

Surface-Mount NTC Thermistor (SMD-3225 Series)

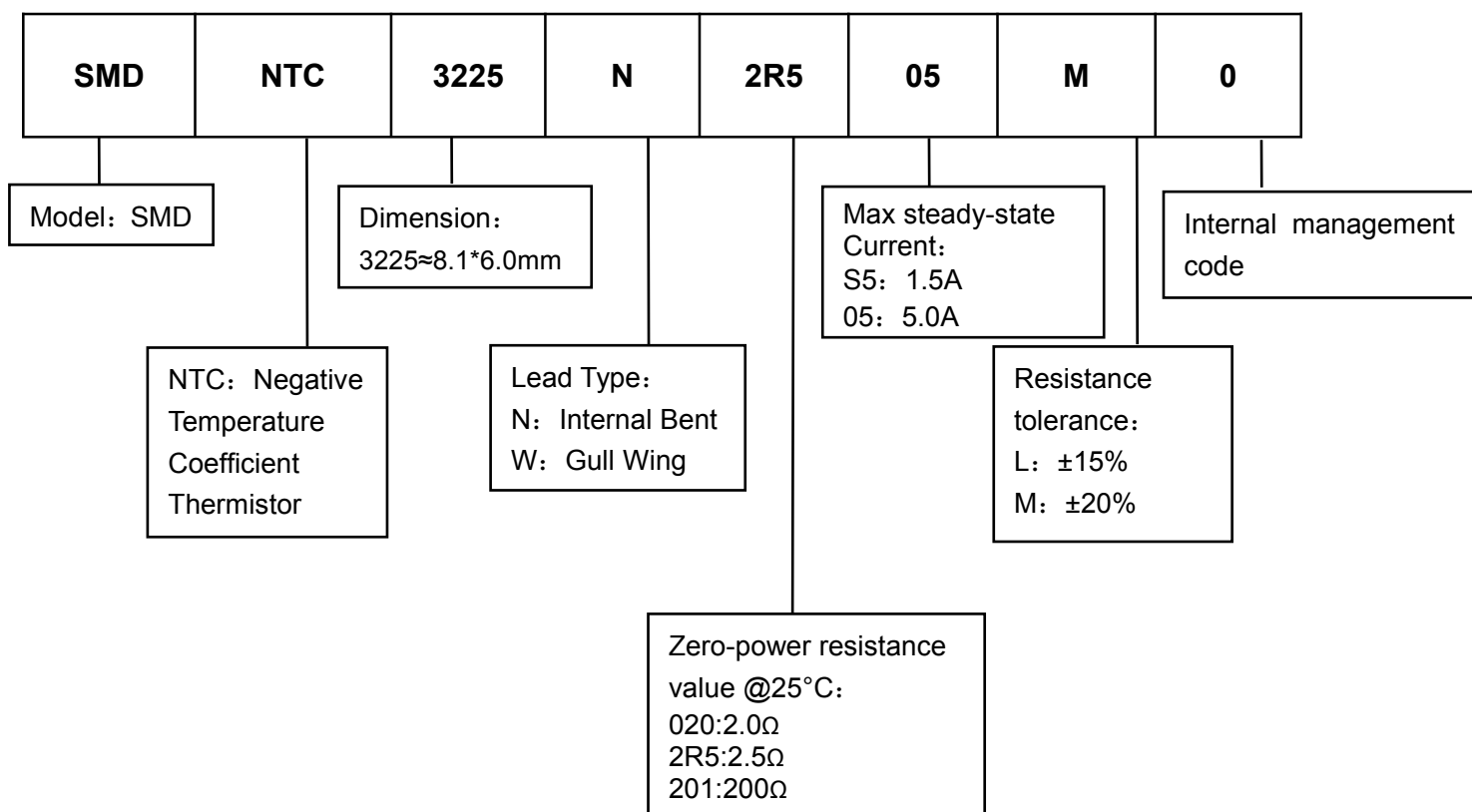
1、Characteristics

- Advanced packaging technology, packaging materials meet UL94-V0
- Compact structure, small size, space-saving
- Excellent high-temperature and high-humidity performance
- Strong surge suppression capability
- SMD tape and reel packaging, suitable for lead-free reflow soldering/wave soldering automatic assembly

