



SEA & LAND ELECTRONIC CORP.

[WWW.SEALAND-PPTC.COM](http://WWW.SEALAND-PPTC.COM)

ALPHA-TOP TECHNOLOGY CORP.

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## APPROVAL SHEET

|            |            |
|------------|------------|
| MODEL NO.: | SMD Series |
|------------|------------|

|                             |
|-----------------------------|
| CUSTOMER:                   |
| CUSTOMER'S APPROVAL:        |
| AUTHORIZED SIGNATURE/STAMP: |
| DATE                        |

|               |  |
|---------------|--|
| MANUFACTURER: |  |
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| China Branch: | Factory Building B)Shuangpeng,Weibu Village, Qiuchang Town,<br>Huiyang District, Huizhou City, Guangdong Province, P.R.C.)<br>Tel: 86-752-3562001<br>Fax:86-752-3558696<br>E-mail:service@atpptc.com |

|               |           |
|---------------|-----------|
| Submitted by: | Chen      |
| Approved by:  | YC Lin    |
| DATE:         | 27-Mar-23 |

SEA & LAND ELECTRONIC CORP.



**Features**

- Surface Mount Devices
- Lead free device
- Size 7.5\*5.5 mm 0.29\*0.20 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.
  - Telecommunication equipments.

**SMD Series**

Alpha-Top (Sea & Land Alliance)

