/bag)	Cut Lead Type Quantity (pcs/bag)	L kink Type Quantity (pcs/bag)
SCK05	250	500	---
SCK08	250	250	200
SCK10	200	250	200
SCK13	100	200	100
SCK15	100	100	100
SCK20	500 (pcs/box)	50	50
SCK25	396 (pcs/box)	396 (pcs/box)	---
SCK30	396 (pcs/box)	396 (pcs/box)	---

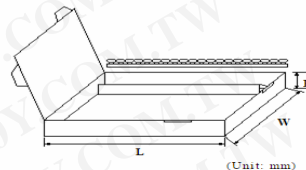
□ Reel Packing

Series	D (mm)	D1 (mm)	W (mm)	Quantity (pcs/reel)
SCK05	340±10	31±1	46±1	2,000
SCK08				1,500
SCK10				1,500
SCK13			750	
SCK15			750	
SCK20			52±1	500



□ Ammo Packing

Series	Quantity (pcs/box)
SCK05	1,500
SCK08	1,300
SCK10	1,300
SCK13	600 (P0 12.7mm)
	1,000 (P0 15.0mm)
SCK15	500
SCK20	500



Body Size	L	W	H
Φ5-Φ20	345	275	55