

# SMD NSPNTC Thermistor: **NSP Series**

## Suppress surge current



### ■ Features

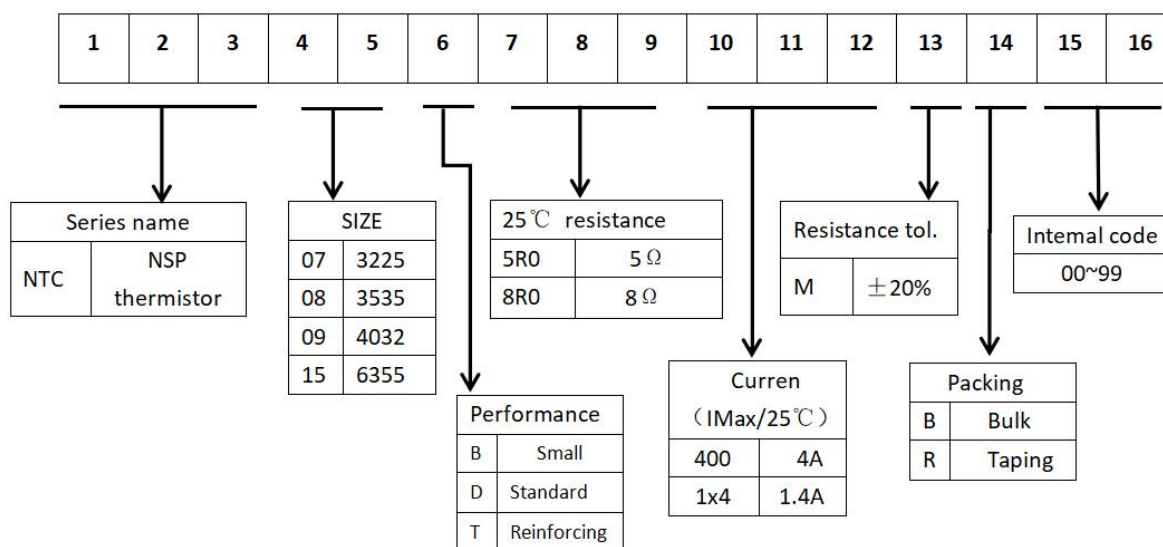
1. Complied to the RoHS directive
2. Semiconductor patch plastic encapsulation package
3. Body size: 3225、3535、4032、6355
4. Compact and space-efficient structure
5. Suitable for reflow welding and wave soldering with surface installation technology
6. High rated power
7. (0.5~13A)Powerful surge current suppression capability
8. Wide resistance range
9. Operating temperature range: -40°C ~ +150°C
10. Safety Certification: UL/cUL/TUV/CQC



### ■ Applications

1. Switching power supply
2. Household appliances
3. Adapter
4. The projector
5. Halogen lamp
6. LED lighting power supply
7. New energy power supply
8. Automotive electronics

### ■ Part Number Construction



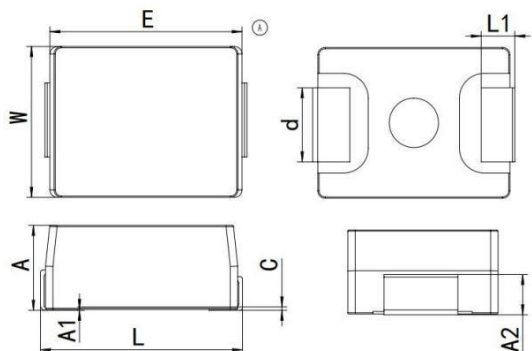
# SMD NSPNTC Thermistor: **NSP Series**

## Suppress surge current



### ■ Dimensions

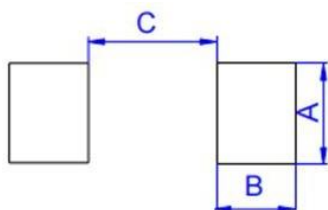
Dimensional Drawing  
(3225/4032/6355 Series)



(Unit: mm)