2、Application

- Circuit protection
- Industrial equipment
- Communication equipment
- Consumer electronics
- Automotive electronics

3、Principles of Part Number Coding

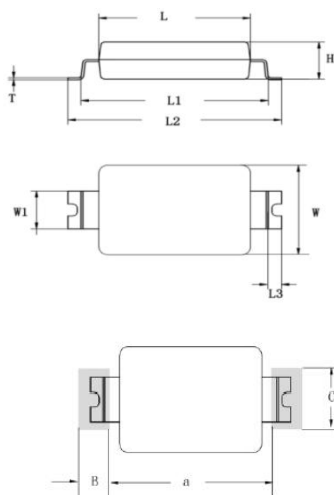


4、Product Imprinting (Sample)

Sample	Description		
	1		SongTian Logo
	2	NTC	NTC Thermistor
	3	3225	Dimension: 3225 $\approx$ 8.1*6.0mm
	4	050	Zero-power resistance value @25°C : 5.0 Ω
	5	M	Resistance tolerance : M ($\pm$ 20%)

5、Physical Dimensions

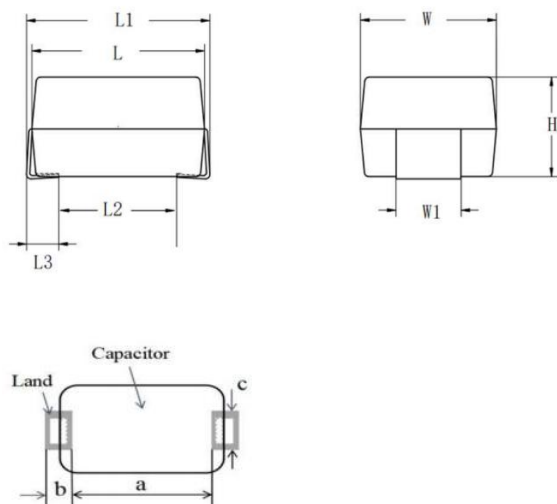
■ Lead Type W: Gull Wing



Dimension(mm) (Gull Wing)			
L	8.1 $\pm$ 0.3	L1	10.0 $\pm$ 0.3
W	6.0 $\pm$ 0.3	L2	11.4 $\pm$ 0.3
H	2.5 $\pm$ 0.3	L3	0.5 $\pm$ 0.3
W1	2.5 $\pm$ 0.3	T	0.15 $\pm$ 0.01

Pad Dimension(mm)	
a	10.0 $\pm$ 0.2
b	2.2 $\pm$ 0.2
c	3.6 $\pm$ 0.2

■ Lead Type N: Internal Bent



Dimension(mm) (Internal Bent)			
L	8.1 $\pm$ 0.3	L1	8.5 $\pm$ 0.3
W	6.0 $\pm$ 0.3	L2	6.0 Min
H	2.5 $\pm$ 0.3	L3	1.1 $\pm$ 0.3
W1	2.5 $\pm$ 0.3		

