



SEA & LAND ELECTRONIC CORP.

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ALPHA-TOP TECHNOLOGY CORP.

[www.alpha-top.cn](http://www.alpha-top.cn)

## APPROVAL SHEET

MODEL NO.: SMD0603-020-16V

CUSTOMER:

CUSTOMER'S APPROVAL:

AUTHORIZED SIGNATURE/STAMP:

DATE

MANUFACTURER:

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Submitted by: Chen  
Approved by: YC Lin  
DATE: 8-Jul-22

SEA & LAND ELECTRONIC CORP.



**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,

**SMD0603-020-16V**

Alpha-Top (Sea & Land Alliance)

**Performance Specification**

| Model           | Marking | V <sub>max</sub><br>(Vdc) | I <sub>max</sub><br>(A) | I <sub>hold</sub><br>@25°C<br>(A) | I <sub>trip</sub><br>@25°C<br>(A) | P <sub>d</sub><br>Typ.<br>(W) | Maximum Time To Trip |               | Resistance                |                          | Agency Approval |     |
|-----------------|---------|---------------------------|-------------------------|-----------------------------------|-----------------------------------|-------------------------------|----------------------|---------------|---------------------------|--------------------------|-----------------|-----|
|                 |         |                           |                         |                                   |                                   |                               | Current<br>(A)       | Time<br>(Sec) | R <sub>i min</sub><br>(Ω) | R <sub>1max</sub><br>(Ω) | UL              | TUV |
| SMD0603-020-16V | 2       | 9                         | 40                      | 0.20                              | 0.50                              | 0.5                           | 1.0                  | 0.60          | 0.550                     | 3.500                    | ✓               |     |

**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>imin/max</sub>** = Minimum/Maximum device resistance prior to tripping at 25°C.  
**R<sub>1max</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 |                             |
| In case of special use, please contact our engineer                      |                             |

Agency Approvals :



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

Regulation/Standard:



2015/863/EU



EN14582

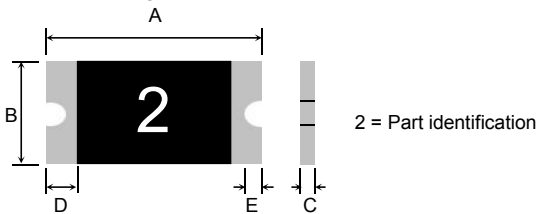
**I<sub>hold</sub> Versus Temperature**

| 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 |
| SMD0603-020-16V | 0.27  | 0.25  | 0.23 | 0.20 | 0.17 | 0.14 | 0.12 | 0.10 | 0.07 |

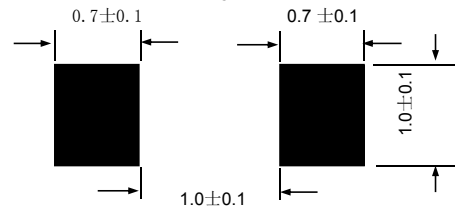
### Construction And Dimension (Unit:mm)

| Model           | A    |      | B    |      | C    |      | D    |      | E    |
|-----------------|------|------|------|------|------|------|------|------|------|
|                 | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | Min. |
| SMD0603-020-16V | 1.45 | 1.85 | 0.65 | 1.05 | 0.40 | 1.00 | 0.15 | 0.10 |      |