Size	E ±0.5	W ±0.5	A ±0.3	L ±0.5	A1 ±0.3	A2 ±0.36	C Max	L1 ±0.5	d ±0.5
3225D	7.8	6.1	3.5	8.2	0.15	1.8	0.18	1.5	3
3225B	6.8	5.9	2.5	7.8	0.15	1.50	0.15	1.3	3.0
4032	10.0	8.0	4.0	10.5	0.2	2.0	0.3	1.5	3.0
6355	16	14	4.2	17.5	0.2	2.2	0.2	3.0	5.0

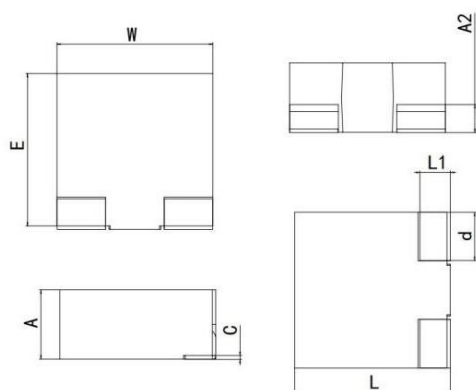
Recommended size of solder paste or size (3225/4032/6355 Series)



(Unit: mm)

Size	A	B	C
3225D	3.5	2.8	4.5
3225B	3.5	2.8	4.5
4032	3.5	2.8	6.5
6355	6.0	5.0	10

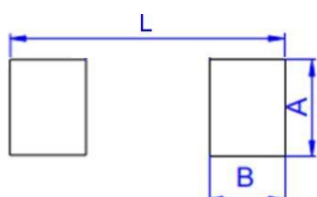
Dimensional Drawing (3535 Series)



(Unit: mm)

Size	E ±0.5	W ±0.5	A ±0.3	L ±0.5	A2 ±0.4	C Max	L1 ±0.3	d ±0.5
3535	8.8	8.8	4.0	8.9	1.8	0.18	1.1	1.9

Recommended size of solder paste or size (3535 Series)



(Unit: mm)

Size 系列	A	B	L
3535	2.4	2.4	8.8

# SMD NSPNTC Thermistor: **NSP Series**

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### ■ Parameters of Technology

Part No	Zero power resistance at 25°C (Ω)	Max. steady State current at 25°C (A)	Max. power rating at 25°C (W)	Thermal dissipation constant (mW/°C)	Thermal time constant (Sec.)	operating Temperature range (°C)
NSP07B(D)2R53	2.5	3	2.3	16	38	-40 ~ +150
NSP07B(D)10R0X7	10	0.7				
NS0P7B(D)1R04	1	4				
NS0P7B(D)1R54	1.5	4				
NS0P7B(D)5R02	5	3				
NS0P7B(D)8R01	8	1				
NS0P7B(D)1001	10	1				
NS0P7B(D)12R1	12	1				
NSP07B(D)15R0X7	15	0.7				
NSP07B(D)20R0X6	20	0.6				
NSP07B(D)33R0X5	33	0.5				
NSP07B(D)47R0X5	47	0.5				
NSP07B(D)3R03	3	3				
NSP07B(D)4R03	4	3				
NSP07B(D)5R03	5	3				
NSP07B(D)6R02	6	2				
NSP07B(D)8R02	8	2				
NSP07B(D)10R2	10	2				
NSP07B(D)15R2	15	2				
NSP07B(D)12R1	12	1				
NSP07B(D)16R1	16	1				
NSP07B(D)20R1	20	1				
NSP07B(D)22R1	22	1				
NSP07B(D)30R1	30	1				
NSP07B(D)33R1	33	1				
NSP07B(D)50R1	50	1				
NSP07B(D)60R0X8	60	0.8				
NSP7B(D)80R0X8	80	0.8				
NSP07B(D)120R0X8	120	0.8				
NSP08D1R05	1	5	2.4	17	43	
NSP08D1R55	1.5	5				
NSP08D2R55	2.5	5				
NSP08D3R05	3	5				
NSP08D5R04	5	4				
NSP08D6R83	6.8	3				
NSP08D8R03	8	3				

Note1: 3225 package has two products with different thickness (B/D), its electrical performance is the same.

Note2: If you have any special requirements, please contact our sales staff.