**Performance Specification**

| Model         | 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<br>Time To Trip |               | Resistance                |                           | Agency Approval |     |
|---------------|---------------------------|-------------------------|-----------------------------------|-----------------------------------|-------------------------------|-------------------------|---------------|---------------------------|---------------------------|-----------------|-----|
|               |                           |                         |                                   |                                   |                               | Current<br>(A)          | Time<br>(Sec) | R <sub>i min</sub><br>(Ω) | R <sub>1 max</sub><br>(Ω) | UL              | TUV |
| SMD030L       | 60                        | 100                     | 0.30                              | 0.60                              | 1.5                           | 1.5                     | 3.0           | 0.600                     | 4.800                     | ✓               |     |
| SMD050L       | 60                        | 100                     | 0.50                              | 1.00                              | 1.5                           | 2.5                     | 4.0           | 0.180                     | 1.400                     | ✓               |     |
| SMD075L       | 33                        | 100                     | 0.75                              | 1.50                              | 1.5                           | 8.0                     | 0.3           | 0.100                     | 1.000                     | ✓               |     |
| SMD075L-60V   | 60                        | 100                     | 0.75                              | 1.50                              | 1.5                           | 8.0                     | 0.3           | 0.100                     | 1.000                     | ✓               |     |
| SMD100L       | 33                        | 100                     | 1.10                              | 2.20                              | 1.5                           | 8.0                     | 0.5           | 0.065                     | 0.410                     | ✓               |     |
| SMD100L-60V   | 60                        | 100                     | 1.10                              | 2.20                              | 1.5                           | 8.0                     | 0.5           | 0.065                     | 0.410                     | ✓               |     |
| SMD125L       | 33                        | 100                     | 1.25                              | 2.50                              | 1.5                           | 8.0                     | 2.0           | 0.050                     | 0.250                     |                 |     |
| SMD150L       | 33                        | 100                     | 1.50                              | 3.00                              | 1.5                           | 8.0                     | 2.0           | 0.035                     | 0.230                     | ✓               |     |
| SMD185L       | 33                        | 100                     | 1.85                              | 3.70                              | 1.5                           | 8.0                     | 2.5           | 0.030                     | 0.150                     | ✓               |     |
| SMD200L       | 16                        | 100                     | 2.00                              | 4.00                              | 1.5                           | 8.0                     | 4.5           | 0.020                     | 0.120                     |                 |     |
| SMD200L-24V   | 24                        | 100                     | 2.00                              | 4.00                              | 1.5                           | 8.0                     | 4.5           | 0.020                     | 0.120                     |                 |     |
| SMD200L-33V   | 33                        | 100                     | 2.00                              | 4.00                              | 1.5                           | 8.0                     | 4.5           | 0.020                     | 0.120                     |                 |     |
| SMD250L       | 16                        | 100                     | 2.50                              | 5.00                              | 1.5                           | 8.0                     | 16.0          | 0.020                     | 0.085                     |                 |     |
| SMD250L-30V   | 30                        | 100                     | 2.50                              | 5.00                              | 1.5                           | 8.0                     | 16.0          | 0.020                     | 0.085                     |                 |     |
| SMD260L       | 6                         | 100                     | 2.60                              | 5.20                              | 1.5                           | 8.0                     | 10.0          | 0.014                     | 0.075                     |                 |     |
| SMD260L-24V   | 24                        | 100                     | 2.60                              | 5.20                              | 1.5                           | 8.0                     | 10.0          | 0.014                     | 0.075                     |                 |     |
| SMD300L       | 6                         | 100                     | 3.00                              | 6.00                              | 1.5                           | 8.0                     | 20.0          | 0.012                     | 0.048                     | ✓               |     |
| SMD300L-13.2V | 13.2                      | 100                     | 3.00                              | 6.00                              | 1.5                           | 8.0                     | 20.0          | 0.012                     | 0.048                     | ✓               |     |
| SMD300L-16V   | 16                        | 100                     | 3.00                              | 6.00                              | 1.5                           | 8.0                     | 20.0          | 0.012                     | 0.048                     | ✓               |     |