Pad Dimension(mm)	
a	5.7 $\pm$ 0.2
b	1.65 $\pm$ 0.2
c	3.0 $\pm$ 0.2

6、Electrical Performance

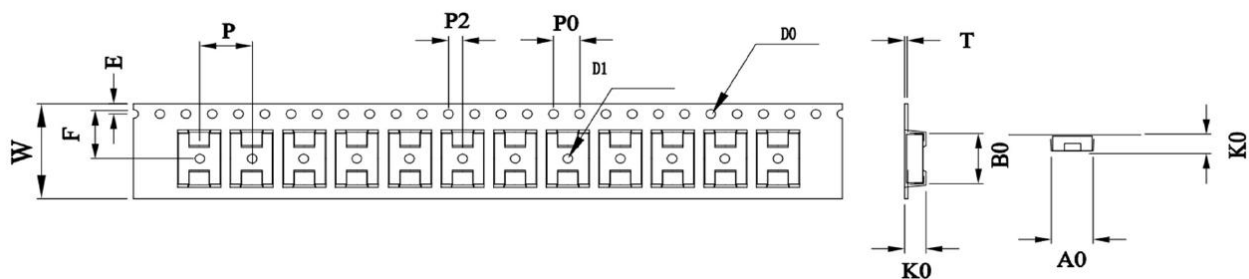
Model Number	Rated Zero Power Resistance @25℃ (Ω)	Maximum Steady Current @25℃ (A)	Residual Resistor At Max Steady Current @25℃ (Ω)	B Value (K) ±10%	Thermal Time Constant (S)	Heat Dissipation Coefficient mW/℃	Operating Temperature Range (℃)
SMDNTC3225*1R505**	1.5	5	0.065	2600	<43	>13	-40℃~175℃
SMDNTC3225*02005**	2	5	0.085	2600	<43	>13	-40℃~175℃
SMDNTC3225*2R505**	2.5	5	0.095	2600	<43	>13	-40℃~175℃
SMDNTC3225*03005**	3	5	0.100	2600	<43	>13	-40℃~175℃
SMDNTC3225*04004**	4	4	0.150	2600	<44	>13	-40℃~175℃
SMDNTC3225*05004**	5	4	0.156	2800	<45	>13	-40℃~175℃
SMDNTC3225*06003**	6	3	0.240	2800	<45	>13	-40℃~175℃
SMDNTC3225*6R803**	6.8	3	0.245	2800	<45	>13	-40℃~175℃
SMDNTC3225*07003**	7	3	0.2824	2800	<45	>13	-40℃~175℃
SMDNTC3225*08003**	8	3	0.255	2800	<47	>14	-40℃~175℃
SMDNTC3225*10003**	10	3	0.275	2800	<47	>14	-40℃~175℃
SMDNTC3225*12002**	12	2	0.462	2800	<48	>14	-40℃~175℃
SMDNTC3225*13002**	13	2	0.465	2800	<50	>14	-40℃~175℃
SMDNTC3225*15002**	15	2	0.468	2800	<50	>14	-40℃~175℃
SMDNTC3225*16002**	16	2	0.470	2800	<50	>14	-40℃~175℃
SMDNTC3225*18002**	18	2	0.495	3000	<52	>15	-40℃~175℃
SMDNTC3225*20002**	20	2	0.512	3000	<52	>15	-40℃~175℃
SMDNTC3225*22002**	22	2	0.563	3000	<52	>15	-40℃~175℃
SMDNTC3225*25002**	25	2	0.623	3000	<52	>15	-40℃~175℃
SMDNTC3225*300S5**	30	1.5	0.667	3000	<52	>15	-40℃~175℃
SMDNTC3225*300S5**	33	1.5	0.734	3000	<52	>15	-40℃~175℃
SMDNTC3225*470S5**	47	1.5	1.002	3000	<52	>15	-40℃~175℃
SMDNTC3225*500S5**	50	1.5	1.021	3000	<52	>15	-40℃~175℃
SMDNTC3225*600S5**	60	1.5	1.215	3000	<52	>15	-40℃~175℃
SMDNTC3225*800S2**	80	1.2	1.656	3200	<52	>15	-40℃~175℃
SMDNTC3225*101S1**	100	1.1	2.053	3200	<50	>15	-40℃~175℃
SMDNTC3225*121S1**	120	1.1	2.253	3200	<50	>15	-40℃~175℃
SMDNTC3225*20101**	200	1	4.121	3200	<50	>13	-40℃~175℃

