

## »Performance Specification

| Model           | I-hold | I-trip | Vmax  | Imax  | Pd typ | Max. Time to trip |        | R0 min | R1max |
|-----------------|--------|--------|-------|-------|--------|-------------------|--------|--------|-------|
|                 |        |        |       |       |        | Current           | Time   |        |       |
|                 | (A)    | (A)    | (Vdc) | (A)   | (W)    | (A)               | (Sec.) | (Ohm)  | (Ohm) |
| SMD2018-030/60N | 0.30   | 0.60   | 60.00 | 40.00 | 1.40   | 1.50              | 3.00   | 0.50   | 2.30  |
| SMD2018-050/60N | 0.50   | 1.00   | 60.00 | 40.00 | 1.40   | 2.50              | 5.00   | 0.20   | 1.00  |
| SMD2018-075/33N | 0.75   | 1.50   | 33.00 | 40.00 | 1.40   | 8.00              | 0.50   | 0.11   | 0.63  |
| SMD2018-075/60N | 0.75   | 1.50   | 60.00 | 40.00 | 1.40   | 8.00              | 0.50   | 0.11   | 0.63  |
| SMD2018-100/15N | 1.00   | 2.00   | 15.00 | 40.00 | 1.40   | 8.00              | 0.50   | 0.06   | 0.36  |
| SMD2018-100/33N | 1.00   | 2.00   | 33.00 | 40.00 | 1.40   | 8.00              | 0.50   | 0.06   | 0.36  |
| SMD2018-150/15N | 1.50   | 3.00   | 15.00 | 40.00 | 1.40   | 8.00              | 1.00   | 0.05   | 0.17  |
| SMD2018-150/33N | 1.50   | 3.00   | 33.00 | 40.00 | 1.40   | 8.00              | 1.00   | 0.05   | 0.17  |
| SMD2018-200/12N | 2.00   | 4.00   | 12.00 | 40.00 | 1.40   | 8.00              | 3.00   | 0.03   | 0.10  |
| SMD2018-200/16N | 2.00   | 4.00   | 16.00 | 40.00 | 1.40   | 8.00              | 3.00   | 0.03   | 0.10  |
| SMD2018-200/24N | 2.00   | 4.00   | 24.00 | 40.00 | 1.40   | 8.00              | 3.00   | 0.03   | 0.10  |
| SMD2018-260/24N | 2.60   | 5.20   | 24.00 | 40.00 | 1.60   | 8.00              | 5.00   | 0.020  | 0.075 |
| SMD2018-300/16N | 3.00   | 6.00   | 16.00 | 40.00 | 1.60   | 8.00              | 10.00  | 0.015  | 0.050 |
| SMD2018-350/12N | 3.50   | 7.00   | 12.00 | 40.00 | 1.60   | 8.00              | 10.00  | 0.010  | 0.040 |

I-hold: Holding Current: maximum current at which the device will not trip in 25°C still air.

I-trip: Tripping Current: minimum current at which the device will trip in 25°C still air.

Vmax: Maximum voltage device can withstand without damage at rated current(Imax).

I max: Maximum fault current device can withstand without damage at rated voltage(Vmax).

Pd typ:Typical power dissipated from device when in the tripped state at 25°C still air.

R0 min:Minimum resistance of device in initial (un-soldered) state.

R1 max:Maximum resistance of device at 25°C measured one hour after tripping or reflow soldering of 260°C for 20 sec.

## »Environmental Specifications

|                                                     |                                                                                        |
|-----------------------------------------------------|----------------------------------------------------------------------------------------|
| Operating Temperature                               | -40 °C to +85 °C                                                                       |
| Maximum Device Surface Temperature in Tripped State | 125°C                                                                                  |
| Passive Aging                                       | +85 °C, 1000 hours ; ±5 % typical resistance change                                    |
| Humidity Aging                                      | +85 °C, 85 % R.H. 1000 hours; ±5 % typical resistance change                           |
| Thermal Shock                                       | MIL-STD-202, Method 107;<br>+85 °C to -40 °C, 20 times;-30 % typical resistance change |
| Solvent Resistance                                  | MIL-STD-202, Method 215 ; No change                                                    |
| Vibration                                           | MIL-STD-883, Method 2007, Condition A; No change                                       |
| Moisture Sensivity Level                            | Level 1, J-STD-020                                                                     |
| Storage Conditions                                  | +40 °C Max. 70% RH Max. Packed in original packaging.                                  |