| SMD300L-24V   | 24                        | 100                     | 3.00                              | 6.00                              | 1.5                           | 8.0                     | 20.0          | 0.012                     | 0.048                     | ✓               |     |
| SMD300L-30V   | 30                        | 100                     | 3.00                              | 6.00                              | 1.5                           | 8.0                     | 20.0          | 0.012                     | 0.048                     |                 |     |
| SMD400L       | 6                         | 100                     | 4.00                              | 8.00                              | 1.5                           | 16.0                    | 20.0          | 0.012                     | 0.035                     | ✓               |     |
| SMD400L-12V   | 12                        | 100                     | 4.00                              | 8.00                              | 1.8                           | 16.0                    | 20.0          | 0.012                     | 0.035                     | ✓               |     |
| SMD400L-13.2V | 13.2                      | 100                     | 4.00                              | 8.00                              | 1.8                           | 16.0                    | 20.0          | 0.012                     | 0.035                     | ✓               |     |
| SMD400L-16V   | 16                        | 100                     | 4.00                              | 8.00                              | 1.8                           | 16.0                    | 20.0          | 0.012                     | 0.035                     | ✓               |     |
| SMD400L-24V   | 24                        | 100                     | 4.00                              | 8.00                              | 1.8                           | 16.0                    | 20.0          | 0.012                     | 0.035                     | ✓               |     |
| SMD500L       | 6                         | 100                     | 5.00                              | 10.00                             | 1.8                           | 20.0                    | 10.0          | 0.005                     | 0.031                     | ✓               |     |
| SMD500L-12V   | 12                        | 100                     | 5.00                              | 10.00                             | 1.8                           | 20.0                    | 10.0          | 0.005                     | 0.031                     | ✓               |     |
| SMD500L-13.2V | 13.2                      | 100                     | 5.00                              | 10.00                             | 1.8                           | 20.0                    | 10.0          | 0.005                     | 0.031                     | ✓               |     |
| SMD500L-16V   | 16                        | 100                     | 5.00                              | 10.00                             | 1.8                           | 20.0                    | 10.0          | 0.005                     | 0.031                     | ✓               |     |
| SMD500L-24V   | 24                        | 100                     | 5.00                              | 10.00                             | 1.8                           | 20.0                    | 10.0          | 0.005                     | 0.031                     | ✓               |     |
| SMD600L       | 6                         | 100                     | 6.00                              | 12.00                             | 1.8                           | 25.0                    | 8.0           | 0.004                     | 0.026                     |                 |     |
| SMD600L-13.2V | 13.2                      | 100                     | 6.00                              | 12.00                             | 1.8                           | 25.0                    | 8.0           | 0.004                     | 0.026                     |                 |     |
| SMD600L-16V   | 16                        | 100                     | 6.00                              | 12.00                             | 1.8                           | 25.0                    | 8.0           | 0.004                     | 0.026                     |                 |     |
| SMD600L-24V   | 24                        | 100                     | 6.00                              | 12.00                             | 1.8                           | 25.0                    | 8.0           | 0.004                     | 0.026                     |                 |     |
| SMD700L       | 6                         | 100                     | 7.00                              | 14.00                             | 1.8                           | 35.0                    | 2.0           | 0.002                     | 0.018                     | ✓               |     |
| SMD700L-12V   | 12                        | 100                     | 7.00                              | 14.00                             | 1.8                           | 35.0                    | 2.0           | 0.002                     | 0.018                     | ✓               |     |
| SMD700L-13.2V | 13.2                      | 100                     | 7.00                              | 14.00                             | 1.8                           | 35.0                    | 2.0           | 0.002                     | 0.018                     | ✓               |     |
| SMD700L-16V   | 16                        | 100                     | 7.00                              | 14.00                             | 1.8                           | 35.0                    | 2.0           | 0.002                     | 0.018                     | ✓               |     |
| SMD800L       | 6                         | 100                     | 8.00                              | 16.00                             | 1.8                           | 35.0                    | 2.5           | 0.001                     | 0.010                     |                 |     |

**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>i min</sub>/max** = 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 |                             |
| In case of special use, please contact our engineer                      |                             |



## SMD Series

Alpha-Top (Sea & Land Alliance)

Agency Approvals :



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

Regulation/Standard:



2015/863/EU



EN14582

$I_{hold}$  Versus Temperature

| Model   | Maximum ambient operating temperature ( $T_{max}$ ) vs. hold current ( $I_{hold}$ ) |       |      |      |      |      |      |      |      |  |
|---------|---|-------|------|------|------|------|------|------|------|--|
|         | -40°C   | -20°C | 0°C  | 25°C | 40°C | 50°C | 60°C | 70°C | 85°C |  |
| SMD030L | 0.45  | 0.40  | 0.35 | 0.30 | 0.25 | 0.23 | 0.20 | 0.17 | 0.14 |  |
| SMD050L | 0.76  | 0.67  | 0.59 | 0.50 | 0.42 | 0.38 | 0.33 | 0.29 | 0.23 |  |
| SMD075L | 1.13  | 1.01  | 0.88 | 0.75 | 0.62 | 0.56 | 0.50 | 0.44 | 0.34 |  |
| SMD100L | 1.66  | 1.47  | 1.29 | 1.10 | 0.91 | 0.83 | 0.73 | 0.64 | 0.50 |  |
| SMD125L | 1.89  | 1.68  | 1.46 | 1.25 | 1.04 | 0.94 | 0.83 | 0.73 | 0.56 |  |
| SMD150L | 2.27  | 2.01  | 1.76 | 1.50 | 1.25 | 1.13 | 1.00 | 0.87 | 0.74 |  |
| SMD185L | 2.80  | 2.47  | 2.17 | 1.85 | 1.54 | 1.39 | 1.22 | 1.07 | 0.85 |  |
| SMD200L | 3.02  | 2.68  | 2.34 | 2.00 | 1.66 | 1.50 | 1.32 | 1.16 | 0.90 |  |
| SMD250L | 3.78  | 3.35  | 2.93 | 2.50 | 2.08 | 1.88 | 1.65 | 1.45 | 1.13 |  |
| SMD260L | 3.64  | 3.25  | 2.91 | 2.60 | 2.26 | 2.08 | 1.95 | 1.74 | 1.13 |  |
| SMD300L | 4.53  | 4.02  | 3.51 | 3.00 | 2.52 | 2.26 | 1.99 | 1.75 | 1.34 |  |
| SMD400L | 5.97  | 5.30  | 4.66 | 4.00 | 3.36 | 3.04 | 2.71 | 2.38 | 1.83 |  |
| SMD500L | 7.55  | 6.70  | 5.85 | 5.00 | 4.15 | 3.75 | 3.30 | 2.90 | 2.25 |  |
| SMD600L | 8.60  | 7.75  | 6.89 | 6.00 | 5.04 | 4.56 | 3.96 | 3.54 | 2.76 |  |
| SMD700L | 9.50  | 8.70  | 7.90 | 7.00 | 6.40 | 5.85 | 5.40 | 4.80 | 3.95 |  |
| SMD800L | 10.80   | 9.76  | 8.80 | 8.00 | 6.56 | 6.08 | 5.44 | 4.80 | 3.68 |  |

