

# SMD1812 Series

SMD1812 Polymer PPTC

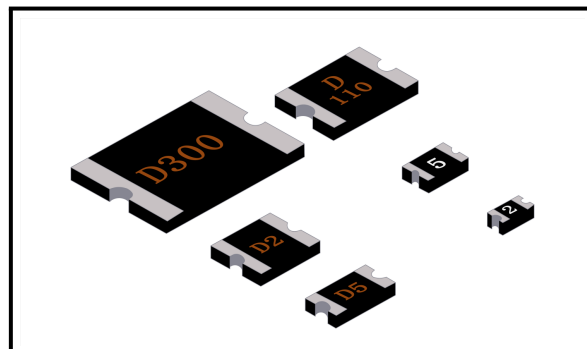
## Features

- RoHS compliant and lead-free
- Halogen-free
- Fast reponse to fault current
- Symmetrical design

## Applications

- Li-ion/Li-Polymer battery packs
- PDA'S / digital cameras
- Computer peripherals
- PC motherboards-plug and play protection

## Package



## Part Numbering

SMD 1812 -XXX /XXN

Special Voltage Rating(Optional)

Holding Current Rating

Size 1812 inch

SMD

## Environmental Specifications

|                                                     |                                                                                      |
|-----------------------------------------------------|--------------------------------------------------------------------------------------|
| Operating Temperature                               | -40°C to +85°C                                                                       |
| Maximum Device Surface Temperature in Tripped State | 125°C                                                                                |
| Passive Aging                                       | +85°C, 1000 hours; ±5% typical resistance change                                     |
| Humidity Aging                                      | +85°C, 85% R.H.100 hours; ±5% typical resistance change                              |
| Thermal Shock                                       | MIL-STD-202, Method 107;<br>+85°C to -40°C, 20 times; -30% typical resistance change |
| Solvent Resistance                                  | MIL-STD-202, Method 215; No change                                                   |
| Vibration                                           | MIL-STD-883, Method 2007, Condition A; No change                                     |
| Moisture Sensivity Level                            | Level 1, J-STD-020                                                                   |
| Storage Conditions                                  | +40°C Max.70% RH Max. Packed in original packaging.                                  |



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## Electrical Characteristics

| Part Number      | Marking | $I_{hold}$ | $I_{trip}$ | $V_{max}$          | $I_{max}$ | $P_{dtyp.}$ | Maximum Time To Trip |            | $R_{0min}$ | $R_{1max}$ |
|------------------|---------|------------|------------|--------------------|-----------|-------------|----------------------|------------|------------|------------|
|                  |         | (A)        | (A)        | (V <sub>dc</sub> ) | (A)       | (W)         | Current(A)           | Time(Sec.) | (ohm)      | (ohm)      |
| SMD1812-005/72N  | D005    | 0.05       | 0.15       | 72.00              | 10.00     | 0.80        | 0.25                 | 3.00       | 5.00       | 36.00      |
| SMD1812-005/90N  | D005    | 0.05       | 0.15       | 90.00              | 10.00     | 0.80        | 0.25                 | 3.00       | 5.00       | 36.00      |
| SMD1812-005/100N | D005    | 0.05       | 0.15       | 100.00             | 10.00     | 0.80        | 0.25                 | 3.00       | 5.00       | 36.00      |
| SMD1812-010/30N  | D010    | 0.10       | 0.30       | 30.00              | 100.00    | 0.80        | 0.50                 | 1.50       | 1.40       | 15.00      |
| SMD1812-010/60N  | D010    | 0.10       | 0.30       | 60.00              | 10.00     | 0.80        | 0.50                 | 1.50       | 1.40       | 15.00      |
| SMD1812-010/72N  | D010    | 0.10       | 0.30       | 72.00              | 10.00     | 0.80        | 0.50                 | 1.50       | 1.40       | 15.00      |
| SMD1812-010/90N  | D010    | 0.10       | 0.30       | 90.00              | 10.00     | 0.80        | 0.50                 | 1.50       | 1.40       | 15.00      |
| SMD1812-014/60N  | D014    | 0.14       | 0.34       | 60.00              | 10.00     | 0.80        | 1.50                 | 0.15       | 1.20       | 6.50       |
| SMD1812-014/72N  | D014    | 0.14       | 0.34       | 72.00              | 10.00     | 0.80        | 1.50                 | 0.15       | 1.20       | 6.50       |
| SMD1812-014/90N  | D014    | 0.14       | 0.34       | 90.00              | 10.00     | 0.80        | 1.50                 | 0.15       | 1.20       | 6.50       |
| SMD1812-020/30N  | D020    | 0.20       | 0.40       | 30.00              | 100.00    | 0.80        | 8.00                 | 0.02       | 0.80       | 5.00       |
| SMD1812-020/60N  | D02     | 0.20       | 0.40       | 60.00              | 10.00     | 0.80        | 8.00                 | 0.02       | 1.20       | 6.00       |
| SMD1812-020/72N  | D02     | 0.20       | 0.40       | 72.00              | 10.00     | 0.80        | 8.00                 | 0.02       | 1.20       | 6.00       |
| SMD1812-020/90N  | D02     | 0.20       | 0.40       | 90.00              | 10.00     | 0.80        | 8.00                 | 0.02       | 1.20       | 6.00       |
| SMD1812-030/30N  | D030    | 0.30       | 0.60       | 30.00              | 40.00     | 0.80        | 8.00                 | 0.05       | 0.40       | 3.00       |
| SMD1812-030/48N  | D030    | 0.30       | 0.60       | 48.00              | 40.00     | 0.80        | 8.00                 | 0.05       | 0.40       | 3.00       |
| SMD1812-030/60N  | D030    | 0.30       | 0.60       | 60.00              | 40.00     | 0.80        | 8.00                 | 0.05       | 0.40       | 3.00       |
| SMD1812-035/30N  | D035    | 0.35       | 0.70       | 30.00              | 40.00     | 0.80        | 8.00                 | 0.15       | 0.35       | 1.80       |
| SMD1812-035/60N  | D03     | 0.35       | 0.70       | 60.00              | 10.00     | 1.00        | 8.00                 | 0.15       | 0.35       | 2.00       |
| SMD1812-050/16N  | D050    | 0.50       | 1.00       | 16.00              | 100.00    | 0.80        | 8.00                 | 0.15       | 0.15       | 1.00       |
| SMD1812-050/30N  | D050    | 0.50       | 1.00       | 30.00              | 100.00    | 0.80        | 8.00                 | 0.15       | 0.15       | 1.00       |
| SMD1812-050/60N  | D05     | 0.50       | 1.00       | 60.00              | 10.00     | 1.50        | 8.00                 | 0.15       | 0.15       | 1.40       |
| SMD1812-050/72N  | D05     | 0.50       | 1.00       | 72.00              | 10.00     | 1.50        | 8.00                 | 0.15       | 0.15       | 1.40       |
| SMD1812-075/16N  | D075    | 0.75       | 1.50       | 16.00              | 100.00    | 0.80        | 8.00                 | 0.20       | 0.11       | 0.45       |
| SMD1812-075/24N  | D075    | 0.75       | 1.50       | 24.00              | 100.00    | 0.80        | 8.00                 | 0.20       | 0.11       | 0.45       |
| SMD1812-075/33N  | D07     | 0.75       | 1.50       | 33.00              | 40.00     | 0.80        | 8.00                 | 0.20       | 0.11       | 0.45       |
| SMD1812-075/33SN | D075    | 0.75       | 1.50       | 33.00              | 40.00     | 0.80        | 8.00                 | 0.20       | 0.11       | 0.45       |
| SMD1812-075/48N  | D075/48 | 0.75       | 1.50       | 48.00              | 40.00     | 0.80        | 8.00                 | 0.20       | 0.11       | 0.45       |