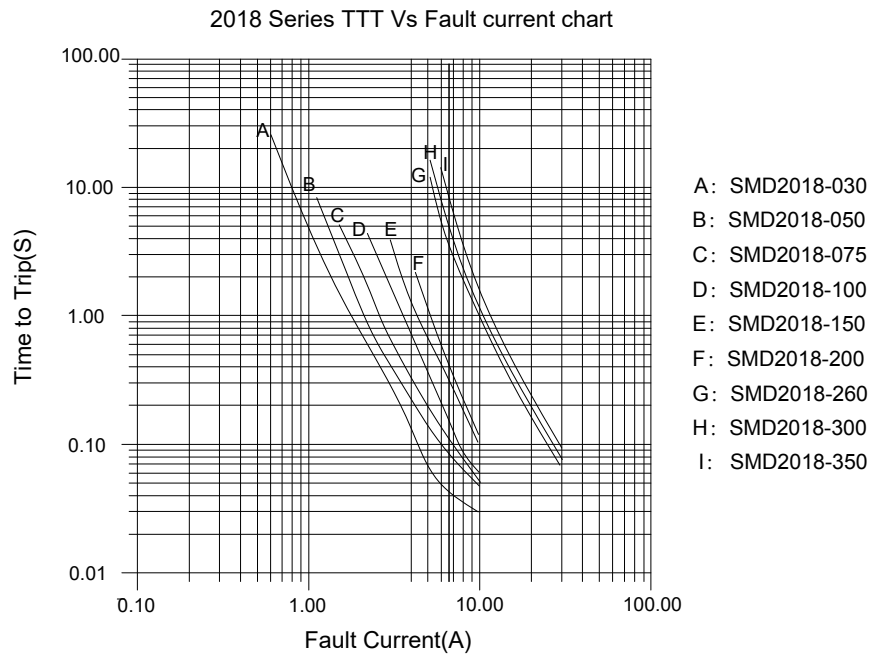
## »Test Procedures And Requirements

| No. | Test              | Test Conditions                                               | Accept/Reject Criteria                      |
|-----|-------------------|---------------------------------------------------------------|---------------------------------------------|
| 1   | R0 min            | Resistance measurement at 25°C                                | $R0min \leq R \leq R1max$                   |
| 2   | R1 max            | Resistance measurement one hour after post trip               | $R0min \leq R \leq R1max$                   |
| 3   | I-hold            | Hold rated current 1800 second without trip, @ 25°C           | No trip                                     |
| 4   | I-trip            | Device must trip within 900 second under rated current, @25°C | Trip                                        |
| 5   | Max. time to trip | At specified current, 25°C                                    | $T \leq \text{max. time to trip (seconds)}$ |
| 6   | Trip Cycle Life   | Vmax, Imax, 100 cycles                                        | No arcing or burning                        |
| 7   | Trip Endurance    | Vmax,Imax 24 hours                                            | No arcing or burning                        |
| 8   | Solderability     | ANSI/J-STD-002                                                | 95 % min. coverage                          |

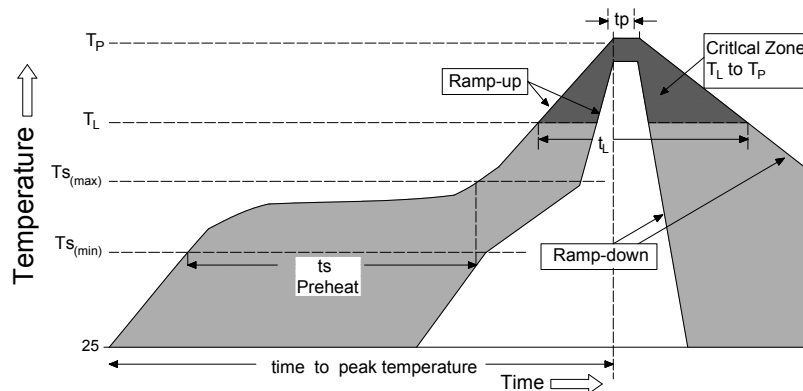
## »Thermal Derading Chart Recommended Hold Current(A) at Ambient Temperature(°C)

