



# nSMD Series

### Features

- Surface Mount Devices
- Lead free device
- Size 3.2\*1.6 mm/0.12\*0.06 inch
- Surface Mount packaging for automated assembly

### Applications

- Almost anywhere there is a low voltage power supply, up to 60V and a load to be protected, including:
- Computer mother board, Modem, USB hub, Solid State Disk
  - PDAs & Charger, Analog & digital line card
  - Digital cameras, Disk drivers, CD-ROMs,

REOMAX ELECTRONICS

## Performance Specification

Model	Marking	V <sub>max</sub> (Vdc)	I <sub>max</sub> (A)	I <sub>hold</sub> @25°C (A)	I <sub>trip</sub> @25°C (A)	P <sub>d</sub> Max. (W)	Maximum Time To Trip		Resistance		Agency Approval	
							Current (A)	Time (Sec)	R <sub>i_min</sub> (Ω)	R <sub>1_max</sub> (Ω)	UL	TUV
nSMD005	αZ	60	100	0.05	0.15	0.4	0.25	1.50	3.600	50.000	✓	
nSMD010	αN	60	100	0.10	0.25	0.4	0.50	1.00	1.600	15.000	✓	
nSMD012	αN	60	100	0.12	0.29	0.4	0.50	1.00	1.600	15.000	✓	
nSMD020	αA	24	100	0.20	0.46	0.6	8.00	0.08	0.350	2.700	✓	
nSMD020-30V	αA	30	100	0.20	0.46	0.6	8.00	0.08	0.350	2.700		
nSMD025	αA	16	100	0.25	0.50	0.6	8.00	0.08	0.350	2.500	✓	
nSMD025-24V	αA	24	100	0.25	0.50	0.6	8.00	0.08	0.350	2.500		
nSMD025-30V	αA	30	100	0.25	0.50	0.6	8.00	0.08	0.350	2.500		
nSMD035	αB	6	100	0.35	0.75	0.6	8.00	0.10	0.250	1.300	✓	
nSMD035-13.2V	αB	13.2	100	0.35	0.75	0.6	8.00	0.10	0.250	1.300		
nSMD035-16V	αB	16	100	0.35	0.75	0.6	8.00	0.10	0.250	1.300	✓	
nSMD035-24V	αB	24	100	0.35	0.75	0.6	8.00	0.10	0.250	1.300		
nSMD035-33V	αB	33	100	0.35	0.75	0.6	8.00	0.10	0.250	1.300		
nSMD050	αF	6	100	0.50	1.00	0.6	8.00	0.10	0.150	0.700	✓	
nSMD050-13.2V	αF	13.2	100	0.50	1.00	0.6	8.00	0.10	0.150	0.700	✓	
nSMD050-16V	αF	16	100	0.50	1.00	0.6	8.00	0.10	0.150	0.700	✓	
nSMD050-24V	αF	24	100	0.50	1.00	0.6	8.00	0.10	0.150	0.700		
nSMD050-33V	αF	33	100	0.50	1.00	0.6	8.00	0.10	0.150	0.700		
nSMD075	αG	6	100	0.75	1.50	0.6	8.00	0.20	0.090	0.500	✓	
nSMD075-13.2V	αG	13.2	100	0.75	1.50	0.6	8.00	0.20	0.090	0.500		
nSMD075-16V	αG	16	100	0.75	1.50	0.6	8.00	0.20	0.090	0.500		
nSMD075-24V	αG	24	100	0.75	1.50	0.6	8.00	0.20	0.090	0.500		
nSMD100	αH	6	100	1.00	1.80	0.6	8.00	0.30	0.055	0.270	✓	✓
nSMD100-13.2V	αH	13.2	100	1.00	1.80	0.6	8.00	0.30	0.055	0.270		
nSMD100-16V	αH	16	100	1.00	1.80	0.6	8.00	0.30	0.055	0.270		
nSMD110	αH	6	100	1.10	2.20	0.6	8.00	0.30	0.050	0.250	✓	
nSMD110-13.2V	αH	13.2	100	1.10	2.20	0.6	8.00	0.30	0.050	0.250		
nSMD110-16V	αH	16	100	1.10	2.20	0.6	8.00	0.30	0.050	0.250	✓	
nSMD150	αI	6	100	1.50	3.00	0.8	8.00	0.30	0.030	0.130	✓	✓
nSMD150-13.2V	αI	13.2	100	1.50	3.00	0.8	8.00	0.30	0.030	0.130	✓	
nSMD150-16V	αI	16	100	1.50	3.00	0.8	8.00	0.30	0.030	0.130	✓	
nSMD200	αK	6	100	2.00	3.50	0.8	8.00	1.50	0.018	0.080	✓	
nSMD250	αL	6	100	2.50	5.00	1.2	8.00	2.00	0.015	0.070		