# SMD NSPNTC Thermistor: NSP Series

Suppress surge current



Part No	Zero power resistance at 25°C (Ω)	Max. steady State current at 25°C (A)	Max. power rating at 25°C (W)	Thermal dissipation constant (mW/°C)	Thermal time constant (Sec.)	operating Temperature range (°C)
NSP08D10R3	10	3	2.4	17	43	-40 ~+150
NSP08D12R2	12	2				
NSP08D16R2	16	2				
NSP08D20R2	20	2				
NSP08D22R2	22	2				
NSP08D30R1X5	30	1.5				
NSP08D47R1	47	1				
NSP08D50R1X5	50	1.5				
NSP08D60R1X5	60	1.5				
NSP09D1R05	1	5				
NSP09D1R55	1.5	5				
NSP09D2R55	2.5	5				
NSP09D3R05	3	5				
NSP09D5R04	5	4				
NSP09D6R83	6.8	3				
NSP09D8R03	8	3				
NSP09D10R3	10	3				
NSP09D12R2	12	2				
NSP09D16R2	16	2				
NSP09D20R2	20	2				
NSP09D22R2	22	2				
NSP09D30R1X5	30	1.5				
NSP09D47R1X5	47	1				
NSP09D50R1X5	50	1.5				
NSP09D60R1X5	60	1.5				
NSP15D1R08	1	8				
NSP15D1R38	1.3	8				
NSP15D2R08	2	8				
NSP15D2R57	2.5	7				
NSP15D3R07	3	7				
NSP15D5R06	5	6				
NSP15D8R05	8	5				
NSP15D10R5	10	5				
NSP15D15R4	15	4				
NSP15D20R4	20	4				
NSP15D30R3	30	3				
NSP15D47R3	47	3				

Note1: 3225 package has two products with different thickness (B/D), its electrical performance is the same.

Note2: If you have any special requirements, please contact our sales staff.

