

### 1812L Series



#### Description

The 1812L Series PTC provides surface mount overcurrent protection for applications where resettable protection is desired.

#### Features

- RoHS compliant, lead-free and halogen-free
- Fast response
- Compact design
- Low resistance
- Low-profile
- Compatible with high temperature solders

#### Applications

- Plug and play protection for motherboards and peripherals
- USB peripherals
- PCI cards
- Game console port protection

#### Agency Approvals

| AGENCY  | AGENCY FILE NUMBER |
|---|--------------------|
|  | E183209            |
|  | R50119118          |

#### Electrical Characteristics

| Part Number              | Marking  | I <sub>hold</sub> (A) | I <sub>trip</sub> (A) | V <sub>max</sub> (Vdc) | I <sub>max</sub> (A) | P <sub>d</sub> typ. (W) | Max. Time To Trip |             | Resistance           |                       | Agency Approvals  |   |
|--------------------------|----------|-----------------------|-----------------------|------------------------|----------------------|-------------------------|-------------------|-------------|----------------------|-----------------------|---|---|
|                          |          |                       |                       |                        |                      |                         | Current (A)       | Time (Sec.) | R <sub>min</sub> (Ω) | R <sub>1max</sub> (Ω) |  |  |
| 1812L010                 | LF010    | 0.10                  | 0.30                  | 30                     | 100                  | 0.8                     | 0.50              | 1.50        | 1.600                | 15.000                | X   | X   |
| 1812L010/60              | LF010-60 | 0.10                  | 0.30                  | 60                     | 10                   | 0.8                     | 0.50              | 1.50        | 1.600                | 15.000                | X   | X   |
| 1812L014                 | LF014    | 0.14                  | 0.34                  | 60                     | 10                   | 0.8                     | 1.50              | 0.15        | 1.500                | 6.000                 | X   | X   |
| 1812L020                 | LF020    | 0.20                  | 0.40                  | 30                     | 100                  | 0.8                     | 8.00              | 0.02        | 0.800                | 5.000                 | X   | X   |
| 1812L020/60              | LF020-60 | 0.20                  | 0.40                  | 60                     | 40                   | 0.8                     | 1.00              | 2.00        | 1.400                | 4.400                 | X   | X   |
| 1812L035/30              | LF035-30 | 0.35                  | 0.75                  | 30                     | 40                   | 0.8                     | 8.00              | 0.15        | 0.400                | 1.700                 | X   | X   |
| 1812L050 <sup>1</sup>    | LF050    | 0.50                  | 1.00                  | 15                     | 100                  | 0.8                     | 8.00              | 0.15        | 0.150                | 1.000                 | X   | X   |
| 1812L050/30              | LF050-30 | 0.50                  | 1.00                  | 30                     | 100                  | 0.8                     | 8.00              | 0.15        | 0.150                | 1.000                 | X   | X   |
| 1812L075 <sup>1</sup>    | LF075    | 0.75                  | 1.50                  | 13.2                   | 100                  | 0.8                     | 8.00              | 0.20        | 0.100                | 0.450                 | X   | X   |
| 1812L075/24 <sup>2</sup> | LF075-24 | 0.75                  | 1.50                  | 24                     | 100                  | 0.8                     | 8.00              | 0.20        | 0.110                | 0.290                 | X   | X   |
| 1812L075/33              | LF075-33 | 0.75                  | 1.50                  | 33                     | 20                   | 0.8                     | 8.00              | 0.20        | 0.110                | 0.400                 | X   | X   |
| 1812L110 <sup>1</sup>    | LF110    | 1.10                  | 2.20                  | 8                      | 100                  | 0.8                     | 8.00              | 0.30        | 0.040                | 0.210                 | X   | X   |
| 1812L110/16              | LF110-16 | 1.10                  | 1.95                  | 16                     | 100                  | 0.8                     | 8.00              | 0.30        | 0.060                | 0.180                 | X   | X   |
| 1812L110/24              | LF110-24 | 1.10                  | 1.95                  | 24                     | 20                   | 0.8                     | 8.00              | 0.50        | 0.060                | 0.200                 | X   | X   |
| 1812L110/33              | LF110-33 | 1.10                  | 1.95                  | 33                     | 20                   | 0.8                     | 8.00              | 0.50        | 0.060                | 0.200                 | X   | X   |
| 1812L125/6               | LF125-6  | 1.25                  | 2.50                  | 6                      | 100                  | 0.8                     | 8.00              | 0.40        | 0.050                | 0.140                 | X   | X   |
| 1812L125/16              | LF125    | 1.25                  | 2.50                  | 16                     | 100                  | 0.8                     | 8.00              | 0.40        | 0.050                | 0.140                 | X   | X   |
| 1812L150 <sup>1</sup>    | LF150    | 1.50                  | 3.00                  | 8                      | 100                  | 0.8                     | 8.00              | 0.30        | 0.040                | 0.110                 | X   | X   |
| 1812L150/12              | LF150-12 | 1.50                  | 3.00                  | 12                     | 100                  | 0.8                     | 8.00              | 0.50        | 0.040                | 0.110                 | X   | X   |
| 1812L150/24 <sup>2</sup> | LF150-24 | 1.50                  | 3.00                  | 24                     | 20                   | 0.8                     | 8.00              | 1.50        | 0.040                | 0.120                 | X   | X   |
| 1812L160 <sup>1</sup>    | LF160    | 1.60                  | 2.80                  | 8                      | 100                  | 0.8                     | 8.00              | 1.00        | 0.030                | 0.100                 | X   | X   |
| 1812L160/12              | LF160-12 | 1.60                  | 2.80                  | 12                     | 100                  | 0.8                     | 8.00              | 1.00        | 0.030                | 0.100                 | X   | X   |
| 1812L200TH <sup>1</sup>  | LF200    | 2.00                  | 3.50                  | 8                      | 100                  | 0.8                     | 8.00              | 2.00        | 0.020                | 0.070                 | X   | X   |