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## Electrical Characteristics

| Part Number      | Marking | $I_{hold}$ | $I_{trip}$ | $V_{max}$          | $I_{max}$ | $P_{dtyp.}$ | Maximum Time To Trip |            | $R0min$ | $R1max$ |
|------------------|---------|------------|------------|--------------------|-----------|-------------|----------------------|------------|---------|---------|
|                  |         | (A)        | (A)        | (V <sub>dc</sub> ) | (A)       | (W)         | Current(A)           | Time(Sec.) | (ohm)   | (ohm)   |
| SMD1812-110/8N   | D110    | 1.10       | 2.20       | 8.00               | 100.00    | 0.80        | 8.00                 | 0.30       | 0.050   | 0.225   |
| SMD1812-110/12N  | D110    | 1.10       | 2.20       | 12.00              | 100.00    | 0.80        | 8.00                 | 0.30       | 0.050   | 0.225   |
| SMD1812-110/16N  | D110    | 1.10       | 2.20       | 16.00              | 100.00    | 0.80        | 8.00                 | 0.30       | 0.050   | 0.225   |
| SMD1812-110/24N  | D11     | 1.10       | 2.20       | 24.00              | 40.00     | 0.80        | 8.00                 | 0.50       | 0.045   | 0.225   |
| SMD1812-110/33N  | D110/33 | 1.10       | 2.20       | 33.00              | 40.00     | 0.80        | 8.00                 | 0.50       | 0.045   | 0.225   |
| SMD1812-110/48N  | D110/48 | 1.10       | 2.20       | 48.00              | 40.00     | 0.80        | 8.00                 | 0.50       | 0.045   | 0.225   |
| SMD1812-125/8N   | D125    | 1.25       | 2.50       | 8.00               | 100.00    | 0.80        | 8.00                 | 0.40       | 0.035   | 0.140   |
| SMD1812-125/12N  | D125    | 1.25       | 2.50       | 12.00              | 100.00    | 0.80        | 8.00                 | 0.40       | 0.035   | 0.140   |
| SMD1812-125/16N  | D12     | 1.25       | 2.50       | 16.00              | 100.00    | 0.80        | 8.00                 | 0.40       | 0.035   | 0.140   |
| SMD1812-125/16SN | D125    | 1.25       | 2.50       | 16.00              | 100.00    | 0.80        | 8.00                 | 0.40       | 0.035   | 0.140   |
| SMD1812-125/24N  | D12     | 1.25       | 2.50       | 24.00              | 100.00    | 0.80        | 8.00                 | 0.40       | 0.035   | 0.180   |
| SMD1812-125/33N  | D125/33 | 1.25       | 2.50       | 33.00              | 100.00    | 0.80        | 8.00                 | 0.40       | 0.035   | 0.180   |
| SMD1812-150/8N   | D150    | 1.50       | 3.00       | 8.00               | 100.00    | 0.80        | 8.00                 | 0.30       | 0.030   | 0.120   |
| SMD1812-150/12N  | D150    | 1.50       | 3.00       | 12.00              | 100.00    | 0.80        | 8.00                 | 0.50       | 0.030   | 0.120   |
| SMD1812-150/16N  | D15     | 1.50       | 3.00       | 16.00              | 100.00    | 0.80        | 8.00                 | 0.50       | 0.030   | 0.120   |
| SMD1812-150/16SN | D150    | 1.50       | 3.00       | 16.00              | 100.00    | 0.80        | 8.00                 | 0.50       | 0.030   | 0.120   |
| SMD1812-150/24N  | D150/24 | 1.50       | 3.00       | 24.00              | 40.00     | 0.80        | 8.00                 | 1.50       | 0.030   | 0.150   |
| SMD1812-150/33N  | D150/33 | 1.50       | 3.00       | 33.00              | 40.00     | 0.80        | 8.00                 | 1.50       | 0.030   | 0.150   |
| SMD1812-160/8N   | D160    | 1.60       | 3.20       | 8.00               | 100.00    | 0.80        | 8.00                 | 0.30       | 0.030   | 0.110   |
| SMD1812-160/12N  | D160    | 1.60       | 3.20       | 12.00              | 100.00    | 0.80        | 8.00                 | 0.50       | 0.030   | 0.110   |
| SMD1812-160/16N  | D16     | 1.60       | 3.20       | 16.00              | 100.00    | 0.80        | 8.00                 | 0.50       | 0.030   | 0.110   |
| SMD1812-160/16SN | D160    | 1.60       | 3.20       | 16.00              | 100.00    | 0.80        | 8.00                 | 0.50       | 0.030   | 0.110   |
| SMD1812-160/24N  | D160/24 | 1.60       | 3.20       | 24.00              | 40.00     | 0.80        | 8.00                 | 0.50       | 0.030   | 0.130   |
| SMD1812-160/33N  | D160/33 | 1.60       | 3.20       | 33.00              | 40.00     | 0.80        | 8.00                 | 0.50       | 0.030   | 0.130   |
| SMD1812-200/8N   | D200    | 2.00       | 4.00       | 8.00               | 100.00    | 0.80        | 8.00                 | 2.00       | 0.020   | 0.080   |
| SMD1812-200/12N  | D20     | 2.00       | 4.00       | 12.00              | 100.00    | 1.00        | 8.00                 | 2.00       | 0.020   | 0.080   |
| SMD1812-200/16N  | D20     | 2.00       | 4.00       | 16.00              | 100.00    | 1.00        | 8.00                 | 2.00       | 0.020   | 0.080   |
| SMD1812-200/24N  | D200/24 | 2.00       | 4.00       | 24.00              | 100.00    | 1.00        | 8.00                 | 2.00       | 0.02    | 0.11    |
| SMD1812-200/30N  | D200/30 | 2.00       | 4.00       | 30.00              | 100.00    | 1.00        | 8.00                 | 2.00       | 0.02    | 0.11    |