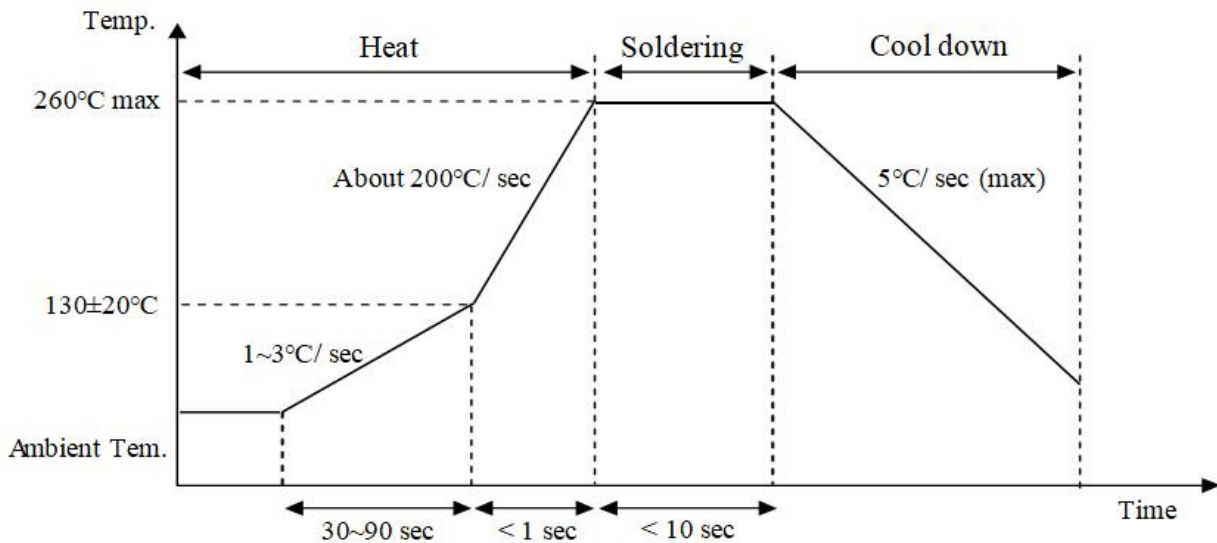
# SMD NSPNTC Thermistor: **NSP Series**



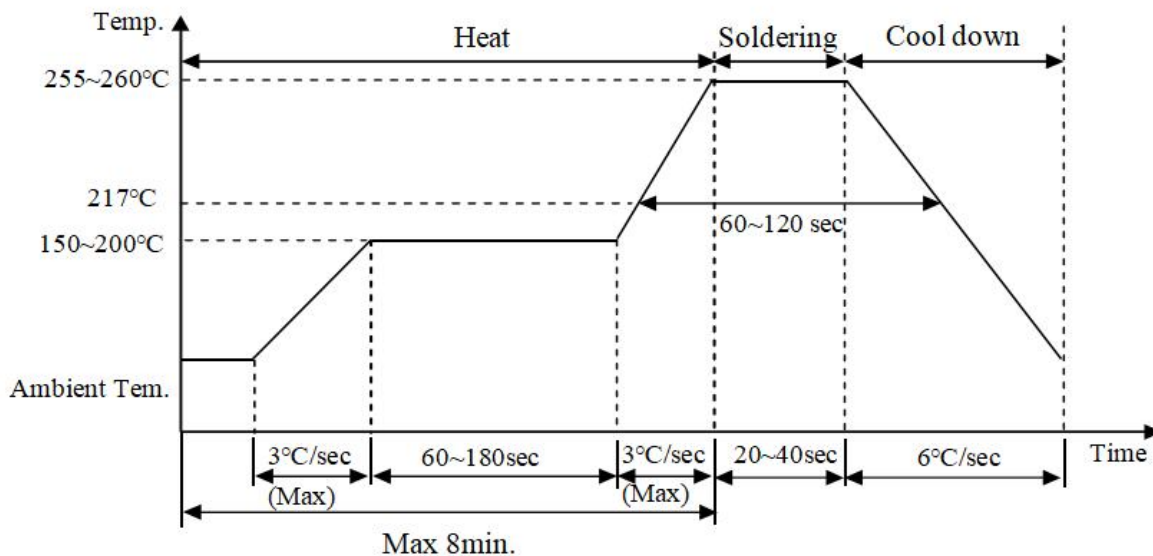
## Suppress surge current

### ■ Soldering

#### ● Wave soldering



#### ● Reflow soldering



#### ● Welding condition for soldering iron heavy work

Items	Condition
Soldering iron head temperature	350°C max
Welding time	3sec max
Diameter of soldering iron head	Φ3mm max

# SMD NSPNTC Thermistor: **NSP Serie**

## Suppress surge current



### ■ Electrical properties and requirements

Items	Test method	Specificatio
Zero Power Resistance	At 25°C, the measured resistance value can be neglected compared to the general tolerance when the change of the resistance is made through its self-heat of the resistor.	See Electrical Parameters
B-value	The B value can be calculated using the zero power resistance value at 25°C and 50°C. The equation is as above:  $B = \frac{T_1 * T_2}{T_2 - T_1} * \ln \left( \frac{R_1}{R_2} \right)$	See Electrical Parameters
Thermal Dissipation Constant	The ratio of the change of the dissipation power to the corresponding change of the temperature at specified temperature. The unit is: mw/°C	See Electrical Parameters
ThermalTimeConstant	Under zero power condition, thermal time constant is the time required by a thermistor that its body temperature reach 63.2% of the difference between its initial and final temperature.	See Electrical Parameters
Operating Temperature	Allowable temperature range while the thermistor work continuously for long time	-40--+150°C
Max. Steady State Current	The max current that the thermistor can endure when the current is steady.	See Electrical Parameters

# SMD NSPNTC Thermistor: **NSP Serie**



## Suppress surge current

Damp Heat	The sample should be subjected to $40\pm 2^{\circ}\text{C}$ , relative humidity $93\pm 3\%$ for $1000\pm 2$ hours, then stored at room temperature and humidity for 1 hour.	No visible damage, the mark is clear, no breakdown or arcing. Insulating resistance is $>100\text{M}\Omega$ . The change ratio of the resistance is within $\pm 15\%$ .
Withstand Voltage	Applied AC voltage of 700v between the lead of the resistor and the insulating coating for 60S	No breakdown or arcing
Temperature Rapid Change	$-40^{\circ}\text{C}/30 \rightarrow 25^{\circ}\text{C}/5 \rightarrow +180^{\circ}\text{C}/30 \rightarrow 25^{\circ}\text{C}/5$	The change ratio of the resistance is $\pm 20\%$

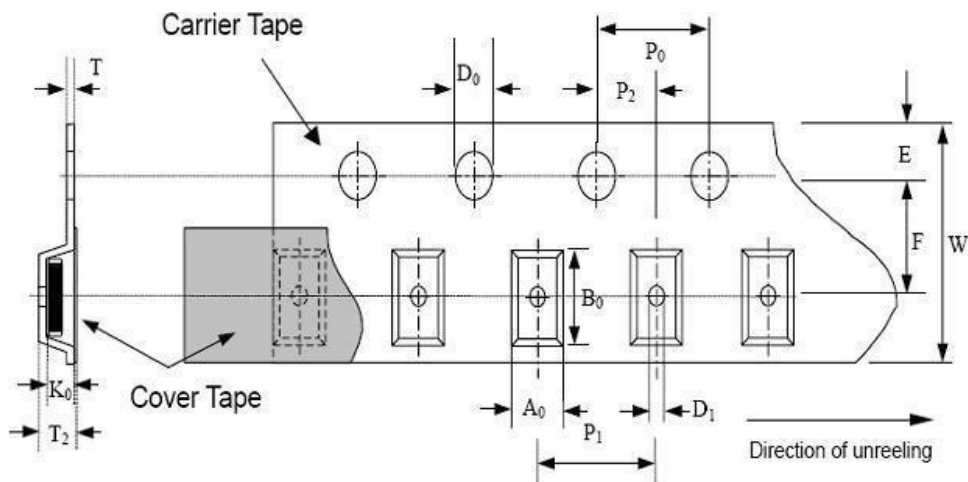
# SMD NSPNTC Thermistor: **NSP Serie**

## Suppress surge current



### ■ Packaging style

#### ● Tape Dimensions



Unit : mm

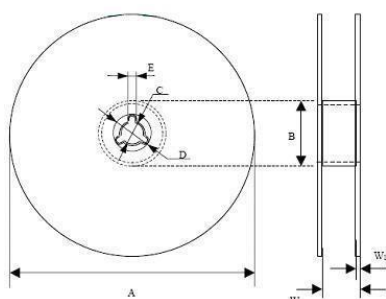
Type	A <sub>0</sub>	B <sub>0</sub>	K <sub>0</sub>	T	T <sub>2</sub>	D <sub>0</sub>	D <sub>1</sub>	P <sub>1</sub>	P <sub>2</sub>	P <sub>0</sub>	W	E	F
	±0.20	±0.20	±0.10	max	max	±0.05	±0.05	±0.10	±0.05	±0.1	±0.30	±0.10	±0.05
3225	7.0	8.7	3.85	0.28	5.50	1.55	1.55	8.00	2.00	4.00	16.0	1.75	7.5
4032	8.4	10.8	3.85	0.3	5.50	1.55	1.55	12.0	2.00	4.00	24.0	1.75	11.5
3535	9.3	9.3	4.0	0.4	5.5	1.55	1.55	12.0	2.0	4.0	24.0	1.75	11.5
6355	14.4	16.8	4.30	0.30	6.00	1.55	1.55	16.0	2.0	4.00	30.00	1.75	14.5

#### ● Tape Dimensions: Package Q' ty

3225/4032/3535 1000pcs

6355 600pcs

Unit : mm



Type	A	B	C	D	E	W	W <sub>1</sub>
	±1.0	±0.5	±0.2	±0.2	±0.5	±0.3	±0.15
3225	330.0	100.0	13.0	21.0	2.0	17.0	2.3
4032	330.0	60.0	13.0	21.0	2.0	24.0	2.3
3535	330.0	60.0	13.0	21.0	2.0	24.0	2.3
6355	330.0	60.0	13.0	21.0	2.0	30.0	2.3

### ■ Warehouse storage condition

Do not store this product in an environment with corrosive gases or direct sunlight.

-storage temperature, humidity : -10°C~+45°C, ≤75%RH

-storage period : 1 year