continues on next page.

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>typ</sub> = Typical resistance of device in initial (un-soldered) state.  
 R<sub>1max</sub> = Maximum resistance of device at 20°C measured one hour after tripping or reflow soldering of 260°C for 20 sec.

**Caution:** Operation beyond the specified rating may result in damage and possible arcing and flame.

**1** Some older references to these devices may include “-C” in the Part Number. The “-C” should be omitted when placing new orders for the device.

**2** Part Number with note 2 tested and complied with AEC Q200.

### Electrical Characteristics

| Part Number             | Marking  | I <sub>hold</sub><br>(A) | I <sub>trip</sub><br>(A) | V <sub>max</sub><br>(Vdc) | I <sub>max</sub><br>(A) | P <sub>d</sub><br>typ.<br>(W) | Max. Time To Trip |                | Resistance              |                          | Agency Approvals  |   |
|-------------------------|----------|--------------------------|--------------------------|---------------------------|-------------------------|-------------------------------|-------------------|----------------|-------------------------|--------------------------|---|---|
|                         |          |                          |                          |                           |                         |                               | Current<br>(A)    | Time<br>(Sec.) | R <sub>min</sub><br>(Ω) | R <sub>1max</sub><br>(Ω) |  |  |
| 1812L200/12             | LF200-12 | 2.00                     | 3.50                     | 12                        | 100                     | 1.0                           | 8.00              | 2.00           | 0.020                   | 0.070                    | X   | X   |
| 1812L200/16             | LF200-16 | 2.00                     | 3.50                     | 16                        | 100                     | 1.0                           | 8.00              | 2.00           | 0.020                   | 0.070                    | X   | X   |
| 1812L260TH <sup>1</sup> | LF260    | 2.60                     | 5.20                     | 8                         | 100                     | 0.8                           | 8.00              | 2.50           | 0.015                   | 0.047                    | X   | X   |
| 1812L260/12             | LF260-12 | 2.60                     | 5.00                     | 12                        | 100                     | 0.8                           | 8.00              | 5.00           | 0.015                   | 0.055                    | X   | X   |
| 1812L260/16             | LF260-16 | 2.60                     | 5.00                     | 16                        | 100                     | 1.2                           | 8.00              | 5.00           | 0.015                   | 0.050                    | X   | X   |
| 1812L300                | LF300    | 3.00                     | 5.00                     | 6                         | 100                     | 0.8                           | 8.00              | 4.00           | 0.012                   | 0.040                    | X   | X   |

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>typ</sub> = Typical resistance of device in initial (un-soldered) state.

R<sub>1max</sub> = Maximum resistance of device at 20°C measured one hour after tripping or reflow soldering of 260°C for 20 sec.