| Model           | Ambient Operating Temperature |       |      |      |      |      |      |      |      |
|-----------------|-------------------------------|-------|------|------|------|------|------|------|------|
|                 | -40°C                         | -20°C | 0°C  | 25°C | 40°C | 50°C | 60°C | 70°C | 85°C |
| SMD2018-030/60N | 0.45                          | 0.40  | 0.35 | 0.30 | 0.25 | 0.23 | 0.20 | 0.18 | 0.14 |
| SMD2018-050/60N | 0.93                          | 0.80  | 0.65 | 0.50 | 0.42 | 0.38 | 0.33 | 0.30 | 0.23 |
| SMD2018-075/33N | 1.05                          | 0.95  | 0.85 | 0.75 | 0.60 | 0.55 | 0.45 | 0.40 | 0.30 |
| SMD2018-075/60N | 1.05                          | 0.95  | 0.85 | 0.75 | 0.60 | 0.55 | 0.45 | 0.40 | 0.30 |
| SMD2018-100/15N | 1.66                          | 1.47  | 1.29 | 1.00 | 0.91 | 0.83 | 0.73 | 0.64 | 0.50 |
| SMD2018-100/33N | 1.66                          | 1.47  | 1.29 | 1.00 | 0.91 | 0.83 | 0.73 | 0.64 | 0.50 |
| SMD2018-150/15N | 2.26                          | 2.00  | 1.76 | 1.50 | 1.24 | 1.13 | 1.00 | 0.87 | 0.68 |
| SMD2018-150/33N | 2.26                          | 2.00  | 1.76 | 1.50 | 1.24 | 1.13 | 1.00 | 0.87 | 0.68 |
| SMD2018-200/12N | 2.80                          | 2.50  | 2.19 | 2.00 | 1.84 | 1.74 | 1.50 | 1.34 | 1.14 |
| SMD2018-200/16N | 2.80                          | 2.50  | 2.19 | 2.00 | 1.84 | 1.74 | 1.50 | 1.34 | 1.14 |
| SMD2018-200/24N | 2.80                          | 2.50  | 2.19 | 2.00 | 1.84 | 1.74 | 1.50 | 1.34 | 1.14 |
| SMD2018-260/24N | 3.82                          | 3.46  | 3.06 | 2.60 | 2.24 | 2.03 | 1.82 | 1.60 | 1.26 |
| SMD2018-300/16N | 4.40                          | 3.96  | 3.52 | 3.00 | 2.65 | 2.43 | 2.20 | 1.96 | 1.59 |
| SMD2018-350/12N | 5.13                          | 4.62  | 4.11 | 3.50 | 3.09 | 2.84 | 2.57 | 2.29 | 1.86 |

## »Typical time to trip at 25°C



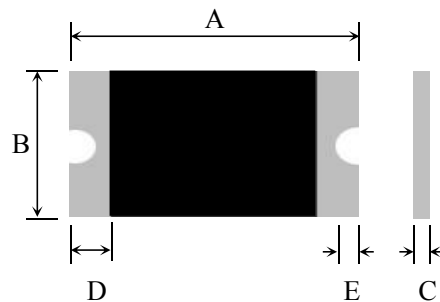
## »Soldering Parameters



| Profile Feature                                      |                                  | Pb-Free Assembly        |
|------------------------------------------------------|----------------------------------|-------------------------|
| Average Ramp-Up Rate ( $T_{S(max)}$ to $T_P$ )       |                                  | 3°C/second max          |
| Pre Heat:                                            | Temperature Min ( $T_{S(min)}$ ) | 150°C                   |
|                                                      | Temperature Max ( $T_{S(max)}$ ) | 200°C                   |
|                                                      | Time (Min to Max) ( $t_s$ )      | 60 – 180 secs           |
| Time Maintained Above:                               | Temperature ( $T_L$ )            | 217°C                   |
|                                                      | Temperature ( $t_L$ )            | 60 – 150 seconds        |
| Peak / Classification Temperature ( $T_P$ )          |                                  | 260 <sup>+0/-5</sup> °C |
| Time within 5°C of actual peak Temperature ( $t_p$ ) |                                  | 20 – 40 seconds         |
| Ramp-down Rate                                       |                                  | 6°C/second max          |
| Time 25°C to peak Temperature ( $T_P$ )              |                                  | 8 minutes Max.          |

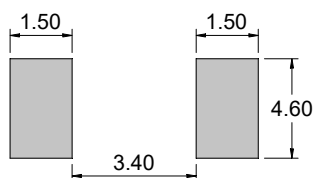
- ◆All temperature refer to topside of the package, measured on the package body surface
- ◆If reflow temperature exceeds the recommended profile, devices may not meet the performance requirements
- ◆Recommended reflow methods: IR, vapor phase oven, hot air oven, N2 environment for lead
- ◆Recommended maximum paste thickness is 0.25mm (0.010inch)
- ◆Devices can be cleaned using standard industry methods and solvents

