



# DATA SHEET

## Resettable PPTC Fuse Size 1812

Range: 4500mA

Voltage: 12=Volt

**Resettable PPTC Fuse  
Size 1812**

Serie No.: **R47019**

|       |        |      |        |        |        |           |           |      |            |           |
|-------|--------|------|--------|--------|--------|-----------|-----------|------|------------|-----------|
| DRW:  | Jason  | CHKD | Wilson | MATL:  | Wilson | TOLERANCE | Mason     | DATE | 26.08.2026 | Customer: |
| APPD: | Schumi |      |        | FINISH | Jamy   |           | Sheet No. |      | 1 from 9   |           |

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## Technical Informations

- RoHS Compliant, Halogen Free, Lead Free RoHS,
- Fast tripping, 1812 Size
- Surface mountable, Solid state
- Holding Current : 2.6A-9.0A, @25°C
- Maximum Voltage : 6-12V
- Operating Temperature : -40°C~ 85°C
- Agency Approvals **UL E345393, TUV R50450107**

## Physical Characteristics

|                           |                                                |
|---------------------------|------------------------------------------------|
| Terminal Pad Materials    | Tin-Plated Nickle-copper                       |
| Soldering characteristics | EIA specification RS 186-9E     ANSI/J-STD-002 |
| Moisture Sensitivity      | Level 2a, per IPC/JEDEC J-STD 020C             |

## Test Procedures and Requirements

| Test Item          | Test Conditions                      | Accept/Reject Criteria         |
|--------------------|--------------------------------------|--------------------------------|
| Initial Resistance | In still air at 25°C                 | $R_{MIN} \leq R \leq R1_{MAX}$ |
| Time to Trip       | Specified current , $V_{MAX}$ , 25°C | $t \leq$ Maximum Time to Trip  |
| Holding Current    | 1 hour , at $I_H$ , 25°C             | No trip                        |
| Trip Endurance     | $V_{MAX}$ , $I_{MAX}$ , 1 hour       | No arcing or burning           |

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Item-Marking

| Marking<br>标识 | A    |      | B    |      | C   |     | D   | E    |
|---------------|------|------|------|------|-----|-----|-----|------|
|               | Min  | Max  | Min  | Max  | Min | Max | Min | Min  |
| 260L          | 4.37 | 4.73 | 3.07 | 3.41 | 0.3 | 0.7 | 0.3 | 0.15 |
| 300L          | 4.37 | 4.73 | 3.07 | 3.41 | 0.3 | 0.7 | 0.3 | 0.15 |
| 300L          | 4.37 | 4.73 | 3.07 | 3.41 | 0.3 | 0.7 | 0.3 | 0.15 |
| 350           | 4.37 | 4.73 | 3.07 | 3.41 | 0.3 | 0.7 | 0.3 | 0.15 |
| 350           | 4.37 | 4.73 | 3.07 | 3.41 | 0.3 | 0.7 | 0.3 | 0.15 |
| 400           | 4.37 | 4.73 | 3.07 | 3.41 | 0.3 | 0.7 | 0.3 | 0.15 |
| 400           | 4.37 | 4.73 | 3.07 | 3.41 | 0.3 | 0.7 | 0.3 | 0.15 |
| 450           | 4.37 | 4.73 | 3.07 | 3.41 | 0.3 | 0.7 | 0.3 | 0.15 |
| 450           | 4.37 | 4.73 | 3.07 | 3.41 | 0.3 | 0.7 | 0.3 | 0.15 |
| 500           | 4.37 | 4.73 | 3.07 | 3.41 | 0.3 | 0.7 | 0.3 | 0.15 |
| 500           | 4.37 | 4.73 | 3.07 | 3.41 | 0.3 | 0.7 | 0.3 | 0.15 |
| 550           | 4.37 | 4.73 | 3.07 | 3.41 | 0.3 | 0.7 | 0.3 | 0.15 |
| 550           | 4.37 | 4.73 | 3.07 | 3.41 | 0.3 | 0.7 | 0.3 | 0.15 |
| 600           | 4.37 | 4.73 | 3.07 | 3.41 | 0.4 | 1.1 | 0.3 | 0.15 |
| 600           | 4.37 | 4.73 | 3.07 | 3.41 | 0.4 | 1.1 | 0.3 | 0.15 |
| 650           | 4.37 | 4.73 | 3.07 | 3.41 | 0.4 | 1.1 | 0.3 | 0.15 |
| 650           | 4.37 | 4.73 | 3.07 | 3.41 | 0.4 | 1.1 | 0.3 | 0.15 |
| 700           | 4.37 | 4.73 | 3.07 | 3.41 | 0.4 | 1.1 | 0.3 | 0.15 |
| 700           | 4.37 | 4.73 | 3.07 | 3.41 | 0.4 | 1.1 | 0.3 | 0.15 |
| 750           | 4.37 | 4.73 | 3.07 | 3.41 | 0.4 | 1.1 | 0.3 | 0.15 |
| 750           | 4.37 | 4.73 | 3.07 | 3.41 | 0.4 | 1.1 | 0.3 | 0.15 |
| 800           | 4.37 | 4.73 | 3.07 | 3.41 | 0.5 | 1.4 | 0.3 | 0.15 |
| 800           | 4.37 | 4.73 | 3.07 | 3.41 | 0.5 | 1.4 | 0.3 | 0.15 |
| 850           | 4.37 | 4.73 | 3.07 | 3.41 | 0.5 | 1.4 | 0.3 | 0.15 |
| 850           | 4.37 | 4.73 | 3.07 | 3.41 | 0.5 | 1.4 | 0.3 | 0.15 |
| 900           | 4.37 | 4.73 | 3.07 | 3.41 | 0.5 | 1.4 | 0.3 | 0.15 |
| 900           | 4.37 | 4.73 | 3.07 | 3.41 | 0.5 | 1.4 | 0.3 | 0.15 |