**Ihold** = Hold Current. Maximum current device will not trip in 25°C still air.

**Itrip** = Trip Current. Minimum current at which the device will always trip in 25°C still air.

**Vmax** = Maximum operating voltage device can withstand without damage at rated current (I<sub>max</sub>).

**I<sub>max</sub>** = Maximum fault current device can withstand without damage at rated voltage (V<sub>max</sub>).

**P<sub>d</sub>** = Power dissipation when device is in the tripped state in 25°C still air environment at rated voltage.

**R<sub>imin/max</sub>** = Minimum/Maximum device resistance prior to tripping at 25°C.

**R<sub>1\_max</sub>** = Maximum device resistance is measured one hour post reflow.

**CAUTION** : Operation beyond the specified ratings may result in damage and possible arcing and flame.

**Environmental Specifications**

Test	Conditions
Passive aging	+85°C, 1000 hrs.
Humidity aging	+85°C, 85% R.H. , 168 hours
Thermal shock	+85°C to -40°C, 20 times
Resistance to solvent	MIL-STD-202, Method 215
Vibration	MIL-STD-202, Method 201
Ambient operating conditions :	- 40 °C to 85 °C
Maximum surface temperature of the device in the tripped state is	125 °C
<a href="#">In case of special use, please contact our engineer</a>	

**Agency Approvals :**



E201504(Alpha-Top)/E319079(Sea&Land)



R 50141892; R 50265895

**Regulation/Standard:**



2015/863/EU



EN14582

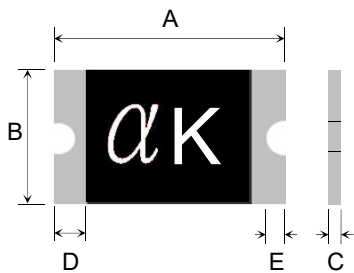
**I<sub>hold</sub> Versus Temperature**

Model	Maximum ambient operating temperature (T <sub>mao</sub> ) vs. hold current (I <sub>hold</sub> )								
	-40°C	-20°C	0°C	25°C	40°C	50°C	60°C	70°C	85°C
nSMD005	0.074	0.066	0.058	0.050	0.043	0.038	0.035	0.030	0.028
nSMD010	0.148	0.132	0.116	0.100	0.085	0.075	0.070	0.060	0.055
nSMD012	0.178	0.158	0.139	0.120	0.102	0.090	0.084	0.072	0.066
nSMD020	0.296	0.264	0.232	0.200	0.170	0.150	0.140	0.120	0.110
nSMD025	0.370	0.330	0.290	0.250	0.220	0.200	0.170	0.150	0.120
nSMD035	0.500	0.450	0.400	0.350	0.300	0.270	0.240	0.210	0.150
nSMD050	0.710	0.640	0.570	0.500	0.420	0.390	0.350	0.310	0.250
nSMD075	1.140	1.010	0.880	0.750	0.650	0.590	0.540	0.490	0.410
nSMD100	1.450	1.310	1.150	1.000	0.840	0.770	0.690	0.610	0.480
nSMD110	1.600	1.450	1.300	1.100	0.950	0.800	0.720	0.660	0.550
nSMD150	2.180	1.940	1.720	1.500	1.280	1.170	1.060	0.960	0.770
nSMD200	2.880	2.630	2.340	2.000	1.740	1.580	1.420	1.170	0.930
nSMD250	3.600	3.288	2.925	2.500	2.175	1.975	1.775	1.463	1.163

