SMD03 (0603)
NTC SMD Thermistor

FEATURE

- Small size, Low capacitance at 40 MHz (below 3 pF)
- 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.

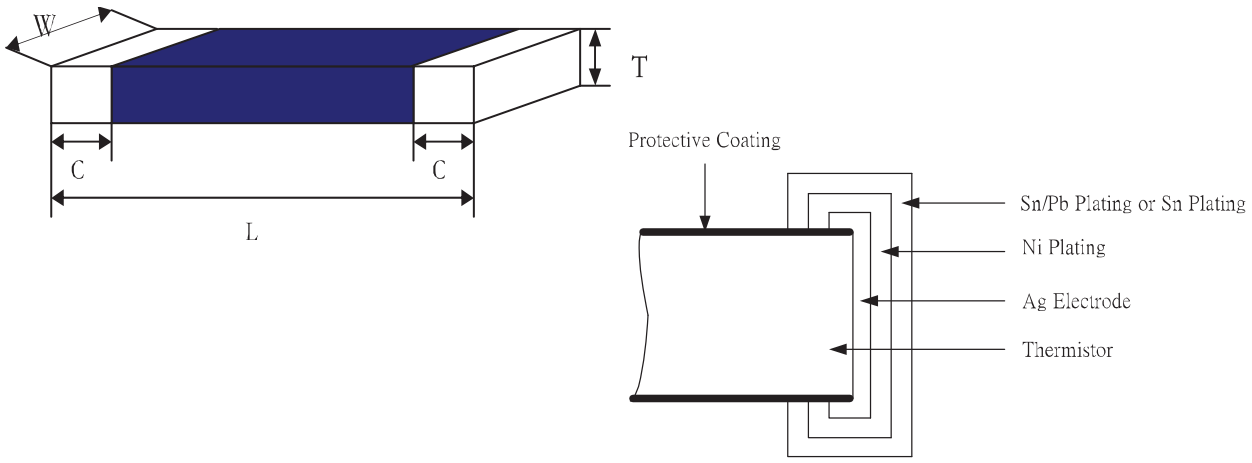
ORDERING PROCEDURE:

Example: SMD03103J3435HT

Type	Chip Size	Resistance	Tolerance	B-constant	B-tolerance	Package
SMD02	1005(0402)	101=100Ω	K = ±10%		K = ±10%	
SMD03	1608(0603)	102=1KΩ	J = ±5%		J = ±5%	
SMD05	2012(0805)	103=10KΩ	H = ±3%	3150~4100	H = ±3%	T = Reel
SMD06	3216(1206)	104=100KΩ	G = ±2%		G = ±2%	
			F = ±1%		F = ±1%	

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
SMD06	3216(1206)	1.00±0.05	1.60±0.20	1.40±0.30	0.25±0.60



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1608（0603）Size

SPECIFICATION

Part Number (SMD)	Resistance （25℃）（Ω）	B-constant （25-85℃） （k）	Maximum Power Rating（25℃） （mW）	Thermal Dissipation Constant （mW/℃）	Operating Temp. Range （℃）
03220□3150□	22	3150	350	3.5	-40 ~ 125
03300□3150□	30	3150			
03470□3150□	47	3150			
03680□3150□	68	3150			
03101□2800□	100	2800			
03101□3250□	100	3250			
03221□3250□	220	3250			
03102□2950□	1K	2950			
03102□2950□	1K	4100			
03202□3100□	2K	3100			
03202□3150□	2K	3150			
03202□4100□	2K	4100			
03222□3150□	2.2K	3150			
03302□3150□	3K	3150			
03302□3200□	3K	3200			
03332□3150□	3.3K	3150			
03472□3340□	4.7K	3340			
03472□4100□	4.7K	4100			
03502□3950□	5.0K	3950			
03103□3435□	10K	3435			
03103□3550□	10K	3550			
03103□3610□	10K	3610			
03103□3700□	10K	3700			
03103□3800□	10K	3800			
03103□3970□	10K	3970			
03103□4100□	10K	4100			
03123□3550□	12K	3550			