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## Electrical Characteristics

| Part Number     | Marking | $I_{hold}$ | $I_{trip}$ | $V_{max}$          | $I_{max}$ | $P_{dtyp.}$ | Maximum Time To Trip |            | $R_{0min}$ | $R_{1max}$ |
|-----------------|---------|------------|------------|--------------------|-----------|-------------|----------------------|------------|------------|------------|
|                 |         | (A)        | (A)        | (V <sub>dc</sub> ) | (A)       | (W)         | Current(A)           | Time(Sec.) | (ohm)      | (ohm)      |
| SMD1812-250/8N  | D250    | 2.50       | 5.00       | 8.00               | 100.00    | 0.80        | 8.00                 | 5.00       | 0.015      | 0.075      |
| SMD1812-250/12N | D25     | 2.50       | 5.00       | 12.00              | 100.00    | 0.80        | 8.00                 | 5.00       | 0.015      | 0.075      |
| SMD1812-250/16N | D250/16 | 2.50       | 5.00       | 16.00              | 100.00    | 1.00        | 8.00                 | 5.00       | 0.015      | 0.075      |
| SMD1812-250/24N | D250/24 | 2.50       | 5.00       | 24.00              | 40.00     | 1.00        | 8.00                 | 5.00       | 0.015      | 0.075      |
| SMD1812-260/8N  | D260    | 2.60       | 5.20       | 8.00               | 100.00    | 0.80        | 8.00                 | 5.00       | 0.015      | 0.075      |
| SMD1812-260/12N | D26     | 2.60       | 5.20       | 12.00              | 100.00    | 0.80        | 8.00                 | 5.00       | 0.015      | 0.075      |
| SMD1812-260/16N | D260/16 | 2.60       | 5.20       | 16.00              | 100.00    | 1.00        | 8.00                 | 5.00       | 0.015      | 0.075      |
| SMD1812-260/24N | D260/24 | 2.60       | 5.20       | 24.00              | 40.00     | 1.00        | 8.00                 | 5.00       | 0.015      | 0.075      |
| SMD1812-300/12N | D300    | 3.00       | 6.00       | 12.00              | 100.00    | 1.00        | 8.00                 | 4.00       | 0.012      | 0.060      |
| SMD1812-300/8N  | D300    | 3.00       | 6.00       | 8.00               | 100.00    | 1.00        | 8.00                 | 4.00       | 0.012      | 0.060      |
| SMD1812-300/16N | D300    | 3.00       | 6.00       | 16.00              | 100.00    | 1.00        | 8.00                 | 4.00       | 0.012      | 0.060      |
| SMD1812-300/24N | D300/24 | 3.00       | 6.00       | 24.00              | 40.00     | 1.00        | 8.00                 | 4.00       | 0.012      | 0.060      |
| SMD1812-350/12N | D350    | 3.50       | 7.00       | 12.00              | 100.00    | 1.00        | 10.00                | 4.00       | 0.008      | 0.035      |
| SMD1812-350/6N  | D35     | 3.50       | 7.00       | 6.00               | 100.00    | 1.00        | 10.00                | 4.00       | 0.008      | 0.035      |
| SMD1812-350/16N | D350    | 3.50       | 7.00       | 16.00              | 100.00    | 1.00        | 10.00                | 4.00       | 0.008      | 0.035      |
| SMD1812-400/6N  | D400    | 4.00       | 8.00       | 6.00               | 100.00    | 2.00        | 10.00                | 4.00       | 0.005      | 0.025      |
| SMD1812-400/12N | D400    | 4.00       | 8.00       | 12.00              | 100.00    | 2.00        | 10.00                | 4.00       | 0.005      | 0.025      |
| SMD1812-400/16N | D400    | 4.00       | 8.00       | 16.00              | 100.00    | 2.00        | 10.00                | 4.00       | 0.005      | 0.025      |

$I_{hold}$  : Holding Current: maximum current at which the device will not trip in 25°C still air.

$I_{trip}$  : Tripping Current: minimum current at which the device will trip in 25° still air.

$V_{max}$  : Maximum voltage device can withstand without damage at rated current(  $I_{max}$ ).

$I_{max}$  : Maximum fault current device can withstand without damage at rated voltage( $V_{max}$ ).

$P_{dtyp.}$  : Typical power dissipated from device when in the tripped state at 25°C still air.

$R_{0min}$  : Minimum resistance of device in initial (un-soldered) state.

$R_{1max}$  : Maximum resistance of device at 25°C measured one hour after tripping or reflow soldering of 260°C for 20 sec.



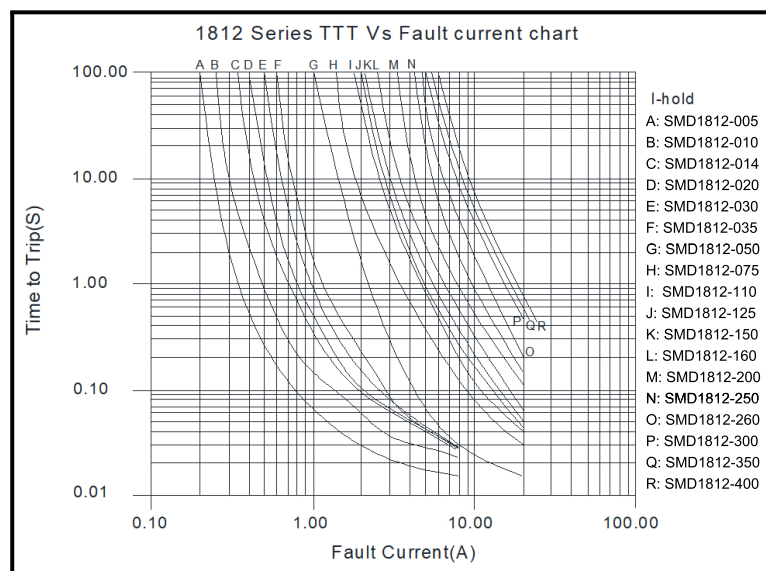
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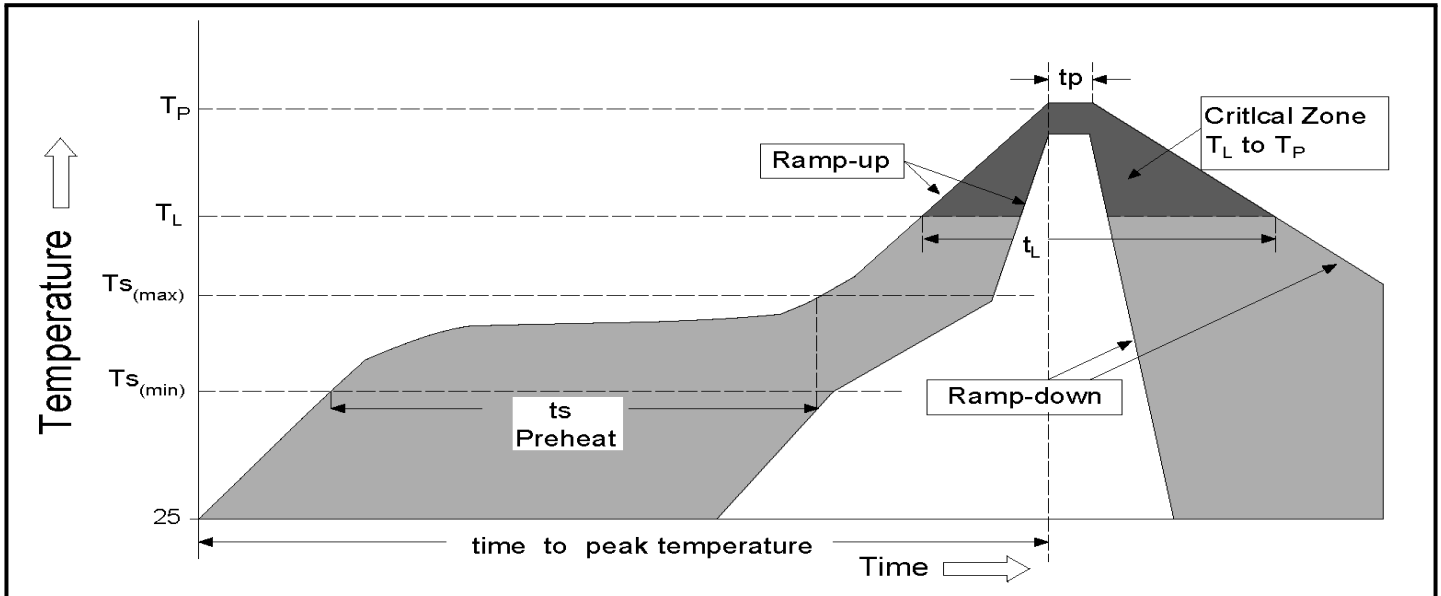
## Thermal Derating Chart

| Part Number | Ambient Operating Temperature |       |       |       |       |       |       |       |       |
|-------------|-------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
|             | -40°C                         | -20°C | 0°C   | 25°C  | 40°C  | 50°C  | 60°C  | 70°C  | 85°C  |
| SMD1812-005 | 0.065                         | 0.060 | 0.055 | 0.050 | 0.040 | 0.035 | 0.030 | 0.025 | 0.015 |
| SMD1812-010 | 0.16                          | 0.14  | 0.12  | 0.10  | 0.08  | 0.07  | 0.06  | 0.05  | 0.03  |
| SMD1812-014 | 0.23                          | 0.19  | 0.17  | 0.14  | 0.12  | 0.10  | 0.09  | 0.08  | 0.06  |
| SMD1812-020 | 0.29                          | 0.26  | 0.23  | 0.20  | 0.17  | 0.15  | 0.14  | 0.12  | 0.10  |
| SMD1812-030 | 0.43                          | 0.39  | 0.34  | 0.30  | 0.26  | 0.22  | 0.21  | 0.17  | 0.14  |
| SMD1812-035 | 0.50                          | 0.45  | 0.40  | 0.35  | 0.30  | 0.26  | 0.24  | 0.20  | 0.16  |
| SMD1812-050 | 0.77                          | 0.68  | 0.59  | 0.50  | 0.44  | 0.40  | 0.37  | 0.33  | 0.29  |
| SMD1812-075 | 1.15                          | 1.01  | 0.88  | 0.75  | 0.65  | 0.60  | 0.55  | 0.49  | 0.43  |
| SMD1812-110 | 1.59                          | 1.43  | 1.26  | 1.10  | 0.95  | 0.87  | 0.80  | 0.71  | 0.60  |
| SMD1812-125 | 2.00                          | 1.75  | 1.52  | 1.25  | 1.00  | 0.95  | 0.90  | 0.75  | 0.63  |
| SMD1812-150 | 2.06                          | 1.93  | 1.79  | 1.50  | 1.28  | 1.10  | 1.02  | 0.80  | 0.68  |
| SMD1812-160 | 2.20                          | 2.06  | 1.91  | 1.60  | 1.36  | 1.17  | 1.09  | 0.85  | 0.72  |
| SMD1812-200 | 2.60                          | 2.44  | 2.22  | 2.00  | 1.78  | 1.67  | 1.50  | 1.45  | 1.29  |
| SMD1812-250 | 3.27                          | 3.04  | 2.88  | 2.50  | 2.21  | 2.07  | 1.92  | 1.78  | 1.57  |
| SMD1812-260 | 3.40                          | 3.16  | 3.00  | 2.60  | 2.30  | 2.15  | 2.00  | 1.85  | 1.63  |
| SMD1812-300 | 4.13                          | 3.75  | 3.30  | 3.00  | 2.62  | 2.43  | 2.25  | 2.00  | 1.78  |
| SMD1812-350 | 4.84                          | 4.39  | 4.04  | 3.50  | 2.98  | 2.66  | 2.35  | 2.19  | 1.90  |
| SMD1812-400 | 5.80                          | 5.20  | 4.60  | 4.00  | 3.35  | 3.12  | 2.75  | 2.45  | 2.10  |

## 1812 Series TTT Vs Fault current chart( Typical time to trip at 25°C)



### Soldering Parameters



| Profile Feature                                      |                                  | Pb-Free Assembly        |
|------------------------------------------------------|----------------------------------|-------------------------|
| Average Ramp-Up Rate ( $T_{S(max)}$ to $T_P$ )       |                                  | 3°C/second max          |
| Pre Heat                                             | Temperature Min ( $T_{S(min)}$ ) | 150°C                   |
|                                                      | Temperature Max ( $T_{S(max)}$ ) | 200°C                   |
|                                                      | Time (min to max) ( $t_s$ )      | 60 - 180 secs           |
| Time Maintained Above                                | Temperature ( $T_L$ )            | 217°C                   |
|                                                      | Temperature ( $t_L$ )            | 60 - 150 secs           |
| Peak/Classification Temperature ( $T_P$ )            |                                  | 260 <sup>+0/-5</sup> °C |
| Time within 5°C of actual peak Temperature ( $t_p$ ) |                                  | 20-40 second            |
| Ramp-down Rate                                       |                                  | 6°C/second max          |
| Time 25°C to peak Temperature ( $T_P$ )              |                                  | 8 minutes Max.          |

- All temperature refer to topside of thepackage, measured on the pack- age body surface
- If reflow temperature exceeds the rec- ommended profile, devices may not meet the performance requirements
- Recommended reflow methods: IR, vapor phase oven, hot air oven,,N2 en- vironment for lead
- Recommended maximum paste thick- ness is 0.25mm (0.010inch)
- Devices can be cleaned using stan- dard industry methods and solvents

### Test Procedures And Requirements

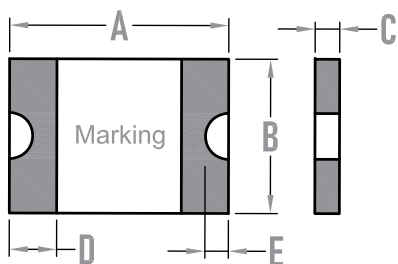
| Test              | Test Conditions                                               | Accept/Reject Criteria                      |
|-------------------|---------------------------------------------------------------|---------------------------------------------|
| R0 min            | Resistance measurement at 25°C                                | $R_{0min} \leq R \leq R_{1max}$             |
| R1 max            | Resistance measurement one hour after post trip               | $R_{0min} \leq R \leq R_{1max}$             |
| I-hold            | Hold rated current 1800 second without trip, @25°C            | No trip                                     |
| I-trip            | Device must trip within 900 second under rated current, @25°C | Trip                                        |
| Max. time to trip | At specified current, 25°C                                    | $T \leq \text{max. time to trip (seconds)}$ |
| Trip Cycle Life   | $V_{max}$ , $I_{max}$ , 100 cycles                            | No arcing or burning                        |
| Trip Endurance    | $V_{max}$ , $I_{max}$ 24 hours                                | No arcing or burning                        |
| Solderability     | ANSI/J-STD-002                                                | 95 % min. coverage                          |



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SMD1812 Polymer PPTC

## Product Dimensions(mm)



| Model            | A    |      | B    |      | C    |      | D    |      | E    | Quantity |
|------------------|------|------|------|------|------|------|------|------|------|----------|
|                  | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | Min. | PCS/R    |
| SMD1812-005/72N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.65 | 1.15 | 0.30 | 1.20 | 0.20 | 1500     |
| SMD1812-005/90N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.65 | 1.15 | 0.30 | 1.20 | 0.20 | 1500     |
| SMD1812-005/100N | 4.37 | 4.73 | 3.07 | 3.41 | 0.65 | 1.15 | 0.30 | 1.20 | 0.20 | 1500     |
| SMD1812-010/30N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.65 | 1.15 | 0.30 | 1.20 | 0.20 | 1500     |
| SMD1812-010/60N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.65 | 1.15 | 0.30 | 1.20 | 0.20 | 1500     |
| SMD1812-010/72N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.65 | 1.15 | 0.30 | 1.20 | 0.20 | 1500     |
| SMD1812-010/90N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.65 | 1.15 | 0.30 | 1.20 | 0.20 | 1500     |
| SMD1812-014/60N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.65 | 1.15 | 0.30 | 1.20 | 0.20 | 1500     |
| SMD1812-014/72N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.65 | 1.15 | 0.30 | 1.20 | 0.20 | 1500     |
| SMD1812-014/90N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.65 | 1.15 | 0.30 | 1.20 | 0.20 | 1500     |
| SMD1812-020/30N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.65 | 1.15 | 0.30 | 1.20 | 0.20 | 1500     |
| SMD1812-020/60N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.65 | 1.15 | 0.30 | 1.20 | 0.20 | 1500     |
| SMD1812-020/72N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.65 | 1.15 | 0.30 | 1.20 | 0.20 | 1500     |
| SMD1812-020/90N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.65 | 1.15 | 0.30 | 1.20 | 0.20 | 1500     |
| SMD1812-030/30N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.65 | 1.15 | 0.30 | 1.20 | 0.20 | 1500     |
| SMD1812-030/48N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.65 | 1.15 | 0.30 | 1.20 | 0.20 | 1500     |
| SMD1812-030/60N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.65 | 1.15 | 0.30 | 1.20 | 0.20 | 1500     |
| SMD1812-035/30N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.65 | 1.15 | 0.30 | 1.20 | 0.20 | 1500     |
| SMD1812-035/60N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.65 | 1.15 | 0.30 | 1.20 | 0.20 | 1000     |
| SMD1812-050/16N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.35 | 0.85 | 0.30 | 1.20 | 0.20 | 2000     |
| SMD1812-050/30N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.35 | 0.85 | 0.30 | 1.20 | 0.20 | 2000     |
| SMD1812-050/60N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.65 | 1.35 | 0.30 | 1.20 | 0.20 | 1500     |
| SMD1812-050/72N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.65 | 1.35 | 0.30 | 1.20 | 0.20 | 1500     |