**Caution:** Operation beyond the specified rating may result in damage and possible arcing and flame.

**1** Some older references to these devices may include “-C” in the Part Number. The “-C” should be omitted when placing new orders for the device.

**2** Part Number with note 2 tested and complied with AEC Q200.

### Temperature Derating

| Part Number | Ambient Operation Temperature |       |      |      |      |      |      |      |      |
|-------------|-------------------------------|-------|------|------|------|------|------|------|------|
|             | -40°C                         | -20°C | 0°C  | 20°C | 40°C | 50°C | 60°C | 70°C | 85°C |
|             | Hold Current (A)              |       |      |      |      |      |      |      |      |
| 1812L010    | 0.16                          | 0.14  | 0.12 | 0.10 | 0.08 | 0.07 | 0.06 | 0.05 | 0.03 |
| 1812L010/60 | 0.14                          | 0.13  | 0.11 | 0.10 | 0.09 | 0.08 | 0.07 | 0.07 | 0.05 |
| 1812L014    | 0.23                          | 0.19  | 0.17 | 0.14 | 0.12 | 0.10 | 0.09 | 0.08 | 0.06 |
| 1812L020    | 0.29                          | 0.26  | 0.23 | 0.20 | 0.17 | 0.15 | 0.14 | 0.12 | 0.10 |
| 1812L020/60 | 0.29                          | 0.26  | 0.23 | 0.20 | 0.17 | 0.15 | 0.14 | 0.12 | 0.10 |
| 1812L035/30 | 0.50                          | 0.45  | 0.40 | 0.35 | 0.30 | 0.26 | 0.24 | 0.20 | 0.16 |
| 1812L050    | 0.77                          | 0.68  | 0.59 | 0.50 | 0.44 | 0.40 | 0.37 | 0.33 | 0.29 |
| 1812L050/30 | 0.77                          | 0.68  | 0.59 | 0.50 | 0.44 | 0.40 | 0.37 | 0.33 | 0.29 |
| 1812L075    | 1.15                          | 1.01  | 0.88 | 0.75 | 0.65 | 0.60 | 0.55 | 0.49 | 0.43 |
| 1812L075/24 | 1.06                          | 0.95  | 0.84 | 0.75 | 0.60 | 0.55 | 0.50 | 0.45 | 0.37 |
| 1812L075/33 | 1.10                          | 1.00  | 0.88 | 0.75 | 0.66 | 0.60 | 0.56 | 0.47 | 0.36 |
| 1812L110    | 1.59                          | 1.43  | 1.26 | 1.10 | 0.95 | 0.87 | 0.80 | 0.71 | 0.60 |
| 1812L110/16 | 1.58                          | 1.43  | 1.27 | 1.10 | 0.95 | 0.85 | 0.77 | 0.71 | 0.58 |
| 1812L110/24 | 1.55                          | 1.40  | 1.25 | 1.10 | 0.93 | 0.83 | 0.73 | 0.63 | 0.50 |
| 1812L110/33 | 1.55                          | 1.40  | 1.25 | 1.10 | 0.93 | 0.83 | 0.73 | 0.63 | 0.50 |
| 1812L125/6  | 2.00                          | 1.75  | 1.52 | 1.25 | 1.00 | 0.95 | 0.90 | 0.75 | 0.53 |
| 1812L125/16 | 2.00                          | 1.75  | 1.52 | 1.25 | 1.00 | 0.95 | 0.90 | 0.75 | 0.53 |
| 1812L150    | 2.06                          | 1.93  | 1.79 | 1.50 | 1.28 | 1.10 | 1.02 | 0.80 | 0.68 |
| 1812L150/12 | 2.04                          | 1.88  | 1.68 | 1.50 | 1.25 | 1.10 | 1.00 | 0.80 | 0.60 |
| 1812L150/24 | 2.05                          | 1.87  | 1.67 | 1.50 | 1.25 | 1.08 | 0.95 | 0.77 | 0.60 |
| 1812L160    | 2.20                          | 2.06  | 1.91 | 1.60 | 1.36 | 1.17 | 1.09 | 0.85 | 0.72 |
| 1812L160/12 | 2.20                          | 2.06  | 1.91 | 1.60 | 1.36 | 1.17 | 1.09 | 0.85 | 0.72 |
| 1812L200TH  | 2.60                          | 2.44  | 2.22 | 2.00 | 1.78 | 1.67 | 1.50 | 1.45 | 1.29 |
| 1812L200/12 | 2.80                          | 2.60  | 2.36 | 2.00 | 1.72 | 1.56 | 1.40 | 1.20 | 1.04 |
| 1812L200/16 | 2.80                          | 2.60  | 2.36 | 2.00 | 1.72 | 1.56 | 1.40 | 1.20 | 1.04 |
| 1812L260TH  | 3.40                          | 3.16  | 3.00 | 2.60 | 2.30 | 2.15 | 2.00 | 1.85 | 1.63 |
| 1812L260/12 | 3.40                          | 3.16  | 3.00 | 2.60 | 2.30 | 2.15 | 2.00 | 1.85 | 1.63 |
| 1812L260/16 | 3.66                          | 3.30  | 2.96 | 2.60 | 2.23 | 2.06 | 1.89 | 1.61 | 1.30 |
| 1812L300    | 4.13                          | 3.75  | 3.30 | 3.00 | 2.61 | 2.43 | 2.25 | 2.00 | 1.78 |