Construction And Dimension (Unit:mm)

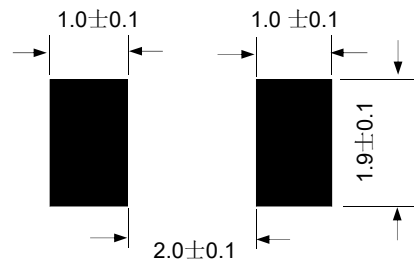
Model	A		B		C		D	E
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Min.
nSMD005	3.00	3.50	1.50	1.80	0.60	1.10	0.15	0.10
nSMD010	3.00	3.50	1.50	1.80	0.60	1.10	0.15	0.10
nSMD012	3.00	3.50	1.50	1.80	0.60	1.10	0.15	0.10
nSMD020	3.00	3.50	1.50	1.80	0.40	0.90	0.15	0.10
nSMD020-30V	3.00	3.50	1.50	1.80	0.40	0.90	0.15	0.10
nSMD025	3.00	3.50	1.50	1.80	0.40	0.90	0.15	0.10
nSMD025-24V	3.00	3.50	1.50	1.80	0.40	0.90	0.15	0.10
nSMD025-30V	3.00	3.50	1.50	1.80	0.40	0.90	0.15	0.10
nSMD035	3.00	3.50	1.50	1.80	0.50	1.20	0.15	0.10
nSMD035-13.2V	3.00	3.50	1.50	1.80	0.50	1.20	0.15	0.10
nSMD035-16V	3.00	3.50	1.50	1.80	0.50	1.20	0.15	0.10
nSMD035-24V	3.00	3.50	1.50	1.80	0.50	1.20	0.15	0.10
nSMD035-33V	3.00	3.50	1.50	1.80	0.80	1.80	0.15	0.10
nSMD050	3.00	3.50	1.50	1.80	0.50	1.20	0.15	0.10
nSMD050-13.2V	3.00	3.50	1.50	1.80	0.50	1.20	0.15	0.10
nSMD050-16V	3.00	3.50	1.50	1.80	0.50	1.20	0.15	0.10
nSMD050-24V	3.00	3.50	1.50	1.80	0.80	1.40	0.15	0.10
nSMD050-33V	3.00	3.50	1.50	1.80	0.80	1.80	0.15	0.10
nSMD075	3.00	3.50	1.50	1.80	0.50	1.20	0.15	0.10
nSMD075-13.2V	3.00	3.50	1.50	1.80	0.50	1.20	0.15	0.10
nSMD075-16V	3.00	3.50	1.50	1.80	0.50	1.20	0.15	0.10
nSMD075-24V	3.00	3.50	1.50	1.80	0.50	1.20	0.15	0.10
nSMD100	3.00	3.50	1.50	1.80	0.50	1.20	0.15	0.10
nSMD100-13.2V	3.00	3.50	1.50	1.80	0.50	1.20	0.15	0.10
nSMD100-16V	3.00	3.50	1.50	1.80	0.50	1.20	0.15	0.10
nSMD110	3.00	3.50	1.50	1.80	0.50	1.20	0.15	0.10
nSMD110-13.2V	3.00	3.50	1.50	1.80	0.50	1.20	0.15	0.10
nSMD110-16V	3.00	3.50	1.50	1.80	0.50	1.20	0.15	0.10
nSMD150	3.00	3.50	1.50	1.80	0.50	1.20	0.15	0.10
nSMD150-13.2V	3.00	3.50	1.50	1.80	0.50	1.20	0.15	0.10
nSMD150-16V	3.00	3.50	1.50	1.80	0.50	1.20	0.15	0.10
nSMD200	3.00	3.50	1.50	1.80	0.50	1.20	0.15	0.10
nSMD250	3.00	3.50	1.50	1.80	0.80	1.40	0.15	0.10

Dimensions & Marking



α = Trademark  
K = Part identification

Recommended Pad Layout (mm)





