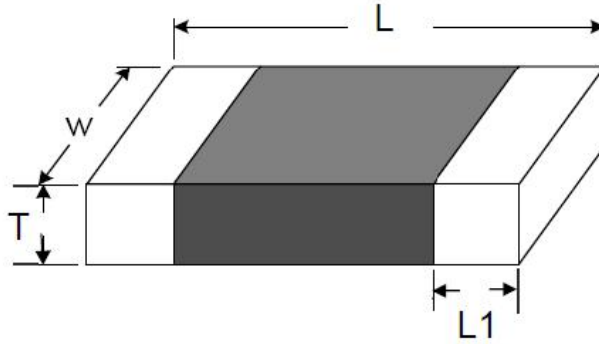


# Chip NTC Thermistor

## SN0603 Series

### Shape and Dimensions Unit: (mm)



Type	L	W	T	L1
Dimensions	1.60±0.15	0.80±0.10	0.95 max	0.20~0.50

### Part Number Code

<b>SN</b>	<b>0603</b>	<b>X</b>	<b>103</b>	<b>F</b>	<b>3435</b>	<b>F</b>	<b>A</b>
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

- (1) SN: Socay Chip NTC Thermistor.
- (2) 0603: External Dimensions (L x W x T): 1.60mm x 0.80mm x 0.95mm.
- (3) X: Delimiter.
- (4) 103: Nominal Zero-Power Resistance at 25°C: 222 = 2.2kΩ; 103 = 10kΩ; 474 = 470kΩ.
- (5) F: Tolerance of Resistance: F: ±1%; H: ±3%; J: ±5%.
- (6) 3435: B Constant: 3435 = 3435K; 3950 = 3950K; 4250 = 4250K.
- (7) F: Tolerance of B Constant: F: ±1%.
- (8) A: B Constant Calculation Method: A: 25°C & 85°C; B: 25°C & 50°C.

# Chip NTC Thermistor

## SN0603 Series

### Electrical Characteristics

#### 1) F Series

Part Number	Resistance (25°C) (kΩ)	B Constant (25/50°C) (K)	B Constant (25/85°C) (K)	Dissipation Factor (mW/°C)	Thermal Time Constant (s)	Rated Electric Power (25°C) (mW)	Operating Ambient Temperature (°C)
SN0603X103F3380FB	10 ± 1%	3380 ± 1%	--	2.1	3.1	210	-40 ~ +125
SN0603X103F3435FA	10 ± 1%	--	3435 ± 1%	2.1	3.1	210	-40 ~ +125
SN0603X103F3950FB	10 ± 1%	3950 ± 1%	--	2.1	3.1	210	-40 ~ +125
SN0603X103F3980FA	10 ± 1%	--	3980 ± 1%	2.1	3.1	210	-40 ~ +125
SN0603X473F3950FA	47 ± 1%	--	3950 ± 1%	2.1	3.1	210	-40 ~ +125
SN0603X473F4050FB	47 ± 1%	4050 ± 1%	--	2.1	3.1	210	-40 ~ +125
SN0603X503F3950FA	50 ± 1%	--	3950 ± 1%	2.1	3.1	210	-40 ~ +125
SN0603X104F3980FA	100 ± 1%	--	3980 ± 1%	2.1	3.1	210	-40 ~ +125
SN0603X104F4050FA	100 ± 1%	--	4050 ± 1%	2.1	3.1	210	-40 ~ +125
SN0603X104F4200FB	100 ± 1%	4200 ± 1%	--	2.1	3.1	210	-40 ~ +125
SN0603X104F4250FB	100 ± 1%	4250 ± 1%	--	2.1	3.1	210	-40 ~ +125
SN0603X104F4310FA	100 ± 1%	--	4310 ± 1%	2.1	3.1	210	-40 ~ +125
SN0603X104F4360FA	100 ± 1%	--	4360 ± 1%	2.1	3.1	210	-40 ~ +125
SN0603X104F4400FA	100 ± 1%	--	4400 ± 1%	2.1	3.1	210	-40 ~ +125
SN0603X204F4055FA	200 ± 1%	--	4055 ± 1%	2.1	3.1	210	-40 ~ +125
SN0603X204F4100FA	200 ± 1%	--	4100 ± 1%	2.1	3.1	210	-40 ~ +125

#### 2) H Series

Part Number	Resistance (25°C) (kΩ)	B Constant (25/50°C) (K)	B Constant (25/85°C) (K)	Dissipation Factor (mW/°C)	Thermal Time Constant (s)	Rated Electric Power (25°C) (mW)	Operating Ambient Temperature (°C)
SN0603X103H3380FB	10 ± 3%	3380 ± 1%	--	2.1	3.1	210	-40 ~ +125
SN0603X103H3435FA	10 ± 3%	--	3435 ± 1%	2.1	3.1	210	-40 ~ +125
SN0603X103H3950FB	10 ± 3%	3950 ± 1%	--	2.1	3.1	210	-40 ~ +125
SN0603X103H3980FA	10 ± 3%	--	3980 ± 1%	2.1	3.1	210	-40 ~ +125
SN0603X473H3950FA	47 ± 3%	--	3950 ± 1%	2.1	3.1	210	-40 ~ +125
SN0603X473H4050FB	47 ± 3%	4050 ± 1%	--	2.1	3.1	210	-40 ~ +125
SN0603X503H3950FA	50 ± 3%	--	3950 ± 1%	2.1	3.1	210	-40 ~ +125
SN0603X104H3980FA	100 ± 3%	--	3980 ± 1%	2.1	3.1	210	-40 ~ +125
SN0603X104H4050FA	100 ± 3%	--	4050 ± 1%	2.1	3.1	210	-40 ~ +125
SN0603X104H4200FB	100 ± 3%	4200 ± 1%	--	2.1	3.1	210	-40 ~ +125
SN0603X104H4250FB	100 ± 3%	4250 ± 1%	--	2.1	3.1	210	-40 ~ +125
SN0603X104H4310FA	100 ± 3%	--	4310 ± 1%	2.1	3.1	210	-40 ~ +125

# Chip NTC Thermistor

## SN0603 Series

### 2) H Series (Continue)

Part Number	Resistance (25°C) (kΩ)	B Constant (25/50°C) (K)	B Constant (25/85°C) (K)	Dissipation Factor (mW/°C)	Thermal Time Constant (s)	Rated Electric Power (25°C) (mW)	Operating Ambient Temperature (°C)
SN0603X104H4360FA	100±3%	--	4360±1%	2.1	3.1	210	-40 ~ +125
SN0603X104H4400FA	100±3%	--	4400±1%	2.1	3.1	210	-40 ~ +125
SN0603X204H4055FA	200±3%	--	4055±1%	2.1	3.1	210	-40 ~ +125
SN0603X204H4100FA	200±3%	--	4100±1%	2.1	3.1	210	-40 ~ +125

### 3) J Series

Part Number	Resistance (25°C) (kΩ)	B Constant (25/50°C) (K)	B Constant (25/85°C) (K)	Dissipation Factor (mW/°C)	Thermal Time Constant (s)	Rated Electric Power (25°C) (mW)	Operating Ambient Temperature (°C)
SN0603X103J3380FB	10±5%	3380±1%	--	2.1	3.1	210	-40 ~ +125
SN0603X103J3435FA	10±5%	--	3435±1%	2.1	3.1	210	-40 ~ +125
SN0603X103J3950FB	10±5%	3950±1%	--	2.1	3.1	210	-40 ~ +125
SN0603X103J3980FA	10±5%	--	3980±1%	2.1	3.1	210	-40 ~ +125
SN0603X473J3950FA	47±5%	--	3950±1%	2.1	3.1	210	-40 ~ +125
SN0603X473J4050FB	47±5%	4050±1%	--	2.1	3.1	210	-40 ~ +125
SN0603X503J3950FA	50±5%	--	3950±1%	2.1	3.1	210	-40 ~ +125
SN0603X104J3980FA	100±5%	--	3980±1%	2.1	3.1	210	-40 ~ +125
SN0603X104J4050FA	100±5%	--	4050±1%	2.1	3.1	210	-40 ~ +125
SN0603X104J4200FB	100±5%	4200±1%	--	2.1	3.1	210	-40 ~ +125
SN0603X104J4250FB	100±5%	4250±1%	--	2.1	3.1	210	-40 ~ +125
SN0603X104J4310FA	100±5%	--	4310±1%	2.1	3.1	210	-40 ~ +125
SN0603X104J4360FA	100±5%	--	4360±1%	2.1	3.1	210	-40 ~ +125
SN0603X104J4400FA	100±5%	--	4400±1%	2.1	3.1	210	-40 ~ +125
SN0603X204J4055FA	200±5%	--	4055±1%	2.1	3.1	210	-40 ~ +125
SN0603X204J4100FA	200±5%	--	4100±1%	2.1	3.1	210	-40 ~ +125