Notes: The temperature derating data is only for reference, please contact Littelfuse technical support for detail temperature derating information.

### Temperature Derating Curve



Note:  
Typical Temperature derating curve, refer to table for derating data

### Physical Specifications

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

### Environmental Specifications

|   |   |
|---|---|
| <b>Operating/Storage Temp.</b>                    | -40°C to +85°C  |
| <b>Max. Device Surface Temp. in Tripped State</b> | 125°C   |
| <b>Passive Aging</b>                              | +85°C, 1000 hours<br>-/+5% typical resistance change                              |
| <b>Humidity Aging</b>                             | +85°C, 85% R.H., 1000 hours<br>-/+5% typical resistance change                    |
| <b>Thermal Shock</b>                              | MIL-STD-202, Method 107<br>+85°C/-40°C 20 times<br>-30% typical resistance change |
| <b>Solvent Resistance</b>                         | MIL-STD-202, Method 215,<br>No change   |
| <b>Vibration</b>                                  | MIL-STD-883, Method 2007,<br>Condition A, No change                               |
| <b>Moisture Level Sensitivity</b>                 | Level 1, J-STD-020  |

### 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 seconds |
| Peak / Classification Temperature ( $T_p$ )          | 260 <sup>+0/-5</sup> °C          |                  |
| Time within 5°C of actual peak Temperature ( $t_p$ ) | 20 – 40 seconds                  |                  |
| Ramp-down Rate                                       | 6°C/second max                   |                  |
| Time 25°C to peak Temperature ( $T_p$ )              | 8 minutes Max.                   |                  |



- All temperature refer to topside of the package, measured on the package body surface
- If reflow temperature exceeds the recommended profile, devices may not meet the performance requirements
- Recommended reflow methods: IR, vapor phase oven, hot air oven, N<sub>2</sub> environment for lead
- Recommended maximum paste thickness is 0.25mm (0.010inch)
- Devices can be cleaned using standard industry methods and solvents
- Devices can be reworked using the standard industry practices

**Average Time Current Curves**



The average time current curves and Temperature Rerating curve performance is affected by a number of variables, and these curves provided as guidance only. Customer must verify the performance in their application.

### Dimensions

MARKING CODE VARIES  
 WITH AMPERAGE AND VOLTAGE RATING  
 (See Electrical Characteristics Table)  
 SHOWN ARE:  
 - 1.1A/6V RATING (LEFT)  
 - 1.1A/33V RATING (RIGHT)