## »Physical Dimensions(mm)



| Model           | A    |      | B    |      | C    |      | D    |      | E    |
|-----------------|------|------|------|------|------|------|------|------|------|
|                 | Min  | Max  | Min  | Max  | Min  | Max  | Min  | Max  | Min  |
| SMD2018-030/60N | 5.05 | 5.45 | 4.05 | 4.45 | 0.65 | 1.15 | 0.30 | 1.50 | 0.25 |
| SMD2018-050/60N | 5.05 | 5.45 | 4.05 | 4.45 | 0.65 | 1.15 | 0.30 | 1.50 | 0.25 |
| SMD2018-075/33N | 5.05 | 5.45 | 4.05 | 4.45 | 0.35 | 0.85 | 0.30 | 1.50 | 0.25 |
| SMD2018-075/60N | 5.05 | 5.45 | 4.05 | 4.45 | 0.65 | 1.15 | 0.30 | 1.50 | 0.25 |
| SMD2018-100/15N | 5.05 | 5.45 | 4.05 | 4.45 | 0.35 | 0.85 | 0.30 | 1.50 | 0.25 |
| SMD2018-100/33N | 5.05 | 5.45 | 4.05 | 4.45 | 0.35 | 0.85 | 0.30 | 1.50 | 0.25 |
| SMD2018-150/15N | 5.05 | 5.45 | 4.05 | 4.45 | 0.35 | 0.85 | 0.30 | 1.50 | 0.25 |
| SMD2018-150/33N | 5.05 | 5.45 | 4.05 | 4.45 | 0.65 | 1.15 | 0.30 | 1.50 | 0.25 |
| SMD2018-200/12N | 5.05 | 5.45 | 4.05 | 4.45 | 0.35 | 0.85 | 0.30 | 1.50 | 0.25 |
| SMD2018-200/16N | 5.05 | 5.45 | 4.05 | 4.45 | 0.35 | 0.85 | 0.30 | 1.50 | 0.25 |
| SMD2018-200/24N | 5.05 | 5.45 | 4.05 | 4.45 | 0.65 | 1.15 | 0.30 | 1.50 | 0.25 |
| SMD2018-260/24N | 5.05 | 5.45 | 4.05 | 4.45 | 0.85 | 1.35 | 0.30 | 1.50 | 0.25 |
| SMD2018-300/16N | 5.05 | 5.45 | 4.05 | 4.45 | 0.65 | 1.15 | 0.30 | 1.50 | 0.25 |
| SMD2018-350/12N | 5.05 | 5.45 | 4.05 | 4.45 | 0.65 | 1.15 | 0.30 | 1.50 | 0.25 |

## »Recommended Pad Layout (mm)&Physical Specifications



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

## »Tape And Reel Specifications (mm)&Packaging quantity

| TAPE SPECIFICATIONS: EIA-481-1 (mm) |                 |                 |                 |
|-------------------------------------|-----------------|-----------------|-----------------|
| Item                                | SMD2018-075/33N | SMD2018-100/15N | SMD2018-030/60N |
|                                     | SMD2018-100/33N | SMD2018-150/15N | SMD2018-050/60N |
|                                     | SMD2018-200/12N | SMD2018-200/16N | SMD2018-150/33N |
|                                     |                 |                 | SMD2018-200/24N |
|                                     |                 |                 | SMD2018-260/24N |
|                                     |                 |                 | SMD2018-300/16N |
|                                     |                 |                 | SMD2018-350/12N |
| W                                   | 12.0±0.10       |                 | 12.0±0.10       |
| F                                   | 5.50±0.05       |                 | 5.50±0.05       |
| E1                                  | 1.75±0.10       |                 | 1.75±0.10       |
| D0                                  | 1.55±0.05       |                 | 1.55±0.05       |
| D1                                  | 1.50 min        |                 | 1.50 min        |
| P0                                  | 4.0±0.10        |                 | 4.0±0.10        |
| P1                                  | 8.0±0.10        |                 | 8.0±0.10        |
| P2                                  | 2.0±0.05        |                 | 2.0±0.05        |
| A0                                  | 4.61±0.10       |                 | 4.61±0.10       |
| B0                                  | 5.62±0.10       |                 | 5.62±0.10       |
| T                                   | 0.25±0.05       |                 | 0.25±0.05       |
| K0                                  | 0.78±0.10       |                 | 1.35±0.10       |
| Leader                              | 390mm           |                 | 390mm           |
| