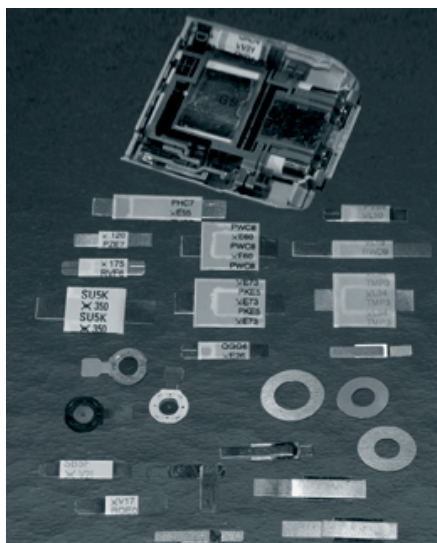
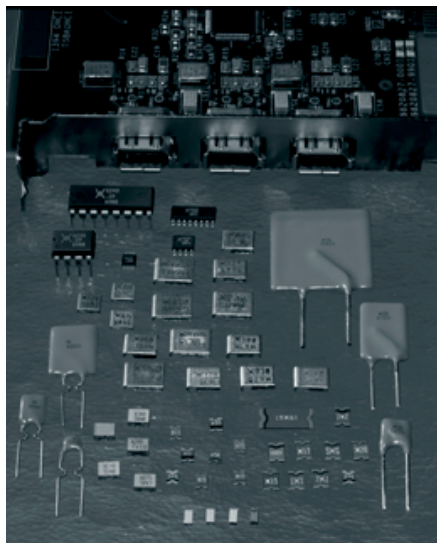
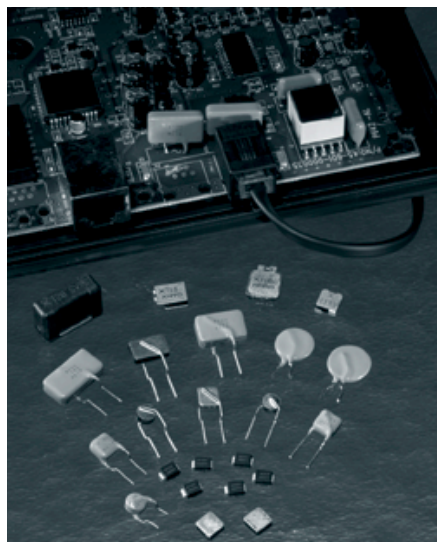




### Overview

Raychem's families of PolySwitch resettable devices continue to expand to include devices with wider voltage, current, and temperature ranges. Sixteen standard product families of PolySwitch devices are available in leaded, axial, and surface-mount configurations. Many have received UL component recognition and meet the requirements of other agencies, including CSA and TÜV. Technically, these devices are thermistor-type devices based on a polymer positive temperature coefficient material.

### PolySwitch devices are used in a wide variety of applications:

#### Automotive

- Actuators and medium motors
- Trace protection
- Wire harnesses

#### Battery Protection

- Lithium cells and battery packs
- Rechargeable battery packs
- Chargers

#### Computers and Peripherals

- DDC.2 computer video ports
- Hard disk drives/storage devices
- IEEE 1394 ports
- Mouse and keyboard ports
- USB (Universal Serial Bus) ports
- PC (PCMCIA) cards and sockets
- SCSI

#### Industrial

- MOSFET device protection
- Motors, fans, and blowers
- POS equipment
- Process and industrial controls
- Security and fire alarm systems
- Test and measurement equipment
- Transformers
- Medical electronics

#### Consumer

- Loudspeakers
- Satellite video receivers

### Telecommunications & Networking

- Customer premise equipment
- Primary protection: MDF modules, Network Interface Devices (NIDs)
- Analog modems, ISDN and xDSL equipment
- WAN, LAN, T1 Equipment
- Access network equipment, Central Office switches
- Cable power passing taps
- UL 1950, Telcordia GR-1089, GR-974 power fault protection
- ITU-T K.20, K.21, K.45 resistability requirements

### PolySwitch Resettable Device Benefits:

- Reduced warranty and service costs
- Increased reliability
- Superior shock and vibration withstand
- Automated insertion
- Wide variety of applications

### Features:

- Remotely resettable
- Testable
- Solid-state
- Tape and reel
- Variety of form factors
- Low resistance

### What's New Inside:

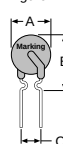
- nanoSMD Products
- miniSMD Products
- RHE Products
- VLR Products
- Auto Products
  - AHR
  - AGR
  - ASMD
  - AHS
- RXE Products
- Lead Free nanoSMD, miniSMD Products

Standard PolySwitch product families include RGE, RHE, RTE, RUE, RXE, SMD, nanoSMD, microSMD, miniSMD, TS, BBR, TR, LR4, LTP, SRP, TAC, VTP, AHR, AGR, ASMD, and AHS devices. In addition, special devices, such as speaker devices (SPK), terminal devices (TD) and custom chip devices, can be manufactured to meet performance requirements that could be outside of the performance band of the standard products listed in this short-form catalog. Please contact a Raychem Circuit Protection Customer Service representative to discuss your special product needs.

## 60V - 72V

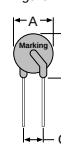
This product line can be used in a wide variety of automotive, computer and general electronics applications. The RGE devices feature high current carrying capability (up to 14 Amps) in a small package with fast trip times. The RHE devices can be used at temperatures up to 125°C.

Figure 1



Lead size  
RXE010-090  
Ø 0.51 (0.020)  
24 AWG

Figure 2



Lead size  
RXE110-375  
Ø 0.81 (0.032)  
20 AWG

Figure 3



Lead size  
RXE005  
Ø 0.40 (0.016)  
26 AWG

Dimensions (millimeters/inches)

| Part number | I <sub>H</sub> *<br>(A) | V max.<br>(V) | I max.**<br>(A) | R <sub>1</sub> max.<br>(Ω) | Agency<br>recognition | A<br>(max.) | B<br>(max.) | C<br>(nom.) | Fig. |
|-------------|-------------------------|---------------|-----------------|----------------------------|-----------------------|-------------|-------------|-------------|------|
| RXE005      | 0.05                    | 60            | 40              | 20.00                      | UL, TÜV, CSA          | 8.0 (0.315) | 8.3 (0.325) | 5.08 (0.20) | 3    |
| RXE010      | 0.10                    | 60            | 40              | 7.50                       | UL, TÜV, CSA          | 7.4 (0.29)  | 11.6 (0.46) | 5.08 (0.20) | 1    |
| RXE017      | 0.17                    | 60            | 40              | 8.00                       | UL, TÜV, CSA          | 7.4 (0.29)  | 12.7 (0.50) | 5.08 (0.20) | 1    |
| RXE020      | 0.20                    | 72            | 40              | 4.40                       | UL, TÜV, CSA          | 7.4 (0.29)  | 11.7 (0.46) | 5.08 (0.20) | 1    |
| RXE025      | 0.25                    | 72            | 40              | 3.00                       | UL, TÜV, CSA          | 7.4 (0.29)  | 12.7 (0.50) | 5.08 (0.20) | 1    |
| RXE030      | 0.30                    | 72            | 40              | 2.10                       | UL, TÜV, CSA          | 7.4 (0.29)  | 12.7 (0.50) | 5.08 (0.20) | 1    |
| RXE040      | 0.40                    | 72            | 40              | 1.29                       | UL, TÜV, CSA          | 7.6 (0.30)  | 13.5 (0.53) | 5.08 (0.20) | 1    |
| RXE050      | 0.50                    | 72            | 40              | 1.17                       | UL, TÜV, CSA          | 7.9 (0.31)  | 13.7 (0.54) | 5.08 (0.20) | 1    |
| RXE065      | 0.65                    | 72            | 40              | 0.72                       | UL, TÜV, CSA          | 9.4 (0.37)  | 14.5 (0.57) | 5.08 (0.20) | 1    |
| RXE075      | 0.75                    | 72            | 40              | 0.60                       | UL, TÜV, CSA          | 10.2 (0.40) | 15.0 (0.59) | 5.08 (0.20) | 1    |
| RXE090      | 0.90                    | 72            | 40              | 0.47                       | UL, TÜV, CSA          | 11.2 (0.44) | 15.8 (0.62) | 5.08 (0.20) | 1    |
| RXE110      | 1.10                    | 72            | 40              | 0.38                       | UL, TÜV, CSA          | 12.8 (0.50) | 17.5 (0.69) | 5.08 (0.20) | 2    |
| RXE135      | 1.35                    | 72            | 40              | 0.30                       | UL, TÜV, CSA          | 14.5 (0.57) | 19.1 (0.75) | 5.08 (0.20) | 2    |
| RXE160      | 1.60                    | 72            | 40              | 0.22                       | UL, TÜV, CSA          | 16.3 (0.64) | 20.8 (0.82) | 5.08 (0.20) | 2    |
| RXE185      | 1.85                    | 72            | 40              | 0.19                       | UL, TÜV, CSA          | 17.5 (0.69) | 22.2 (0.88) | 5.08 (0.20) | 2    |
| RXE250      | 2.50                    | 72            | 40              | 0.13                       | UL, TÜV, CSA          | 20.8 (0.82) | 28.4 (1.00) | 10.2 (0.40) | 2    |
| RXE300      | 3.00                    | 72            | 40              | 0.10                       | UL, TÜV, CSA          | 23.9 (0.94) | 28.6 (1.13) | 10.2 (0.40) | 2    |
| RXE375      | 3.75                    | 72            | 40              | 0.08                       | UL, TÜV, CSA          | 27.2 (1.07) | 31.8 (1.25) | 10.2 (0.40) | 2    |

\*Hold current 20°C.

\*\*Device may withstand higher interrupt current at lower voltages. Each application will need to be individually evaluated.

## 33V

Figure 4



Lead size  
RTE120-190  
Ø 0.51 (0.020)  
24 AWG

Dimensions (millimeters/inches)

| Part number | I <sub>H</sub> *<br>(A) | V max.<br>(Vdc) | I max.**<br>(A) | R <sub>1</sub> max.<br>(Ω) | Agency***<br>recognition | A<br>(max.) | B<br>(max.) | C<br>(nom.) | Fig. |
|-------------|-------------------------|-----------------|-----------------|----------------------------|--------------------------|-------------|-------------|-------------|------|
| RTE120      | 1.20                    | 33              | 40              | 0.180                      | UL, TÜV, CSA             | 7.4 (0.29)  | 12.2 (0.48) | 5.08 (0.20) | 4    |
| RTE135      | 1.35                    | 33              | 40              | 0.143                      | UL, TÜV, CSA             | 7.4 (0.29)  | 14.2 (0.56) | 5.08 (0.20) | 4    |
| RTE190      | 1.90                    | 33              | 40              | 0.092                      | UL, TÜV, CSA             | 8.9 (0.35)  | 13.5 (0.53) | 5.08 (0.20) | 4    |

\*Hold current 20°C.