Dimensions (mm)



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$I_H$ : Holding current, maximum current at which the device will not interrupt in 25°C still air.

$I_T$ : Tripping current, minimum current at which the device from low resistance to high resistance in 25°C still air.

$V_{MAX}$ : Maximum continuous voltage device can withstand without damage at rated current.

$I_{MAX}$ : Maximum fault current device can withstand without damage at rated voltage.

Maximum Time-to-trip: Maximum time to trip at assigned current.

$P_D$ : Typical amount of power dissipated from the device when in 25°C still air environment.

$R_{MIN}$ : Minimum resistance of device at 25°C prior to tripping.

$R1_{MAX}$ : Maximum resistance of device is measured one hour post reflow.

Thermal Derating Chart-ICH (A)

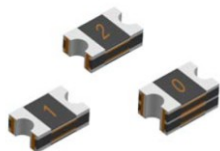
| Part-No.        | -40°C | -20°C | .0°C | 25°C | 40°C | 50°C | 60°C | 70°C | 85°C |
|-----------------|-------|-------|------|------|------|------|------|------|------|
| R47019-26012RTR | 3.78  | 3.38  | 3.04 | 2.6  | 2.23 | 2.0  | 1.79 | 1.61 | 1.3  |
| R47019-30006RTR | 4.35  | 3.9   | 3.51 | 3.0  | 2.58 | 2.31 | 2.07 | 1.86 | 1.5  |
| R47019-30012RTR | 4.35  | 3.9   | 3.51 | 3.0  | 2.58 | 2.31 | 2.07 | 1.86 | 1.5  |
| R47019-35006RTR | 5.08  | 4.55  | 4.1  | 3.5  | 3.01 | 2.7  | 2.42 | 2.17 | 1.75 |
| R47019-35012RTR | 5.08  | 4.55  | 4.1  | 3.5  | 3.01 | 2.7  | 2.42 | 2.17 | 1.75 |
| R47019-40006RTR | 5.8   | 5.2   | 4.68 | 4.0  | 3.44 | 3.08 | 2.76 | 2.48 | 2.0  |
| R47019-40012RTR | 5.8   | 5.2   | 4.68 | 4.0  | 3.44 | 3.08 | 2.76 | 2.48 | 2.0  |
| R47019-45006RTR | 6.54  | 5.85  | 5.26 | 4.5  | 3.86 | 3.46 | 3.1  | 2.79 | 2.25 |
| R47019-45012RTR | 6.54  | 5.85  | 5.26 | 4.5  | 3.86 | 3.46 | 3.1  | 2.79 | 2.25 |
| R47019-50006RTR | 7.26  | 6.5   | 5.84 | 5.0  | 4.29 | 3.84 | 3.45 | 3.11 | 2.5  |
| R47019-50012RTR | 7.26  | 6.5   | 5.84 | 5.0  | 4.29 | 3.84 | 3.45 | 3.11 | 2.5  |
| R47019-55006RTR | 7.99  | 7.15  | 6.43 | 5.5  | 4.72 | 4.23 | 3.79 | 3.42 | 2.75 |
| R47019-55012RTR | 7.99  | 7.15  | 6.43 | 5.5  | 4.72 | 4.23 | 3.79 | 3.42 | 2.75 |
| R47019-60006RTR | 8.72  | 7.8   | 7.01 | 6.0  | 5.15 | 4.61 | 4.14 | 3.73 | 3.0  |
| R47019-60012RTR | 8.72  | 7.8   | 7.01 | 6.0  | 5.15 | 4.61 | 4.14 | 3.73 | 3.0  |
| R47019-65006RTR | 9.44  | 8.45  | 7.59 | 6.5  | 5.58 | 4.99 | 4.48 | 4.04 | 3.25 |

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Thermal Derating Chart-IH (A)

| Part-No.        |  |  | .-40°C | .-20°C | .0°C  | 25°C | 40°C | 50°C | 60°C | 70°C | 85°C |
|-----------------|--|--|--------|--------|-------|------|------|------|------|------|------|
| R47019-65012RTR |  |  | 9.44   | 8.45   | 7.59  | 6.5  | 5.58 | 4.99 | 4.48 | 4.04 | 3.25 |
| R47019-70006RTR |  |  | 10.17  | 9.1    | 8.18  | 7.0  | 6.01 | 5.38 | 4.83 | 4.35 | 3.5  |
| R47019-70012RTR |  |  | 10.17  | 9.1    | 8.18  | 7.0  | 6.01 | 5.38 | 4.83 | 4.35 | 3.5  |
| R47019-75006RTR |  |  | 10.89  | 9.75   | 8.76  | 7.5  | 6.44 | 5.76 | 5.18 | 4.66 | 3.75 |
| R47019-75012RTR |  |  | 10.89  | 9.75   | 8.76  | 7.5  | 6.44 | 5.76 | 5.18 | 4.66 | 3.75 |
| R47019-80006RTR |  |  | 11.62  | 10.4   | 9.34  | 8.0  | 6.87 | 6.15 | 5.52 | 4.97 | 4.0  |
| R47019-80012RTR |  |  | 11.62  | 10.4   | 9.34  | 8.0  | 6.87 | 6.15 | 5.52 | 4.97 | 4.0  |
| R47019-85006RTR |  |  | 12.34  | 11.05  | 9.93  | 8.5  | 7.3  | 6.53 | 5.87 | 5.28 | 4.25 |
| R47019-85012RTR |  |  | 12.34  | 11.05  | 9.93  | 8.5  | 7.3  | 6.53 | 5.87 | 5.28 | 4.25 |
| R47019-90006RTR |  |  | 13.07  | 11.7   | 10.51 | 9.0  | 7.73 | 6.92 | 6.21 | 5.59 | 4.5  |
| R47019-90012RTR |  |  | 13.07  | 11.7   | 10.51 | 9.0  | 7.73 | 6.92 | 6.21 | 5.59 | 4.5  |
|                 |  |  |        |        |       |      |      |      |      |      |      |
|                 |  |  |        |        |       |      |      |      |      |      |      |
|                 |  |  |        |        |       |      |      |      |      |      |      |
|                 |  |  |        |        |       |      |      |      |      |      |      |
|                 |  |  |        |        |       |      |      |      |      |      |      |
|                 |  |  |        |        |       |      |      |      |      |      |      |
|                 |  |  |        |        |       |      |      |      |      |      |      |
|                 |  |  |        |        |       |      |      |      |      |      |      |
|                 |  |  |        |        |       |      |      |      |      |      |      |
|                 |  |  |        |        |       |      |      |      |      |      |      |
|                 |  |  |        |        |       |      |      |      |      |      |      |
|                 |  |  |        |        |       |      |      |      |      |      |      |
|                 |  |  |        |        |       |      |      |      |      |      |      |
|                 |  |  |        |        |       |      |      |      |      |      |      |
|                 |  |  |        |        |       |      |      |      |      |      |      |

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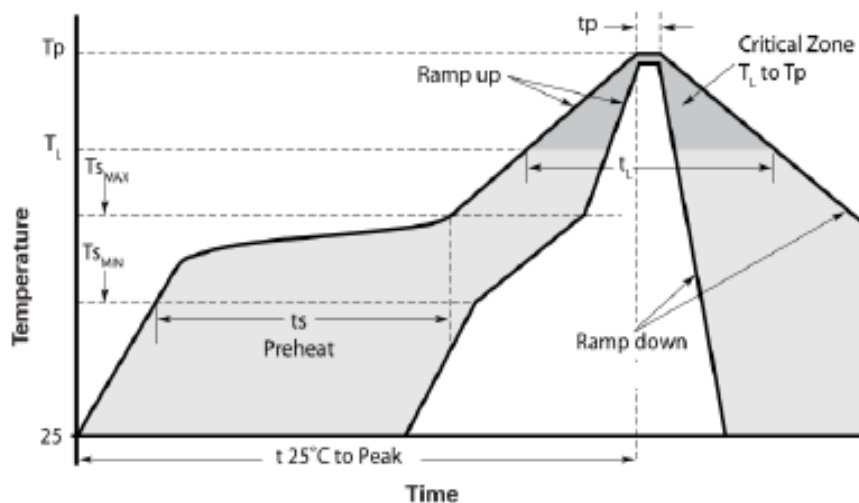
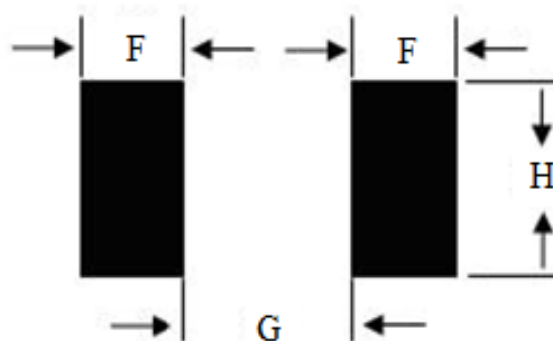
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## Soldering Reflow Profiles and Pad Layout Dimensions

| Solder pad layout dimensions (mm)                                                                                                                                                                                                                   |      |      |      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------|
| Normal Value                                                                                                                                                                                                                                        | F    | G    | H    |
|                                                                                                                                                                                                                                                     | 1.78 | 3.45 | 3.20 |
| Profile Feature Pb-Free                                                                                                                                                                                                                             |      |      |      |
| Average ramp up rate ( $T_{S_{MAX}}$ to $T_p$ ) 3°C/ max.                                                                                                                                                                                           |      |      |      |
| Preheat                                                                                                                                                                                                                                             |      |      |      |
| <ul style="list-style-type: none"> <li>•Temperature min (<math>T_{S_{MIN}}</math>) 150°C</li> <li>•Temperature max (<math>T_{S_{MAX}}</math>) 200°C</li> <li>•Time (<math>t_{S_{MIN}}</math> to <math>t_{S_{MAX}}</math>) 60-120 seconds</li> </ul> |      |      |      |
| Time maintained above                                                                                                                                                                                                                               |      |      |      |
| <ul style="list-style-type: none"> <li>•Temperature (<math>T_L</math>) 217°C</li> <li>•Time (<math>t_L</math>) 60-150 seconds</li> </ul>                                                                                                            |      |      |      |
| Peak/Classification temperature ( $T_p$ ) 260°C                                                                                                                                                                                                     |      |      |      |
| Time within 5°C of actual peak temperature                                                                                                                                                                                                          |      |      |      |
| Time ( $t_p$ ) 30 seconds max                                                                                                                                                                                                                       |      |      |      |
| Ramp down rate 3°C/second max                                                                                                                                                                                                                       |      |      |      |
| Time 25°C to peak temperature 8 minutes max                                                                                                                                                                                                         |      |      |      |



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### Soldering Reflow Profiles and Pad Layout Dimensions

Recommended reflow methods: IR, hot air oven, N2 environment for lead-free.

Devices are not designed to be wave soldered to the bottom side of the board.

Recommended maximum paste thickness is 0.25mm (0.01inch). 0.25mm(0.01').

Devices can be cleaned using standard industry methods and aqueous solvents.

Devices can be reworked using the standard industry practices .Please also avoid direct contact to the device.

If reflow temperature exceed the recommended profile, devices may not meet the performance requirements.

### Storage

The maximum ambient temperature shall not exceed 40°C .Storage temperatures higher than 40°C could result in the deformation of packaging materials. The maximum relative humidity recommended for storage is 70%. High humidity with high temperature can accelerate the oxidation of the solder plating on the termination and reduce the solderability of the components. Sealed plastic bags with desiccant shall be used to reduce the oxidation of the termination and shall only be opened prior to use.

### Warning

Use PPTC beyond the maximum ratings or improper use may result in device damage, 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.

Use PPTC with a large inductance in circuit will generate a circuit voltage 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.

Users should independently evaluate the suitability of the product and test each product selected for their own application.

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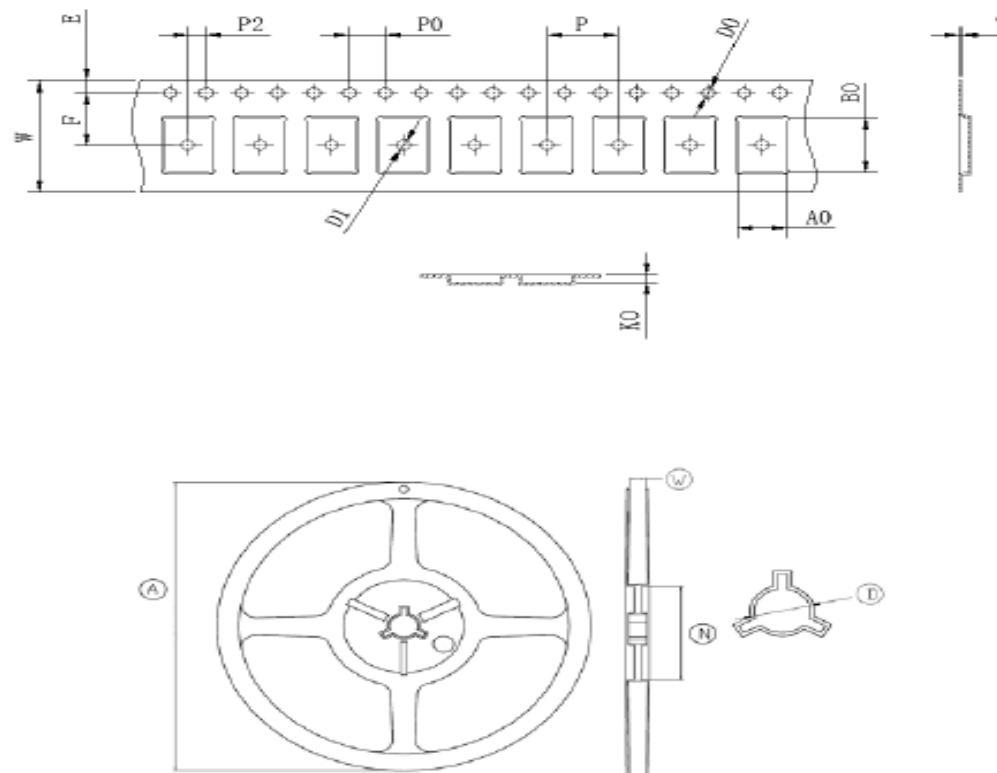
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## Packing informations ( mm)

| Tape Specifications |                                    |
|---------------------|------------------------------------|
| EIA 481-1.          |                                    |
| W                   | $12.0 \pm 0.2$                     |
| P0                  | $4.0 \pm 0.1$                      |
| P1                  | $8.0 \pm 0.1$                      |
| P2                  | $2.0 \pm 0.05$                     |
| A0                  | $3.66 \pm 0.1$                     |
| B0                  | $4.98 \pm 0.1$                     |
| D0                  | $1.5 + 0.1 / - 0$                  |
| D1                  | $1.5 \pm 0.1$                      |
| F                   | $5.5 \pm 0.1$                      |
| E                   | $1.75 \pm 0.1$                     |
| T                   | $0.20 \pm 0.05$<br>$0.25 \pm 0.05$ |
| K0                  | $0.95 \pm 0.1$<br>$1.50 \pm 0.1$   |
| Reel Dimensions     |                                    |
| A                   | $178.0 \pm 1.0$                    |
| D                   | $13.3 \pm 0.3$                     |
| W                   | $13.5 \pm 1.0$                     |
| N                   | $59.0 \pm 1.0$                     |



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## Ordering Informations

| Customer | Trip Range (A) | Volt | ROHS | Packing Code |  |  |  |  |  |  |
|----------|----------------|------|------|--------------|--|--|--|--|--|--|
|----------|----------------|------|------|--------------|--|--|--|--|--|--|

|               |            |           |          |           |  |  |  |  |  |  |
|---------------|------------|-----------|----------|-----------|--|--|--|--|--|--|
| <b>R47019</b> | <b>450</b> | <b>12</b> | <b>R</b> | <b>TR</b> |  |  |  |  |  |  |
|---------------|------------|-----------|----------|-----------|--|--|--|--|--|--|

|                           |                      |                        |                              |
|---------------------------|----------------------|------------------------|------------------------------|
| <b>4500mA</b>             | <b>12=Volt</b>       | <b>R= ROHS Conform</b> | <b>TR= Tape Reel Packing</b> |
| <b>Current Trip Range</b> | <b>Item- Voltage</b> |                        |                              |

|                                       |
|---------------------------------------|
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