

# SMD1812

This product is not recommended for new designs. Please refer to Littelfuse No. 1812L.



## SMD Type, 6 V - 60 V

**Standard**  
UL 1434 1<sup>st</sup> Edition  
CSA C22.2 No. 0 CSA TIL No. CA-3A

**Approvals**  
cULus Recognition  
TÜV

### Features

This product line is also designed for surface-mount applications. The products with 1812-mil footprint range in hold currents from 0.1 A to 2.6 A and voltage from 6 V to 60 V. These devices are suited for PC mother board, computer peripheral products and general electronics applications. Suitable for reflow soldering.

## Specifications

**Packaging**  
A Blister tape and reel Ø 178 mm

**Materials**  
Terminals: Solder-plated copper  
TS: Solder Material: 63/37 SnPb  
TF: Lead free plating on request

**Max. Device Surface Temperature in Tripped State**  
125 °C

**Operating / Storage Temperature**  
-40 °C to +85 °C (consider derating)

**Humidity Ageing**  
+85 °C, 85 % R.H., 1000 hours, ± 5 % typical resistance change

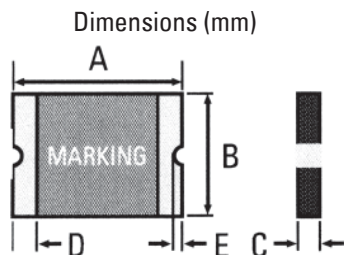
**Vibration**  
MIL-STD-883C, Method 2007.1, Condition A, no change

**Thermal Shock**  
MIL-STD-202F, Method 107G  
+85 °C to -40 °C 20 times, -30 % typical resistance change

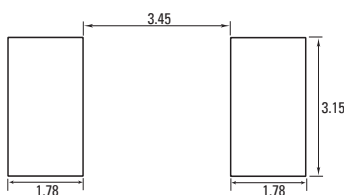
**Solderability**  
Meets EIA Specification RS186-9E,  
ANSI/J-STD-002, Category 3  
Reflow only

**Solvent Resistance**  
MIL-STD-202, Method 215, no change

**Marking**  
"P", Part Code



Solder pad Layout (mm)



\* only type "TF"

| Model               | A    |      | B    |      | C    |      | D    | E    |      | packaging quantity |
|---------------------|------|------|------|------|------|------|------|------|------|--------------------|
|                     | Min  | Max  | Min  | Max  | Min  | Max  | Min  | Min  | Max  |                    |
| SMD1812P010TS/TF    | 4.37 | 4.73 | 3.07 | 3.41 | 0.75 | 1.25 | 0.30 | 0.25 | 0.65 | 1,500              |
| SMD1812P014TS/TF    | 4.37 | 4.73 | 3.07 | 3.41 | 0.75 | 1.95 | 0.30 | 0.25 | 0.65 | 1,500              |
| SMD1812P020TS/TF    | 4.37 | 4.73 | 3.07 | 3.41 | 0.55 | 1.00 | 0.30 | 0.25 | 0.65 | 2,000              |
| SMD1812P050TS/TF    | 4.37 | 4.73 | 3.07 | 3.41 | 0.50 | 0.75 | 0.30 | 0.25 | 0.50 | 2,000              |
| SMD1812P075TS/TF    | 4.37 | 4.73 | 3.07 | 3.41 | 0.50 | 0.75 | 0.30 | 0.25 | 0.50 | 2,000              |
| SMD1812P075TS/TF/24 | 4.37 | 4.73 | 3.07 | 3.41 | 0.75 | 1.55 | 0.30 | 0.25 | 0.65 | 1,500              |
| SMD1812P110TS/TF    | 4.37 | 4.73 | 3.07 | 3.41 | 0.50 | 0.75 | 0.30 | 0.25 | 0.50 | 2,000              |
| SMD1812P110TS/TF/16 | 4.37 | 4.73 | 3.07 | 3.41 | 0.75 | 1.25 | 0.30 | 0.25 | 0.65 | 1,500              |
| SMD1812P125TS/TF    | 4.37 | 4.73 | 3.07 | 3.41 | 0.75 | 1.25 | 0.30 | 0.25 | 0.50 | 1,500              |
| SMD1812P150TS/TF    | 4.37 | 4.73 | 3.07 | 3.41 | 0.75 | 1.25 | 0.30 | 0.25 | 0.50 | 1,500              |
| SMD1812P150TF/12    | 4.37 | 4.73 | 3.07 | 3.41 | 0.75 | 1.25 | 0.30 | 0.25 | 0.65 | 1,500              |
| SMD1812P160TS/TF    | 4.37 | 4.73 | 3.07 | 3.41 | 0.75 | 1.25 | 0.30 | 0.25 | 0.65 | 1,500              |
| SMD1812P160TS/TF/8  | 4.37 | 4.73 | 3.07 | 3.41 | 0.75 | 1.25 | 0.30 | 0.25 | 0.65 | 1,500              |
| SMD1812P200TS/TF    | 4.37 | 4.73 | 3.07 | 3.41 | 0.75 | 1.55 | 0.30 | 0.25 | 0.50 | 1,500              |
| SMD1812P260TS/TF    | 4.37 | 4.73 | 3.07 | 3.41 | 1.00 | 1.60 | 0.30 | 0.25 | 0.50 | 1,000              |