### Dimensions & Marking



### Recommended Pad Layout (mm)



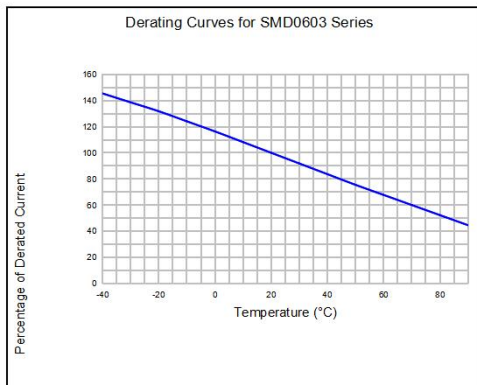
### Termination Pad Characteristics

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

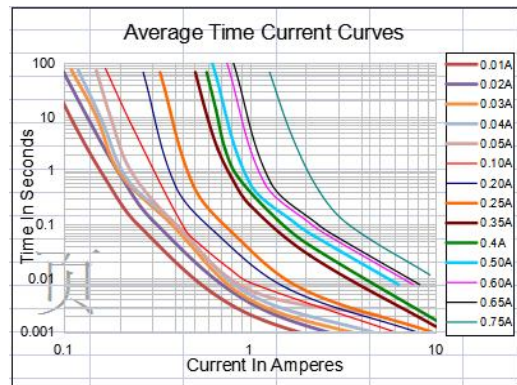
### Rework

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

### Thermal Derating Curve



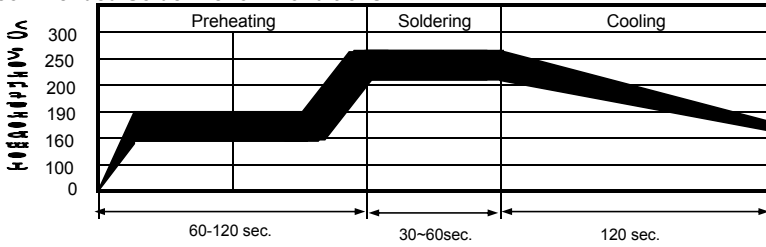
### Typical Time-To-Trip At 25°C



### 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

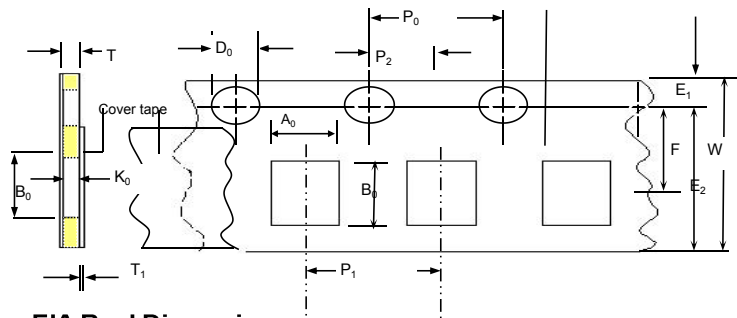


- Recommended reflow methods : IR, vapor phase oven, hot air oven.
  - Devices are not designed to be wave soldered to the bottom side of the board.
  - Recommended maximum paste thickness is 0.25 mm (0.010 inch).
  - Devices can be cleaned using standard method and solvents.
- Note : If reflow temperatures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

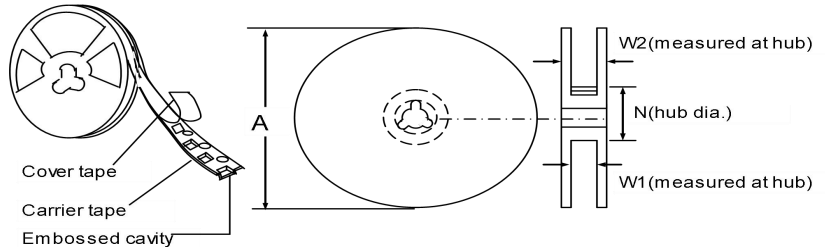
### Tape And Reel Specifications (mm)

| 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             |
| Reel Dimensions          |                 |
| 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                   | 020-16V | Packaging | Tape & Reel Quantity |
|---------------------------|---------|-----------|----------------------|
| Product name              | Hold    |           |                      |
| Size 1508 mm / 0603 inch  | Current |           | 5,000 pcs/reel       |
| SMD: surface mount device | 0.20A   |           |                      |

Tape & reel packaging per EIA481-1

Labeling Information

TECHFUSE

**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

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