SINLOON® 貼片型熱敏電阻 Type: 0805 (2010)

Chip NTC Thermistor

Resistance Range: 4.7K ~ 200K ohm

☐ FEATURE

Figure:

- Small size, Low capacitance at 40 MHz (below 3 pF)
- Resistance Range: (0805) 4.7K ~ 200K ohm
- Corresponding to high B value.
- Glass coated perform for long term reliability.
- Strong against electrostatic.
- Excellent in cost-performance.
- High accuracy and high environmental resistance are provided due to original manufacturing method.
- All Pb-free product [Pd and Cd are not contained in product]

☐ APPLICATIONS

- Mobile communication related equipment. (TCXO,RF circuit, LCD panel, Battery pack).
- Computer related equipment.
- Temperature detection for CPU and memory equipment.
- Temperature compensation for contrast of LCD.
- Optical communication equipment.

☐ DESCRIPTION:

- NTC thermistor is Negative Temperature Coefficient of Thermistor resistor.
- A thermistor is a thermally sensitive resistor whose primary function is to exhibit a change in electrical resistance with a change in body temperature.
- NTC thermistor is one in which the zero-power resistance decreases with an increase in temperature.

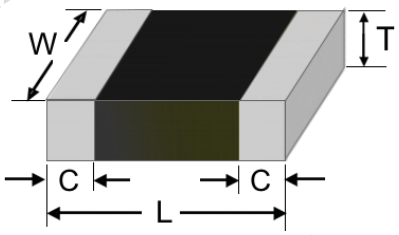
☐ ORDERING PROCEDURE:

Example: SMD05472F3IH-T (0805-4.7K ±1% B-3435 ±3% T/Reel)

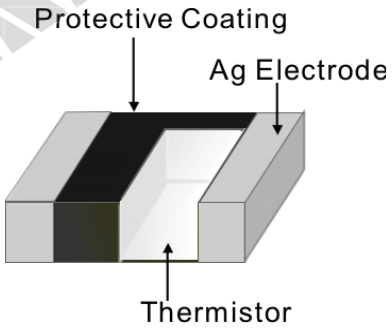
Type	Chip Size	Resistance	Tolerance	B-constant				B-tolerance	Package
SMD02	1005(0402)	102=1KΩ	K = ±10%	1 : 1000	C: 101~150	I: 401 ~ 450	O: 701 ~ 750	K = ±10%	T = Reel (7")
SMD03	1608(0603)	103=10KΩ	J = ±5%	2 : 2000	D: 151 ~ 200	J: 451 ~ 500	P: 751 ~ 800	J = ±5%	SMD02: 10Kp
SMD05	2012(0805)	104=100KΩ	H = ±3%	3 : 3000	E: 201 ~ 250	K: 501 ~ 550	Q: 801 ~ 850	H = ±3%	SMD03: 4Kp
			G = ±2%	4 : 4000	F: 251 ~ 300	L: 551 ~ 600	R: 851 ~ 900	G = ±2%	SMD05: 4Kp
			F = ±1%	A: 0 ~ 50	G: 301 ~ 350	M: 601 ~ 650	S: 901 ~ 950	F = ±1%	
				B: 51~100	H: 351 ~ 400	N: 651 ~ 700	T: 951 ~ 999		

☐ DIMENSION:

Type	Chip Size	L (mm)	W (mm)	T (mm)	C (mm)
SMD02	1005(0402)	1.00±0.05	0.50±0.05	0.50±0.05	0.25±0.10
SMD03	1608(0603)	1.60±0.10	0.80±0.10	0.95±0.10	0.40±0.20
SMD05	2012(0805)	2.00±0.20	1.25±0.20	1.20±0.20	0.50±0.20



☐ Bare Chip Structure



＊ 電阻Resistor - 溫度 Temperature 特性利用:
NTC 熱敏電阻隨環境溫度(T)升高,電阻值'(R)會下降,反之,當溫度(T)下降,電阻值'(R)會上升(R25℃),
其對溫度感測非常靈敏,適用於各種溫度的感測與補償電路.

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☐ DATA SPECIFICATION

Part Number (0805)	Resistance 25℃	B-constance 25℃/85℃ K	Maximum Power Rating	Dissipation Constant	Operating Temp.(℃)	Size (mm)
SMD05-472☐3I ■	4K7 Ω	3435	400 mW	4 mW/℃	-40~125	2.0x1.25
SMD05-502☐3I ■	5K Ω	3435	400 mW	4 mW/℃	-40~125	
SMD05-103☐3I ■	10K Ω	3435	400 mW	4 mW/℃	-40~125	
SMD05-103☐3K■	10K Ω	3550	400 mW	4 mW/℃	-40~125	
SMD05-103☐3T■	10K Ω	3970	400 mW	4 mW/℃	-40~125	
SMD05-223☐3R■	22K Ω	3900	400 mW	4 mW/℃	-40~125	
SMD05-473☐4A■	47K Ω	4000	400 mW	4 mW/℃	-40~125	
SMD05-503☐4A■	50K Ω	4000	400 mW	4 mW/℃	-40~125	
SMD05-104☐4A■	100K Ω	4000	400 mW	4 mW/℃	-40~125	
SMD05-204☐4B■	200K Ω	4100	400 mW	4 mW/℃	-40~125	

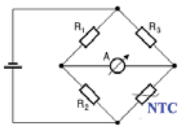
Remark:☐ Resistance tolerance

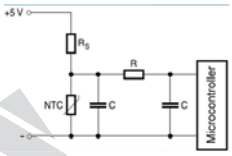
■ B-constance tolerance

※ Maximum Power Rating = Dissipation Constant x (Max. Operation Temperature - 25℃).

∗ Please inquire to contact us for others specification.

典型應用: 將NTC熱敏電阻置於惠斯登電橋(Wheatstone bridge，如下圖所示)其中一邊電路上即可用於感測溫度。當電橋達到平衡時，任何溫度變化會使NTC熱敏電阻的電阻值馬上跟著改變，因此就會有明顯的電流通過安培計。NTC熱敏電阻與微控制器實際應用電路，如下圖所示。





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※Mayloon characteristic parameters of electronic product specification changes or updates without notice to improve。

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☐ BASIC CHARACTERISTICS

1. Zero-power Resistance of Thermistor

$R=R_0 \exp B(1/T-1/T_0)$ .....(1)

R : Resistance in ambient temperature T (K)
(K : absolute temperature)

R_0 : Resistance in ambient temperature T_0 (K)

B : B-constant of Thermistor

2. B-Constant

As (1) formula

$B=\ln (R/R_0) / (1/T-1/T_0)$ -------- (2)

3. Thermal Dissipation Constant

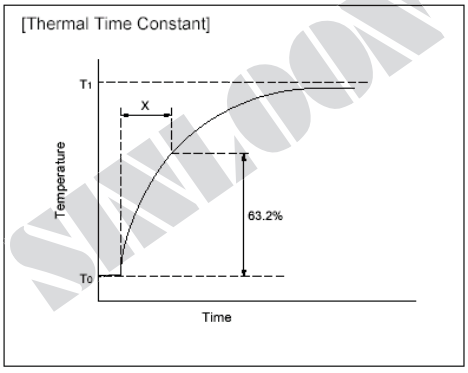
When spend electric power P (mW) in ambient temperature T_1, if Thermistor's temperature rises T_2, there is a formula as follows

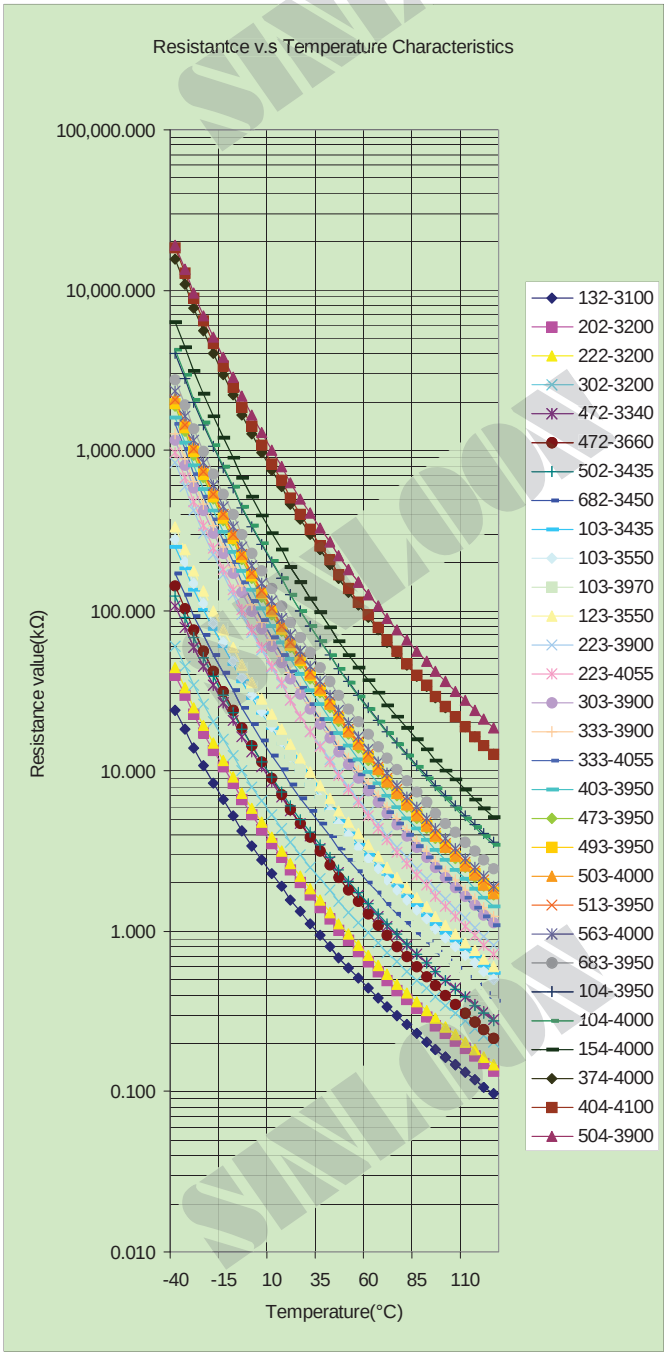
$P=C (T_2-T_1)$ ---------- (3)

C : Thermal dissipation constant (mW/℃)
Thermal dissipation constant change by dimensions, measure, measured condition etc.

4. Thermal Time Constant

Period in which Termistor's temperature will change 63.2% of its temperature difference from ambient temperature T_0 (℃) to T_1 (℃).





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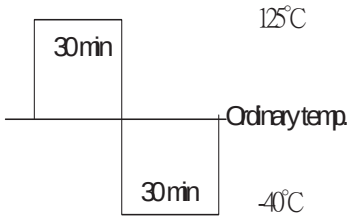
☐ Reliability Test

Test Item		Standard	Test Method	$\triangle R_{25} / R_{25}$
Environmental test	Life	MIL-STD-202F Method 108A	Test temperature：70℃ Test duration：1000 hrs Load power： 1206 – 6.5 mW，0805 – 5.0 mW，0603 – 4.5 mW， 0402 – 3.5 mW。	MAX. ± 3 %
	Humidity	MIL-STD-202F Method 103B	Test temperature：40℃ Test humidity：95% Test duration：1000 hrs Load power： 1206 – 6.5 mW，0805 – 5.0 mW，0603 – 4.5 mW， 0402 – 3.5 mW。	MAX. ± 3 %
	Thermal shock	MIL-STD-202F Method 107G	Test cycle：10 times Test temperature：- 40℃ & 125℃ 	MAX. ± 3 %
	Storage in dry heat	IEC 68-2-2	Test temperature：125℃ Test duration：1000 hrs	MAX. ± 3 %
Mechanical	Solderability	MIL-STD-202F Method 208 H	Soldering temperature：235℃ Duration of immersion：2 seconds	95 % min. coverage
test	Resistance to soldering heat	MIL-R-55342D PARA 4.7.7	Soldering temperature：260℃ Duration of immersion：10 seconds	MAX. ± 3 %

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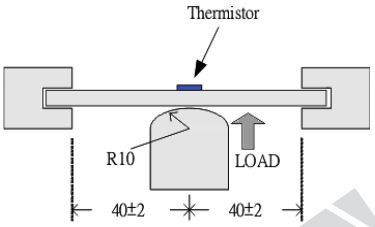
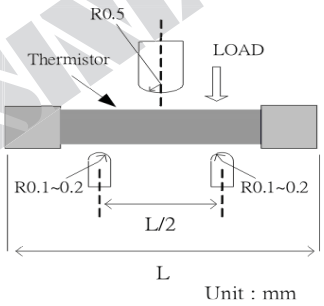
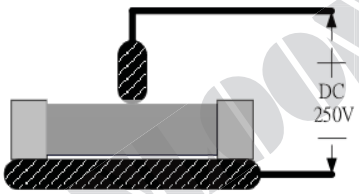
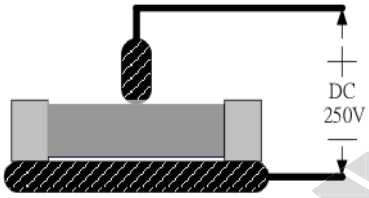
☐ Reliability Test

Test Item		Standard	Test Method	△R_{25} / R_{25}
Mechanical Performance test	Bending strength	JIS C 5202 6.1.4	Pressurizing rod at a rate of 1mm/sec Maintenance time：5 sec Bending distance：1 mm (min.)  Unit : mm	Visual : No mechanical damage
	Resistance to flexure of substrate	JIS C 5202 6.2.1	Pressurizing force shall be 3kg  Unit : mm	MIN. 3 Kg
Electrical Performance test	Insulation resistance	MIL-STD-202F Method 302	DC 250V For 10 seconds 	Over 1000MΩ
	Dielectric withstand voltage	MIL-STD-202F Method 302	DC 250V For 10 seconds 	NOT Short

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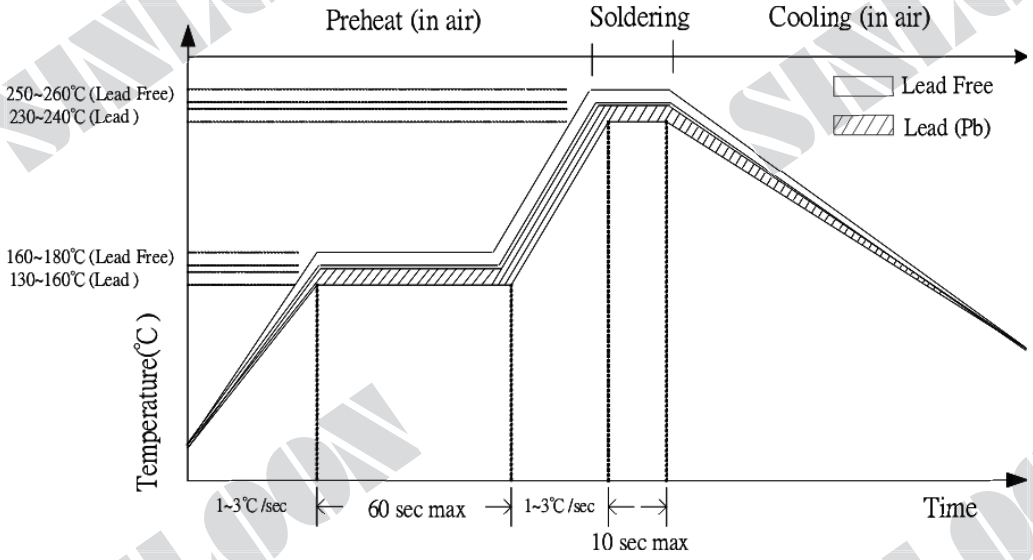
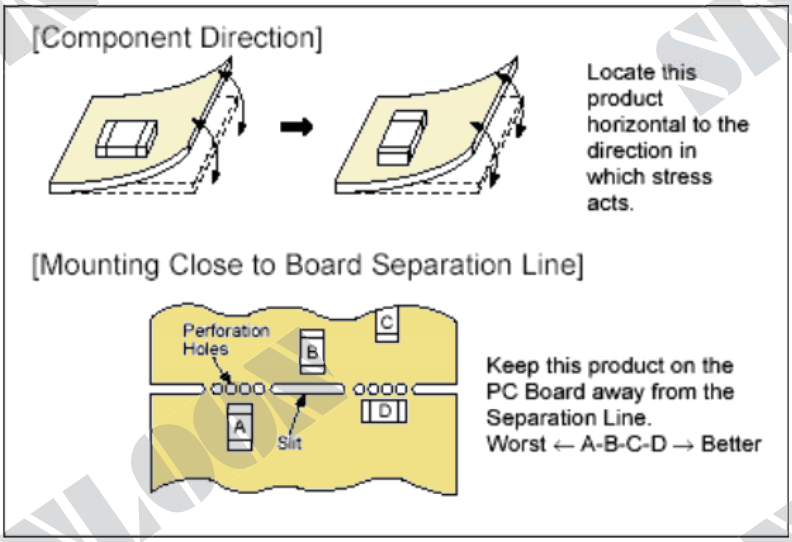
☐ REFLOW SOLDERING PROFILE



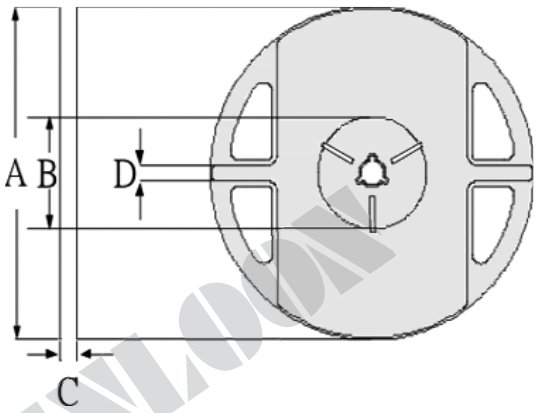
☐ MOUNTING POSITION



☐ PACKING REEL DIMENSIONS

Unit: mm

ITEM	A	B	C	D	Quantity		
					Reel	Box	Carton
Dimensions	178.0 ± 1.0	60.0 ± 1.0	9.0 ± 0.1	13.0 ± 0.1	4K pcs	40K pcs	240K pcs



7" Plastic Reel