Permissible continuous operating current is ≤ 100 % at ambient temperature of 20 °C (68 °F).

| Model (A)           | I <sub>hold</sub> (A) | I <sub>trip</sub> (A) | V <sub>max. dc</sub> (V) | I <sub>max.</sub> (A) | max. time to trip (s @ A) | P <sub>d max.</sub> (W) | Resistance            |                       |                         | Approvals |     |
|---------------------|-----------------------|-----------------------|--------------------------|-----------------------|---------------------------|-------------------------|-----------------------|-----------------------|-------------------------|-----------|-----|
|                     |                       |                       |                          |                       |                           |                         | R <sub>min.</sub> (Ω) | R <sub>typ.</sub> (Ω) | R <sub>l max.</sub> (Ω) | cULus     | TÜV |
| SMD1812P010TS/TF    | 0.10                  | 0.30                  | 30                       | 10/100*               | 1.50 @ 0.50               | 0.8                     | 1.600                 | 7.000                 | 15.000                  | •         | •   |
| SMD1812P014TS/TF    | 0.14                  | 0.34                  | 60                       | 10/100*               | 0.15 @ 1.50               | 0.8                     | 1.500                 | 4.000                 | 6.000                   | •         | •   |
| SMD1812P020TS/TF    | 0.20                  | 0.40                  | 30                       | 10/100*               | 0.02 @ 8.00               | 0.8                     | 0.800                 | 2.900                 | 5.000                   | •         | •   |
| SMD1812P050TS/TF    | 0.50                  | 1.00                  | 15                       | 40/100*               | 0.15 @ 8.00               | 0.8                     | 0.150                 | 0.600                 | 1.000                   | •         | •   |
| SMD1812P075TS/TF    | 0.75                  | 1.50                  | 13.2                     | 40/100*               | 0.20 @ 8.00               | 0.8                     | 0.110                 | 0.260                 | 0.450                   | •         | •   |
| SMD1812P075TS/TF/24 | 0.75                  | 1.50                  | 24                       | 40/100*               | 0.20 @ 8.00               | 0.8                     | 0.110                 | 0.200                 | 0.290                   | •         | •   |
| SMD1812P075TF/33    | 0.75                  | 1.50                  | 33                       | 20                    | 0.20 @ 8.00               | 0.8                     | 0.110                 | 0.260                 | 0.400                   | •         | •   |
| SMD1812P110TS/TF    | 1.10                  | 2.20                  | 6                        | 40/100*               | 0.30 @ 8.00               | 0.8                     | 0.040                 | 0.120                 | 0.210                   | •         | •   |
| SMD1812P110TS/TF/16 | 1.10                  | 1.95                  | 16                       | 40/100*               | 0.50 @ 8.00               | 0.8                     | 0.060                 | 0.120                 | 0.180                   | •         | •   |
| SMD1812P110TF/33    | 1.10                  | 1.95                  | 33                       | 20                    | 0.50 @ 8.00               | 0.8                     | 0.060                 | 0.120                 | 0.200                   | •         | •   |
| SMD1812P125TS/TF    | 1.25                  | 2.50                  | 15                       | 40/100*               | 0.40 @ 8.00               | 0.8                     | 0.070                 | 0.160                 | 0.250                   | •         | •   |
| SMD1812P150TS/TF    | 1.50                  | 3.00                  | 6                        | 40/100*               | 0.50 @ 8.00               | 0.8                     | 0.040                 | 0.070                 | 0.110                   | •         | •   |
| SMD1812P150TF/12    | 1.50                  | 3.00                  | 12                       | 40/100*               | 0.50 @ 8.00               | 0.8                     | 0.040                 | 0.070                 | 0.110                   | •         | •   |
| SMD1812P150TF/24    | 1.50                  | 3.00                  | 24                       | 20                    | 1.50 @ 8.00               | 0.8                     | 0.040                 | 0.070                 | 0.120                   | p         | •   |
| SMD1812P160TS/TF    | 1.60                  | 2.80                  | 6                        | 40/100*               | 1.00 @ 8.00               | 0.8                     | 0.030                 | 0.066                 | 0.100                   | •         | •   |
| SMD1812P160TS/TF/8  | 1.60                  | 2.80                  | 8                        | 40/100*               | 1.00 @ 8.00               | 0.8                     | 0.030                 | 0.066                 | 0.100                   | •         | •   |
| SMD1812P160TF/12    | 1.60                  | 2.80                  | 12                       | 20/100*               | 1.00 @ 8.00               | 0.8                     | 0.030                 | 0.066                 | 0.100                   | •         | •   |
| SMD1812P200TS/TF    | 2.00                  | 3.50                  | 8                        | 40/100*               | 2.00 @ 8.00               | 0.8                     | 0.020                 | 0.040                 | 0.060                   | •         | •   |
| SMD1812P260TS/TF    | 2.60                  | 5.20                  | 6                        | 40/100*               | 2.50 @ 8.00               | 0.8                     | 0.015                 | 0.030                 | 0.047                   | •         | •   |

\* Approvals for 100 A pending

NOTE:

- I<sub>hold</sub> = Hold current: maximum current device will pass without tripping in 20 °C still air.
- I<sub>trip</sub> = Trip current: minimum current at which the device will trip in 20 °C still air.
- V<sub>max</sub> = Maximum 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 dissipated from device when in the tripped state at 20 °C still air.

R<sub>min</sub> = Minimum resistance of device in initial (un-soldered) state.

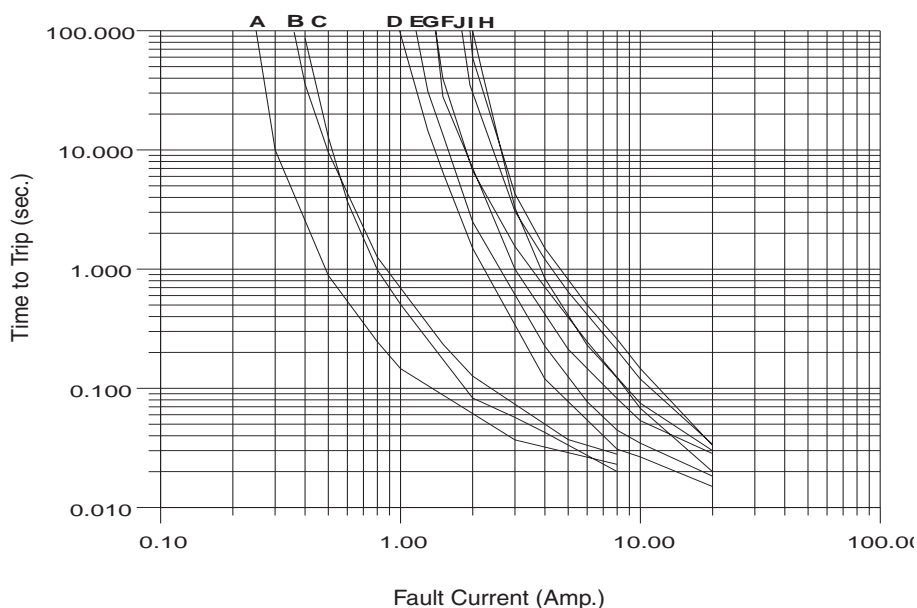
R<sub>l max</sub> = Maximum resistance of device at 20 °C measured one hour after tripping for 20 s.

Caution: Operation beyond the specified rating may result in damage and possible arcing and flame. Specifications are subject to change without notice

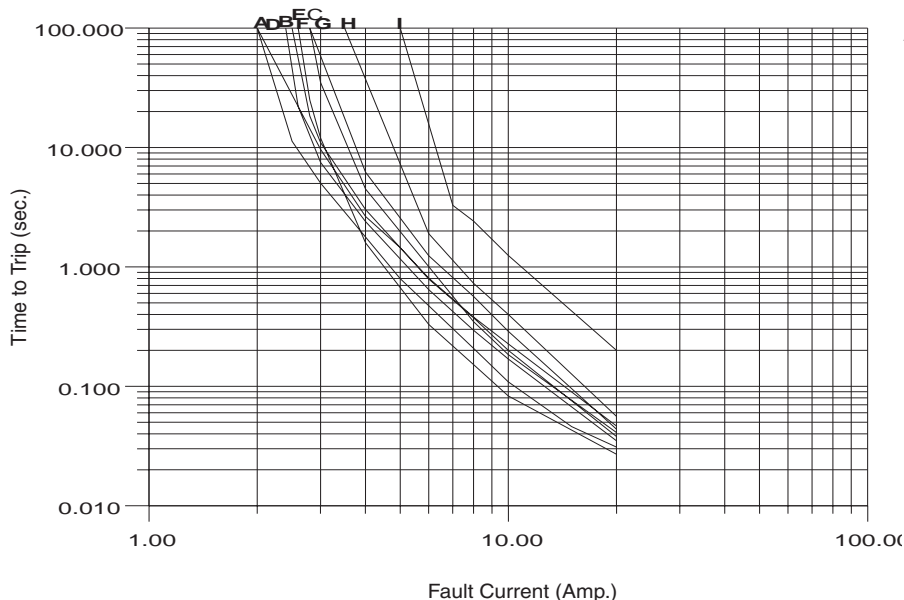
Please choose TS for SnPb and TF for Sn plating