7、Reliability Testing

No.	Item	Testing Method	Standard
1	Vibration	Frequency: 10~55Hz Amplitude: 0.75mm Direction and Time: 2 hours each for X, Y and Z axes	No visible damage Resistance change rate: $\pm 10\%$
2	Solderability	Temperature: $245 \pm 5^{\circ}\text{C}$ Time: $3 \pm 0.5\text{s}$	Tinning is uniform covering area $\geq 95\%$
3	Resistance To Soldering Heat	Dip the finished pins into solder at $260^{\circ}\text{C} \pm 5^{\circ}\text{C}$ for 10 ± 1 seconds and then remove	Resistance change rate: $\pm 10\%$
4	High-Temperature Storage	Place it at $125 \pm 2^{\circ}\text{C}$ for 1000+48 hours, then test after a 2-hour cooldown	Resistance change rate: $\pm 20\%$
5	Humidity Resistance	1. 1000 hours at $40 \pm 2^{\circ}\text{C}$ and 90-95% humidity. 2. 500 hours at $40 \pm 2^{\circ}\text{C}$, 90-95% humidity, with a voltage equal to 1/20 of the maximum dissipation voltage (not less than 0.5V).	Resistance change rate: $\pm 20\%$
6	Thermal Shock	$-40^{\circ}\text{C} \times 30\text{min} \rightarrow 25^{\circ}\text{C} \times 5\text{min} \rightarrow 125^{\circ}\text{C} \times 30\text{min}$ $\rightarrow 25^{\circ}\text{C} \times 5\text{min}$, repeated five times	Resistance change rate: $\pm 20\%$
7	Endurance Test	1. $25 \pm 5^{\circ}\text{C}$, I_{max} , 1000h; 2. $25 \pm 5^{\circ}\text{C}$, I_{max} , (1min ON / 5min OFF) * 1000 times	No visible damage Resistance change rate: $\pm 20\%$
8	Insulation Withstanding Voltage	The product's surface is encapsulated with a tightly wound metal wire coil. Apply 750Vac voltage to the coil's protruding end and the pin's end for 1 minute	No external damage

8、Packing Instructions

■ Taping Packaging Method Description



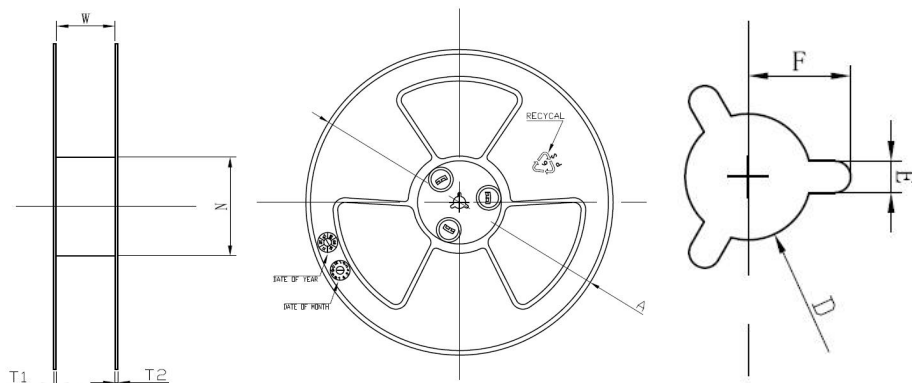
unit: mm

SPEC	A0	B0	K0	P	P0	P2	T
N(Internal Bent)	6.35±0.1	8.45±0.1	3.25±0.1	8.0±0.1	4.0±0.1	2.0±0.1	0.3±0.05
W(Gull Wing)	6.16±0.1	11.90±0.15	3.10±0.1	8.0±0.15	4.0±0.15	2.0±0.15	0.3±0.05
SPEC	W	E	F	D0	D1	Components/Reel	
N(Internal Bent)	16.0±0.3	1.75±0.1	7.5±0.1	1.5+0.1/-0	1.5+0.1/-0	4000pcs	
W(Gull Wing)	24.0±0.3	1.75±0.15	11.5±0.15	1.5+0.15/-0	1.5+0.15/-0	4000pcs	

■ 15-inch Reel Dimensions

unit: mm

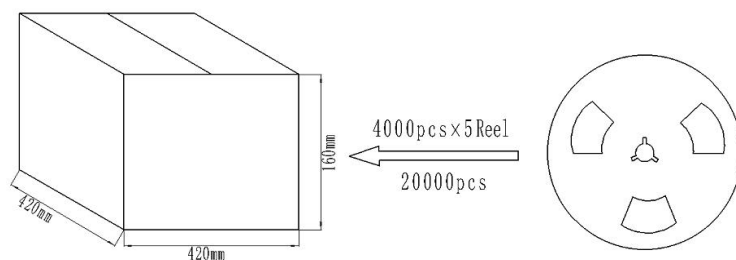
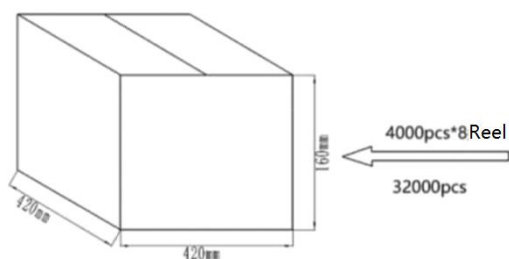
SPEC	N(Internal Bent)	W(Gull Wing)
SPEC	16	24
E±0.5	2.3	2.3
F±0.5	10.75	10.75
W±0.2	16.4	24.4
T1±0.3	2.2	2.2
T2±0.3	2.2	2.2
A+0/-2	φ380	φ380
N±3.0	φ100	φ100
D±0.3	13.3	13.3