Construction And Dimension (Unit:mm)

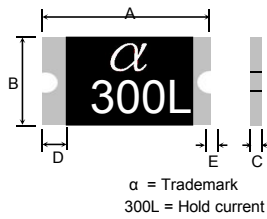
| Model         | A    |      | B    |      | C    |      | D    | E    |
|---------------|------|------|------|------|------|------|------|------|
|               | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Min. |
| SMD030L       | 6.73 | 7.98 | 4.80 | 5.44 | 0.60 | 1.30 | 0.30 | 0.30 |
| SMD050L       | 6.73 | 7.98 | 4.80 | 5.44 | 0.60 | 1.30 | 0.30 | 0.30 |
| SMD075L       | 6.73 | 7.98 | 4.80 | 5.44 | 0.60 | 1.30 | 0.30 | 0.30 |
| SMD075L-60V   | 6.73 | 7.98 | 4.80 | 5.44 | 0.60 | 1.30 | 0.30 | 0.30 |
| SMD100L       | 6.73 | 7.98 | 4.80 | 5.44 | 0.40 | 1.00 | 0.30 | 0.30 |
| SMD100L-60V   | 6.73 | 7.98 | 4.80 | 5.44 | 0.60 | 1.30 | 0.30 | 0.30 |
| SMD125L       | 6.73 | 7.98 | 4.80 | 5.44 | 0.40 | 0.90 | 0.30 | 0.30 |
| SMD150L       | 6.73 | 7.98 | 4.80 | 5.44 | 0.40 | 0.90 | 0.30 | 0.30 |
| SMD185L       | 6.73 | 7.98 | 4.80 | 5.44 | 0.60 | 1.30 | 0.30 | 0.30 |
| SMD200L       | 6.73 | 7.98 | 4.80 | 5.44 | 0.30 | 0.90 | 0.30 | 0.30 |
| SMD200L-24V   | 6.73 | 7.98 | 4.80 | 5.44 | 0.60 | 1.30 | 0.30 | 0.30 |
| SMD200L-33V   | 6.73 | 7.98 | 4.80 | 5.44 | 0.60 | 1.30 | 0.30 | 0.30 |
| SMD250L       | 6.73 | 7.98 | 4.80 | 5.44 | 0.30 | 0.90 | 0.30 | 0.30 |
| SMD250L-30V   | 6.73 | 7.98 | 4.80 | 5.44 | 0.60 | 1.30 | 0.30 | 0.30 |
| SMD260L       | 6.73 | 7.98 | 4.80 | 5.44 | 0.30 | 0.90 | 0.30 | 0.30 |
| SMD300L       | 6.73 | 7.98 | 4.80 | 5.44 | 0.30 | 0.90 | 0.30 | 0.30 |
| SMD300L-13.2V | 6.73 | 7.98 | 4.80 | 5.44 | 0.60 | 1.30 | 0.30 | 0.30 |
| SMD300L-16V   | 6.73 | 7.98 | 4.80 | 5.44 | 0.60 | 1.30 | 0.30 | 0.30 |
| SMD300L-24V   | 6.73 | 7.98 | 4.80 | 5.44 | 0.60 | 1.30 | 0.30 | 0.30 |
| SMD300L-30V   | 6.73 | 7.98 | 4.80 | 5.44 | 0.60 | 1.30 | 0.30 | 0.30 |
| SMD400L       | 6.73 | 7.98 | 4.80 | 5.44 | 0.40 | 1.30 | 0.30 | 0.30 |
| SMD400L-13.2V | 6.73 | 7.98 | 4.80 | 5.44 | 0.60 | 1.30 | 0.30 | 0.30 |
| SMD400L-16V   | 6.73 | 7.98 | 4.80 | 5.44 | 0.60 | 1.30 | 0.30 | 0.30 |
| SMD400L-24V   | 6.73 | 7.98 | 4.80 | 5.44 | 0.60 | 1.30 | 0.30 | 0.30 |
| SMD500L       | 6.73 | 7.98 | 4.80 | 5.44 | 0.40 | 1.30 | 0.30 | 0.30 |
| SMD500L-13.2V | 6.73 | 7.98 | 4.80 | 5.44 | 0.60 | 1.30 | 0.30 | 0.30 |
| SMD500L-16V   | 6.73 | 7.98 | 4.80 | 5.44 | 0.60 | 1.30 | 0.30 | 0.30 |
| SMD500L-24V   | 6.73 | 7.98 | 4.80 | 5.44 | 0.60 | 1.30 | 0.30 | 0.30 |
| SMD600L       | 6.73 | 7.98 | 4.80 | 5.44 | 0.40 | 1.30 | 0.30 | 0.30 |
| SMD600L-13.2V | 6.73 | 7.98 | 4.80 | 5.44 | 0.60 | 1.30 | 0.30 | 0.30 |
| SMD600L-16V   | 6.73 | 7.98 | 4.80 | 5.44 | 0.60 | 1.30 | 0.30 | 0.30 |
| SMD600L-24V   | 6.73 | 7.98 | 4.80 | 5.44 | 0.60 | 1.30 | 0.30 | 0.30 |
| SMD700L       | 6.73 | 7.98 | 4.80 | 5.44 | 0.40 | 1.30 | 0.30 | 0.30 |
| SMD700L-12    | 6.73 | 7.98 | 4.80 | 5.44 | 0.60 | 1.30 | 0.30 | 0.30 |
| SMD700L-13.2  | 6.73 | 7.98 | 4.80 | 5.44 | 0.60 | 1.30 | 0.30 | 0.30 |
| SMD700L-16    | 6.73 | 7.98 | 4.80 | 5.44 | 0.60 | 1.30 | 0.30 | 0.30 |
| SMD800L       | 6.73 | 7.98 | 4.80 | 5.44 | 0.40 | 1.30 | 0.30 | 0.30 |



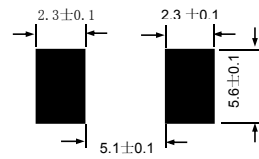
## SMD Series

Alpha-Top (Sea & Land Alliance)

### Dimensions & Marking



### Recommended Pad Layout (mm)



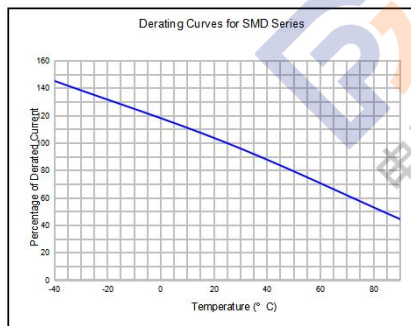
### Termination Pad Characteristics

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.

