



SEA & LAND ELECTRONIC CORP.

www.sealand-pptc.com



ALPHA-TOP TECHNOLOGY CORP.

www.alpha-top.cn

APPROVAL SHEET

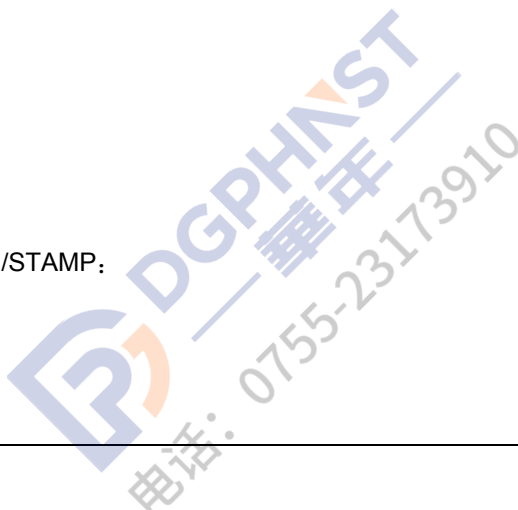
MODEL NO.: nSMD Series

CUSTOMER:

CUSTOMER'S APPROVAL:

AUTHORIZED SIGNATURE/STAMP:

DATE



MANUFACTURER:

HEAD OFFICE:

13F.,No.120-10,Sec.3,Zhongshan Rd.,Zhonghe Dist.,New Taipei City 23544,Taiwan
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Submitted by: Chen
Approved by: YC Lin
DATE: 29-Jul-22

SEA & LAND ELECTRONIC CORP.



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
 - PDAs & Charger, Analog & digital line card
 - Digital cameras, Disk drivers, CD-ROMs,

nSMD Series

Alpha-Top (Sea&Land Alliance)

Performance Specification

Model	Marking	V _{max} (Vdc)	I _{max} (A)	I _{hold} @25°C (A)	I _{trip} @25°C (A)	P _d Max. (W)	Maximum Time To Trip		Resistance		Agency Approval	
							Current (A)	Time (Sec)	R _i min (Ω)	R1max (Ω)	UL	TUV
nSMD003	αT	60	100	0.03	0.10	0.4	0.20	1.20	8.000	80.000		
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	✓	
nSMD050-15V	αF	15	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	✓	
nSMD075-12V	αG	12.0	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	✓	
nSMD075-33V	αG	33	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		

I_{hold} = Hold Current. Maximum current device will not trip in 25°C still air.
I_{trip} = Trip Current. Minimum current at which the device will always trip in 25°C still air.
V_{max} = Maximum operating voltage device can withstand without damage at rated current (I_{max}).
I_{max} = Maximum fault current device can withstand without damage at rated voltage (V_{max}).
P_d = Power dissipation when device is in the tripped state in 25°C still air environment at rated voltage.
R_{imin}/R_{imax} = Minimum/Maximum device resistance prior to tripping at 25°C.
R_{1max} = Maximum device resistance is measured one hour post reflow.
CAUTION : Operation beyond the specified ratings may result in damage and possible arcing and flame.



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Alpha-Top (Sea&Land Alliance)

nSMD Series

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
In case of special use,please contact our engineer	

Agency Approvals :



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



R-50141892 R50265895

Regulation/Standard:



2015/863/EU



EN14582

I_{hold} Versus Temperature

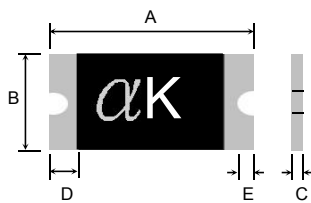
Model	Maximum ambient operating temperature (T _{mao}) vs. hold current (I _{hold})									
	-40°C	-20°C	0°C	25°C	40°C	50°C	60°C	70°C	85°C	
nSMD003	0.045	0.04	0.035	0.030	0.026	0.023	0.021	0.018	0.015	
nSMD005	0.074	0.066	0.058	0.050	0.043	0.038	0.035	0.030	0.028	
nSMD010	0.148	0.132	0.116	0.100	0.085	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	

nSMD Series

Construction And Dimension (Unit:mm)

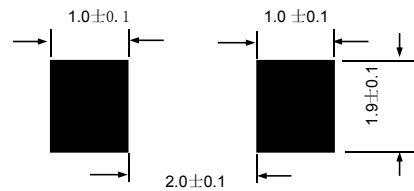
Model	A		B		C		D	E
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Min.
nSMD003	3.00	3.50	1.50	1.80	0.60	1.10	0.15	0.10
nSMD005	3.00	3.50	1.50	1.80	0.60	1.10	0.15	0.10
nSMD010	3.00	3.50	1.50	1.80	0.60	1.10	0.15	0.10
nSMD012	3.00	3.50	1.50	1.80	0.60	1.10	0.15	0.10
nSMD020	3.00	3.50	1.50	1.80	0.40	0.90	0.15	0.10
nSMD020-30V	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
nSMD050-15V	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
nSMD075-12V	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
nSMD075-33V	3.00	3.50	1.50	1.80	0.80	1.80	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