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03303□3900□	30K	3900	350	3.5	-40 ~ 125
03333□3900□	33K	3900			
03333□3950□	33K	3950			
03403□3950□	40K	3950			
03473□3950□	47K	3950			
03473□4100□	47K	4100			
03493□3950□	49K	3950			
03503□3950□	50.0	3950			
03513□3950□	51K	3950			
03683□3950□	68K	3950			
03683□4150□	68K	4150			
03104□3950□	100K	3950			
03104□4100□	100K	4100			
03104□4400□	100K	4400			
03154□4000□	150k	4000			
03154□4600□	150k	4600			
03204□3950□	200K	3950			
03224□3950□	220K	3950			
03502□3950□	5.0K	3950			
03103□3435□	10K	3435			
03103□3550□	10K	3550			
03103□3610□	10K	3610			
03103□3700□	10K	3700			
03103□3800□	10K	3800			
03103□3970□	10K	3970			
03103□4100□	10K	4100			

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03123□3550□	12K	3550	350	3.5	-40 ~ 125
03303□3900□	30K	3900			
03333□3900□	33K	3900			
03333□3950□	33K	3950			
03403□3950□	40K	3950			
03473□3950□	47K	3950			
03473□4100□	47K	4100			
03493□3950□	49K	3950			
03503□3950□	50.0	3950			
03513□3950□	51K	3950			
03683□3950□	68K	3950			
03683□4150□	68K	4150			
03104□3950□	100K	3950			
03104□4100□	100K	4100			
03104□4400□	100K	4400			
03154□4000□	150k	4000			
03154□4600□	150k	4600			
03204□3950□	200K	3950			
03224□3950□	220K	3950			
03224□3950□	220K	4650			
03304□4055□	300K	4055			
03334□4100□	330K	4100			
03374□4000□	370K	4000			
03404□4100□	400K	4100			
03474□4050□	470K	4055			
03474□4100□	470K	4100			
03474□4750□	470K	4750			
03504□4100□	500K	4100			
03564□4100□	560K	4100			

※ Please inquire to our sales for other spec. website http://www.mayloon.com

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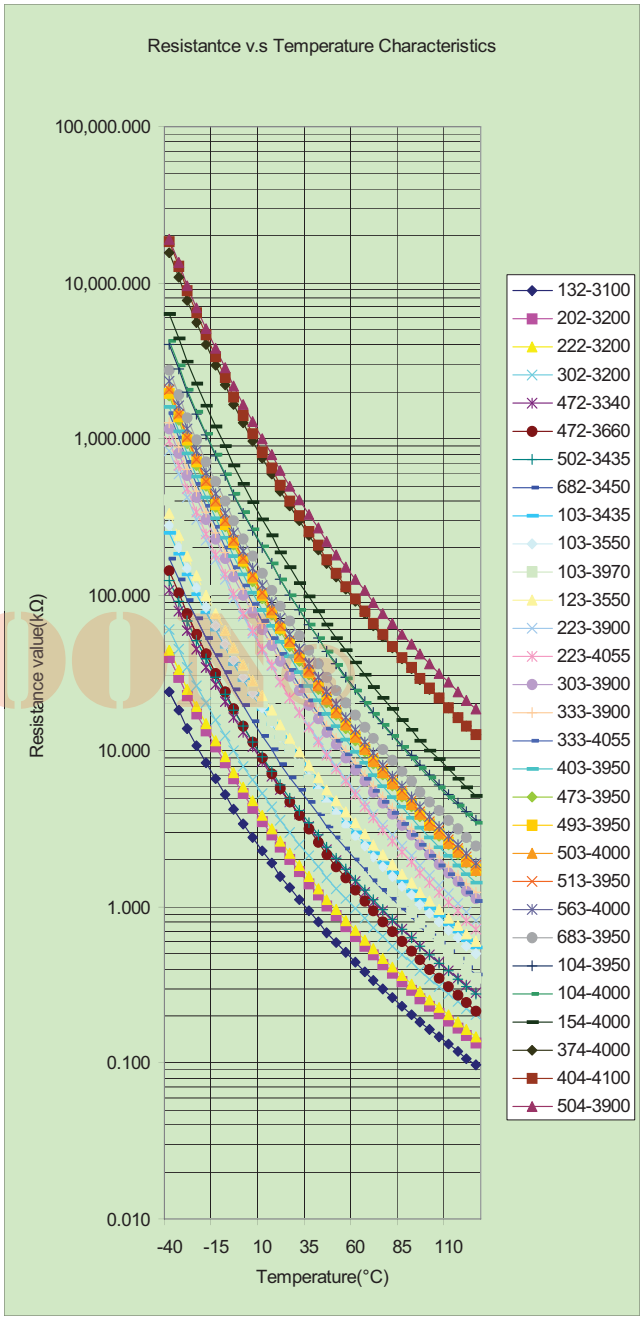
BASIC CHARACTERISTICS

1. Zero-power Resistance of Thermistor

R= R0 exp B (1/T-1/T0) .....(1)

R : Resistance in ambient temperature T (K)
(K : absolute temperature)
R0 : Resistance in ambient temperature T0 (K)
B : B-constant of Thermistor



2. B-Constant

As (1) formula

B= ln (R/R_0) / (1/T-1/T0) -------- (2)

3. Thermal Dissipation Constant

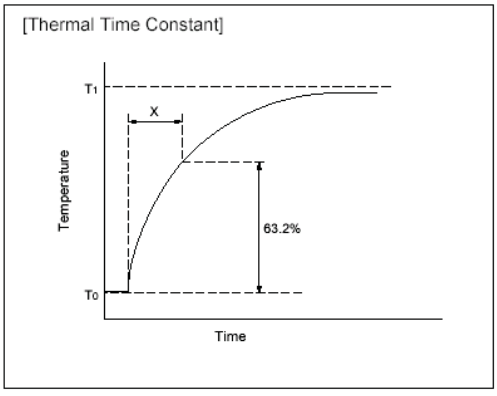
When spend electric power P (mW) in ambient temperature T1, if Thermistor temperature rises T2, there is a formula as follows

P= C (T2 -T1) ---------- (3)

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

4. Thermal Time Constant

Period in which Thermistor temperature will change 63.2% of its temperature difference from ambient temperature T0 (℃) to T_1 (℃).



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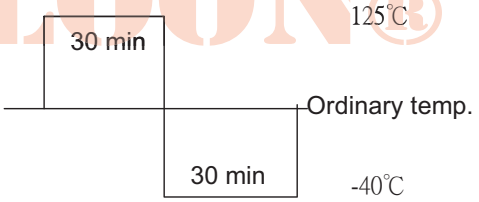
RELIABILITY TEST

