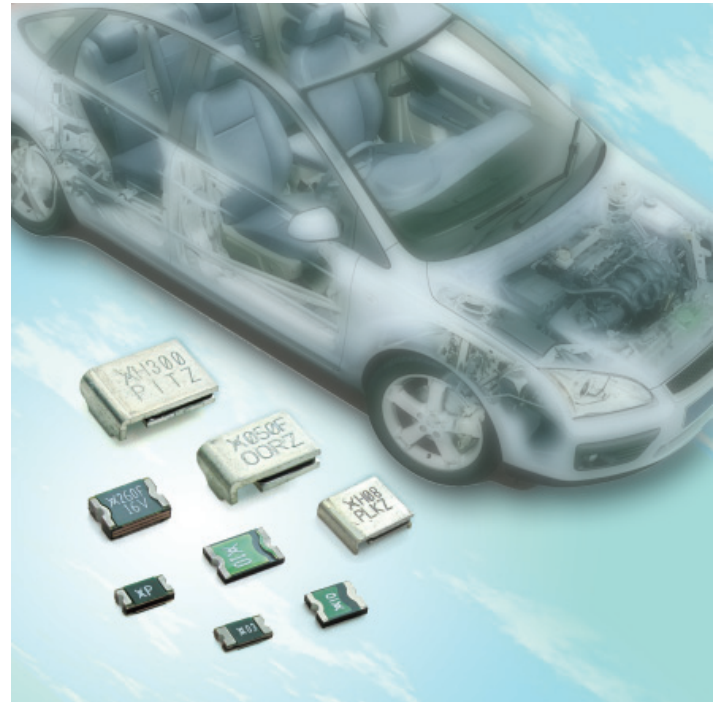


## Automotive Surface-Mount Devices miniASMD/microASMD/nanoASMD/AHS/ASMD Series

Since the 1980's we have provided PPTC resettable devices for the automotive industry. In vehicle electronic equipment, our PolySwitch PTC surface-mount devices are rapidly becoming the preferred circuit protection solution.

Our automotive surface-mount device offering is constantly increasing with smaller size, higher current and higher temperature devices. We are proud to offer the specific automotive surface-mount device families: nanoASMD, microASMD, miniASMD, ASMD, AHS.

These specific devices are qualified and sold under our PS400 specification which is derived from the AEC-Q200 standard for electronic components used in the automotive industry. The key difference between these automotive devices and other surface-mount devices from the circuit protection product portfolio is their qualification according to a series of rigorous tests related to the automotive environment. As a result, they are characterized by some specific additional values determined after stringent testing.



### Benefits:

- Products meet applicable automotive industry standards
- Compatible with high-volume electronics assembly
- Small sizes help save board space and cost
- Many product choices give design engineers more design flexibility
- Low resistance allows for low voltage drop

### Applications:

- Electronic Control Unit (ECU) I/O and trace protection
- Telematics, infotainment and navigations systems
- USB port protection
- Motor and motor control circuit protection: power door-locks, mirrors, lumbar pumps, headlight position adjustment, seat, sunroofs and windows
- Heating Ventilation and Cooling (HVAC) control circuit and I/O protection
- Liquid Crystal Display backlight heaters

### Features:

- Qualified per AEC-Q200 specification
- RoHS compliant and halogen free
- Footprints from 1206 to 3425
- Current ratings from 0.05 to 3.0A
- Voltage ratings from 16 to 60V
- Fast time-to-trip
- Low resistance

## Electrical Characteristics

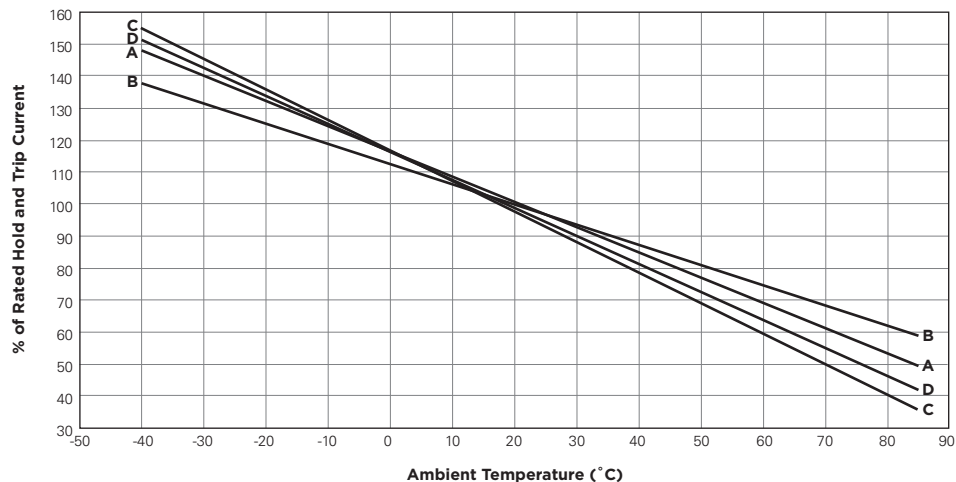
| Part Number     | Marking | I <sub>HOLD</sub> | I <sub>Trip</sub> | V <sub>MAX</sub>   | I <sub>MAX</sub> | P <sub>D</sub> max | Maximum Time-to-Trip |          | R <sub>MIN</sub> | R <sub>1MAX</sub> |
|-----------------|---------|-------------------|-------------------|--------------------|------------------|--------------------|----------------------|----------|------------------|-------------------|
|                 |         | (A)               | (A)               | (V <sub>DC</sub> ) | (A)              | (W)                | Current (A)          | Time (s) | Ω                | Ω                 |
| nanoASMD012F    | P       | 0.12              | 0.39              | 48                 | 10               | 0.50               | 1.00                 | 0.20     | 1.40             | 6.50              |
| nanoASMD016F    | N       | 0.16              | 0.45              | 48                 | 10               | 0.50               | 1.00                 | 0.30     | 1.10             | 5.00              |
| nanoASMD020F    | 02      | 0.20              | 0.42              | 24                 | 100              | 0.60               | 8.00                 | 0.10     | 0.65             | 3.10              |
| nanoASMD035F    | 03      | 0.35              | 0.75              | 16                 | 20               | 0.60               | 3.50                 | 0.10     | 0.45             | 1.35              |
| microASMD005F   | 05      | 0.05              | 0.15              | 30                 | 10               | 1.00               | 0.25                 | 1.50     | 3.60             | 50.00             |
| microASMD010F   | 10      | 0.10              | 0.25              | 30                 | 10               | 0.80               | 0.50                 | 1.00     | 2.10             | 15.00             |
| miniASMD010F    | 10      | 0.10              | 0.30              | 60                 | 40               | 0.75               | 0.50                 | 5.00     | 0.70             | 12.70             |
| miniASMD014F    | 14      | 0.14              | 0.28              | 60                 | 10               | 0.75               | 8.00                 | 0.008    | 1.50             | 6.00              |
| miniASMD020F    | 2       | 0.20              | 0.40              | 30                 | 10               | 0.80               | 8.00                 | 0.02     | 0.60             | 3.30              |
| miniASMD030F    | 3       | 0.30              | 0.60              | 30                 | 40               | 0.80               | 8.00                 | 0.10     | 0.20             | 1.75              |
| miniASMD050F    | 5       | 0.50              | 1.00              | 24                 | 100              | 0.80               | 8.00                 | 0.15     | 0.15             | 1.00              |
| miniASMD075F/24 | 075F24V | 0.75              | 1.50              | 24                 | 40               | 0.80               | 8.00                 | 0.30     | 0.09             | 0.29              |
| miniASMD110F/16 | 110F16V | 1.10              | 2.20              | 16                 | 100              | 0.80               | 8.00                 | 0.30     | 0.06             | 0.18              |
| miniASMD110F/24 | 110F24V | 1.10              | 2.20              | 24                 | 20               | 0.80               | 8.00                 | 0.50     | 0.06             | 0.18              |
| miniASMD125F/16 | 125F16V | 1.25              | 2.50              | 16                 | 100              | 0.80               | 8.00                 | 0.40     | 0.05             | 0.14              |
| miniASMD150F/16 | 150F16V | 1.50              | 2.80              | 16                 | 100              | 0.80               | 8.00                 | 0.50     | 0.04             | 0.11              |
| miniASMD150F/24 | 150F24V | 1.50              | 3.00              | 24                 | 20               | 1.00               | 8.00                 | 1.50     | 0.04             | 0.12              |
| miniASMD260F/16 | 260F16V | 2.60              | 5.00              | 16                 | 100              | 1.20               | 8.00                 | 5.00     | 0.015            | 0.05              |
| AHS080-2018     | H08     | 0.80              | 2.00              | 16                 | 70               | 1.50               | 8.00                 | 9.00     | 0.13             | 0.55              |
| AHS160          | 160     | 1.60              | 3.20              | 16                 | 70               | 2.20               | 8.00                 | 15.00    | 0.05             | 0.15              |
| AHS200          | H200    | 2.00              | 4.00              | 16                 | 70               | 2.30               | 8.00                 | 13.40    | 0.05             | 0.14              |
| AHS300          | H300    | 3.00              | 6.00              | 16                 | 70               | 3.00               | 15.00                | 8.00     | 0.024            | 0.083             |
| ASMD030F        | 030F    | 0.23              | 0.59              | 60                 | 10               | 1.10               | 1.15                 | 12.00    | 0.98             | 4.80              |
| ASMD050F        | 050F    | 0.37              | 0.94              | 60                 | 10               | 1.70               | 1.95                 | 20.00    | 0.29             | 1.40              |
| ASMD075F        | 075F    | 0.60              | 1.48              | 30                 | 40               | 1.10               | 3.00                 | 20.00    | 0.29             | 1.00              |
| ASMD100F        | 100F    | 0.90              | 2.16              | 30                 | 40               | 1.10               | 4.50                 | 20.00    | 0.098            | 0.48              |
| ASMD125F        | 125F    | 1.04              | 2.46              | 16                 | 40               | 1.10               | 5.20                 | 20.00    | 0.057            | 0.25              |
| ASMD150F        | 150F    | 1.27              | 2.95              | 16                 | 40               | 1.20               | 6.35                 | 25.00    | 0.049            | 0.25              |
| ASMD185F        | 185A    | 1.85              | 3.70              | 16                 | 40               | 1.50               | 9.25                 | 11.30    | 0.032            | 0.126             |
| ASMD200F        | 200F    | 1.73              | 3.93              | 16                 | 40               | 1.20               | 8.65                 | 30.00    | 0.05             | 0.12              |
| ASMD250F        | 250F    | 1.97              | 5.00              | 16                 | 40               | 1.20               | 9.85                 | 30.00    | 0.035            | 0.085             |

Note : Operation Temperature for nanoASMD, microASMD, miniASMD and ASMD devices is -40~85°C.  
Operation Temperature for AHS devices is -40~125°C.

## Typical Thermal Derating Curve

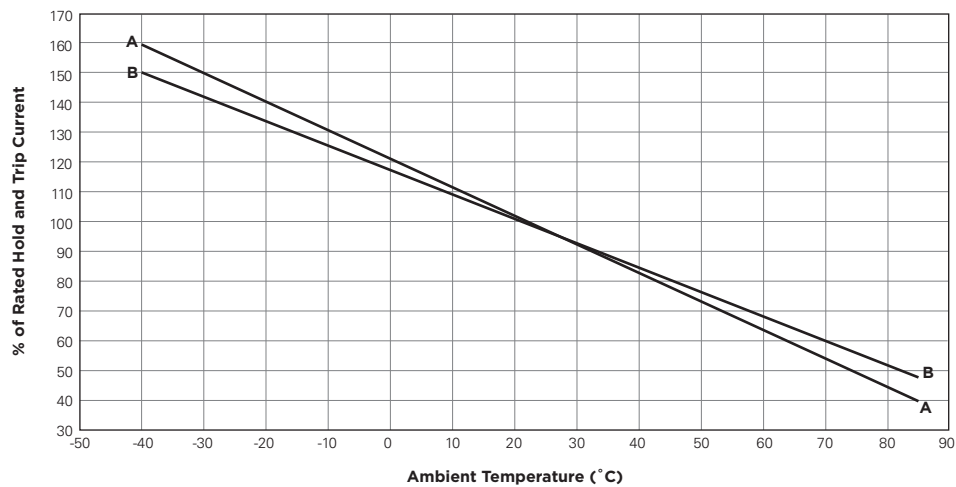
### nanoASMD Devices

- A = nanoASMD012F
- B = nanoASMD016F
- C = nanoASMD020F
- D = nanoASMD035F



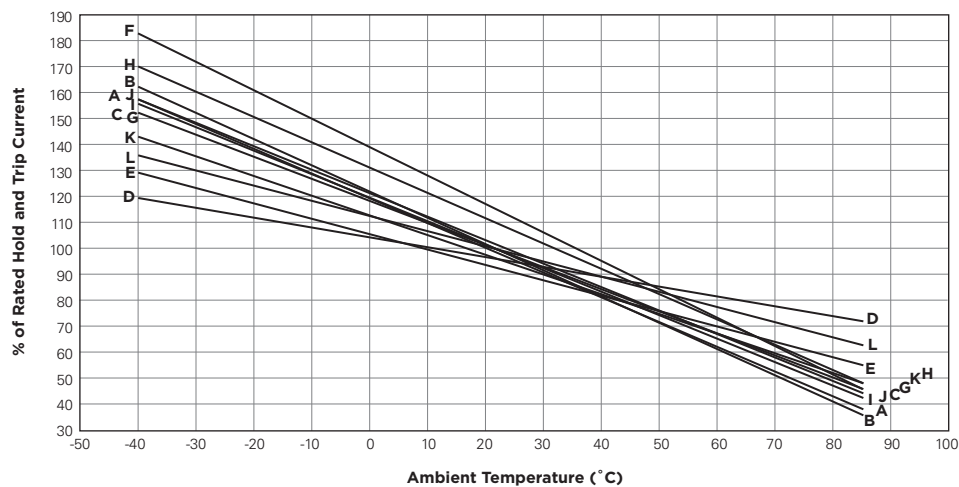
### microASMD Devices

- A = microASMD005F
- B = microASMD010F



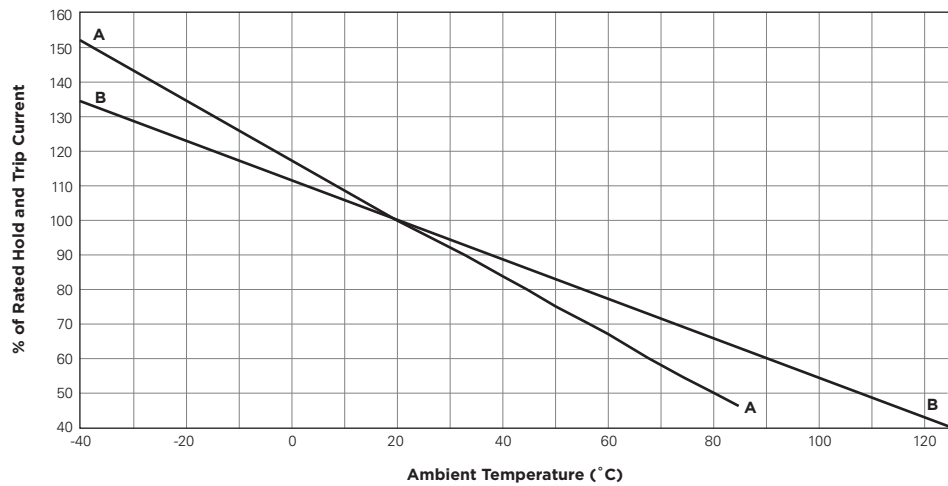
### miniASMD Devices

- A = miniASMD010F
- B = miniASMD014F
- C = miniASMD020F
- D = miniASMD030F
- E = miniASMD050F
- F = miniASMD075F/24
- G = miniASMD110F/16
- H = miniASMD110F/24
- I = miniASMD125F/16
- J = miniASMD150F/16
- K = miniASMD150F/24
- L = miniASMD260F/16



ASMD and AHS Devices

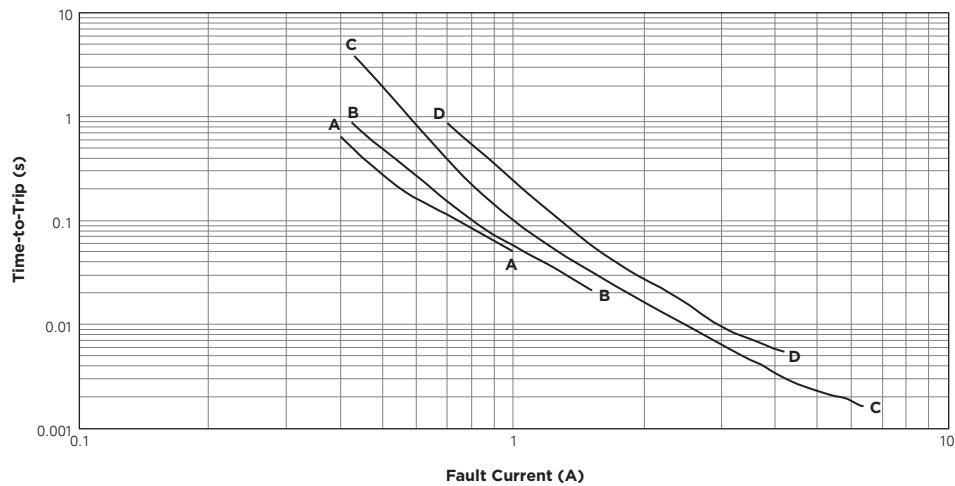
A = ASMD  
B = AHS



Typical Time-to-trip Curve at 20°C

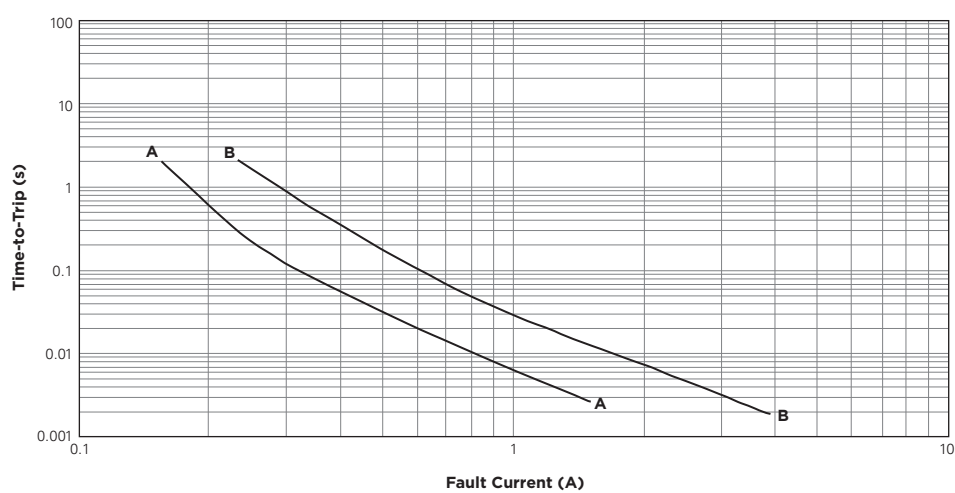
nanoASMD Devices

A = nanoASMDC012F  
B = nanoASMDC016F  
C = nanoASMDC020F  
D = nanoASMDC035F



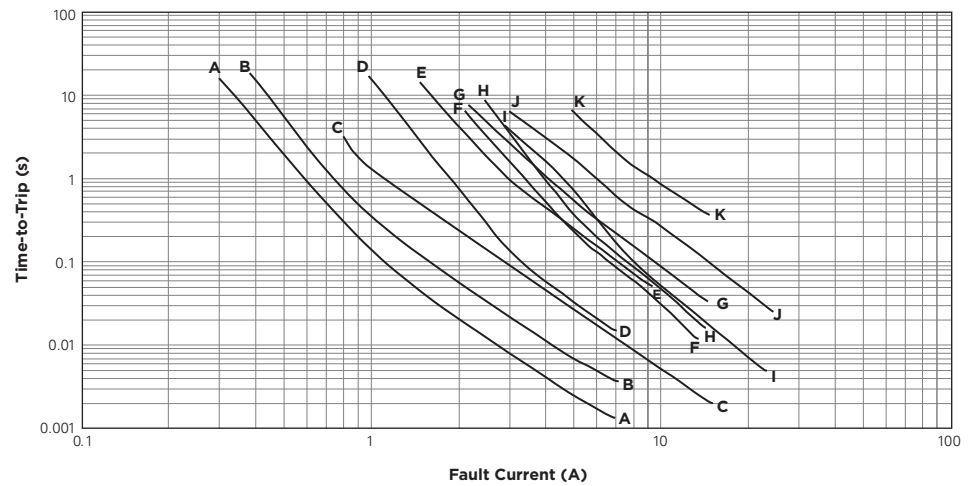
microASMD Devices

A = microASMD005F  
B = microASMD010F



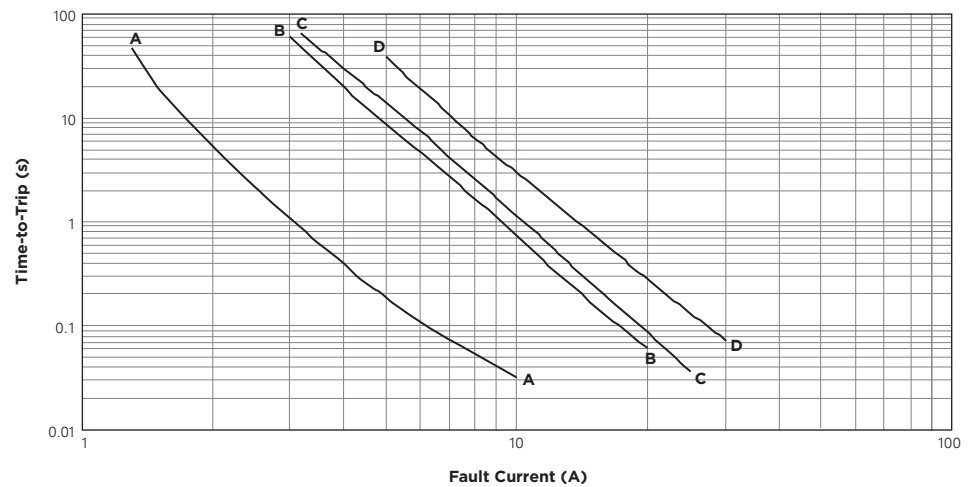
### miniASMD Devices

- A = miniASMD010F,  
miniASMD014F
- B = miniASMD020F
- C = miniASMD030F
- D = miniASMD050F
- E = miniASMD075F/24
- F = miniASMD110F/16
- G = miniASMD110F/24
- H = miniASMD125F/16
- I = miniASMD150F/16
- J = miniASMD150F/24
- K = miniASMD260F/16



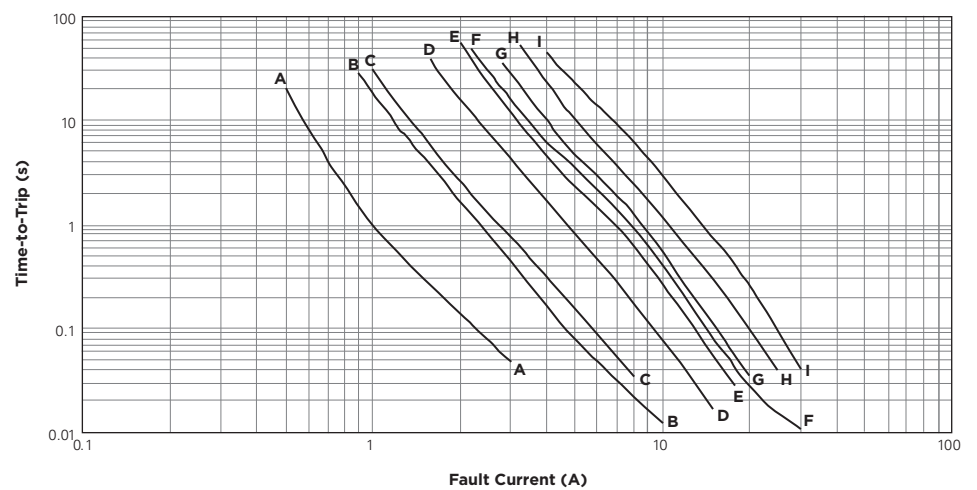
### AHS Devices

- A = AHS080-2018
- B = AHS160
- C = AHS200
- D = AHS300



### ASMD Devices

- A = ASMD030F
- B = ASMD050F
- C = ASMD075F
- D = ASMD100F
- E = ASMD125F
- F = ASMD150F
- G = ASMD185F
- H = ASMD200F
- I = ASMD250F



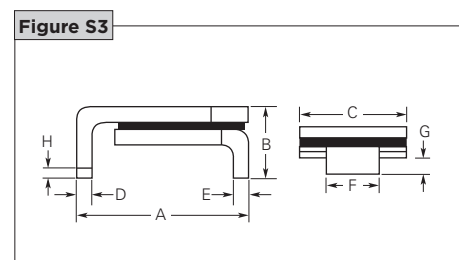
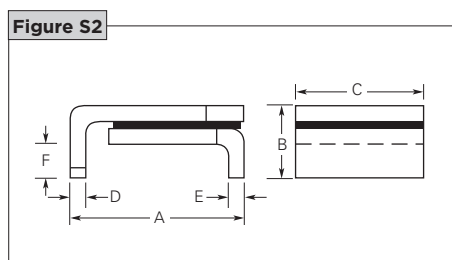
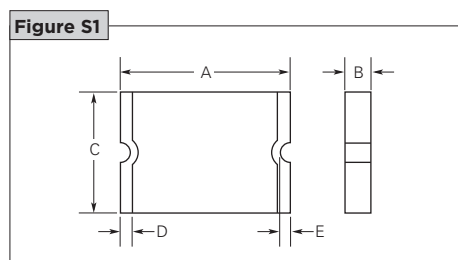
## Dimensions in Millimeters (Inches)

| Unit: mm (inch)                 | A               |                 | B                |                 | C               |                 | D               |                 | E                |        | F      |        | G      |        | H      | Figure |
|---------------------------------|-----------------|-----------------|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|--------|--------|--------|--------|--------|--------|--------|
| Part Number                     | Min.            | Max.            | Min.             | Max.            | Min.            | Max.            | Min.            | Max.            | Min.             | Max.   | Min.   | Max.   | Min.   | Max.   | Min    |        |
| nanoASMDC012F<br>(1206 mils)    | 3.00<br>(0.118) | 3.40<br>(0.134) | 0.62<br>(0.024)  | 1.00<br>(0.039) | 1.37<br>(0.054) | 1.80<br>(0.071) | 0.25<br>(0.010) | 0.75<br>(0.030) | 0.076<br>(0.003) | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | S1     |
| nanoASMDC016F<br>(1206 mils)    | 3.00<br>(0.118) | 3.40<br>(0.134) | 0.62<br>(0.024)  | 1.00<br>(0.039) | 1.37<br>(0.054) | 1.80<br>(0.071) | 0.25<br>(0.010) | 0.75<br>(0.030) | 0.076<br>(0.003) | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | S1     |
| nanoASMDC020F<br>(1206 mils)    | 3.00<br>(0.118) | 3.40<br>(0.134) | 0.58<br>(0.023)  | 0.82<br>(0.032) | 1.37<br>(0.054) | 1.80<br>(0.071) | 0.25<br>(0.010) | 0.75<br>(0.030) | 0.076<br>(0.003) | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | S1     |
| nanoASMDC035F<br>(1206 mils)    | 3.00<br>(0.118) | 3.40<br>(0.134) | 0.58<br>(0.023)  | 0.82<br>(0.032) | 1.37<br>(0.054) | 1.80<br>(0.071) | 0.25<br>(0.010) | 0.75<br>(0.030) | 0.076<br>(0.003) | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | S1     |
| microASMD005F<br>(1210 mils)    | 3.00<br>(0.118) | 3.43<br>(0.135) | 0.50<br>(0.019)  | 0.85<br>(0.034) | 2.35<br>(0.092) | 2.80<br>(0.110) | 0.25<br>(0.010) | 0.75<br>(0.030) | 0.076<br>(0.003) | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | S1     |
| microASMD010F<br>(1210 mils)    | 3.00<br>(0.118) | 3.43<br>(0.135) | 0.50<br>(0.019)  | 0.85<br>(0.034) | 2.35<br>(0.092) | 2.80<br>(0.110) | 0.25<br>(0.010) | 0.75<br>(0.030) | 0.076<br>(0.003) | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | S1     |
| miniASMDC010F<br>(1812 mils)    | 4.37<br>(0.172) | 4.73<br>(0.186) | 0.635<br>(0.025) | 0.89<br>(0.035) | 3.07<br>(0.121) | 3.41<br>(0.134) | 0.25<br>(0.010) | 0.95<br>(0.040) | 0.20<br>(0.008)  | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | S1     |
| miniASMDC014F<br>(1812 mils)    | 4.37<br>(0.172) | 4.73<br>(0.186) | 0.635<br>(0.025) | 0.89<br>(0.035) | 3.07<br>(0.121) | 3.41<br>(0.134) | 0.25<br>(0.010) | 0.95<br>(0.040) | 0.20<br>(0.008)  | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | S1     |
| miniASMDC020F<br>(1812 mils)    | 4.37<br>(0.172) | 4.73<br>(0.186) | 0.635<br>(0.025) | 0.89<br>(0.035) | 3.07<br>(0.121) | 3.41<br>(0.134) | 0.25<br>(0.010) | 0.95<br>(0.040) | 0.20<br>(0.008)  | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | S1     |
| miniASMDC030F<br>(1812 mils)    | 4.37<br>(0.172) | 4.73<br>(0.186) | 0.635<br>(0.025) | 0.89<br>(0.035) | 3.07<br>(0.121) | 3.41<br>(0.134) | 0.25<br>(0.010) | 0.95<br>(0.040) | 0.20<br>(0.008)  | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | S1     |
| miniASMDC050F<br>(1812 mils)    | 4.37<br>(0.172) | 4.73<br>(0.186) | 0.38<br>(0.015)  | 0.62<br>(0.025) | 3.07<br>(0.121) | 3.41<br>(0.134) | 0.25<br>(0.010) | 0.95<br>(0.040) | 0.20<br>(0.008)  | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | S1     |
| miniASMDC075F/24<br>(1812 mils) | 4.37<br>(0.172) | 4.83<br>(0.190) | 0.81<br>(0.032)  | 1.46<br>(0.057) | 3.07<br>(0.121) | 3.41<br>(0.134) | 0.25<br>(0.010) | 0.95<br>(0.040) | 0.20<br>(0.008)  | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | S1     |
| miniASMDC110F/16<br>(1812 mils) | 4.37<br>(0.172) | 4.83<br>(0.190) | 0.28<br>(0.011)  | 0.48<br>(0.019) | 3.07<br>(0.121) | 3.41<br>(0.134) | 0.25<br>(0.010) | 0.95<br>(0.040) | 0.20<br>(0.008)  | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | S1     |
| miniASMDC110F/24<br>(1812 mils) | 4.37<br>(0.172) | 4.83<br>(0.190) | 0.81<br>(0.032)  | 1.46<br>(0.057) | 3.07<br>(0.121) | 3.41<br>(0.134) | 0.25<br>(0.010) | 0.95<br>(0.040) | 0.20<br>(0.008)  | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | S1     |
| miniASMDC125F/16<br>(1812 mils) | 4.37<br>(0.172) | 4.83<br>(0.190) | 0.28<br>(0.011)  | 0.48<br>(0.019) | 3.07<br>(0.121) | 3.41<br>(0.134) | 0.25<br>(0.010) | 0.95<br>(0.040) | 0.20<br>(0.008)  | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | S1     |
| miniASMDC150F/16<br>(1812 mils) | 4.37<br>(0.172) | 4.83<br>(0.190) | 0.28<br>(0.011)  | 0.48<br>(0.019) | 3.07<br>(0.121) | 3.41<br>(0.134) | 0.25<br>(0.010) | 0.95<br>(0.040) | 0.20<br>(0.008)  | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | S1     |
| miniASMDC150F/24<br>(1812 mils) | 4.37<br>(0.172) | 4.83<br>(0.190) | 1.00<br>(0.040)  | 1.94<br>(0.077) | 3.07<br>(0.121) | 3.41<br>(0.134) | 0.25<br>(0.010) | 0.95<br>(0.040) | 0.20<br>(0.008)  | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | S1     |
| miniASMDC260F/16<br>(1812 mils) | 4.37<br>(0.172) | 4.83<br>(0.190) | 1.02<br>(0.042)  | 1.52<br>(0.060) | 3.07<br>(0.121) | 3.41<br>(0.134) | 0.25<br>(0.010) | 0.95<br>(0.040) | 0.20<br>(0.008)  | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | S1     |

| Unit: mm (inch)            | A               |                 | B    |                 | C               |                 | D               |                 | E               |                 | F               |                 | G               |                 | H               | Figure |
|----------------------------|-----------------|-----------------|------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|--------|
| Part Number                | Min.            | Max.            | Min. | Max.            | Min.            | Max.            | Min.            | Max.            | Min.            | Max.            | Min.            | Max.            | Min.            | Max.            | Min             |        |
| AHS080-2018<br>(2018 mils) | 4.72<br>(0.186) | 5.44<br>(0.214) | -    | 1.52<br>(0.060) | 4.22<br>(0.166) | 4.93<br>(0.194) | 0.25<br>(0.010) | 0.36<br>(0.014) | 0.25<br>(0.010) | 0.36<br>(0.014) | 0.30<br>(0.012) | 0.46<br>(0.018) | -               | -               | -               | S2     |
| AHS160<br>(3425 mils)      | 8.00<br>(0.315) | 9.40<br>(0.370) | -    | 3.00<br>(0.118) | 6.00<br>(0.24)  | 6.71<br>(0.264) | 0.56<br>(0.022) | 0.71<br>(0.028) | 0.56<br>(0.022) | 0.71<br>(0.028) | 3.68<br>(0.145) | 3.94<br>(0.155) | 0.66<br>(0.026) | 1.37<br>(0.054) | 0.43<br>(0.017) | S3     |
| AHS200<br>(3425 mils)      | 8.00<br>(0.315) | 9.40<br>(0.370) | -    | 3.00<br>(0.118) | 6.00<br>(0.24)  | 6.71<br>(0.264) | 0.56<br>(0.022) | 0.71<br>(0.028) | 0.56<br>(0.022) | 0.71<br>(0.028) | 3.68<br>(0.145) | 3.94<br>(0.155) | 0.66<br>(0.026) | 1.37<br>(0.054) | 0.43<br>(0.017) | S3     |
| AHS300<br>(3425 mils)      | 8.00<br>(0.315) | 9.40<br>(0.370) | -    | 3.00<br>(0.118) | 6.00<br>(0.24)  | 6.71<br>(0.264) | 0.56<br>(0.022) | 0.71<br>(0.028) | 0.56<br>(0.022) | 0.71<br>(0.028) | 3.68<br>(0.145) | 3.94<br>(0.155) | 0.66<br>(0.026) | 1.37<br>(0.054) | 0.43<br>(0.017) | S3     |
| ASMD030F<br>(2920 mils)    | 6.73<br>(0.265) | 7.98<br>(0.314) | -    | 3.18<br>(0.125) | 4.80<br>(0.19)  | 5.44<br>(0.214) | 0.56<br>(0.022) | 0.71<br>(0.028) | 0.56<br>(0.022) | 0.71<br>(0.028) | 2.16<br>(0.085) | 2.41<br>(0.095) | 0.66<br>(0.026) | 1.37<br>(0.054) | 0.43<br>(0.017) | S3     |
| ASMD050F<br>(2920 mils)    | 6.73<br>(0.265) | 7.98<br>(0.314) | -    | 3.18<br>(0.125) | 4.80<br>(0.19)  | 5.44<br>(0.214) | 0.56<br>(0.022) | 0.71<br>(0.028) | 0.56<br>(0.022) | 0.71<br>(0.028) | 2.16<br>(0.085) | 2.41<br>(0.095) | 0.66<br>(0.026) | 1.37<br>(0.054) | 0.43<br>(0.017) | S3     |
| ASMD075F<br>(2920 mils)    | 6.73<br>(0.265) | 7.98<br>(0.314) | -    | 3.18<br>(0.125) | 4.80<br>(0.19)  | 5.44<br>(0.214) | 0.56<br>(0.022) | 0.71<br>(0.028) | 0.56<br>(0.022) | 0.71<br>(0.028) | 2.16<br>(0.085) | 2.41<br>(0.095) | 0.66<br>(0.026) | 1.37<br>(0.054) | 0.43<br>(0.017) | S3     |
| ASMD100F<br>(2920 mils)    | 6.73<br>(0.265) | 7.98<br>(0.314) | -    | 3.00<br>(0.118) | 4.80<br>(0.19)  | 5.44<br>(0.214) | 0.56<br>(0.022) | 0.71<br>(0.028) | 0.56<br>(0.022) | 0.71<br>(0.028) | 2.16<br>(0.085) | 2.41<br>(0.095) | 0.66<br>(0.026) | 1.37<br>(0.054) | 0.43<br>(0.017) | S3     |
| ASMD125F<br>(2920 mils)    | 6.73<br>(0.265) | 7.98<br>(0.314) | -    | 3.00<br>(0.118) | 4.80<br>(0.19)  | 5.44<br>(0.214) | 0.56<br>(0.022) | 0.71<br>(0.028) | 0.56<br>(0.022) | 0.71<br>(0.028) | 2.16<br>(0.085) | 2.41<br>(0.095) | 0.66<br>(0.026) | 1.37<br>(0.054) | 0.43<br>(0.017) | S3     |
| ASMD150F<br>(3425 mils)    | 8.00<br>(0.315) | 9.40<br>(0.370) | -    | 3.00<br>(0.118) | 6.00<br>(0.24)  | 6.71<br>(0.264) | 0.56<br>(0.022) | 0.71<br>(0.028) | 0.56<br>(0.022) | 0.71<br>(0.028) | 3.68<br>(0.145) | 3.94<br>(0.155) | 0.66<br>(0.026) | 1.37<br>(0.054) | 0.43<br>(0.017) | S3     |
| ASMD185F<br>(3425 mils)    | 8.00<br>(0.315) | 9.40<br>(0.370) | -    | 3.00<br>(0.118) | 6.00<br>(0.24)  | 6.71<br>(0.264) | 0.56<br>(0.022) | 0.71<br>(0.028) | 0.56<br>(0.022) | 0.71<br>(0.028) | 3.68<br>(0.145) | 3.94<br>(0.155) | 0.66<br>(0.026) | 1.37<br>(0.054) | 0.43<br>(0.017) | S3     |
| ASMD200F<br>(3425 mils)    | 8.00<br>(0.315) | 9.40<br>(0.370) | -    | 3.00<br>(0.118) | 6.00<br>(0.24)  | 6.71<br>(0.264) | 0.56<br>(0.022) | 0.71<br>(0.028) | 0.56<br>(0.022) | 0.71<br>(0.028) | 3.68<br>(0.145) | 3.94<br>(0.155) | 0.66<br>(0.026) | 1.37<br>(0.054) | 0.43<br>(0.017) | S3     |
| ASMD250F<br>(3425 mils)    | 8.00<br>(0.315) | 9.40<br>(0.370) | -    | 3.00<br>(0.118) | 6.00<br>(0.24)  | 6.71<br>(0.264) | 0.56<br>(0.022) | 0.71<br>(0.028) | 0.56<br>(0.022) | 0.71<br>(0.028) | 3.68<br>(0.145) | 3.94<br>(0.155) | 0.66<br>(0.026) | 1.37<br>(0.054) | 0.43<br>(0.017) | S3     |

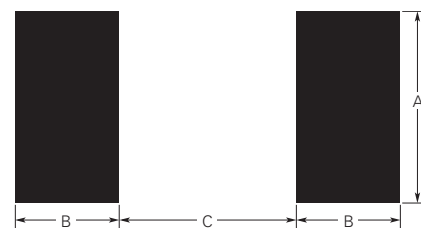
Note : Terminal Material is 100% matte tin with nickel underplate.

## Dimension Figures



## Recommended Pad Layout

| Part Number               | Recommended Pad Layout Figures [mm (In.)] |                    |                    |
|---------------------------|-------------------------------------------|--------------------|--------------------|
|                           | Dimension A (Nom.)                        | Dimension B (Nom.) | Dimension C (Nom.) |
| nanoASMD device           | 1.60 (0.063)                              | 1.00 (0.039)       | 2.00 (0.079)       |
| microASMD device          | 2.50 (0.098)                              | 1.00 (0.039)       | 2.00 (0.079)       |
| miniASMD device           | 2.95 (0.114)                              | 1.68 (0.066)       | 3.10 (0.122)       |
| AHS080-2018 device        | 4.60 (0.180)                              | 1.50 (0.059)       | 3.40 (0.134)       |
| AHS160~AHS300 devices     | 4.60 (0.180)                              | 2.30 (0.090)       | 6.10 (0.240)       |
| ASMD030F~ASMD125F devices | 3.10 (0.120)                              | 2.30 (0.090)       | 5.10 (0.201)       |
| ASMD150F~ASMD250F devices | 4.60 (0.180)                              | 2.30 (0.090)       | 6.10 (0.240)       |



## Soldering Reflow and Rework Recommendations

## Classification Reflow Profiles

| Profile Feature                                                                                                                                                                                                                        | Pb-Free Assembly           |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| Average Ramp-Up Rate ( $T_{s\_MAX}$ to $T_p$ )                                                                                                                                                                                         | 3°C/s max                  |
| <b>Preheat</b> <ul style="list-style-type: none"> <li>• Temperature Min (<math>T_{s\_MIN}</math>)</li> <li>• Temperature Max (<math>T_{s\_MAX}</math>)</li> <li>• Time (<math>t_{s\_MIN}</math> to <math>t_{s\_MAX}</math>)</li> </ul> | 150°C<br>200°C<br>60-120 s |
| <b>Time maintained above:</b> <ul style="list-style-type: none"> <li>• Temperature (<math>T_L</math>)</li> <li>• Time (<math>t_L</math>)</li> </ul>                                                                                    | 217°C<br>60-150 s          |
| Peak/Classification Temperature ( $T_p$ )                                                                                                                                                                                              | 260°C                      |
| Time within 5°C of actual Peak Temperature<br>Time ( $t_p$ )                                                                                                                                                                           | 30 s max                   |
| Ramp-Down Rate                                                                                                                                                                                                                         | 3°C/s max                  |

Note : All temperatures refer to topside of the package, measured on the package body surface.