| Part Number | A      |      | B      |      | C      |      | D      |      | E      |       |      |      |       |       |     |      |       |       |      |      |
|-------------|--------|------|--------|------|--------|------|--------|------|--------|-------|------|------|-------|-------|-----|------|-------|-------|------|------|
|             | Inches | mm   | Inches | mm   | Inches | mm   | Inches | mm   | Inches | mm    |      |      |       |       |     |      |       |       |      |      |
|             | Min    | Max  | Min    | Max  | Min    | Max  | Min    | Max  | Min    | Max   |      |      |       |       |     |      |       |       |      |      |
| 1812L010    | 0.17   | 0.19 | 4.37   | 4.73 | 0.12   | 0.13 | 3.07   | 3.41 | 0.03   | 0.05  | 0.75 | 1.25 | 0.01  | 0.05  | 0.3 | 1.2  | 0.01  | 0.03  | 0.15 | 0.65 |
| 1812L010/60 | 0.17   | 0.19 | 4.37   | 4.73 | 0.12   | 0.13 | 3.07   | 3.41 | 0.03   | 0.05  | 0.75 | 1.25 | 0.01  | 0.05  | 0.3 | 1.2  | 0.01  | 0.03  | 0.15 | 0.65 |
| 1812L014    | 0.17   | 0.19 | 4.37   | 4.73 | 0.12   | 0.13 | 3.07   | 3.41 | 0.03   | 0.08  | 0.75 | 1.95 | 0.01  | 0.05  | 0.3 | 1.2  | 0.01  | 0.03  | 0.15 | 0.65 |
| 1812L020    | 0.17   | 0.19 | 4.37   | 4.73 | 0.12   | 0.13 | 3.07   | 3.41 | 0.02   | 0.04  | 0.55 | 1.00 | 0.01  | 0.05  | 0.3 | 1.2  | 0.01  | 0.03  | 0.15 | 0.65 |
| 1812L020/60 | 0.17   | 0.19 | 4.37   | 4.73 | 0.12   | 0.13 | 3.07   | 3.41 | 0.03   | 0.05  | 0.75 | 1.25 | 0.01  | 0.05  | 0.3 | 1.20 | 0.01  | 0.03  | 0.15 | 0.65 |
| 1812L035/30 | 0.17   | 0.19 | 4.37   | 4.73 | 0.12   | 0.13 | 3.07   | 3.41 | 0.02   | 0.04  | 0.6  | 1.25 | 0.01  | 0.05  | 0.3 | 1.20 | 0.01  | 0.03  | 0.15 | 0.65 |
| 1812L050    | 0.17   | 0.19 | 4.37   | 4.73 | 0.12   | 0.13 | 3.07   | 3.41 | 0.02   | 0.03  | 0.5  | 0.75 | 0.01  | 0.05  | 0.3 | 1.2  | 0.01  | 0.02  | 0.15 | 0.50 |
| 1812L050/30 | 0.17   | 0.19 | 4.37   | 4.73 | 0.12   | 0.13 | 3.07   | 3.41 | 0.02   | 0.04  | 0.5  | 1.00 | 0.01  | 0.05  | 0.3 | 1.2  | 0.01  | 0.03  | 0.15 | 0.65 |
| 1812L075    | 0.17   | 0.19 | 4.37   | 4.73 | 0.12   | 0.13 | 3.07   | 3.41 | 0.02   | 0.03  | 0.5  | 0.75 | 0.01  | 0.05  | 0.3 | 1.2  | 0.01  | 0.02  | 0.15 | 0.50 |
| 1812L075/24 | 0.17   | 0.19 | 4.37   | 4.73 | 0.12   | 0.13 | 3.07   | 3.41 | 0.03   | 0.06  | 0.75 | 1.55 | 0.01  | 0.05  | 0.3 | 1.2  | 0.01  | 0.03  | 0.15 | 0.65 |
| 1812L075/33 | 0.17   | 0.19 | 4.37   | 4.73 | 0.12   | 0.13 | 3.07   | 3.41 | 0.03   | 0.06  | 0.75 | 1.55 | 0.01  | 0.05  | 0.3 | 1.2  | 0.01  | 0.03  | 0.15 | 0.65 |
| 1812L110    | 0.17   | 0.19 | 4.37   | 4.73 | 0.12   | 0.13 | 3.07   | 3.41 | 0.02   | 0.03  | 0.50 | 0.71 | 0.01  | 0.05  | 0.3 | 1.2  | 0.01  | 0.02  | 0.15 | 0.65 |
| 1812L110/24 | 0.17   | 0.19 | 4.37   | 4.73 | 0.12   | 0.13 | 3.07   | 3.41 | 0.02   | 0.04  | 0.50 | 1.07 | 0.01  | 0.05  | 0.3 | 1.2  | 0.01  | 0.03  | 0.15 | 0.65 |