■ Carton Packaging

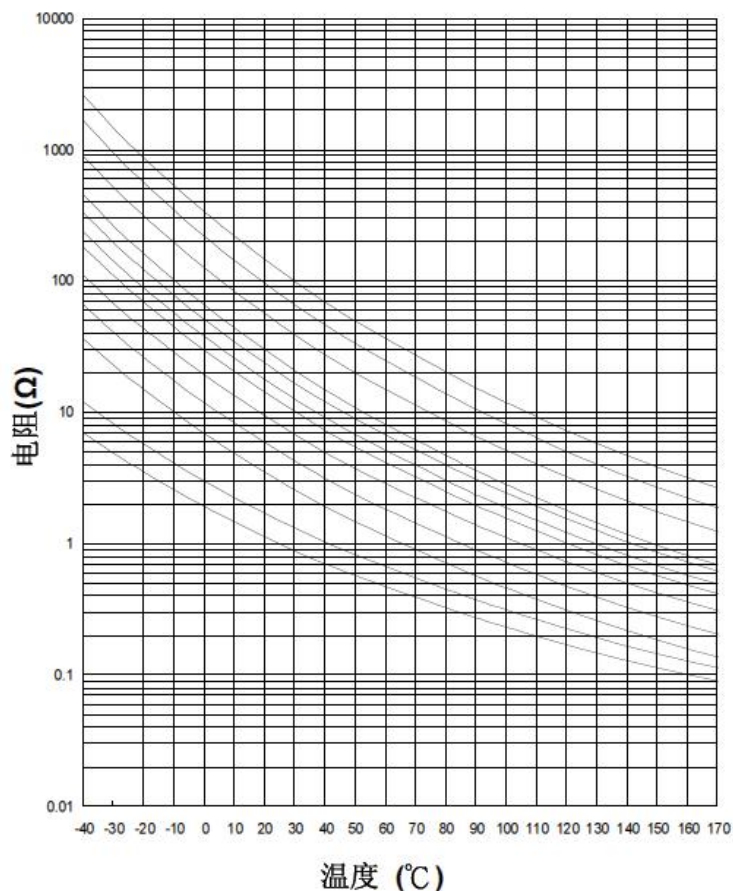
Lead Type N: Internal Bent

Lead Type W: Gull Wing

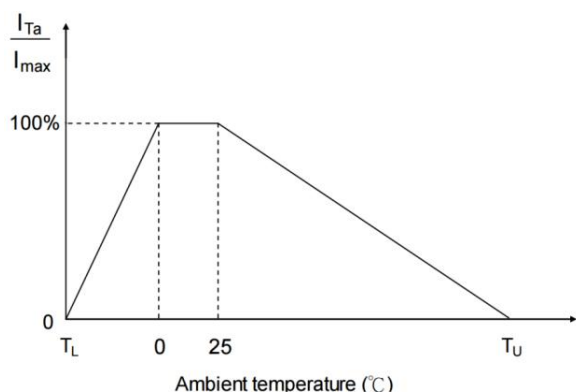


9、Curve Chart

■ Resistance-Temperature Characteristic Curve



■ Maximum Current Derating Curve



$$I_{Ta} = [1 - (Ta - 25) / (Tu - 25)] \times I_{max}$$

T_U : Upper limit of operating temperature(°C)