# SMD1812 Series

SMD1812 Polymer PPTC

## Product Dimensions(mm)

| Model            | A    |      | B    |      | C    |      | D    |      | E    | Quantity |
|------------------|------|------|------|------|------|------|------|------|------|----------|
|                  | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | Min. | PCS/R    |
| SMD1812-075/16N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.35 | 0.85 | 0.30 | 1.20 | 0.20 | 2000     |
| SMD1812-075/24N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.35 | 0.85 | 0.30 | 1.20 | 0.20 | 2000     |
| SMD1812-075/33N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.65 | 1.15 | 0.30 | 1.20 | 0.20 | 1500     |
| SMD1812-075/33SN | 4.37 | 4.73 | 3.07 | 3.41 | 0.35 | 0.85 | 0.30 | 1.20 | 0.20 | 2000     |
| SMD1812-075/48N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.85 | 1.35 | 0.30 | 1.20 | 0.20 | 1500     |
| SMD1812-110/8N   | 4.37 | 4.73 | 3.07 | 3.41 | 0.35 | 0.85 | 0.30 | 1.20 | 0.20 | 2000     |
| SMD1812-110/12N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.35 | 0.85 | 0.30 | 1.20 | 0.20 | 2000     |
| SMD1812-110/16N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.35 | 0.85 | 0.30 | 1.20 | 0.20 | 2000     |
| SMD1812-110/24N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.65 | 1.15 | 0.30 | 1.20 | 0.20 | 1500     |
| SMD1812-110/33N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.85 | 1.35 | 0.30 | 1.20 | 0.20 | 1000     |
| SMD1812-110/48N  | 4.37 | 4.73 | 3.07 | 3.41 | 1.00 | 1.50 | 0.30 | 1.20 | 0.20 | 1000     |
| SMD1812-125/8N   | 4.37 | 4.73 | 3.07 | 3.41 | 0.35 | 0.85 | 0.30 | 1.20 | 0.20 | 2000     |
| SMD1812-125/12N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.35 | 0.85 | 0.30 | 1.20 | 0.20 | 2000     |
| SMD1812-125/16N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.65 | 1.15 | 0.30 | 1.20 | 0.20 | 1500     |
| SMD1812-125/16SN | 4.37 | 4.73 | 3.07 | 3.41 | 0.35 | 0.85 | 0.30 | 1.20 | 0.20 | 2000     |
| SMD1812-125/24N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.65 | 1.15 | 0.30 | 1.20 | 0.20 | 1500     |
| SMD1812-125/33N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.85 | 1.35 | 0.30 | 1.20 | 0.20 | 1000     |
| SMD1812-150/8N   | 4.37 | 4.73 | 3.07 | 3.41 | 0.35 | 0.85 | 0.30 | 1.20 | 0.20 | 2000     |
| SMD1812-150/12N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.35 | 0.85 | 0.30 | 1.20 | 0.20 | 2000     |
| SMD1812-150/16N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.65 | 1.15 | 0.30 | 1.20 | 0.20 | 1500     |
| SMD1812-150/16SN | 4.37 | 4.73 | 3.07 | 3.41 | 0.35 | 0.85 | 0.30 | 1.20 | 0.20 | 2000     |
| SMD1812-150/24N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.85 | 1.35 | 0.30 | 1.20 | 0.20 | 1000     |
| SMD1812-150/33N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.85 | 1.35 | 0.30 | 1.20 | 0.20 | 1000     |
| SMD1812-160/8N   | 4.37 | 4.73 | 3.07 | 3.41 | 0.35 | 0.85 | 0.30 | 1.20 | 0.20 | 2000     |
| SMD1812-160/12N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.35 | 0.85 | 0.30 | 1.20 | 0.20 | 2000     |
| SMD1812-160/16N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.65 | 1.15 | 0.30 | 1.20 | 0.20 | 1500     |
| SMD1812-160/16SN | 4.37 | 4.73 | 3.07 | 3.41 | 0.35 | 0.85 | 0.30 | 1.20 | 0.20 | 2000     |
| SMD1812-160/24N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.85 | 1.35 | 0.30 | 1.20 | 0.20 | 1000     |
| SMD1812-160/33N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.85 | 1.35 | 0.30 | 1.20 | 0.20 | 1000     |
| SMD1812-200/8N   | 4.37 | 4.73 | 3.07 | 3.41 | 0.35 | 0.85 | 0.30 | 1.20 | 0.20 | 2000     |
| SMD1812-200/12N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.65 | 1.15 | 0.30 | 1.20 | 0.20 | 1500     |
| SMD1812-200/16N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.65 | 1.15 | 0.30 | 1.20 | 0.20 | 1500     |
| SMD1812-200/24N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.85 | 1.35 | 0.30 | 1.20 | 0.20 | 1000     |
| SMD1812-200/30N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.85 | 1.35 | 0.30 | 1.20 | 0.20 | 1000     |

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Specifications are subject to change without notice.

Please refer to <http://www.born-tw.com> for current information. **Revision: 2025-March-1-B**