| 1812L110/16 | 0.17   | 0.19 | 4.37   | 4.73 | 0.12   | 0.13 | 3.07   | 3.41 | 0.03   | 0.05  | 0.75 | 1.25 | 0.01  | 0.05  | 0.3 | 1.2  | 0.01  | 0.03  | 0.15 | 0.65 |
| 1812L110/33 | 0.17   | 0.19 | 4.37   | 4.73 | 0.12   | 0.13 | 3.07   | 3.41 | 0.05   | 0.08  | 1.20 | 2.00 | 0.01  | 0.05  | 0.3 | 1.2  | 0.01  | 0.03  | 0.15 | 0.65 |
| 1812L125/6  | 0.17   | 0.19 | 4.37   | 4.73 | 0.12   | 0.13 | 3.07   | 3.41 | 0.02   | 0.03  | 0.45 | 0.75 | 0.01  | 0.05  | 0.3 | 1.2  | 0.01  | 0.03  | 0.15 | 0.65 |
| 1812L125/16 | 0.17   | 0.19 | 4.37   | 4.73 | 0.12   | 0.13 | 3.07   | 3.41 | 0.03   | 0.05  | 0.75 | 1.25 | 0.01  | 0.05  | 0.3 | 1.2  | 0.01  | 0.02  | 0.15 | 0.65 |
| 1812L150    | 0.17   | 0.19 | 4.37   | 4.73 | 0.12   | 0.13 | 3.07   | 3.41 | 0.02   | 0.03  | 0.40 | 0.71 | 0.01  | 0.05  | 0.3 | 1.2  | 0.01  | 0.03  | 0.15 | 0.65 |
| 1812L150/12 | 0.17   | 0.19 | 4.37   | 4.73 | 0.12   | 0.13 | 3.07   | 3.41 | 0.03   | 0.05  | 0.75 | 1.25 | 0.01  | 0.05  | 0.3 | 1.2  | 0.01  | 0.03  | 0.15 | 0.65 |
| 1812L150/24 | 0.17   | 0.19 | 4.37   | 4.73 | 0.12   | 0.13 | 3.07   | 3.41 | 0.03   | 0.07  | 0.80 | 1.8  | 0.01  | 0.05  | 0.3 | 1.2  | 0.01  | 0.03  | 0.15 | 0.65 |
| 1812L160    | 0.17   | 0.19 | 4.37   | 4.73 | 0.12   | 0.13 | 3.07   | 3.41 | 0.02   | 0.03  | 0.40 | 0.75 | 0.01  | 0.05  | 0.3 | 1.2  | 0.01  | 0.03  | 0.15 | 0.65 |
| 1812L160/12 | 0.17   | 0.19 | 4.37   | 4.73 | 0.12   | 0.13 | 3.07   | 3.41 | 0.03   | 0.05  | 0.75 | 1.25 | 0.01  | 0.05  | 0.3 | 1.2  | 0.01  | 0.03  | 0.15 | 0.65 |
| 1812L200TH  | 0.17   | 0.19 | 4.37   | 4.73 | 0.12   | 0.13 | 3.07   | 3.41 | 0.008  | 0.024 | 0.20 | 0.6  | 0.01  | 0.05  | 0.3 | 1.2  | 0.01  | 0.02  | 0.15 | 0.65 |
| 1812L200/12 | 0.17   | 0.19 | 4.37   | 4.73 | 0.12   | 0.13 | 3.07   | 3.41 | 0.03   | 0.05  | 0.80 | 1.20 | 0.012 | 0.047 | 0.3 | 1.2  | 0.01  | 0.026 | 0.15 | 0.65 |
| 1812L200/16 | 0.17   | 0.19 | 4.37   | 4.73 | 0.12   | 0.13 | 3.07   | 3.41 | 0.03   | 0.05  | 0.80 | 1.20 | 0.012 | 0.047 | 0.3 | 1.2  | 0.01  | 0.026 | 0.15 | 0.65 |
| 1812L260TH  | 0.17   | 0.19 | 4.37   | 4.73 | 0.12   | 0.13 | 3.07   | 3.41 | 0.02   | 0.04  | 0.50 | 1.00 | 0.01  | 0.05  | 0.3 | 1.2  | 0.01  | 0.02  | 0.15 | 0.65 |
| 1812L260/12 | 0.17   | 0.19 | 4.37   | 4.73 | 0.12   | 0.13 | 3.07   | 3.41 | 0.03   | 0.05  | 0.80 | 1.34 | 0.01  | 0.05  | 0.3 | 1.2  | 0.01  | 0.03  | 0.15 | 0.65 |
| 1812L260/16 | 0.18   | 0.19 | 4.54   | 4.90 | 0.12   | 0.14 | 3.16   | 3.50 | 0.05   | 0.08  | 1.20 | 2.00 | 0.012 | 0.047 | 0.3 | 1.2  | 0.006 | 0.03  | 0.15 | 0.65 |
| 1812L300    | 0.17   | 0.19 | 4.37   | 4.73 | 0.12   | 0.13 | 3.07   | 3.41 | 0.02   | 0.06  | 0.50 | 1.50 | 0.01  | 0.05  | 0.3 | 1.2  | 0.01  | 0.03  | 0.15 | 0.65 |