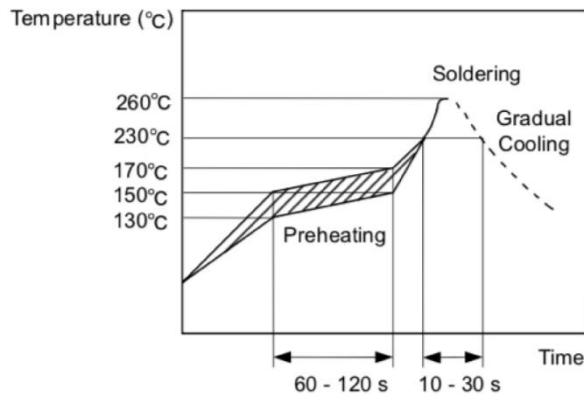
T_L : Lower limit of operating temperature(°C)

Ta : Ambient temperature(°C)

I_{max} : Maximum steady-state current

10、Soldering Instruction

■ Lead-Free Reflow Soldering Profile



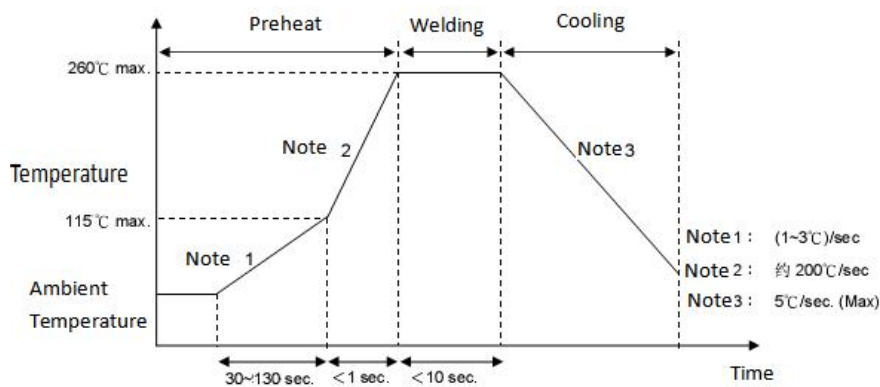
When soldering capacitors using reflow soldering, it should be performed under the following conditions:

Soldering Temperature: 230~260°C

Soldering Time: 10~30 seconds

Preheat Temperature: 170°C max

■ Wave Soldering Profile



■ Soldering Iron Conditions

Item	Condition
Iron tip temp.	400°C(max.)
Soldering time	3.5 sec(max.)
Soldering iron power	50W(max.)

11、Storage and Handling Guidelines

- Store the product between 10-30℃ with a maximum relative humidity of 60% and use it within 6 months after delivery.
- Solder the NTC within 168 hours of opening the moisture-proof packaging. Store the NTC in the moisture-proof packaging with desiccant and an HIC card after opening, maintaining the specified conditions.
- If the storage period exceeds 6 months or the HIC card's indicator color changes after opening, perform baking before soldering (60℃*168hr)
- If the opened package is exposed for a duration exceeding the bare exposure life or if other conditions cause the temperature and humidity around the product to exceed the specified limits, refer to the data for baking before reflow soldering. The bare exposure life is reset to zero after baking.

Level	Bake@40C ζ5%RH	
	Saturated@30C/85%RH	At limit of Floor life+72hr@30C/60RH
3	79days	67days

- Avoid storing the product in corrosive substances such as sulfur, chlorine gas, or acids, as this may cause pin oxidation, leading to reduced solderability.
- Store the product on shelves to avoid exposure to moisture, dust, etc.
- When storing the product in the warehouse, avoid thermal shock, vibration, and direct sunlight.

12、Usage Precaution

- The operating ambient temperature should be within the specified technical range.
- Installation should maintain a distance of at least 3 millimeters from heat-generating or flammable components to prevent damage to the components.
- Wear gloves when handling pins.
- This certificate guarantees the quality of our products as standalone units. When our products are integrated into your products, ensure that your products have been effectively evaluated and confirmed according to your specifications.
- If your use of our products exceeds the defined functional limits in this testing specification, we cannot guarantee against failures resulting from such use.
- In the event of NTC damage, failure may lead to a short circuit. To prevent hazards such as sparking, smoking, or fire during a short circuit, use safety components like fuses in the circuit to provide automatic fault protection.