\*\*Device may withstand higher interrupt current at lower voltages. Each application will need to be individually evaluated.

## 30V

Figure 5



Lead size  
RUE090-250  
Ø 0.51 (0.020)  
24 AWG

Figure 6



Lead size  
RUE300-900  
Ø 0.81 (0.032)  
20 AWG

Dimensions (millimeters/inches)

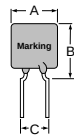
| Part number | I <sub>H</sub> *<br>(A) | V max.<br>(Vdc) | I max.**<br>(A) | R <sub>1</sub> max.<br>(Ω) | Agency<br>recognition | A<br>(max.) | B<br>(max.) | C<br>(nom.) | Fig. |
|-------------|-------------------------|-----------------|-----------------|----------------------------|-----------------------|-------------|-------------|-------------|------|
| RUE090      | 0.90                    | 30              | 40              | 0.22                       | UL, TÜV, CSA          | 7.4 (0.29)  | 12.2 (0.48) | 5.08 (0.20) | 5    |
| RUE110      | 1.10                    | 30              | 40              | 0.17                       | UL, TÜV, CSA          | 7.4 (0.29)  | 14.2 (0.56) | 5.08 (0.20) | 5    |
| RUE135      | 1.35                    | 30              | 40              | 0.13                       | UL, TÜV, CSA          | 8.9 (0.35)  | 13.5 (0.53) | 5.08 (0.20) | 5    |
| RUE160      | 1.60                    | 30              | 40              | 0.11                       | UL, TÜV, CSA          | 8.9 (0.35)  | 15.2 (0.60) | 5.08 (0.20) | 5    |
| RUE185      | 1.85                    | 30              | 40              | 0.09                       | UL, TÜV, CSA          | 10.2 (0.40) | 15.7 (0.62) | 5.08 (0.20) | 5    |
| RUE250      | 2.50                    | 30              | 40              | 0.07                       | UL, TÜV, CSA          | 11.4 (0.45) | 18.3 (0.72) | 5.08 (0.20) | 5    |
| RUE300      | 3.00                    | 30              | 40              | 0.08                       | UL, TÜV, CSA          | 11.4 (0.45) | 17.3 (0.68) | 5.08 (0.20) | 6    |
| RUE400      | 4.00                    | 30              | 40              | 0.05                       | UL, TÜV, CSA          | 14.0 (0.55) | 20.1 (0.79) | 5.08 (0.20) | 6    |
| RUE500      | 5.00                    | 30              | 40              | 0.05                       | UL, TÜV, CSA          | 14.0 (0.55) | 24.9 (0.98) | 10.2 (0.40) | 6    |
| RUE600      | 6.00                    | 30              | 40              | 0.04                       | UL, TÜV, CSA          | 16.5 (0.65) | 24.9 (0.98) | 10.2 (0.40) | 6    |
| RUE700      | 7.00                    | 30              | 40              | 0.03                       | UL, TÜV, CSA          | 19.1 (0.75) | 26.7 (1.05) | 10.2 (0.40) | 6    |
| RUE800      | 8.00                    | 30              | 40              | 0.02                       | UL, TÜV, CSA          | 21.6 (0.85) | 29.2 (1.15) | 10.2 (0.40) | 6    |
| RUE900      | 9.00                    | 30              | 40              | 0.02                       | UL, TÜV, CSA          | 24.1 (0.95) | 29.7 (1.17) | 10.2 (0.40) | 6    |

\*Hold current 20°C.

\*\*Device may withstand higher interrupt current at lower voltages. Each application will need to be individually evaluated.

## 16V High Temperature

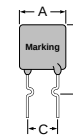
Figure 7



Lead size  
RHE450-1000  
Ø 0.81 (0.032)  
20 AWG

Lead size  
RHE1300,  
RHE1500  
Ø 1.0 (0.04)  
18 AWG

Figure 8



Lead size  
RHE070  
Ø 0.51 (0.020)  
24 AWG

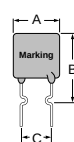
| Part number | I <sub>H</sub> <sup>*</sup><br>(A) | V max.<br>(Vdc) | I max.**<br>(A) | R <sub>1</sub> max.<br>(Ω) | Agency recognition | Dimensions (millimeters/inches) |              |             | Fig. |
|-------------|------------------------------------|-----------------|-----------------|----------------------------|--------------------|---------------------------------|--------------|-------------|------|
|             |                                    |                 |                 |                            |                    | A<br>(max.)                     | B<br>(max.)  | C<br>(nom.) |      |
| RHE070      | 0.7                                | 16              | 40              | 0.80                       | UL, TÜV, CSA       | 6.86 (0.27)                     | 10.8 (0.425) | 5.08 (0.20) | 8    |
| New RHE400  | 4.0                                | 16              | 100             | 0.044                      | UL, TÜV, CSA       | 11.4 (0.45)                     | 18.0 (0.71)  | 5.08 (0.20) | 7    |
| RHE450      | 4.5                                | 16              | 100             | 0.054                      | UL, TÜV, CSA       | 10.4 (0.41)                     | 15.6 (0.61)  | 5.08 (0.20) | 7    |
| RHE600      | 6.0                                | 16              | 100             | 0.032                      | UL, TÜV, CSA       | 11.2 (0.44)                     | 21.0 (0.83)  | 5.08 (0.20) | 7    |
| RHE650      | 6.5                                | 16              | 100             | 0.026                      | UL, TÜV, CSA       | 12.7 (0.50)                     | 22.2 (0.88)  | 5.08 (0.20) | 7    |
| RHE750      | 7.5                                | 16              | 100             | 0.022                      | UL, TÜV, CSA       | 14.0 (0.55)                     | 23.5 (0.93)  | 5.08 (0.20) | 7    |
| RHE1000     | 10.0                               | 16              | 100             | 0.015                      | UL, TÜV, CSA       | 17.5 (0.69)                     | 26.5 (1.04)  | 10.2 (0.40) | 7    |
| RHE1300     | 13.0                               | 16              | 100             | 0.010                      | UL, TÜV, CSA       | 23.5 (0.925)                    | 28.7 (1.13)  | 10.2 (0.40) | 7    |
| New RHE1500 | 15.0                               | 16              | 100             | 0.0092                     | Pending            | 23.5 (0.925)                    | 28.7 (1.13)  | 10.2 (0.40) | 7    |

\*Hold current 25°C.

\*\*Device may withstand higher interrupt current at lower voltages. Each application will need to be individually evaluated.

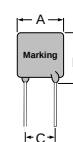
## 16V

Figure 9



Lead size  
RUSB090-250  
Ø 0.51 (0.020)  
24 AWG

Figure 10



Lead size  
RGE300-RGE1100  
Ø 0.81 (0.032)  
20 AWG

Lead size  
RGE1200-RGE1400  
Ø 1.0 (0.04)  
18 AWG

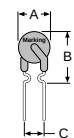
| Part number | I <sub>H</sub><br>(A) | V max.<br>(V) | I max.**<br>(A) | R <sub>1</sub> max.<br>(Ω) | Agency recognition | Dimensions (millimeters/inches) |             |             | Fig. |
|-------------|-----------------------|---------------|-----------------|----------------------------|--------------------|---------------------------------|-------------|-------------|------|
|             |                       |               |                 |                            |                    | A<br>(max.)                     | B<br>(max.) | C<br>(nom.) |      |
| RUSB090*    | 0.90                  | 16            | 40              | 0.18                       | UL, TÜV, CSA       | 7.4 (0.29)                      | 12.2 (0.48) | 5.08 (0.20) | 9    |
| RUSB110*    | 1.10                  | 16            | 40              | 0.14                       | UL, TÜV, CSA       | 7.4 (0.29)                      | 14.2 (0.56) | 5.08 (0.20) | 9    |
| RUSB135*    | 1.35                  | 16            | 40              | 0.115                      | UL, TÜV, CSA       | 8.9 (0.35)                      | 13.5 (0.53) | 5.08 (0.20) | 9    |
| RUSB160*    | 1.60                  | 16            | 40              | 0.11                       | UL, TÜV, CSA       | 8.9 (0.35)                      | 15.2 (0.60) | 5.08 (0.20) | 9    |
| RUSB185*    | 1.85                  | 16            | 40              | 0.09                       | UL, TÜV, CSA       | 10.2 (0.40)                     | 15.7 (0.62) | 5.08 (0.20) | 9    |
| RUSB250*    | 2.5                   | 16            | 40              | 0.06                       | UL, TÜV, CSA       | 11.4 (0.45)                     | 18.3 (0.72) | 5.08 (0.20) | 9    |
| RGE300      | 3.0                   | 16            | 100             | 0.098                      | UL, TÜV, CSA       | 7.1 (0.28)                      | 11.0 (0.43) | 5.08 (0.20) | 10   |
| RGE400      | 4.0                   | 16            | 100             | 0.060                      | UL, TÜV, CSA       | 8.9 (0.35)                      | 12.8 (0.50) | 5.08 (0.20) | 10   |
| RGE500      | 5.0                   | 16            | 100             | 0.034                      | UL, TÜV, CSA       | 10.4 (0.41)                     | 14.3 (0.56) | 5.08 (0.20) | 10   |
| RGE600      | 6.0                   | 16            | 100             | 0.028                      | UL, TÜV, CSA       | 10.7 (0.42)                     | 17.1 (0.67) | 5.08 (0.20) | 10   |
| RGE700      | 7.0                   | 16            | 100             | 0.022                      | UL, TÜV, CSA       | 11.2 (0.44)                     | 19.7 (0.78) | 5.08 (0.20) | 10   |
| RGE800      | 8.0                   | 16            | 100             | 0.0175                     | UL, TÜV, CSA       | 12.7 (0.50)                     | 20.9 (0.82) | 5.08 (0.20) | 10   |
| RGE900      | 9.0                   | 16            | 100             | 0.0135                     | UL, TÜV, CSA       | 14.0 (0.55)                     | 21.7 (0.85) | 5.08 (0.20) | 10   |
| RGE1000     | 10.0                  | 16            | 100             | 0.0102                     | UL, TÜV, CSA       | 16.5 (0.65)                     | 25.2 (0.99) | 5.08 (0.20) | 10   |
| RGE1100     | 11.0                  | 16            | 100             | 0.0089                     | UL, TÜV, CSA       | 17.5 (0.69)                     | 26.0 (1.02) | 5.08 (0.20) | 10   |
| RGE1200     | 12.0                  | 16            | 100             | 0.0086                     | UL, TÜV, CSA       | 17.5 (0.69)                     | 28.0 (1.10) | 10.2 (0.40) | 10   |
| RGE1400     | 14.0                  | 16            | 100             | 0.0064                     | UL, TÜV, CSA       | 23.5 (0.925)                    | 27.9 (1.10) | 10.2 (0.40) | 10   |

\*Hold current 20°C.