# nSMD Series

REOMAX ELECTRONICS

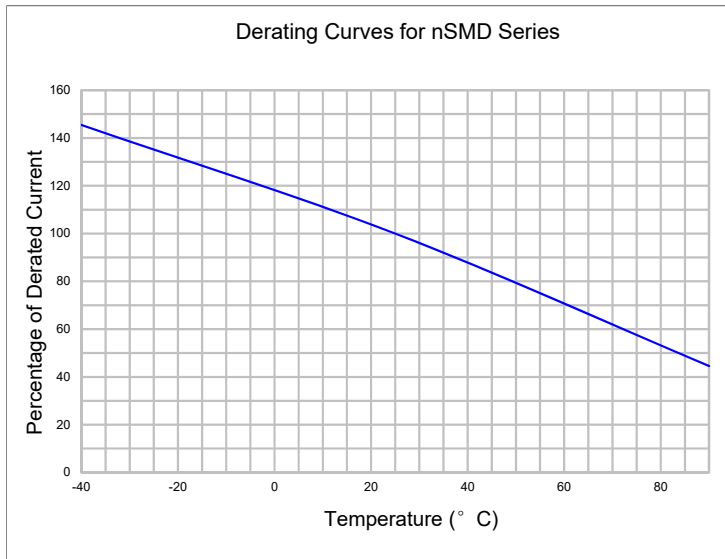
## Termination Pad Characteristics

Terminal pad materials Gold-Plated Nickel-Copper or Tin-plated Nickel-Copper  
Terminal pad solderability Meets EIA specification RS186-9E and ANSI/J-STD-002 Category 3.

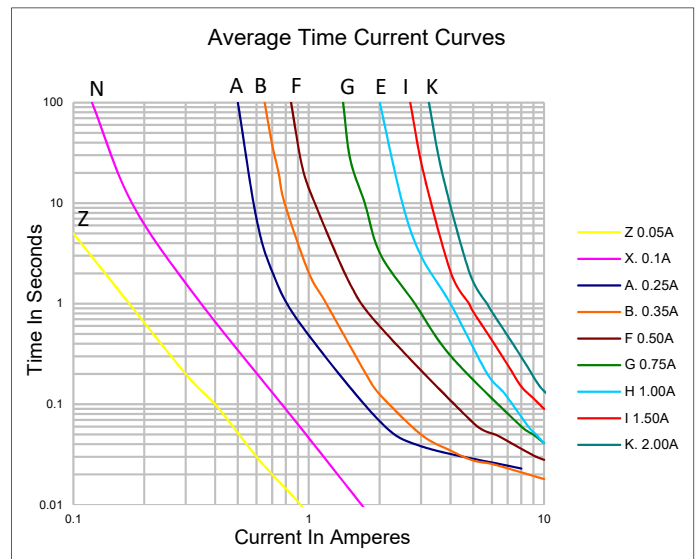
## Rework

Use standard industry practices, the removal device must be replaced with a fresh one.

## Thermal Derating Curve



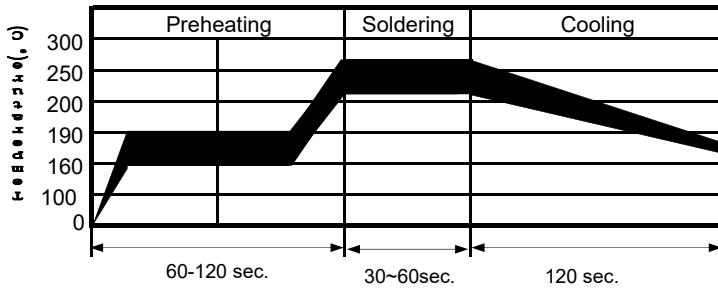
## Typical Time-To-Trip At 25°C



## WARNING:

- Use PPTC beyond the maximum ratings or improper use may result in device damage and possible electrical arcing and flame.
- PPTC are intended for protection against occasional over current or over temperature fault conditions and should not be used when repeated fault conditions or prolonged trip events are anticipated.
- Device performance can be impacted negatively if devices are handled in a manner inconsistent with recommended electronic, thermal, and mechanical procedures for electronic components.
- Use PPTC with a large inductance in circuit will generate a circuit voltage ( $L di/dt$ ) above the rated voltage of the PPTC.
- Avoid impact PPTC device its thermal expansion like placed under pressure or installed in limited space.
- Contamination of the PPTC material with certain silicon based oils or some aggressive solvents can adversely impact the performance of the devices. PPTC SMD can be cleaned by standard methods.
- Requests that customers comply with our recommended solder pad layouts and recommended reflow profile. Improper board layouts or reflow profile could negatively impact solderability performance of our devices.