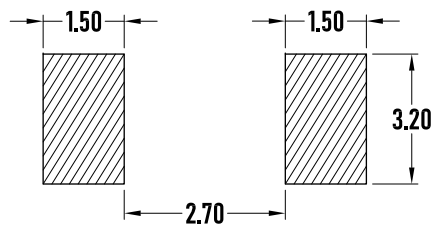
# SMD1812 Series

SMD1812 Polymer PPTC

## Product Dimensions(mm)

| Model           | A    |      | B    |      | C    |      | D    |      | E    | Quantity |
|-----------------|------|------|------|------|------|------|------|------|------|----------|
|                 | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | Min. | PCS/R    |
| SMD1812-250/8N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.35 | 0.85 | 0.30 | 1.20 | 0.20 | 2000     |
| SMD1812-250/12N | 4.37 | 4.73 | 3.07 | 3.41 | 0.65 | 1.15 | 0.30 | 1.20 | 0.20 | 1500     |
| SMD1812-250/16N | 4.37 | 4.73 | 3.07 | 3.41 | 0.85 | 1.35 | 0.30 | 1.20 | 0.20 | 1000     |
| SMD1812-250/24N | 4.37 | 4.73 | 3.07 | 3.41 | 1.00 | 1.50 | 0.30 | 1.20 | 0.20 | 1000     |
| SMD1812-260/8N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.35 | 0.85 | 0.30 | 1.20 | 0.20 | 2000     |
| SMD1812-260/12N | 4.37 | 4.73 | 3.07 | 3.41 | 0.65 | 1.15 | 0.30 | 1.20 | 0.20 | 1500     |
| SMD1812-260/16N | 4.37 | 4.73 | 3.07 | 3.41 | 0.85 | 1.35 | 0.30 | 1.20 | 0.20 | 1000     |
| SMD1812-260/24N | 4.37 | 4.73 | 3.07 | 3.41 | 1.00 | 1.50 | 0.30 | 1.20 | 0.20 | 1000     |
| SMD1812-300/12N | 4.37 | 4.73 | 3.07 | 3.41 | 0.85 | 1.35 | 0.30 | 1.20 | 0.20 | 1000     |
| SMD1812-300/8N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.85 | 1.35 | 0.30 | 1.20 | 0.20 | 1000     |
| SMD1812-300/16N | 4.37 | 4.73 | 3.07 | 3.41 | 0.85 | 1.35 | 0.30 | 1.20 | 0.20 | 1000     |
| SMD1812-300/24N | 4.37 | 4.73 | 3.07 | 3.41 | 1.00 | 1.50 | 0.30 | 1.20 | 0.20 | 1000     |
| SMD1812-350/12N | 4.37 | 4.73 | 3.07 | 3.41 | 1.00 | 1.50 | 0.30 | 1.20 | 0.20 | 1000     |
| SMD1812-350/6N  | 4.37 | 4.73 | 3.07 | 3.41 | 0.85 | 1.35 | 0.30 | 1.20 | 0.20 | 1000     |
| SMD1812-350/16N | 4.37 | 4.73 | 3.07 | 3.41 | 1.00 | 1.50 | 0.30 | 1.20 | 0.20 | 1000     |
| SMD1812-400/6N  | 4.37 | 4.73 | 3.07 | 3.41 | 1.00 | 1.50 | 0.30 | 1.20 | 0.20 | 1000     |
| SMD1812-400/12N | 4.37 | 4.73 | 3.07 | 3.41 | 1.00 | 1.50 | 0.30 | 1.20 | 0.20 | 1000     |
| SMD1812-400/16N | 4.37 | 4.73 | 3.07 | 3.41 | 1.00 | 1.50 | 0.30 | 1.20 | 0.20 | 1000     |

## Recommended Pad Layout(mm)&Physical Specifications



|                    |                                                                |
|--------------------|----------------------------------------------------------------|
| Terminal Material  | Tin-Plated Nickle-Copper (Solder Material: Matte Tin (Sn))     |
| Lead Solderability | T Meets EIA Specification RS186-9E, ANSI/J-STD-002 Category 3. |

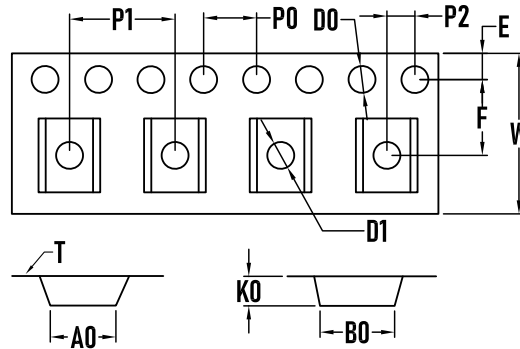


# SMD1812 Series

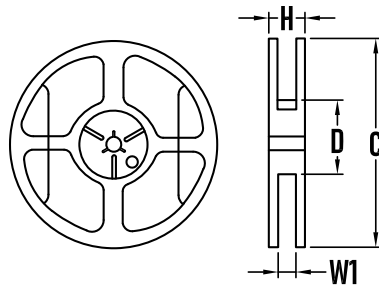
SMD1812 Polymer PPTC

## Tape And Reel Specifications (mm)&Packaging quantity

| item     | TAPE SPECIFICATIONS: EIA-481-1 (mm) |              |              |
|----------|-------------------------------------|--------------|--------------|
| W        | 12.0±0.10                           | 12.0±0.10    | 12.0±0.10    |
| F        | 5.50±0.05                           | 5.50±0.05    | 5.50±0.05    |
| E        | 1.75±0.10                           | 1.75±0.10    | 1.75±0.10    |
| D0       | 1.55±0.05                           | 1.55±0.05    | 1.55±0.05    |
| D1       | 1.50 min                            | 1.50 min     | 1.50 min     |
| P0       | 4.0±0.10                            | 4.0±0.10     | 4.0±0.10     |
| P1       | 8.0±0.10                            | 8.0±0.10     | 8.0±0.10     |
| P2       | 2.0±0.05                            | 2.0±0.05     | 2.0±0.05     |
| A0       | 3.58±0.10                           | 3.58±0.10    | 3.50±0.10    |
| B0       | 4.93±0.10                           | 4.93±0.10    | 4.90±0.10    |
| T        | 0.25±0.05                           | 0.25±0.05    | 0.25±0.05    |
| K0       | 0.87±0.10                           | 1.30±0.10    | 1.70±0.10    |
| Leader   | 390 mm                              | 390 mm       | 390 mm       |
| Trailer  | 160 mm                              | 160 mm       | 160 mm       |
| Quantity | 2,000pcs/Reel                       | 1500pcs/Reel | 1000pcs/Reel |



## Packaging quantity per Reel



| REEL DIMENSIONS: EIA-481-1 (mm) |          |
|---------------------------------|----------|
| C                               | 178±1.0  |
| D                               | 60.2±0.5 |
| W1                              | 13.2±1.5 |
| H                               | 16.0±0.5 |