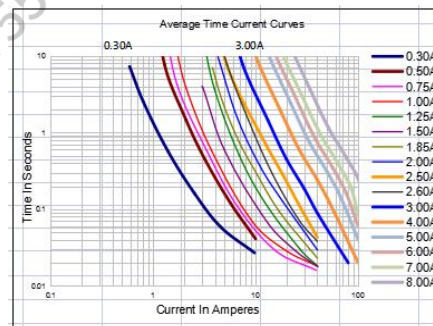
### Rework

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

### Thermal Derating Curve



### Typical Time-To-Trip At 25°C



- 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.



## SMD Series

Alpha-Top (Sea & Land Alliance)

### Recommended Solder Reflow Conditions

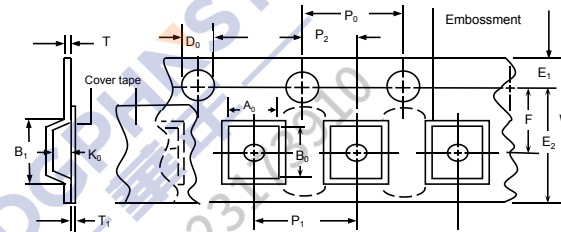


- Recommended reflow methods : IR, vapor phase oven, hot air oven.
  - Devices are not designed to be wave soldered to the bottom side of the board.
  - Recommended maximum paste thickness is 0.25 mm (0.010 inch).
  - Devices can be cleaned using standard method and solvents.
- Note : if reflow temperatures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

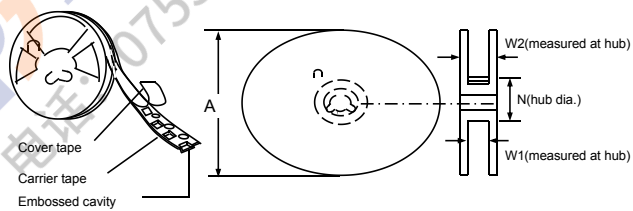
### Tape And Reel Specifications (mm)

| Governing Specifications | EIA 481-2        |
|--------------------------|------------------|
| W                        | 16.0 ± 0.3       |
| P <sub>0</sub>           | 4.0 ± 0.10       |
| P <sub>1</sub>           | 8.0 ± 0.10       |
| P <sub>2</sub>           | 2.0 ± 0.05       |
| A <sub>0</sub>           | 5.70 ± 0.10      |
| B <sub>0</sub>           | 8.00 ± 0.10      |
| B <sub>1</sub> max.      | 12.1             |
| D <sub>0</sub>           | 1.5 + 0.1, -0    |
| F                        | 7.5 ± 0.05       |
| E <sub>1</sub>           | 1.75 ± 0.10      |
| E <sub>2</sub> min.      | 14.25            |
| Tmax.                    | 0.6              |
| T <sub>1</sub> max.      | 0.1              |
| K <sub>0</sub>           | 0.80 ± 0.1       |
| Leader min.              | 390              |
| Trailer min.             | 160              |
| <b>Reel Dimensions</b>   |                  |
| A max.                   | 178              |
| N min.                   | 60               |
| W <sub>1</sub>           | 16.4 + 2.0, -0.0 |
| W <sub>2</sub> max.      | 22.4             |

### 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

| SMD                        | 050L    | Packaging | Tape & Reel Quantity   |
|----------------------------|---------|-----------|--|
| Product name               | Hold    |           | 075L-60V 100L-60V 185L 200L-24V/33V 250L-30V                   |
| Size 7555 mm /2920 inch    | Current |           | 300L-24V/30V 400L-24V 500L 600L 700L 800L 1500PCS/reel         |
| SMD : surface mount device | 0.50A   |           | 030L 050L 075L 100L 125L 200L 250L 260L 300L 400L 2000PCS/reel |

Tape & reel packaging per EIA481-1

### Labeling Information

**Sea & Land Electronic Corp.**

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

倉儲：密封！溫度：18~33℃/濕度：30~60% A