### Part Ordering Number System



### Packaging

| Part Number | Ordering Number | Halogen Free | $I_{hold}$ (A) | $I_{hold}$ Code | Voltage Option | Packaging Option | Quantity | Quantity & Packaging Code |
|-------------|-----------------|--------------|----------------|-----------------|----------------|------------------|----------|---------------------------|
| 1812L010    | 1812L010DR      | Yes          | 0.10           | 010             |                | Tape and Reel    | 1500     | DR                        |
| 1812L010/60 | 1812L010/60DR   | Yes          | 0.10           | 010             | /60            |                  | 1500     | DR                        |
| 1812L014    | 1812L014DR      | Yes          | 0.14           | 014             |                |                  | 1500     | DR                        |
| 1812L020    | 1812L020PR      | Yes          | 0.20           | 020             |                |                  | 2000     | PR                        |
| 1812L020/60 | 1812L020/60DR   | Yes          | 0.20           | 020             | /60            |                  | 1500     | DR                        |
| 1812L035/30 | 1812L035/30DR   | Yes          | 0.35           | 035             | /30            |                  | 1500     | DR                        |
| 1812L050    | 1812L050PR      | Yes          | 0.50           | 050             |                |                  | 2000     | PR                        |
| 1812L050/30 | 1812L050/30PR   | Yes          | 0.50           | 050             | /30            |                  | 2000     | PR                        |
| 1812L075    | 1812L075PR      | Yes          | 0.75           | 075             |                |                  | 2000     | PR                        |
| 1812L75/24  | 1812L075/24DR   | Yes          | 0.75           | 075             | /24            |                  | 1500     | DR                        |
| 1812L75/33  | 1812L075/33DR   | Yes          | 0.75           | 075             | /33            |                  | 1500     | DR                        |
| 1812L110    | 1812L110PR      | Yes          | 1.10           | 110             |                |                  | 2000     | PR                        |
| 1812L110/16 | 1812L110/16DR   | Yes          | 1.10           | 110             | /16            |                  | 1500     | DR                        |
| 1812L110/24 | 1812L110/24DR   | Yes          | 1.10           | 1.10            | /24            |                  | 1500     | DR                        |
| 1812L110/33 | 1812L110/33MR   | Yes          | 1.10           | 110             | /33            |                  | 1000     | MR                        |
| 1812L125/6  | 1812L125/6PR    | Yes          | 1.25           | 125             | /6             |                  | 2000     | PR                        |
| 1812L125/16 | 1812L125/16DR   | Yes          | 1.25           | 125             | /16            |                  | 1500     | DR                        |
| 1812L150    | 1812L150ZR      | Yes          | 1.50           | 150             |                |                  | 2000     | ZR                        |
| 1812L150/12 | 1812L150/12DR   | Yes          | 1.50           | 150             | /12            |                  | 1500     | DR                        |
| 1812L150/24 | 1812L150/24MR   | Yes          | 1.50           | 150             | /24            |                  | 1000     | MR                        |
| 1812L160    | 1812L160PR      | Yes          | 1.60           | 160             |                |                  | 2000     | PR                        |
| 1812L160/12 | 1812L160/12DR   | Yes          | 1.60           | 160             | /12            |                  | 1500     | DR                        |
| 1812L200TH  | 1812L200THPR    | Yes          | 2.00           | 200             |                |                  | 2000     | PR                        |
| 1812L200/12 | 1812L200/12DR   | Yes          | 2.00           | 200             | /12            |                  | 1,500    | DR                        |
| 1812L200/16 | 1812L200/16DR   | Yes          | 2.00           | 200             |                |                  | 1,500    | DR                        |
| 1812L260TH  | 1812L260THDR    | Yes          | 2.60           | 260             |                |                  | 1500     | DR                        |
| 1812L260/12 | 1812L260/12MR   | Yes          | 2.60           | 260             | /12            |                  | 1000     | MR                        |
| 1812L260/16 | 1812L260/16MR   | Yes          | 2.60           | 260             |                |                  | 1,000    | MR                        |
| 1812L300    | 1812L300MR      | Yes          | 3.00           | 300             |                |                  | 1000     | MR                        |