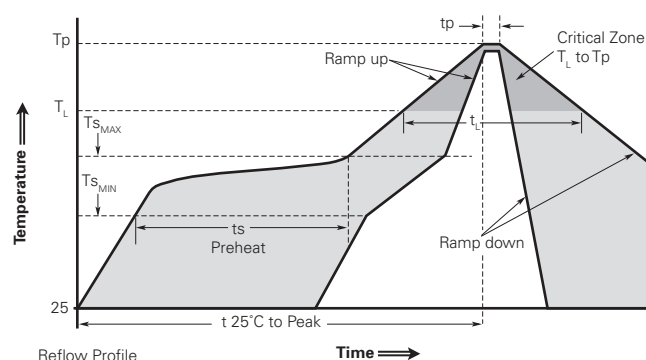
## Solder Reflow

- Recommended reflow methods: IR, hot air and Nitrogen
- Recommended maximum paste thickness : 0.25mm (0.010 inch)
- Devices can be cleaned using standard methods and aqueous solvents.
- Tyco Electronics believes the optimum conditions for forming acceptable solder fillets occur when a reasonable amount of solder paste is placed underneath each device's termination. As such, we request that customers comply with our recommended solder pad layouts.
- Tyco Electronics requests that customer board layouts refrain from placing raised features (e.g. vias, nomenclature, traces, etc.) underneath PolySwitch devices. It is possible that raised features could negatively impact solderability performance of our devices.

## Rework

- Standard industry practices. Please also avoid direct contact to the device.

## Reflow Profile





## PS400 Test Items and Results (Based on AEC-Q200 Specification)

| Item | Test                                   | Test condition                                                                                                      | Details                                                                                                                                                  | Test Results |
|------|----------------------------------------|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| 1    | Pre & post stress electrical test      | Passive resistance, TtT, I <sub>HOLD</sub> , Pd                                                                     |                                                                                                                                                          | Pass         |
| 4    | Temperature cycling                    | -40°C to 85°C<br>1000 cycles                                                                                        | Ramp rate 10°C/min<br>Soak time 5 minutes                                                                                                                | Pass         |
| 6    | Moisture resistance                    | t = 24 hours/cycle; 10 continuous cycles<br>Un-powered                                                              |                                                                                                                                                          | Pass         |
| 7    | Biased humidity                        | 1000 hours<br>85°C ± 5°C/85%RH±5%<br>Test current: 10% of I <sub>HOLD</sub>                                         | In-test measurement: None                                                                                                                                | Pass         |
| 8    | Operational life                       | 1000 hours<br>Rated Temp. and tol: 85°C ±2°C<br>Still air requirement: None<br>Dist of temp measurement: 4"min      | Operation condition: Rated Voltage/I <sub>HOLD</sub><br>ON-OFF frequency: 15 sec ON 15 sec OFF                                                           | Pass         |
| 12   | Resistance to solvents                 | Three solvents.<br>Immersion → brush, 3 cycles, inspection for marking and part damage                              | Per MIL-STD-202G<br>METHOD 215K                                                                                                                          | Pass         |
| 13   | Mechanical shock                       | Condition: F<br>Mounting cfg.: per general spec.                                                                    | Peak value 1500g's half-sine<br>0.5msec for each duration<br>Repeat 3 times per direction                                                                | Pass         |
| 14   | Vibration                              | 5 g's for 20 min.<br>12 cycles each of 3 orientations<br>Test from 10-2000 Hz                                       | Frequency 1: 10 - 40 Hz<br>Amplitude: ± 0.75 mm<br>Frequency 2: 40 - 2KHz<br>Amplitude: 5 g's peak                                                       | Pass         |
| 15   | Resistance to soldering heat           | Per MIL-STD-202G<br>Test conditions I, J, K                                                                         | Repeat 3 times<br>24hrs cooling time prior to final measurement                                                                                          | Pass         |
| 16   | Thermal shock                          | -40°C to 85°C<br>Transfer time: 20 sec;<br>Dwell time: 15 minutes<br>Medium: Air - Air                              | No. of cycles: 300                                                                                                                                       | Pass         |
| 17   | ESD                                    | 15KV air discharge level                                                                                            |                                                                                                                                                          | Pass         |
| 18   | Solderability                          | 260(+0/-5)°C 10 seconds max<br>(Pb free solder paste)<br>220(+0/-5)°C 10 seconds max<br>(Pb contained solder paste) | Test with devices after 8 hours steam aging                                                                                                              | Pass         |
| 21   | Board flex                             |                                                                                                                     | Total deflection: 2.0mm minimum<br>Deflection time: 60 (-0/+5) sec.                                                                                      | Pass         |
| 22   | Terminal strength                      |                                                                                                                     | 17.7 N (1.8 Kg) force to the side of a device being tested for 60sec                                                                                     | Pass         |
| 31   | Short circuit fault current durability | Room temperature<br>V <sub>DC</sub> /200A, (16V for miniASMDC014F)                                                  | 5 sec ON, 2 minutes OFF<br>25 cycles                                                                                                                     | Pass         |
| 32   | Fault current durability               | Room temperature<br>16V/6 x I <sub>HOLD</sub>                                                                       | Min. 5 minutes ON<br>Min. 10 minutes OFF                                                                                                                 | Pass         |
| 33   | End-of-life-mode verification          | Room temperature<br>16V/6 x I <sub>HOLD</sub>                                                                       | 5 sec ON, 1 minute OFF<br>1000 cycles                                                                                                                    | Pass         |
| 34   | Jump start endurance                   | Test voltage: 26V<br>Duty cycle: 1min ±3sec ON, 2 min OFF<br>3 pulses                                               |                                                                                                                                                          | Pass         |
| 35   | Load dump endurance                    | Test per ISO7637-2, pulse 5a, 10 times                                                                              | Test voltage: Us=86.5V/66.5V/46.5V (the two lower Us values correspond to truncated surge profiles)*<br>Devices tested under un-tripped status, Ua=13.5V | Pass*        |

\* Most tested devices meet the load dump test with a peak voltage of 86.5V. However some only meet a reduced peak voltage surge. Contact us if you need more details.

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