**Recommended Solder Reflow Conditions**

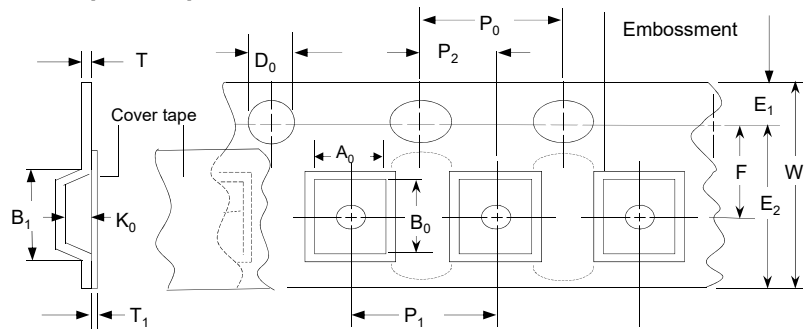


- Recommended reflow methods : IR, vapor phase oven, hot air oven.
- Devices are not designed to be wave soldered to the bottom side of the board.
- Recommended maximum paste thickness is 0.15 mm (0.006 inch).
- Devices can be cleaned using standard method and solvents.
- Note : If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.
- Reflow welding is recommended to be completed once.
- According to the standard industry practice, if there is rework, it must be replaced with a new dismantling device.

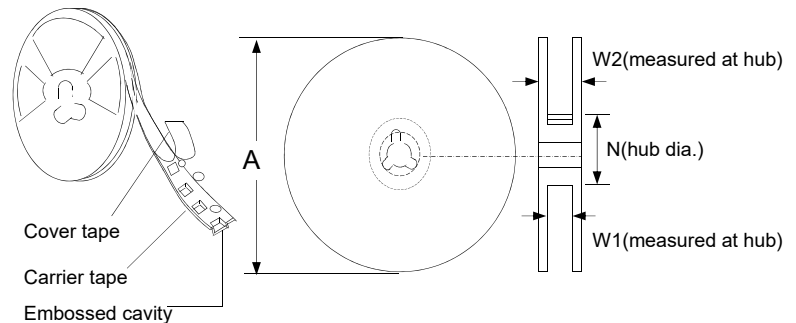
**Tape And Reel Specifications (mm)**

Governing Specifications	EIA 481-1
W	8.15 ± 0.3
P0	4.0 ± 0.10
P1	4.0 ± 0.10
P2	2.0 ± 0.05
A0	1.95 ± 0.10
B0	3.45 ± 0.10
B1max.	4.35
D0	1.5 + 0.1, -0
F	3.5 ± 0.05
E1	1.75 ± 0.10
E2min.	6.25
Tmax.	0.6
T1max.	0.1
K0	1.04 ± 0.1
Leader min.	390
Trailer min.	160
Reel Dimensions	
A max.	178
N min.	60
W1	9 ± 0.5
W2	12.6 ± 0.5

**EIA Tape Component Dimensions**



**EIA Reel Dimensions**



**Storage And Handling**

- Storage conditions : 40°C max, 70% R.H.
- Devices may not meet specified performance if storage conditions are exceeded.

**Order Information**

**Packaging**

nSMD	075	Tape & Reel Quantity
Product name	Hold	020,025,035,050,075,100,110 : 5,000 pcs/reel
Size 3216 mm / 1206 inch	Current	020-30V,025-24V,025-30V : 5,000 pcs/reel
SMD : surface mount device	0.75A	The others : 3,500 pcs/reel

Devices taped with reference to EIA481 standard.