#### WARNING

- Users shall independently assess the suitability of these devices for each of their applications
- Operation of these devices beyond the stated maximum ratings could result in damage to the devices and lead to electrical arcing and/or fire
- These devices are intended to protect against the effects of temporary over-current or over-temperature conditions and are not intended to perform as protective devices where such conditions are expected to be repetitive or prolonged in duration
- Exposure to silicon-based oils, solvents, electrolytes, acids, and similar materials can adversely affect the performance of these PPTC devices
- These devices undergo thermal expansion under fault conditions, and thus shall be provided with adequate space and be protected against mechanical stresses
- Circuits with inductance may generate a voltage (L di/dt) above the rated voltage of the PPTC device.

### Tape and Reel Specifications

| TAPE SPECIFICATIONS: EIA-481-1 (mm) |   |  |  |
|-------------------------------------|---|--|--|
|                                     | 1812L020<br>1812L035/30<br>1812L050<br>1812L075<br>1812L110<br>1812L125/6<br>1812L150<br>1812L160<br>1812L200 | 1812L010<br>1812L010/60<br>1812L014<br>1812L020/60<br>1812L050/30<br>1812L075/24<br>1812L075/33<br>1812L110/16<br>1812L110/24<br>1812L125/16<br>1812L150/12<br>1812L160/12<br>1812L200/12<br>1812L200/16<br>1812L260 | 1812L110/33<br>1812L150/24<br>1812L260/12<br>1812L260/16<br>1812L300 |
| <b>W</b>                            | 12.00 ± 0.30  | 12.00 ± 0.30   | 12.00 ± 0.30   |
| <b>F</b>                            | 5.50 ± 0.05   | 5.50 ± 0.05  | 5.50 ± 0.05  |
| <b>E<sub>1</sub></b>                | 1.75 ± 0.10   | 1.75 ± 0.10  | 1.75 ± 0.10  |
| <b>D<sub>0</sub></b>                | 1.55 ± 0.10   | 1.55±/-0.05  | 1.55 ± 0.05  |
| <b>D<sub>1</sub></b>                | 1.55 (min)  | 1.50±/-0.10  | 1.50 (MIN)   |
| <b>P<sub>0</sub></b>                | 4.00 ± 0.10   | 4.00 ± 0.10  | 4.00 ± 0.08  |
| <b>P<sub>1</sub></b>                | 8.00 ± 0.10   | 8.00 ± 0.10  | 8.00 ± 0.10  |
| <b>P<sub>2</sub></b>                | 2.00 ± 0.05   | 2.00 ± 0.05  | 2.00 ± 0.05  |
| <b>A<sub>0</sub></b>                | 3.58 ± 0.10   | 3.50 ± 0.10  | 3.58 ± 0.10  |
| <b>B<sub>0</sub></b>                | 4.93 ± 0.10   | 4.85± 0.10   | 4.93 ± 0.10  |
| <b>T</b>                            | 0.25 ± 0.10   | 0.25 ± 0.10  | 0.25 ± 0.10  |
| <b>K<sub>0</sub></b>                | 0.87± 0.06  | 1.25 ± 0.10  | 2.10 ± 0.10  |
| <b>Leader min.</b>                  | 390   | 390  | 390  |
| <b>Trailer min.</b>                 | 160   | 160  | 160  |

| REEL DIMENSIONS:<br>EIA-481-1 (mm) |             |
|------------------------------------|-------------|
| <b>C</b>                           | Ø178 ± 1.0  |
| <b>D</b>                           | Ø60.2 ± 0.5 |
| <b>H</b>                           | 16.0 ± 0.5  |
| <b>W</b>                           | 13.2 ± 1.5  |

### Tape and Reel Diagram



## Данный компонент на территории Российской Федерации

### Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

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