



## APPROVAL SHEET

MODEL NO.: SMD0603 Series

CUSTOMER:

CUSTOMER'S APPROVAL:

AUTHORIZED SIGNATURE/STAMP:

DATE

MANUFACTURER:

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Submitted by:

Approved by:

DATE:



### Features

- Surface Mount Devices
- Lead free device
- Size 1.5\*0.8 mm / 0.06\*0.03 inch
- Surface Mount packaging for automated assembly

### Applications

- Almost anywhere there is a low voltage power supply, up to 15V 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,

## SMD0603 Series

Alpha-Top (Sea & Land Alliance)

### 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> Typ. (W)	Maximum Time To Trip		Resistance	
							Current (A)	Time (Sec)	R <sub>lmin</sub> (W)	R <sub>lmax</sub> (W)
SMD0603-010	1	15.0	40	0.10	0.30	0.5	0.5	1.00	0.900	6.000
SMD0603-020	2	9.0	40	0.20	0.50	0.5	1.0	0.60	0.550	3.500
SMD0603-025	2	9.0	40	0.25	0.55	0.5	8.0	0.08	0.500	3.000
SMD0603-035	3	6.0	40	0.35	0.75	0.5	8.0	0.10	0.200	1.400
SMD0603-050	5	6.0	40	0.50	1.00	0.5	8.0	0.10	0.100	0.800
SMD0603-075	7	6.0	40	0.75	1.40	0.5	8.0	0.10	0.060	0.450
SMD0603-100	0	6.0	40	1.00	2.00	0.5	8.0	0.10	0.040	0.300

**I<sub>hold</sub>** = Hold Current. Maximum current device will not trip in 25°C still air.

**I<sub>trip</sub>** = Trip Current. Minimum current at which the device will always trip in 25°C still air.

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

**R<sub>lmax</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	Resistance change
Passive aging	+85°C, 1000 hrs.	±5% typical
Humidity aging	+85°C, 85% R.H., 168 hours	±5% typical
Thermal shock	+85°C to -40°C, 20 times	±33% typical
Resistance to solvent	MIL-STD-202, Method 215	No change
Vibration	MIL-STD-202, Method 201	No change
Ambient operating conditions : - 40 °C to +85 °C		
Maximum surface temperature of the device in the tripped state is 125 °C		

### AGENCY APPROVALS :

UL pending

### Regulation/Standard:



2002/95/EC



EN14582

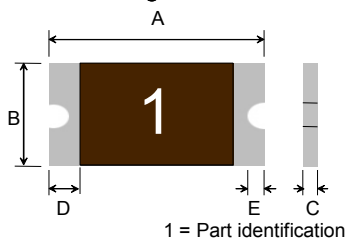
### I<sub>hold</sub> Versus Temperature

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
SMD0603-010	0.13	0.12	0.11	0.10	0.08	0.07	0.06	0.05	0.03
SMD0603-020	0.27	0.25	0.23	0.20	0.17	0.14	0.12	0.10	0.07
SMD0603-025	0.32	0.29	0.27	0.25	0.21	0.18	0.16	0.05	0.03
SMD0603-035	0.47	0.41	0.38	0.35	0.29	0.26	0.24	0.20	0.14
SMD0603-050	0.67	0.59	0.54	0.50	0.41	0.37	0.34	0.29	0.20
SMD0603-075	0.98	0.85	0.81	0.75	0.60	0.54	0.44	0.40	0.31
SMD0603-100	1.30	1.12	1.08	1.00	0.80	0.72	0.58	0.53	0.42

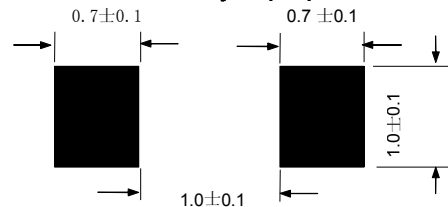
### Construction And Dimension (Unit:mm)

Model	A		B		C		D		E
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
SMD0603-010	1.45	1.85	0.65	1.05	0.40	1.00	0.15	1.00	0.10
SMD0603-020	1.45	1.85	0.65	1.05	0.40	1.00	0.15	1.00	0.10
SMD0603-025	1.45	1.85	0.65	1.05	0.40	1.00	0.15	1.00	0.10
SMD0603-035	1.45	1.85	0.65	1.05	0.40	1.00	0.15	1.00	0.10
SMD0603-050	1.45	1.85	0.65	1.05	0.50	1.10	0.15	1.10	0.10
SMD0603-075	1.45	1.85	0.65	1.05	0.50	1.10	0.15	1.10	0.10
SMD0603-100	1.45	1.85	0.65	1.05	0.50	1.10	0.15	1.10	0.10