Test Item		Standard	Test Method	△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 Performance test	Solderability	MIL-STD-202F Method 208 H	Soldering temperature：235℃ Duration of immersion：2 seconds	95％ min. coverage
	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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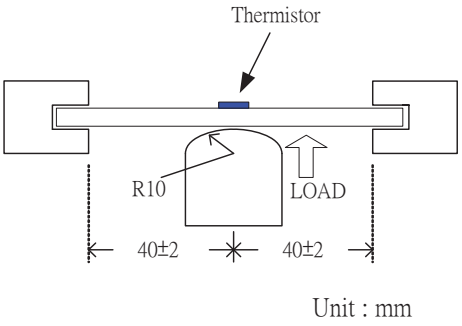
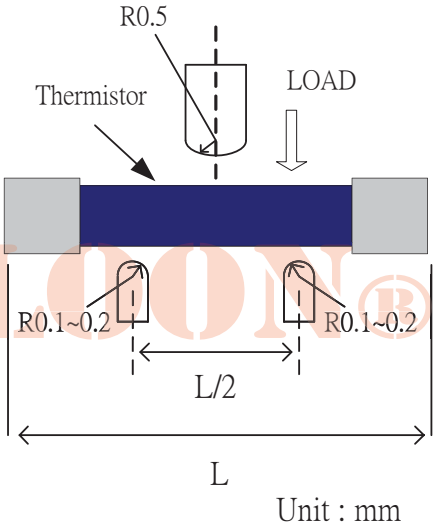
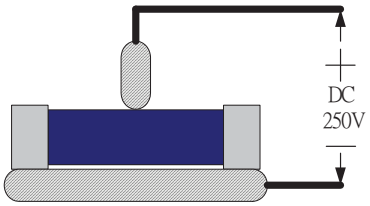
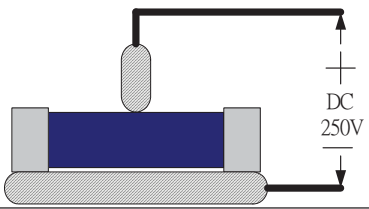
Mechanical Performance test	Bending strength	JIS C 5202 6.1.4	Pressurizing rod at a rate of 1mm/sec Maintenance time：5 sec Bending distance：1 mm (min.) 	Visual : No mechanical damage
	Resistance to flexure of substrate	JIS C 5202 6.2.1	Pressurizing force shall be 3kg 	MIN. 3Kg
Electrical Performance test	Insulation resistance	MIL-STD-202F Method 302	DC 250V For 10 seconds 	Over 1000MΩ
	Dielectric withstand voltage	MIL-STD-202F Method 301	DC 250V For 10 seconds 	NOT Short

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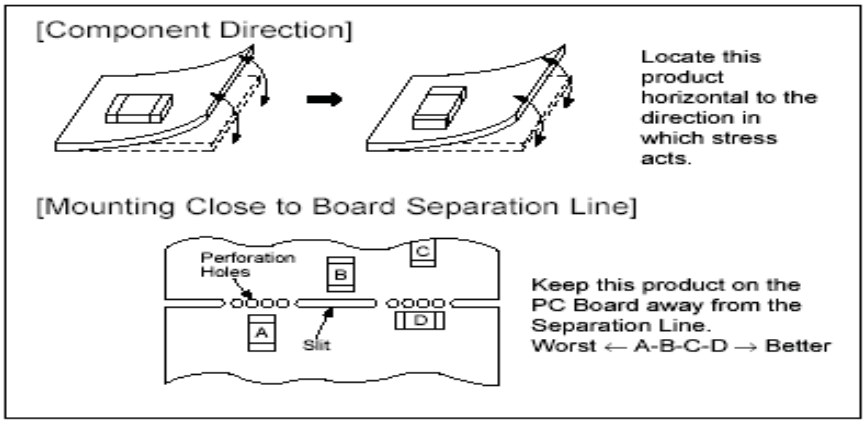
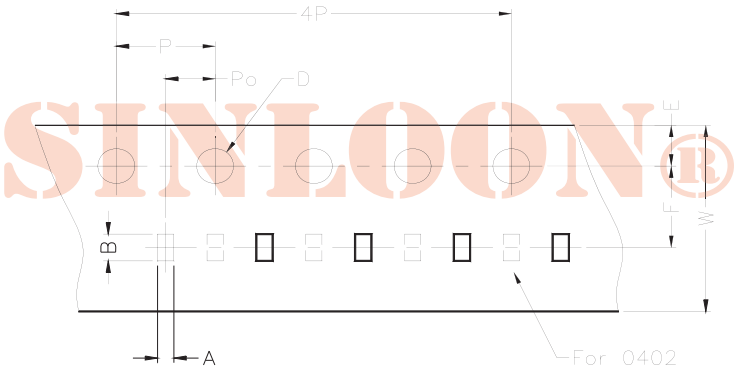
MOUNTING POSITION



Choose a mounting position that minimize the stress imposed on the chip during flexing or bending of the board