Alpha-Top (Sea&Land Alliance)

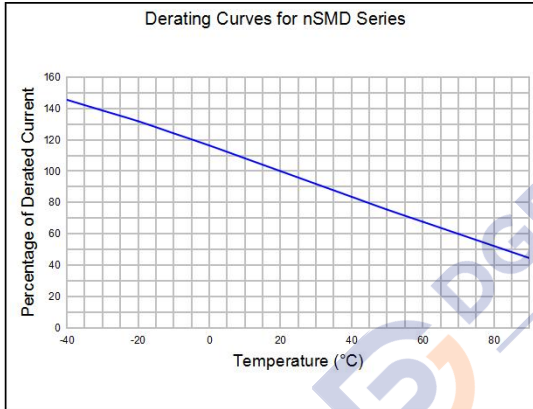
Termination Pad Characteristics

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

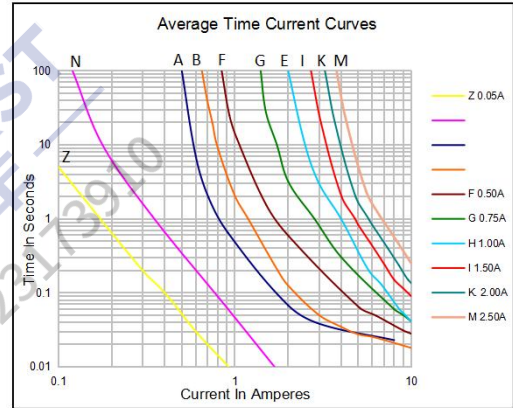
Rework

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

Thermal Derating Curve



Typical Time-To-Trip At 25°C

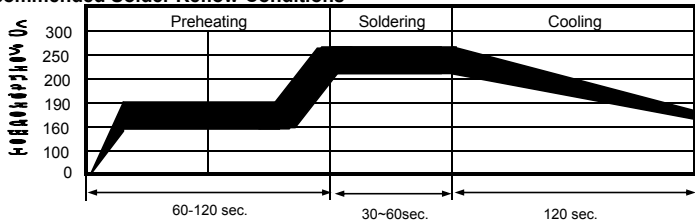


! WARNING:

- 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.

nSMD Series

Recommended Solder Reflow Conditions

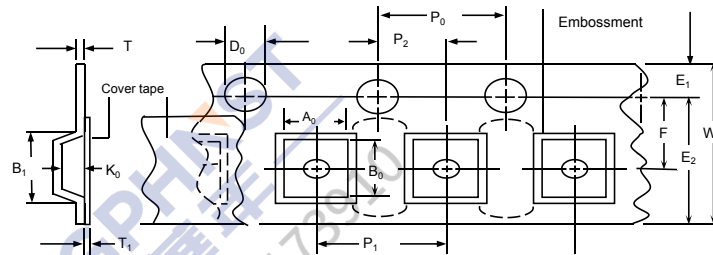


- Recommended reflow methods : IR, vapor phase oven, hot air oven.
 - Devices are not designed to be wave soldered to the bottom side of the board.
 - Recommended maximum paste thickness is 0.25 mm (0.010 inch).
 - Devices can be cleaned using standard method and solvents.
- Note : If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

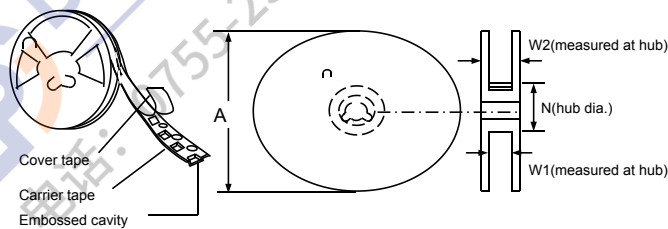
Tape And Reel Specifications (mm)

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

nSMD	075	Packaging	Tape & Reel Quantity
Product name	Hold		005,010,012,150,200 3,500 pcs/reel
Size 3216 mm / 1206 inch	Current		020,025,035,050,075,100,110 5,000 pcs/reel
SMD : surface mount device	0.75A		

Tape & reel packaging per EIA481-1

Labeling Information

Sea & Land Electronic Corp.

HF Pb RoHS

Model:
Part no.:
Spec.:
Lot no.:
Q'ty:

倉儲: 密封! 溫度: 18~33°C/濕度: 30~60% A