### Dimensions & Marking



### Recommended Pad Layout (mm)



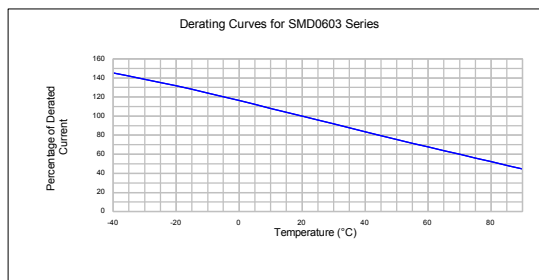
### Termination Pad Characteristics

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

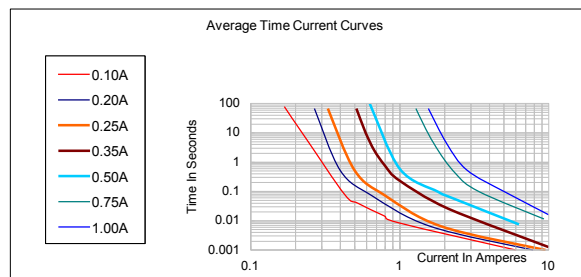
### Rework

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

### Thermal Derating Curve



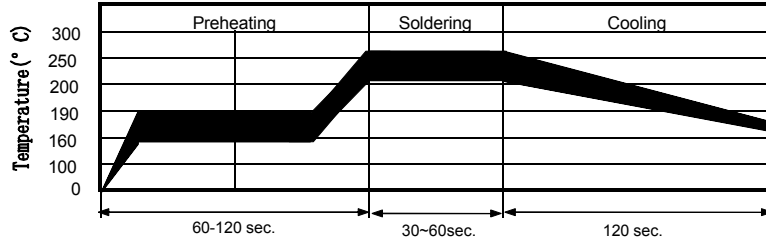
### Typical Time-To-Trip At 25°C



### 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.

### Recommended Solder Reflow Conditions



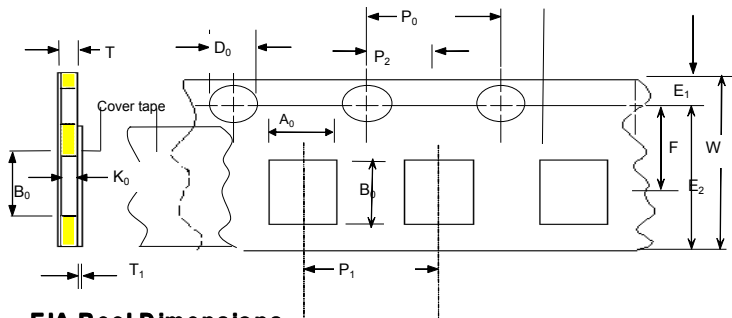
- Recommended reflow methods : IR, vapor phase oven, hot air oven.
  - Devices are not designed to be wave soldered to the bottom side of the board.
  - Recommended maximum paste thickness is 0.25 mm (0.010 inch).
  - Devices can be cleaned using standard method and solvents.
- Note : If reflow temperatures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

### Tape And Reel Specifications (mm)

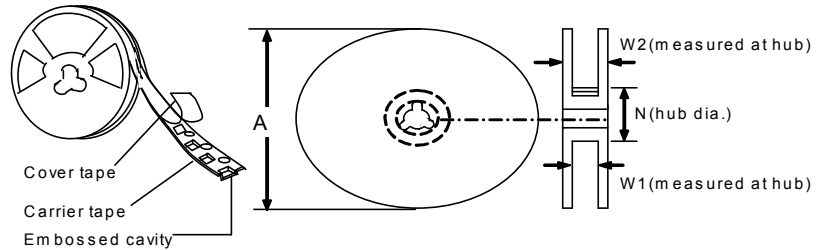
#### Governing Specifications

W	8.0 ± 0.2
P <sub>0</sub>	4.0 ± 0.10
P <sub>1</sub>	4.0 ± 0.10
P <sub>2</sub>	2.0 ± 0.05
A <sub>0</sub>	1.05 ± 0.10
B <sub>0</sub>	1.85 ± 0.10
D <sub>0</sub>	1.55 ± 0.05
F	3.5 ± 0.05
E <sub>1</sub>	1.75 ± 0.10
E <sub>2</sub> min.	6.25
T	0.75
T <sub>1</sub> max.	0.1
K <sub>0</sub>	0.75/0.95 ± 0.1
Leader min.	390
Trailer min.	160
<b>Reel Dimensions</b>	
A max.	178
N min.	60
W <sub>1</sub>	9.0 ± 0.5
W <sub>2</sub>	12.0 ± 0.05

### Paper 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

SMD0603	010	Packaging	Tape & Reel Quantity
Product name Size 1508 mm / 0603 inch SMD: surface mount device	Hold Current 0.10A		5,000 pcs/reel

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℃/濕度：30~60% A