| Order Information | Qty. | Order-Number | Model | Packaging |
|-------------------|------|--------------|-------|-----------|
|-------------------|------|--------------|-------|-----------|

## SMD1812



- A: SMD1812P010TS/TF
- B: SMD1812P014TS/TF
- C: SMD1812P020TS/TF
- D: SMD1812P050TS/TF
- E: SMD1812P075TS/TF
- F: SMD1812P075TS/TF/24
- G: SMD1812P075TF/33
- H: SMD1812P110TS/TF
- I: SMD1812P110TS/TF/16
- J: SMD1812P110TF/33



- A: SMD1812P125TS/TF
- B: SMD1812P150TS/TF
- C: SMD1812P150TF/12
- D: SMD1812P150TF/24
- E: SMD1812P160TS/TF
- F: SMD1812P160TS/TF/8
- G: SMD1812P160TF/12
- H: SMD1812P200TS/TF
- I: SMD1812P260TS/TF

### Thermal Derating Chart

| Model               | Ambient Operation Temperature - $I_{hold}$ (A) |        |      |       |       |       |       |       |       |
|---------------------|--|--------|------|-------|-------|-------|-------|-------|-------|
|                     | -40 °C   | -20 °C | 0 °C | 23 °C | 40 °C | 50 °C | 60 °C | 70 °C | 85 °C |
| SMD1812P010TS/TF    | 0.16   | 0.14   | 0.12 | 0.01  | 0.08  | 0.07  | 0.06  | 0.05  | 0.03  |
| SMD1812P014TS/TF    | 0.23   | 0.19   | 0.17 | 0.14  | 0.12  | 0.10  | 0.09  | 0.08  | 0.06  |
| SMD1812P020TS/TF    | 0.29   | 0.26   | 0.23 | 0.20  | 0.17  | 0.15  | 0.14  | 0.12  | 0.10  |
| SMD1812P050TS/TF    | 0.77   | 0.68   | 0.59 | 0.50  | 0.44  | 0.40  | 0.37  | 0.33  | 0.29  |
| SMD1812P075TS/TF    | 1.15   | 1.01   | 0.88 | 0.75  | 0.65  | 0.60  | 0.55  | 0.49  | 0.43  |
| SMD1812P075TS/TF/24 | 1.06   | 0.95   | 0.84 | 0.75  | 0.60  | 0.55  | 0.50  | 0.45  | 0.37  |
| SMD1812P110TS/TF    | 1.59   | 1.43   | 1.26 | 1.10  | 0.95  | 0.87  | 0.80  | 0.71  | 0.60  |
| SMD1812P110TS/TF/15 | 1.58   | 1.43   | 1.27 | 1.10  | 0.95  | 0.85  | 0.77  | 0.71  | 0.58  |
| SMD1812P110TS/TF/16 | 1.58   | 1.43   | 1.27 | 1.10  | 0.95  | 0.85  | 0.77  | 0.71  | 0.58  |
| SMD1812P125TS/TF    | 2.00   | 1.75   | 1.52 | 1.25  | 1.00  | 0.95  | 0.90  | 0.75  | 0.53  |
| SMD1812P150TS/TF    | 2.30   | 2.03   | 1.76 | 1.50  | 1.25  | 1.10  | 1.00  | 0.80  | 0.60  |
| SMD1812P160TS/TF    | 2.27   | 2.05   | 1.83 | 1.60  | 1.35  | 1.25  | 1.15  | 1.00  | 0.85  |
| SMD1812P200TS/TF    | 3.08   | 2.71   | 2.35 | 2.00  | 1.80  | 1.60  | 1.50  | 1.07  | 0.80  |
| SMD1812P260TS/TF    | 4.00   | 3.52   | 3.06 | 2.60  | 2.34  | 2.08  | 1.95  | 1.39  | 1.04  |