\*\*Device may withstand higher interrupt current at lower voltages. Each application will need to be individually evaluated.

## 6V

Figure 11



Lead size  
RUSB-6V products  
Ø 0.51 (0.020)  
24 AWG

| Part number | I <sub>H</sub> <sup>*</sup><br>(A) | V max.<br>(Vdc) | I max.**<br>(A) | R <sub>1</sub> max.<br>(Ω) | Agency recognition | Dimensions (millimeters/inches) |             |             | Fig. |
|-------------|------------------------------------|-----------------|-----------------|----------------------------|--------------------|---------------------------------|-------------|-------------|------|
|             |                                    |                 |                 |                            |                    | A<br>(max.)                     | B<br>(max.) | C<br>(nom.) |      |
| RUSB075     | 0.75                               | 6               | 40              | 0.23                       | UL, TÜV, CSA       | 6.9 (0.27)                      | 11.4 (0.45) | 5.08 (0.20) | 11   |
| RUSB120     | 1.20                               | 6               | 40              | 0.14                       | UL, TÜV, CSA       | 6.9 (0.27)                      | 11.7 (0.46) | 5.08 (0.20) | 11   |
| RUSB155     | 1.55                               | 6               | 40              | 0.10                       | UL, TÜV, CSA       | 6.9 (0.27)                      | 11.7 (0.46) | 5.08 (0.20) | 11   |

\*Hold current 20°C.

\*\*Device may withstand higher interrupt current at lower voltages. Each application will need to be individually evaluated.

These product lines consist of radial leaded and surface mount devices that protect against short duration high voltage faults (250-600Vrms). TR and TS products are designed to meet the protection needs of telecommunications applications. BBR devices provide overcurrent protection of the power tap in hybrid-coaxial applications.

TR, TS and BBR devices are not intended for continuous utility line voltage operation (i.e. 120v or 240V).

Figure 1

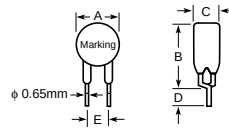
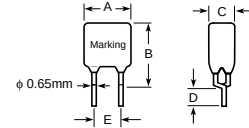


Figure 2



### TR250

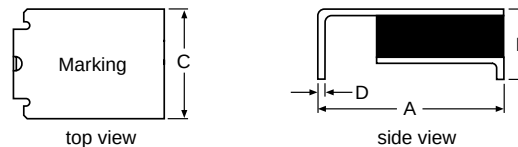
| Part number   | I <sub>H</sub><br>(A) | V max.<br>(Vrms) | I max.<br>(A) | R min.<br>(Ω) | R max.<br>(Ω) | R <sub>1</sub> max.<br>(Ω) | Agency recognition | Fig. |
|---------------|-----------------------|------------------|---------------|---------------|---------------|----------------------------|--------------------|------|
| TR250-080T    | 0.080                 | 250              | 3.0           | 15.0          | 22.0          | 33.0                       | UL, TÜV, CSA       | 1    |
| TR250-080U    | 0.080                 | 250              | 3.0           | 14.0          | 20.0          | 33.0                       | UL, TÜV, CSA       | 1    |
| TR250-110U    | 0.110                 | 250              | 3.0           | 5.0           | 9.0           | 16.0                       | UL, TÜV, CSA       | 1    |
| TR250-120     | 0.120                 | 250              | 3.0           | 4.0           | 8.0           | 16.0                       | UL, TÜV, CSA       | 2    |
| TR250-120T    | 0.120                 | 250              | 3.0           | 7.0           | 12.0          | 16.0                       | UL, TÜV, CSA       | 2    |
| TR250-120T-RA | 0.120                 | 250              | 3.0           | 7.0           | 9.0           | 16.0                       | UL, TÜV, CSA       | 2    |
| TR250-120T-RC | 0.130                 | 250              | 3.0           | 5.4           | 7.5           | 14.0                       | UL, TÜV, CSA       | 2    |
| TR250-120T-RF | 0.120                 | 250              | 3.0           | 6.0           | 10.5          | 16.0                       | UL, TÜV, CSA       | 2    |
| TR250-120T-R1 | 0.120                 | 250              | 3.0           | 6.0           | 9.0           | 16.0                       | UL, TÜV, CSA       | 2    |
| TR250-120T-R2 | 0.120                 | 250              | 3.0           | 8.0           | 10.5          | 16.0                       | UL, TÜV, CSA       | 2    |
| TR250-120U    | 0.120                 | 250              | 3.0           | 6.0           | 10.0          | 16.0                       | UL, TÜV, CSA       | 2    |
| TR250-120UT   | 0.120                 | 250              | 3.0           | 7.0           | 12.0          | 16.0                       | UL, TÜV, CSA       | 2    |
| TR250-145     | 0.145                 | 250              | 3.0           | 3.0           | 6.0           | 14.0                       | UL, TÜV, CSA       | 2    |
| TR250-145-RA  | 0.145                 | 250              | 3.0           | 3.0           | 5.5           | 12.0                       | UL, TÜV, CSA       | 2    |
| TR250-145-RB  | 0.145                 | 250              | 3.0           | 4.5           | 6.0           | 12.0                       | UL, TÜV, CSA       | 2    |
| TR250-145T    | 0.145                 | 250              | 3.0           | 5.4           | 7.5           | 14.0                       | UL, TÜV, CSA       | 2    |
| TR250-145U    | 0.145                 | 250              | 3.0           | 3.5           | 6.5           | 12.0                       | UL, TÜV, CSA       | 2    |
| TR250-180U    | 0.180                 | 250              | 10.0          | 0.8           | 2.0           | 4.0                        | UL, TÜV, CSA       | 2    |

\*These products are intended for telecom applications. Please see the Raychem Circuit Protection Databook for application details. Products are available in binned versions for resistance-matched applications. See Raychem Circuit Protection Databook for performance details.

| Part number | Dimensions (millimeters/inches) |              |             |             |             | Fig. |
|-------------|---------------------------------|--------------|-------------|-------------|-------------|------|
|             | A (max.)                        | B (max.)     | C (max.)    | D (min.)    | E (typ.)    |      |
| TR250-080T  | 5.8 (0.228)                     | 9.9 (0.390)  | 4.6 (0.181) | 4.7 (0.185) | 5.0 (0.197) | 1    |
| TR250-080U  | 4.8 (0.189)                     | 9.3 (0.366)  | 3.8 (0.150) | 4.7 (0.185) | 5.0 (0.197) | 1    |
| TR250-110U  | 5.3 (0.210)                     | 9.4 (0.370)  | 3.8 (0.150) | 4.7 (0.185) | 5.0 (0.197) | 1    |
| TR250-120   | 6.5 (0.256)                     | 11.0 (0.433) | 4.6 (0.180) | 4.7 (0.185) | 5.0 (0.197) | 2    |
| TR250-120U  | 6.0 (0.236)                     | 10.0 (0.394) | 3.8 (0.150) | 4.7 (0.185) | 5.0 (0.197) | 2    |
| TR250-145   | 6.5 (0.256)                     | 11.0 (0.433) | 4.6 (0.180) | 4.7 (0.185) | 5.0 (0.197) | 2    |
| TR250-145U  | 6.0 (0.236)                     | 10.0 (0.394) | 3.8 (0.150) | 4.7 (0.185) | 5.0 (0.197) | 2    |
| TR250-180U  | 10.4 (0.410)                    | 12.6 (0.495) | 3.6 (0.140) | 4.7 (0.185) | 5.0 (0.197) | 2    |

### TS250

Figure 3



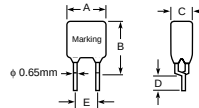
| Part number        | I <sub>H</sub><br>(A) | V max.<br>(Vrms) | I max.<br>(A) | R min.<br>(Ω) | R max.<br>(Ω) | R <sub>1</sub> max.<br>(Ω) | Agency recognition | Fig. |
|--------------------|-----------------------|------------------|---------------|---------------|---------------|----------------------------|--------------------|------|
| TS250-130          | 0.130                 | 250/(650)        | 3.0/(1.1)     | 6.5           | 12.0          | 20.0                       | UL, TÜV, CSA       | 3    |
| TS250-130-RA       | 0.130                 | 250/(650)        | 3.0/(1.1)     | 6.5           | 9.0           | 15.0                       | UL, TÜV, CSA       | 3    |
| TS250-130-RB       | 0.130                 | 250/(650)        | 3.0/(1.1)     | 9.0           | 12.0          | 20.0                       | UL, TÜV, CSA       | 3    |
| TS250-130-RC-B-0.5 | 0.130                 | 250/(650)        | 3.0/(1.1)     | 7.0           | 10.0          | 17.0                       | UL, TÜV, CSA       | 3    |

\*These products are intended for telecom applications. Please see the Raychem Circuit Protection Databook for application details.

| Part number        | Dimensions (millimeters/inches) |             |             |             | Fig. |
|--------------------|---------------------------------|-------------|-------------|-------------|------|
|                    | A (max.)                        | B (max.)    | C (max.)    | D (typ.)    |      |
| TS250-130          | 9.4 (0.370)                     | 3.4 (0.135) | 7.4 (0.290) | 0.3 (0.011) | 3    |
| TS250-130-RA       | 9.4 (0.370)                     | 3.4 (0.135) | 7.4 (0.290) | 0.3 (0.011) | 3    |
| TS250-130-RB       | 9.4 (0.370)                     | 3.4 (0.135) | 7.4 (0.290) | 0.3 (0.011) | 3    |
| TS250-130-RC-B-0.5 | 9.4 (0.370)                     | 3.4 (0.135) | 7.4 (0.290) | 0.3 (0.011) | 3    |

## TR600

Figure 4



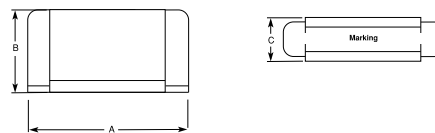
| Part number  | I <sub>H</sub> (A) | V max. (V <sub>rms</sub> ) | I max. (A) | R min. (Ω) | R max. (Ω) | R <sub>1</sub> max. (Ω) | Agency recognition | Fig. |
|--------------|--------------------|----------------------------|------------|------------|------------|-------------------------|--------------------|------|
| TR600-150    | 0.150              | 600                        | 3.0        | 6.0        | 12.0       | 22.0                    | UL, CSA            | 4    |
| TR600-150-RA | 0.150              | 600                        | 3.0        | 7.0        | 10.0       | 20.0                    | UL, CSA            | 4    |
| TR600-150-RB | 0.150              | 600                        | 3.0        | 9.0        | 12.0       | 22.0                    | UL, CSA            | 4    |
| TR600-160    | 0.160              | 600                        | 3.0        | 4.0        | 10.0       | 18.0                    | UL, CSA            | 4    |
| TR600-160-RA | 0.160              | 600                        | 3.0        | 4.0        | 7.0        | 16.0                    | UL, CSA            | 4    |
| TR600-160-R1 | 0.160              | 600                        | 3.0        | 4.0        | 8.0        | 17.0                    | UL, CSA            | 4    |

\*These products are intended for telecom applications. Please see the Raychem Circuit Protection Databook for application details. Products are available in binned versions for resistance-matched applications. See Raychem Circuit Protection Databook for performance details.

| Part number | Dimensions (millimeters/inches) |              |             |             |             | Fig. |
|-------------|---------------------------------|--------------|-------------|-------------|-------------|------|
|             | A (max.)                        | B (max.)     | C (max.)    | D (min.)    | E (max.)    |      |
| TR600-150   | 13.5 (0.531)                    | 12.6 (0.496) | 6.0 (0.236) | 4.7 (0.185) | 5.0 (0.197) | 4    |
| TR600-160   | 16.0 (0.630)                    | 12.6 (0.496) | 6.0 (0.236) | 4.7 (0.185) | 5.0 (0.197) | 4    |

## TS600

Figure 5



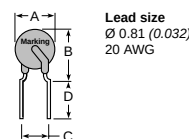
| Part number        | I <sub>H</sub> (A) | V max. (V <sub>rms</sub> ) | I max. (A) | R min. (Ω) | R max. (Ω) | R <sub>1</sub> max. (Ω) | Agency recognition | Fig. |
|--------------------|--------------------|----------------------------|------------|------------|------------|-------------------------|--------------------|------|
| TS600-170          | 0.170              | 600                        | 3.0        | 4.0        | 9.0        | 18.0                    | UL, CSA            | 5    |
| TS600-200-RA-B-0.5 | 0.200              | 600                        | 3.0        | 4.0        | 7.5        | 13.5                    | UL, CSA            | 5    |

\*These products are intended for telecom applications. Please see the Raychem Circuit Protection Databook for application details.

| Part number        | Dimensions (millimeters/inches) |              |             | Fig. |
|--------------------|---------------------------------|--------------|-------------|------|
|                    | A (max.)                        | B (max.)     | C (max.)    |      |
| TS600-170          | 19.4 (0.765)                    | 12.3 (0.485) | 8.3 (0.325) | 5    |
| TS600-200-RA-B-0.5 | 19.4 (0.765)                    | 12.3 (0.485) | 8.3 (0.325) | 5    |

## BBR

Figure 6



| Part number | I <sub>H</sub> (A) | V max. (V <sub>dc</sub> ) | I max. (A) | R min. (Ω) | R max. (Ω) | R <sub>1</sub> max. (Ω) | Agency recognition | Fig. |
|-------------|--------------------|---------------------------|------------|------------|------------|-------------------------|--------------------|------|
| BBR550      | 0.55               | 99                        | 20         | 0.45       | 0.90       | 1.5                     | UL, CSA            | 6    |
| BBR750      | 0.75               | 99                        | 20         | 0.40       | 0.75       | 1.2                     | UL, CSA            | 6    |

\*These products are intended for telecom applications. Please see the Raychem Circuit Protection Databook for application details.

| Part number | Dimensions (millimeters/inches) |             |            |           | Fig. |
|-------------|---------------------------------|-------------|------------|-----------|------|
|             | A (max.)                        | B (max.)    | C (nom.)   | D (min.)  |      |
| BBR550      | 10.9 (0.43)                     | 14.0 (0.55) | 5.08 (0.2) | 7.6 (0.3) | 6    |
| BBR750      | 11.9 (0.47)                     | 15.5 (0.61) | 5.08 (0.2) | 7.6 (0.3) | 6    |



This product line is designed for surface-mount applications. The variety of sizes enables installation in limited space applications such as crowded printed circuit boards, digital cameras, PC cards, subnotebook computers, computer peripheral equipment, and general electronics. These devices are designed for applications where such space is constrained and resettable circuit protection is desired.

Figure 1

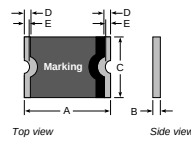


Figure 2

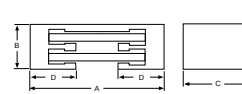
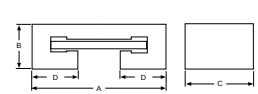


Figure 3

**nanoSMD Size: 3216 (mm), 1206 (mils)**

| Dimensions (millimeters/inches) |                      |              |            |                      |                         |                    |             |             |              |              |      |
|---------------------------------|----------------------|--------------|------------|----------------------|-------------------------|--------------------|-------------|-------------|--------------|--------------|------|
| Part number**                   | I <sub>H</sub> * (A) | V max. (Vdc) | I max. (A) | R <sub>Typ</sub> (Ω) | R <sub>1</sub> max. (Ω) | Agency recognition | A (max.)    | B (max.)    | C (max.)     | D (min.)     | Fig. |
| New nanoSMDM012†                | 0.125                | 30           | 10         | —                    | 6.0                     | pending            | 3.4 (0.134) | 1.2 (0.047) | 1.8 (0.071)  | 0.75 (0.030) | 3    |
| New nanoSMDM016†                | 0.160                | 30           | 10         | —                    | 4.5                     | pending            | 3.4 (0.134) | 1.2 (0.047) | 1.8 (0.071)  | 0.75 (0.030) | 3    |
| nanoSMDM050†                    | 0.50                 | 6            | 40         | 0.40                 | 0.70                    | UL, TÜV, CSA       | 3.4 (0.134) | 1.2 (0.047) | 1.8 (0.071)  | 0.75 (0.030) | 3    |
| New nanoSMDM050F†               | 0.50                 | 6            | 40         | —                    | 0.70                    | UL, TÜV, CSA       | 3.4 (0.134) | 1.2 (0.047) | 1.8 (0.071)  | 0.75 (0.030) | 3    |
| nanoSMDM075†                    | 0.75                 | 6            | 40         | 0.20                 | 0.29                    | UL, TÜV, CSA       | 3.4 (0.134) | 1.2 (0.047) | 1.8 (0.071)  | 0.75 (0.030) | 3    |
| New nanoSMDM075F†               | 0.75                 | 6            | 40         | —                    | 0.29                    | UL, TÜV, CSA       | 3.4 (0.134) | 1.2 (0.047) | 1.8 (0.071)  | 0.75 (0.030) | 3    |
| nanoSMDM100†                    | 1.00                 | 6            | 40         | 0.15                 | 0.21                    | UL, TÜV, CSA       | 3.4 (0.134) | 1.2 (0.047) | 1.8 (0.071)  | 0.75 (0.030) | 3    |
| New nanoSMDM100F†               | 1.00                 | 6            | 40         | —                    | 0.21                    | UL, TÜV, CSA       | 3.4 (0.134) | 1.2 (0.047) | 1.8 (0.071)  | 0.75 (0.030) | 3    |
| nanoSMDM150†                    | 1.50                 | 6            | 40         | 0.08                 | 0.11                    | UL, TÜV, CSA       | 3.4 (0.134) | 1.4 (0.055) | 1.90 (0.075) | 0.25 (0.010) | 1    |

**microSMD Size: 3225 (mm), 1210 (mils)**

|                 |                      |              |            |                      |                         |                    | Dimensions (millimeters/inches) |              |              |              |              |      |
|-----------------|----------------------|--------------|------------|----------------------|-------------------------|--------------------|---------------------------------|--------------|--------------|--------------|--------------|------|
| Part number     | I <sub>H</sub> * (A) | V max. (Vdc) | I max. (A) | R <sub>Typ</sub> (Ω) | R <sub>1</sub> max. (Ω) | Agency recognition | A (max.)                        | B (max.)     | C (max.)     | D (min.)     | E (min.)     | Fig. |
| microSMD005     | 0.05                 | 30           | 10         | 25.00                | 50.0                    | UL, TÜV, CSA       | 3.43 (0.135)                    | 0.85 (0.034) | 2.80 (0.111) | 0.25 (0.010) | 0.20 (0.008) | 1    |
| New microSMD010 | 0.10                 | 30           | 10         | —                    | 15.0                    | UL, TÜV, CSA       | 3.43 (0.135)                    | 0.85 (0.034) | 2.80 (0.111) | 0.25 (0.010) | 0.20 (0.008) | 1    |
| microSMD035     | 0.35                 | 6            | 40         | 0.81                 | 1.300                   | UL, TÜV, CSA       | 3.43 (0.135)                    | 0.62 (0.025) | 2.80 (0.111) | 0.30 (0.012) | 0.25 (0.010) | 1    |
| microSMD050     | 0.50                 | 13.2         | 40         | 0.55                 | 0.900                   | UL, TÜV, CSA       | 3.43 (0.135)                    | 0.62 (0.025) | 2.80 (0.111) | 0.30 (0.012) | 0.25 (0.010) | 1    |
| microSMD075     | 0.75                 | 6            | 40         | 0.29                 | 0.400                   | UL, TÜV, CSA       | 3.43 (0.135)                    | 0.62 (0.025) | 2.80 (0.111) | 0.30 (0.012) | 0.25 (0.010) | 1    |
| microSMD110     | 1.10                 | 6            | 40         | 0.14                 | 0.210                   | UL, TÜV, CSA       | 3.43 (0.135)                    | 0.48 (0.019) | 2.80 (0.111) | 0.30 (0.012) | 0.25 (0.010) | 1    |
| microSMD150     | 1.50                 | 6            | 40         | 0.07                 | 0.110                   | UL, TÜV, CSA       | 3.43 (0.135)                    | 1.22 (0.048) | 2.80 (0.111) | 0.30 (0.012) | 0.25 (0.010) | 1    |

**miniSMD Size: 4532 (mm), 1812 (mils)**

| Dimensions (millimeters/inches)  |                      |              |            |                      |                         |                    |              |              |              |              |              |      |
|----------------------------------|----------------------|--------------|------------|----------------------|-------------------------|--------------------|--------------|--------------|--------------|--------------|--------------|------|
| Part number                      | I <sub>H</sub> * (A) | V max. (Vdc) | I max. (A) | R <sub>Typ</sub> (Ω) | R <sub>1</sub> max. (Ω) | Agency recognition | A (max.)     | B (max.)     | C (max.)     | D (min.)     | E (min.)     | Fig. |
| miniSMDC014                      | 0.14                 | 60           | 10         | 4.0                  | 6.000                   | UL, TÜV, CSA       | 4.73 (0.186) | 0.89 (0.035) | 3.41 (0.134) | 0.30 (0.012) | 0.25 (0.01)  | 1    |
| miniSMDC020                      | 0.20                 | 30           | 10         | 2.9                  | 3.300                   | UL, TÜV, CSA       | 4.73 (0.186) | 0.89 (0.035) | 3.41 (0.134) | 0.30 (0.012) | 0.25 (0.01)  | 1    |
| miniSMDC050                      | 0.50                 | 15           | 40         | 0.60                 | 1.00                    | UL, TÜV, CSA       | 4.73 (0.186) | 0.62 (0.025) | 3.41 (0.134) | 0.30 (0.012) | 0.25 (0.01)  | 1    |
| miniSMDC075                      | 0.75                 | 13.2         | 40         | 0.26                 | 0.450                   | UL, TÜV, CSA       | 4.73 (0.186) | 0.62 (0.025) | 3.41 (0.134) | 0.30 (0.012) | 0.25 (0.01)  | 1    |
| miniSMDM075 <sup>†</sup>         | 0.75                 | 13.2         | 40         | 0.23                 | 0.290                   | UL, TÜV, CSA       | 4.75 (0.187) | 2.00 (0.079) | 3.60 (0.142) | 1.4 (0.055)  | —            | 3    |
| miniSMDM075/24 <sup>†</sup>      | 0.75                 | 24           | 40         | 0.20                 | 0.290                   | UL, TÜV, CSA       | 4.75 (0.187) | 2.00 (0.079) | 3.60 (0.142) | 1.4 (0.055)  | —            | 2    |
| New miniSMDM075F/24 <sup>†</sup> | 0.75                 | 24           | 40         | 0.20                 | 0.290                   | UL, TÜV, CSA       | 4.75 (0.187) | 2.00 (0.079) | 3.60 (0.142) | 1.4 (0.055)  | —            | 2    |
| miniSMDC110                      | 1.10                 | 6            | 40         | 0.12                 | 0.210                   | UL, TÜV, CSA       | 4.73 (0.186) | 0.62 (0.025) | 3.41 (0.134) | 0.30 (0.012) | 0.25 (0.01)  | 1    |
| miniSMDM110 <sup>†</sup>         | 1.10                 | 8            | 40         | 0.14                 | 0.180                   | UL, TÜV, CSA       | 4.75 (0.187) | 2.00 (0.079) | 3.60 (0.142) | 1.4 (0.055)  | —            | 3    |
| miniSMDM110/16 <sup>†</sup>      | 1.10                 | 16           | 40         | 0.12                 | 0.180                   | UL, TÜV, CSA       | 4.75 (0.187) | 2.00 (0.079) | 3.60 (0.142) | 1.4 (0.055)  | —            | 2    |
| New miniSMDM110F/16 <sup>†</sup> | 1.10                 | 16           | 40         | —                    | 0.180                   | UL, TÜV, CSA       | 4.75 (0.187) | 2.00 (0.079) | 3.60 (0.142) | 1.4 (0.055)  | —            | 2    |
| miniSMDC125                      | 1.25                 | 6            | 40         | 0.09                 | 0.140                   | UL, TÜV, CSA       | 4.73 (0.186) | 0.48 (0.019) | 3.41 (0.134) | 0.25 (0.010) | 0.20 (0.008) | 1    |
| miniSMDC150                      | 1.50                 | 6            | 40         | 0.07                 | 0.110                   | UL, TÜV, CSA       | 4.73 (0.186) | 0.48 (0.019) | 3.41 (0.134) | 0.25 (0.010) | 0.20 (0.008) | 1    |
| miniSMDM160 <sup>†</sup>         | 1.60                 | 8            | 40         | 0.066                | 0.099                   | UL, TÜV, CSA       | 4.75 (0.187) | 2.00 (0.079) | 3.60 (0.142) | 1.4 (0.055)  | —            | 2    |
| New miniSMDC160F                 | 1.60                 | 6            | 40         | —                    | 0.10                    | UL, TÜV, CSA       | 4.73 (0.186) | 0.48 (0.019) | 3.41 (0.134) | 0.25 (0.010) | 0.20 (0.008) | 1    |
| miniSMDC200                      | 2.00                 | 6            | 40         | 0.050                | 0.070                   | UL, TÜV, CSA       | 4.73 (0.186) | 1.22 (0.048) | 3.41 (0.134) | 0.30 (0.012) | 0.25 (0.01)  | 1    |
| miniSMDM200 <sup>†</sup>         | 2.00                 | 8            | 40         | 0.040                | 0.060                   | UL, TÜV, CSA       | 4.75 (0.187) | 2.00 (0.079) | 3.60 (0.142) | 1.4 (0.055)  | —            | 2    |
| New miniSMDM200F <sup>†</sup>    | 2.00                 | 8            | 40         | —                    | 0.060                   | UL, TÜV, CSA       | 4.75 (0.187) | 2.00 (0.079) | 3.60 (0.142) | 1.4 (0.055)  | —            | 2    |
| miniSMDC260                      | 2.60                 | 6            | 40         | 0.035                | 0.047                   | UL, TÜV, CSA       | 4.73 (0.186) | 1.25 (0.050) | 3.41 (0.134) | 0.30 (0.012) | 0.25 (0.01)  | 1    |
| miniSMDM260 <sup>†</sup>         | 2.60                 | 6            | 40         | 0.030                | 0.043                   | UL, TÜV, CSA       | 4.75 (0.187) | 2.00 (0.079) | 3.60 (0.142) | 1.4 (0.055)  | —            | 2    |
| New miniSMDM260F <sup>†</sup>    | 2.60                 | 6            | 40         | —                    | 0.043                   | UL, TÜV, CSA       | 4.75 (0.187) | 2.00 (0.079) | 3.60 (0.142) | 1.4 (0.055)  | —            | 2    |

**miniSMD Size: 11550 (mm), 4420 (mils)**

| Part number | I <sub>H</sub> *<br>(A) | V max.<br>(Vdc) | I max.<br>(A) | R <sub>Typ</sub><br>(Ω) | R <sub>1</sub> max.<br>(Ω) | Agency recognition | Dimensions (millimeters/inches) |              |              |              |             | Fig. |
|-------------|-------------------------|-----------------|---------------|-------------------------|----------------------------|--------------------|---------------------------------|--------------|--------------|--------------|-------------|------|
|             |                         |                 |               |                         |                            |                    | A<br>(max.)                     | B<br>(max.)  | C<br>(max.)  | D<br>(min.)  | E<br>(min.) |      |
| miniSMDE190 | 1.90                    | 16              | 100           | 0.065                   | 0.08                       | UL, TÜV, CSA       | 11.51 (0.453)                   | 0.53 (0.021) | 5.33 (0.210) | 0.51 (0.020) | —           | 1    |

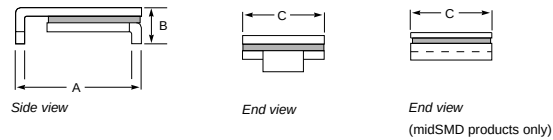
\* Hold current, 20°C.

\*\* F is for Pb-free devices.

† Hold current, 25°C.

This product line is also designed for surface-mount applications. The products range in hold currents from 0.3 Amps to 3.0 Amps and voltages from 6 Volts to 60 Volts. These devices are suited for high-density board applications in computer and computer peripheral products, telecommunications, and general electronics applications. They are designed to be reflowed onto a printed circuit board using standard surface-mount processes.

Figure 4

**midSMD Size: 5050 (mm), 2018 (mils)**

| Part number | $I_H^*$<br>(A) | V max.<br>(Vdc) | I max.<br>(A) | $R_{Typ}$<br>( $\Omega$ ) | $R_1$ max.<br>( $\Omega$ ) | Dimensions (millimeters/inches) |              |             |              | Fig. |
|-------------|----------------|-----------------|---------------|---------------------------|----------------------------|---------------------------------|--------------|-------------|--------------|------|
|             |                |                 |               |                           |                            | Agency recognition              | A (max.)     | B (max.)    | C (max.)     |      |
| SMD030-2018 | 0.3            | 60              | 20            | 1.40                      | 2.30                       | UL                              | 5.44 (0.214) | 1.78 (0.07) | 4.93 (0.194) | 4    |
| SMD050-2018 | 0.55           | 60              | 20            | —                         | 1.0                        | pending                         | 5.44 (0.214) | 1.78 (0.07) | 4.93 (0.194) | 4    |
| SMD100-2018 | 1.10           | 15              | 40            | 0.25                      | 0.400                      | UL, TÜV, CSA                    | 5.44 (0.214) | 1.52 (0.06) | 4.93 (0.194) | 4    |
| SMD150-2018 | 1.50           | 15              | 40            | 0.13                      | 0.180                      | UL, TÜV, CSA                    | 5.44 (0.214) | 1.52 (0.06) | 4.93 (0.194) | 4    |
| SMD200-2018 | 2.00           | 6               | 40            | 0.07                      | 0.100                      | UL, TÜV, CSA                    | 5.44 (0.214) | 1.52 (0.06) | 4.93 (0.194) | 4    |

Coming Soon

**SMD Size: 7555 (mm), 2920 (mils)**

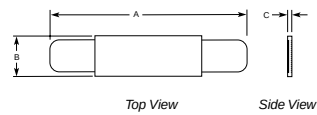
| Part number | $I_H^*$<br>(A) | V max.<br>(Vdc) | I max.<br>(A) | $R_{Typ}$<br>( $\Omega$ ) | $R_1$ max.<br>( $\Omega$ ) | Dimensions (millimeters/inches) |              |              |              | Fig. |
|-------------|----------------|-----------------|---------------|---------------------------|----------------------------|---------------------------------|--------------|--------------|--------------|------|
|             |                |                 |               |                           |                            | Agency recognition              | A (max.)     | B (max.)     | C (max.)     |      |
| SMD030      | 0.30           | 60              | 10            | 3.0                       | 4.800                      | UL, TÜV, CSA                    | 7.98 (0.314) | 3.18 (0.125) | 5.44 (0.214) | 4    |
| SMD050      | 0.50           | 60              | 10            | 0.87                      | 1.400                      | UL, TÜV, CSA                    | 7.98 (0.314) | 3.18 (0.125) | 5.44 (0.214) | 4    |
| SMD075      | 0.75           | 30              | 40            | 0.67                      | 1.000                      | UL, TÜV, CSA                    | 7.98 (0.314) | 3.18 (0.125) | 5.44 (0.214) | 4    |
| SMD100      | 1.10           | 30              | 40            | 0.30                      | 0.480                      | UL, TÜV, CSA                    | 7.98 (0.314) | 3.0 (0.118)  | 5.44 (0.214) | 4    |
| SMD100/33   | 1.10           | 33              | 40            | 0.27                      | 0.410                      | UL, TÜV, CSA                    | 7.98 (0.314) | 3.0 (0.118)  | 5.44 (0.214) | 4    |
| SMD125      | 1.25           | 15              | 40            | 0.16                      | 0.250                      | UL, TÜV, CSA                    | 7.98 (0.314) | 3.0 (0.118)  | 5.44 (0.214) | 4    |
| SMD260      | 2.60           | 6               | 40            | 0.05                      | 0.075                      | UL, TÜV, CSA                    | 7.98 (0.314) | 3.0 (0.118)  | 5.44 (0.214) | 4    |
| SMD260-RB   | 2.60           | 6               | 40            | 0.055                     | 0.075                      | UL, TÜV, CSA                    | 7.98 (0.314) | 3.0 (0.118)  | 5.44 (0.214) | 4    |
| SMD300      | 3.00           | 6               | 40            | 0.033                     | 0.048                      | UL, TÜV, CSA                    | 7.98 (0.314) | 3.0 (0.118)  | 5.44 (0.214) | 4    |

**SMD2 Size: 8763 (mm), 3425 (mils)**

| Part number | $I_H^*$<br>(A) | V max.<br>(Vdc) | I max.<br>(A) | $R_{Typ}$<br>( $\Omega$ ) | $R_1$ max.<br>( $\Omega$ ) | Dimensions (millimeters/inches) |             |              |              | Fig. |
|-------------|----------------|-----------------|---------------|---------------------------|----------------------------|---------------------------------|-------------|--------------|--------------|------|
|             |                |                 |               |                           |                            | Agency recognition              | A (max.)    | B (max.)     | C (max.)     |      |
| SMD150      | 1.50           | 15              | 40            | 0.16                      | 0.250                      | UL, TÜV, CSA                    | 9.4 (0.370) | 3.00 (0.118) | 6.71 (0.264) | 4    |
| SMD150/33   | 1.50           | 33              | 40            | 0.15                      | 0.230                      | UL, TÜV, CSA                    | 9.4 (0.370) | 3.00 (0.118) | 6.71 (0.264) | 4    |
| SMDH160     | 1.60           | 16              | 70            | 0.10                      | 0.150                      | —                               | 9.4 (0.370) | 3.00 (0.118) | 6.71 (0.264) | 4    |
| SMD185      | 1.80           | 33              | 40            | 0.12                      | 0.150                      | UL, TÜV, CSA                    | 9.4 (0.370) | 3.00 (0.118) | 6.71 (0.264) | 4    |
| SMD200      | 2.00           | 15              | 40            | 0.09                      | 0.125                      | UL, TÜV, CSA                    | 9.4 (0.370) | 3.00 (0.118) | 6.71 (0.264) | 4    |
| SMD250      | 2.50           | 15              | 40            | 0.06                      | 0.085                      | UL, TÜV, CSA                    | 9.4 (0.370) | 3.00 (0.118) | 6.71 (0.264) | 4    |

VLR: 85°C Activation

Figure 1



| Part number | I <sub>H</sub> *<br>(A) | V max.<br>(Vdc) | I max.<br>(A) | R max. initial<br>(Ω) | Agency recognition | Dimensions (millimeters/inches) |             |             | Fig. |
|-------------|-------------------------|-----------------|---------------|-----------------------|--------------------|---------------------------------|-------------|-------------|------|
|             |                         |                 |               |                       |                    | A (max.)                        | B (max.)    | C (max.)    |      |
| VLR170      | 1.7                     | 12              | 100           | 0.032                 | UL, TÜV, CSA       | 23.2 (0.913)                    | 3.9 (0.153) | 0.8 (0.031) | 1    |
| VLR230      | 2.3                     | 12              | 100           | 0.018                 | UL, TÜV, CSA       | 23.1 (0.909)                    | 5.3 (0.208) | 0.8 (0.031) | 1    |

\* Hold current, 25°C.

VTP: 90°C Activation

The conductive polymer composite in the VTP battery overcurrent protection devices provides increased safety with extended battery run time. These devices reach a high-resistance state at lower temperatures in NiMH and rechargeable lithium temperature-sensitive chemistries.

Figure 1

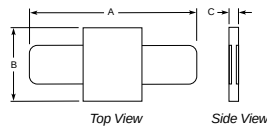


Figure 2

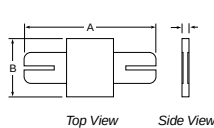


Figure 3

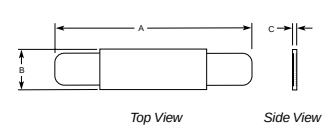


Figure 4

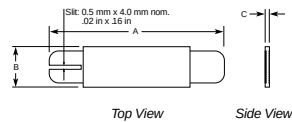


Figure 5

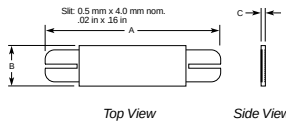
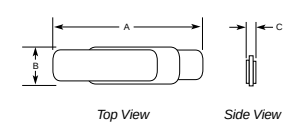


Figure 6



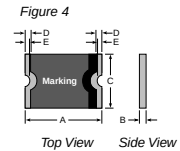
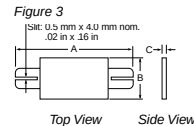
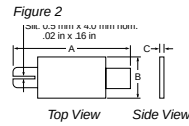
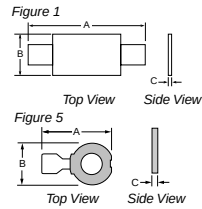
| Part number       | I <sub>H</sub> *<br>(A) | V max.<br>(Vdc) | I max.<br>(A) | R max. initial<br>(Ω) | Agency recognition    | Dimensions (millimeters/inches) |             |             | Fig. |
|-------------------|-------------------------|-----------------|---------------|-----------------------|-----------------------|---------------------------------|-------------|-------------|------|
|                   |                         |                 |               |                       |                       | A (max.)                        | B (max.)    | C (max.)    |      |
| VTP110            | 1.1                     | 16              | 100           | 0.070                 | pending               | 25.6 (1.007)                    | 2.9 (0.114) | 0.7 (0.027) | 6    |
| VTP170            | 1.7                     | 16              | 100           | 0.052                 | UL, TÜV, CSA          | 17.5 (0.689)                    | 7.4 (0.292) | 0.8 (0.03)  | 1    |
| VTP170SS          | 1.7                     | 16              | 100           | 0.052                 | UL, TÜV, CSA          | 17.5 (0.689)                    | 7.4 (0.292) | 0.8 (0.03)  | 2    |
| VTP170X           | 1.7                     | 16              | 100           | 0.052                 | UL, TÜV, CSA          | 22.9 (0.90)                     | 5.3 (0.21)  | 0.8 (0.03)  | 3    |
| VTP170XS          | 1.7                     | 16              | 100           | 0.052                 | UL, TÜV, CSA          | 22.9 (0.90)                     | 5.3 (0.21)  | 0.8 (0.03)  | 3    |
| VTP175L           | 1.75                    | 16              | 100           | 0.051                 | UL                    | 28.0 (1.10)                     | 3.9 (0.15)  | 0.8 (0.03)  | 4    |
| VTP175U           | 1.75                    | 16              | 100           | 0.051                 | UL                    | 23.2 (0.91)                     | 3.7 (0.15)  | 0.7 (0.03)  | 6    |
| VTP200G           | 2.0                     | 16              | 100           | 0.039                 | UL, TÜV, CSA          | 23.1 (0.91)                     | 4.5 (0.18)  | 0.8 (0.03)  | 3    |
| VTP200U           | 2.0                     | 16              | 100           | 0.039                 | UL, TÜV, CSA          | 23.1 (0.91)                     | 4.3 (0.17)  | 0.7 (0.03)  | 6    |
| VTP210G           | 2.1                     | 16              | 100           | 0.030                 | UL, TÜV, CSA          | 23.1 (0.91)                     | 5.3 (0.21)  | 0.8 (0.03)  | 3    |
| VTP210GU          | 2.1                     | 16              | 100           | 0.030                 | UL, TÜV, CSA          | 23.2 (0.91)                     | 5.1 (0.20)  | 0.8 (0.03)  | 6    |
| VTP210L           | 2.1                     | 16              | 100           | 0.030                 | UL, TÜV, CSA          | 26.0 (1.02)                     | 5.3 (0.21)  | 0.8 (0.03)  | 3    |
| VTP210S           | 2.1                     | 16              | 100           | 0.030                 | UL, TÜV, CSA          | 23.1 (0.91)                     | 5.3 (0.21)  | 0.8 (0.03)  | 4    |
| VTP210SL          | 2.1                     | 16              | 100           | 0.030                 | UL, TÜV, CSA          | 32.0 (1.26)                     | 5.3 (0.21)  | 0.8 (0.03)  | 4    |
| VTP210SL-19.2/5.8 | 2.1                     | 16              | 100           | 0.030                 | UL, TÜV, CSA          | 37.0 (1.46)                     | 5.3 (0.21)  | 0.8 (0.03)  | 4    |
| VTP210SS          | 2.1                     | 16              | 100           | 0.030                 | UL, TÜV, CSA          | 23.1 (0.91)                     | 5.3 (0.21)  | 0.8 (0.03)  | 5    |
| VTP210ULD         | 2.1                     | 16              | 100           | 0.030                 | UL, TÜV, CSA          | 25.2 (1.00)                     | 5.1 (0.20)  | 0.8 (0.03)  | 6    |
| VTP240            | 2.4                     | 16              | 100           | 0.026                 | CSA UL, (TÜV pending) | 26.2 (1.03)                     | 5.3 (0.21)  | 0.8 (0.03)  | 3    |

\* Hold current, 25°C.



### LTP, miniSMDE, TAC: 110°C Activation

LTP and TAC devices provide reliable, noncycling protection for rechargeable batteries. LTP devices also offer additional protection at elevated temperatures. The TAC devices' unique cap design makes them easy to install directly on AAA size battery cells.

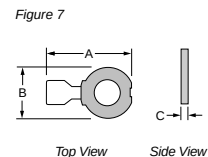
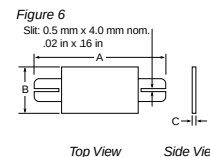
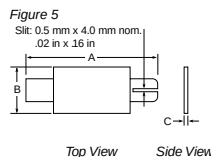
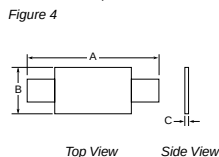
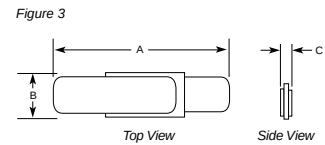
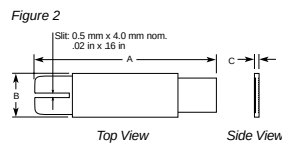
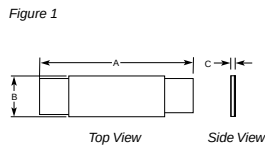


| Part number | I <sub>H</sub> * (A) | V max. (Vdc) | I max. (A) | R max. initial (Ω) | Agency recognition | Dimensions (millimeters/inches) |             |              |      |  |
|-------------|----------------------|--------------|------------|--------------------|--------------------|---------------------------------|-------------|--------------|------|--|
|             |                      |              |            |                    |                    | A (max.)                        | B (max.)    | C (max.)     | Fig. |  |
| LTP         |                      |              |            |                    |                    |                                 |             |              |      |  |
| LTP070      | 0.7                  | 15           | 100        | 0.20               | UL, TÜV, CSA       | 22.1 (0.87)                     | 5.2 (0.20)  | 1.2 (0.048)  | 1    |  |
| LTP070S     | 0.7                  | 15           | 100        | 0.20               | UL, TÜV, CSA       | 22.1 (0.87)                     | 5.2 (0.20)  | 1.2 (0.048)  | 2    |  |
| LTP100      | 1.0                  | 24           | 100        | 0.130              | UL, TÜV, CSA       | 23.1 (0.91)                     | 5.2 (0.20)  | 1.0 (0.04)   | 1    |  |
| LTP100S     | 1.0                  | 24           | 100        | 0.130              | UL, TÜV, CSA       | 23.1 (0.91)                     | 5.2 (0.20)  | 1.0 (0.04)   | 2    |  |
| LTP100SL    | 1.0                  | 24           | 100        | 0.130              | UL, TÜV, CSA       | 32.0 (1.26)                     | 5.2 (0.20)  | 1.0 (0.04)   | 2    |  |
| LTP100SS    | 1.0                  | 24           | 100        | 0.130              | UL, TÜV, CSA       | 23.1 (0.91)                     | 5.2 (0.20)  | 1.0 (0.04)   | 3    |  |
| LTP180      | 1.8                  | 24           | 100        | 0.068              | UL, TÜV, CSA       | 26.0 (1.02)                     | 5.2 (0.20)  | 1.0 (0.04)   | 1    |  |
| LTP180L     | 1.8                  | 24           | 100        | 0.068              | UL, TÜV, CSA       | 37.5 (1.48)                     | 5.2 (0.20)  | 1.0 (0.04)   | 1    |  |
| LTP180S     | 1.8                  | 24           | 100        | 0.068              | UL, TÜV, CSA       | 26.0 (1.02)                     | 5.2 (0.20)  | 1.0 (0.04)   | 2    |  |
| LTP190      | 1.9                  | 24           | 100        | 0.057              | UL, TÜV, CSA       | 23.4 (0.92)                     | 11.0 (0.43) | 1.1 (0.04)   | 1    |  |
| LTP260      | 2.6                  | 24           | 100        | 0.042              | UL, TÜV, CSA       | 26.0 (1.02)                     | 11.9 (0.47) | 1.0 (0.04)   | 1    |  |
| LTP300      | 3.0                  | 24           | 100        | 0.031              | UL, TÜV, CSA       | 31.8 (1.25)                     | 13.5 (0.53) | 1.1 (0.04)   | 1    |  |
| LTP340      | 3.4                  | 24           | 100        | 0.027              | UL, TÜV, CSA       | 26.0 (1.02)                     | 15.9 (0.63) | 1.0 (0.04)   | 1    |  |
| miniSMDE    |                      |              |            |                    |                    |                                 |             |              |      |  |
| miniSMDE190 | 1.9                  | 16           | 100        | 0.040              | UL, TÜV, CSA       | 11.51 (0.453)                   | 5.33 (0.21) | 0.53 (0.021) | 4    |  |
| TAC         |                      |              |            |                    |                    |                                 |             |              |      |  |
| TAC100-09   | 1.0                  | 15           | 50         | 0.155              | UL                 | 17.5 (0.69)                     | 10.5 (0.45) | 0.9 (0.04)   | 5    |  |

\* Hold current, 20°C.

### LR4, SRP, TAC: 120°C Activation

The LR4 devices' smaller thermal mass means reduced reaction time to overcurrent events. The LR4 devices are suited for battery packs intended for computer and camcorder applications. The SRP products provide reliable, noncycling protection for rechargeable batteries. Weldable nickel leads and a narrow, low-profile design make these devices easy to install directly onto battery cells.

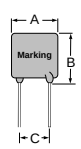


| Part number | I <sub>H</sub> * (A) | V max. (Vdc) | I max. (A) | R max. initial (Ω) | Agency recognition | Dimensions (millimeters/inches) |             |            |      |
|-------------|----------------------|--------------|------------|--------------------|--------------------|---------------------------------|-------------|------------|------|
|             |                      |              |            |                    |                    | A (max.)                        | B (max.)    | C (max.)   | Fig. |
| LR4         |                      |              |            |                    |                    |                                 |             |            |      |
| LR4-170U    | 1.7                  | 15           | 100        | 0.078              | Pending            | 21.0 (0.83)                     | 4.0 (0.16)  | 0.7 (0.03) | 3    |
| LR4-190     | 1.9                  | 15           | 100        | 0.072              | UL, TÜV, CSA       | 22.1 (0.87)                     | 5.5 (0.22)  | 1.0 (0.04) | 1    |
| LR4-190S    | 1.9                  | 15           | 100        | 0.072              | UL, TÜV, CSA       | 22.1 (0.87)                     | 5.5 (0.22)  | 1.0 (0.04) | 2    |
| LR4-260     | 2.6                  | 15           | 100        | 0.042              | UL, TÜV, CSA       | 23.1 (0.91)                     | 5.5 (0.22)  | 1.0 (0.04) | 1    |
| LR4-260S    | 2.6                  | 15           | 100        | 0.042              | UL, TÜV, CSA       | 23.1 (0.91)                     | 5.5 (0.22)  | 1.0 (0.04) | 2    |
| LR4-380     | 3.8                  | 15           | 100        | 0.026              | UL, TÜV, CSA       | 26.0 (1.02)                     | 7.5 (0.30)  | 1.0 (0.04) | 1    |
| LR4-450     | 4.5                  | 20           | 100        | 0.020              | UL, TÜV, CSA       | 26.0 (1.02)                     | 10.5 (0.41) | 1.0 (0.04) | 1    |
| LR4-550     | 5.5                  | 20           | 100        | 0.016              | UL, TÜV, CSA       | 37.0 (1.46)                     | 7.5 (0.30)  | 1.0 (0.04) | 1    |
| LR4-600     | 6.0                  | 20           | 100        | 0.014              | UL, TÜV, CSA       | 26.0 (1.02)                     | 14.5 (0.57) | 1.0 (0.04) | 1    |
| LR4-730     | 7.3                  | 20           | 100        | 0.012              | UL, TÜV, CSA       | 29.1 (1.15)                     | 14.5 (0.57) | 1.0 (0.04) | 1    |
| SRP         |                      |              |            |                    |                    |                                 |             |            |      |
| SRP120      | 1.2                  | 15           | 100        | 0.160              | UL, TÜV, CSA       | 22.1 (0.87)                     | 5.2 (0.20)  | 1.0 (0.04) | 4    |
| SRP120L     | 1.2                  | 15           | 100        | 0.160              | UL, TÜV, CSA       | 27.1 (1.07)                     | 5.2 (0.20)  | 1.0 (0.04) | 4    |
| SRP120S     | 1.2                  | 15           | 100        | 0.160              | UL, TÜV, CSA       | 22.1 (0.87)                     | 5.2 (0.20)  | 1.0 (0.04) | 5    |
| SRP175      | 1.75                 | 15           | 100        | 0.090              | UL, TÜV, CSA       | 23.1 (0.91)                     | 5.2 (0.20)  | 1.0 (0.04) | 4    |
| SRP175L     | 1.75                 | 15           | 100        | 0.090              | UL, TÜV, CSA       | 32.1 (1.26)                     | 5.2 (0.20)  | 1.0 (0.04) | 4    |
| SRP175S     | 1.75                 | 15           | 100        | 0.090              | UL, TÜV, CSA       | 23.1 (0.91)                     | 5.2 (0.20)  | 1.0 (0.04) | 5    |
| SRP175SS    | 1.75                 | 15           | 100        | 0.090              | UL, TÜV, CSA       | 23.1 (0.91)                     | 5.2 (0.20)  | 1.0 (0.04) | 6    |
| SRP200      | 2.0                  | 30           | 100        | 0.060              | UL, TÜV, CSA       | 23.4 (0.92)                     | 11.0 (0.43) | 1.1 (0.04) | 4    |
| SRP350      | 3.5                  | 30           | 100        | 0.031              | UL, TÜV, CSA       | 31.8 (1.25)                     | 13.5 (0.53) | 1.1 (0.04) | 4    |
| SRP420      | 4.2                  | 30           | 100        | 0.024              | UL, TÜV, CSA       | 32.4 (1.28)                     | 13.6 (0.54) | 1.1 (0.04) | 4    |
| TAC         |                      |              |            |                    |                    |                                 |             |            |      |
| TAC170-09   | 1.7                  | 15           | 50         | 0.098              | UL                 | 17.5 (0.69)                     | 10.5 (0.42) | 0.9 (0.04) | 7    |
| TAC210      | 2.1                  | 15           | 50         | 0.062              | UL, TÜV, CSA       | 17.5 (0.69)                     | 10.5 (0.42) | 0.9 (0.04) | 7    |

\* Hold current, 20°C.

These product lines are qualified to operate in Automotive environments and are compliant with QS-9000 AEC and Raychem Circuit Protection specified PS400.

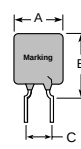
Figure 1



Lead size  
AGR400-1100  
Ø 0.81 (0.032)  
20 AWG

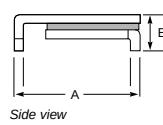
Lead size  
AGR1200-1400  
Ø 1.0 (0.04)  
18 AWG

Figure 2

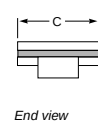


Lead size  
Ø 0.81 (0.032)  
20 AWG

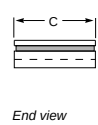
Figure 3



Side view



End view



End view  
(AHS080 only)

#### AGR: Radial-Leaded

| Part number | I <sub>H</sub> <sup>+</sup> (A)<br>R <sub>1</sub> max. | I <sub>H</sub> <sup>+</sup> (A)<br>R <sub>a</sub> max. | V max.<br>(Vdc) | I max.<br>(A) | R min.<br>(Ω) | R <sub>1</sub> max.<br>(Ω) | R <sub>a</sub> max.<br>(Ω) | Dimensions (millimeters/inches) |             |             | Fig. |
|-------------|--------------------------------------------------------|--------------------------------------------------------|-----------------|---------------|---------------|----------------------------|----------------------------|---------------------------------|-------------|-------------|------|
|             |                                                        |                                                        |                 |               |               |                            |                            | A<br>(max.)                     | B<br>(max.) | C<br>(typ.) |      |
| New AGR400  | 4.0                                                    | 3.0                                                    | 16              | 100           | 0.0186        | 0.061                      | 0.085                      | 8.9 (0.35)                      | 14.1 (0.56) | 5.08 (0.2)  | 1    |
| New AGR500  | 5.0                                                    | 4.3                                                    | 16              | 100           | 0.0140        | 0.034                      | 0.048                      | 10.4 (0.41)                     | 15.6 (0.61) | 5.08 (0.2)  | 1    |
| New AGR600  | 6.0                                                    | 5.3                                                    | 16              | 100           | 0.0095        | 0.028                      | 0.032                      | 10.7 (0.42)                     | 18.4 (0.73) | 5.08 (0.2)  | 1    |
| New AGR700  | 7.0                                                    | 6.5                                                    | 16              | 100           | 0.0066        | 0.020                      | 0.022                      | 11.2 (0.44)                     | 21.0 (0.83) | 5.08 (0.2)  | 1    |
| New AGR800  | 8.0                                                    | 7.6                                                    | 16              | 100           | 0.0049        | 0.0175                     | 0.0181                     | 12.7 (0.50)                     | 22.2 (0.88) | 5.08 (0.2)  | 1    |
| New AGR900  | 9.0                                                    | 8.6                                                    | 16              | 100           | 0.0041        | 0.0135                     | 0.0140                     | 14.0 (0.55)                     | 23.0 (0.91) | 5.08 (0.2)  | 1    |
| New AGR1000 | 10.0                                                   | 9.6                                                    | 16              | 100           | 0.0034        | 0.0102                     | 0.0106                     | 16.51 (0.65)                    | 25.7 (1.01) | 5.08 (0.2)  | 1    |
| New AGR1100 | 11.0                                                   | 10.5                                                   | 16              | 100           | 0.0033        | 0.0089                     | 0.0093                     | 17.5 (0.69)                     | 26.5 (1.04) | 5.08 (0.2)  | 1    |
| New AGR1200 | 12.0                                                   | 11.5                                                   | 16              | 100           | 0.0030        | 0.0086                     | 0.0091                     | 17.5 (0.69)                     | 28.8 (1.14) | 10.2 (0.4)  | 1    |
| New AGR1400 | 14.0                                                   | 13.0                                                   | 16              | 100           | 0.0022        | 0.0064                     | 0.0067                     | 23.5 (0.925)                    | 28.7 (1.13) | 10.2 (0.4)  | 1    |

#### AHR: High Temp Radial-Leaded

| Part number | I <sub>H</sub> <sup>+</sup> (A)<br>R <sub>1</sub> max. | I <sub>H</sub> <sup>+</sup> (A)<br>R <sub>a</sub> max. | V max.<br>(Vdc) | I max.<br>(A) | R min.<br>(Ω) | R <sub>1</sub> max.<br>(Ω) | R <sub>a</sub> max.<br>(Ω) | Dimensions (millimeters/inches) |             |             | Fig. |
|-------------|--------------------------------------------------------|--------------------------------------------------------|-----------------|---------------|---------------|----------------------------|----------------------------|---------------------------------|-------------|-------------|------|
|             |                                                        |                                                        |                 |               |               |                            |                            | A<br>(max.)                     | B<br>(max.) | C<br>(typ.) |      |
| New AHR450  | 4.5                                                    | 4.5                                                    | 16              | 100           | 0.0170        | 0.054                      | 0.054                      | 10.4 (0.41)                     | 15.6 (0.61) | 5.08 (0.2)  | 2    |
| New AHR600  | 6.0                                                    | 6.0                                                    | 16              | 100           | 0.0100        | 0.032                      | 0.032                      | 11.2 (0.44)                     | 21.0 (0.83) | 5.08 (0.2)  | 2    |
| New AHR650  | 6.5                                                    | 6.5                                                    | 16              | 100           | 0.009         | 0.026                      | 0.026                      | 12.7 (0.50)                     | 22.2 (0.88) | 5.08 (0.2)  | 2    |
| New AHR750  | 7.5                                                    | 7.5                                                    | 16              | 100           | 0.0074        | 0.022                      | 0.022                      | 14.0 (0.55)                     | 23.5 (0.93) | 5.08 (0.2)  | 2    |
| New AHR1000 | 10.0                                                   | 10.0                                                   | 16              | 100           | 0.0051        | 0.015                      | 0.015                      | 17.5 (0.69)                     | 26.5 (1.04) | 10.2 (0.4)  | 2    |
| New AHR1300 | 13.0                                                   | 13.0                                                   | 16              | 100           | 0.0034        | 0.010                      | 0.010                      | 23.5 (0.925)                    | 28.7 (1.13) | 10.2 (0.4)  | 2    |

#### AHS: High Temp Surface-Mount

| Part number     | I <sub>H</sub> <sup>+</sup> (A)<br>R <sub>1</sub> max. | I <sub>H</sub> <sup>+</sup> (A)<br>R <sub>a</sub> max. | V max.<br>(Vdc) | I max.<br>(A) | R min.<br>(Ω) | R <sub>1</sub> max.<br>(Ω) | R <sub>a</sub> max.<br>(Ω) | Dimensions (millimeters/inches) |              |              | Fig. |
|-----------------|--------------------------------------------------------|--------------------------------------------------------|-----------------|---------------|---------------|----------------------------|----------------------------|---------------------------------|--------------|--------------|------|
|                 |                                                        |                                                        |                 |               |               |                            |                            | A<br>(max.)                     | B<br>(max.)  | C<br>(typ.)  |      |
| New AHS080-2018 | 0.8                                                    | 0.8                                                    | 16              | 70            | 0.170         | 0.550                      | 0.550                      | 5.44 (0.214)                    | 4.93 (0.194) | 1.52 (0.060) | 3    |
| New AHS160      | 1.60                                                   | 1.6                                                    | 16              | 70            | 0.050         | 0.150                      | 0.150                      | 9.40 (0.370)                    | 6.60 (0.260) | 3.00 (0.118) | 3    |

#### ASMD: Surface-Mount

| Part number | I <sub>H</sub> <sup>+</sup> (A)<br>R <sub>1</sub> max. | I <sub>H</sub> <sup>+</sup> (A)<br>R <sub>a</sub> max. | V max.<br>(Vdc) | I max.<br>(A) | R min.<br>(Ω) | R <sub>1</sub> max.<br>(Ω) | R <sub>a</sub> max.<br>(Ω) | Dimensions (millimeters/inches) |              |              | Fig. |
|-------------|--------------------------------------------------------|--------------------------------------------------------|-----------------|---------------|---------------|----------------------------|----------------------------|---------------------------------|--------------|--------------|------|
|             |                                                        |                                                        |                 |               |               |                            |                            | A<br>(max.)                     | B<br>(max.)  | C<br>(typ.)  |      |
| New ASMD030 | 0.23                                                   | 0.23                                                   | 60              | 10            | 0.98          | 4.800                      | 4.80                       | 7.9 (0.31)                      | 5.4 (0.21)   | 3.2 (0.125)  | 3    |
| New ASMD050 | 0.39                                                   | 0.39                                                   | 60              | 10            | 0.029         | 1.400                      | 1.40                       | 7.9 (0.31)                      | 5.4 (0.21)   | 3.2 (0.125)  | 3    |
| New ASMD075 | 0.60                                                   | 0.60                                                   | 30              | 40            | 0.029         | 1.000                      | 1.00                       | 7.9 (0.31)                      | 5.4 (0.21)   | 3.2 (0.125)  | 3    |
| New ASMD100 | 0.90                                                   | 0.90                                                   | 30              | 40            | 0.098         | 0.480                      | 0.48                       | 7.9 (0.31)                      | 5.4 (0.21)   | 3.00 (0.118) | 3    |
| New ASMD125 | 1.04                                                   | 1.04                                                   | 15              | 40            | 0.057         | 0.250                      | 0.25                       | 7.9 (0.31)                      | 5.4 (0.21)   | 3.00 (0.118) | 3    |
| New ASMD150 | 1.27                                                   | 1.27                                                   | 15              | 40            | 0.049         | 0.250                      | 0.25                       | 9.4 (0.370)                     | 6.60 (0.260) | 3.00 (0.118) | 3    |
| New ASMD200 | 1.73                                                   | 1.73                                                   | 15              | 40            | 0.05          | 0.120                      | 0.120                      | 9.4 (0.370)                     | 6.71 (0.264) | 3.00 (0.118) | 3    |
| New ASMD250 | 1.97                                                   | 1.97                                                   | 15              | 40            | 0.035         | 0.085                      | 0.085                      | 9.4 (0.370)                     | 6.71 (0.264) | 3.00 (0.118) | 3    |

## Definitions

**$I_H$**  = Hold current—maximum current at which the device will not trip under specified conditions.

**$I_{max}$**  = The highest fault current that can safely be used to trip a PolySwitch device under specified conditions.

**$V_{max}$**  = The highest voltage that can safely be dropped across a PolySwitch device in its tripped state under specified fault conditions.

**$R_1max$**  = Maximum device resistance under specified conditions measured 1 hour post trip or post reflow.

**$R_a max$**  = Maximum device resistance under automotive conditions specified in PS400 measured 1 hour after stress has been removed.

**$R_{max}$ . Initial** = Maximum device resistance under specified conditions as supplied.

**Trip Current** = Minimum current at which a device will trip under specified conditions.



### WARNING!

- Operation beyond maximum ratings or improper use may result in device damage and possible electrical arcing and flame.
- These devices are intended for protection against occasional overcurrent or overtemperature fault conditions, and should not be used when repeated fault conditions are anticipated.
- TR and TS devices are not intended for continuous utility line voltage such as 120/220 V or 240 V.

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## Agency approvals for PolySwitch devices:

PolySwitch devices, where appropriate, have been tested and have gained the following safety agency approvals:

- UL Component Recognition in Category XGPU2, Thermistor Type Devices
- CSA Component Acceptance Class 9073 32, Thermistors—PTC Type
- TÜV Rheinland Certification, PTC Resistors



## Voltage Rating for Telecom Devices

For Raychem Circuit Protection telecom devices (TC, TGC, TRx, TSx) there are two applicable voltage ratings. These are  **$V_{max}$ . Operating** and  **$V_{max}$ . Interrupt**. To help understand the nature of these two different voltage ratings the following definitions are provided:

**$V_{max}$ . Interrupt:** Under specified conditions this is the highest voltage that can be applied to the device at the maximum current. Devices have been designed to trip safely under higher power level cross conditions, as listed above, to assist equipment in meeting the appropriate industry conditions.

**$V_{max}$ . Operating:** For telecom devices this is the voltage we have used to obtain component recognition under UL1434. Raychem Circuit Protection devices (TC, TGC, TRx, TSx) are certified at 60V but can withstand higher  $V_{max}$ . Interrupt conditions as noted above.

For the purposes of this brochure we have included in the table of electrical ratings the more applicable  $V_{max}$ . Interrupt value.

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