#### Test and Measurement Procedures

- ◆ Test Conditions:  
Unless otherwise specified, the standard atmospheric conditions for measurement/test as:
  - a. Ambient Temperature: 25±2°C
  - b. Relative Humidity: 65±5%
  - c. Air Pressure: 86kPa to 106kPa

#### Storage Conditions of Products

- ◆ Storage Conditions:  
Storage Temperature: -10°C ~ +40°C.  
Relative Humidity: ≤ 75%RH.  
Keep away from corrosive atmosphere and sunlight.
- ◆ Period of Storage: 6 months.

# Chip NTC Thermistor

## SN0603 Series

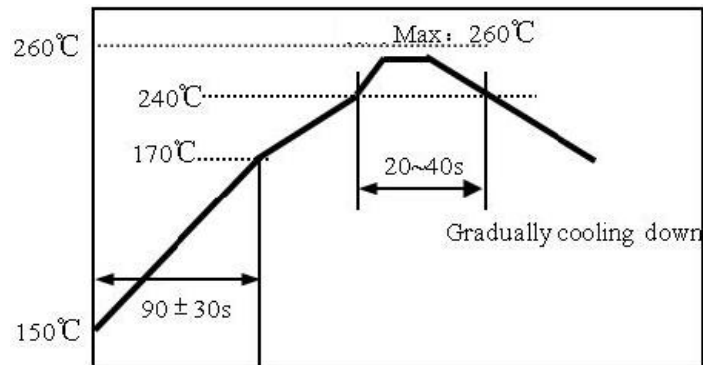
### Reliability-SMD Type NTC Thermistor for Temperature Sensing

Test description	Standard	Test condition	Test requirement															
Bending strength	IEC 60068-2-21	Speed <0.5mm/sec Duration : 10sec on PCB Warp : 2mm	No visible damage $\Delta R_{25}/R_{25} \leq \pm 5\%$															
Solder ability	IEC 60068-2-58	245±5°C, 3±0.3 sec.	Above 95% in the terminal surface shall be with new solder															
Resistance to soldering heat	IEC 60068-2-58	260±5°C, 10±1 sec.	No visible damage $\Delta R_{25}/R_{25} \leq \pm 3\%$															
High temperature storage	IEC 60068-2-2	125±5°C, 1000±24 hrs.	No visible damage $\Delta R_{25}/R_{25} \leq \pm 5\%$															
Damp Heat, Steady State	IEC 60068-2-78	40±2°C, 90~95%RH, 1000±24 hrs.	No visible damage $\Delta R_{25}/R_{25} \leq \pm 3\%$															
Rapid Change of temperature	IEC 60068-2-14	Temperature cycle shall be repeated 5 cycles on PCB <table border="1" data-bbox="638 1366 1077 1668"> <thead> <tr> <th>Step</th> <th>Temperature(°C)</th> <th>Period(minutes)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-40±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>125±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	-40±5	30±3	2	Room temperature	5±3	3	125±5	30±3	4	Room temperature	5±3	No visible damage $\Delta R_{25}/R_{25} \leq \pm 3\%$
Step	Temperature(°C)	Period(minutes)																
1	-40±5	30±3																
2	Room temperature	5±3																
3	125±5	30±3																
4	Room temperature	5±3																
Max. Power Dissipation	IEC 60539-14.26.3	25±5°C, Pmax, 1000±24 hrs.	No visible damage $\Delta R_{25}/R_{25} \leq \pm 5\%$															

### Recommended Soldering Technologies

#### ◆ Re-flowing Profile

- (1) 1~2°C/sec. Ramp
- (2) Pre-heating: 150~170°C/90±30 sec.
- (3) Time above 240°C: 20~40 sec.
- (4) Peak temperature: 260°C Max./10 sec.
- (5) Solder paste: Sn/3.0Ag/0.5Cu
- (6) Max. 2 times for re-flowing



#### ◆ Iron Soldering Profile

- (1) Iron soldering power: Max. 20W
- (2) Pre-heating: 150°C/60sec.
- (3) Soldering Tip temperature: 280°C Max.
- (4) Soldering time: 3 sec Max.
- (5) Solder paste: Sn/3.0Ag/0.5Cu
- (6) Max. 1 times for iron soldering

**Note:** Take care not to apply the tip of the soldering iron to the terminal electrodes.