TAPE DIMENSIONS



Dimension	1206	0805	0603	0402
A	2.00 ± 0.05	1.50 ± 0.05	1.08 ± 0.05	0.66 ± 0.03
B	3.57 ± 0.05	2.30 ± 0.05	1.85 ± 0.05	1.15 ± 0.03
W	8.00 ± 0.02	8.00 ± 0.05	8.00 ± 0.05	8.00 ± 0.05
D	1.55 ± 0.05	1.50 ± 0.10	1.50 ± 0.10	1.50 ± 0.10
E	1.75 ± 0.10	1.75 ± 0.05	1.75 ± 0.05	1.75 ± 0.05
F	3.50 ± 0.05	3.50 ± 0.05	3.50 ± 0.05	3.50 ± 0.05
P	4.00 ± 0.10	4.00 ± 0.05	4.00 ± 0.05	4.00 ± 0.05
Po	2.00 ± 0.05	2.00 ± 0.05	2.00 ± 0.05	2.00 ± 0.05
4P	16.00 ± 0.05	16.00 ± 0.05	16.00 ± 0.05	16.00 ± 0.05

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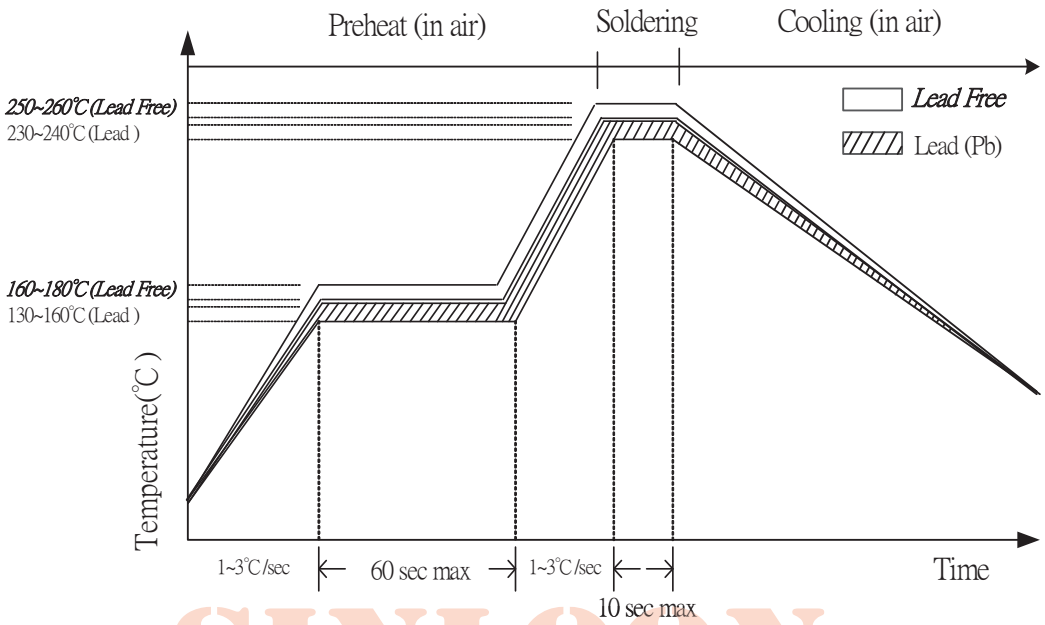
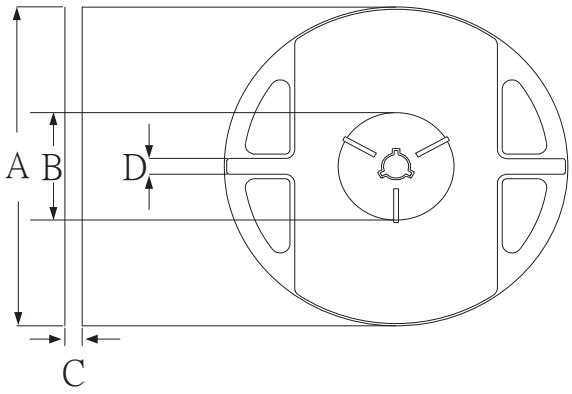
REFLOW SOLDERING PROFILE



REEL DIMENSIONS

Unit：mm



Unit：mm

ITEM	A	B	C	D
Dimension	178.0 ± 1.0	60.0 ± 1.0	9.0 ± 0.1	13.0 ± 0.1

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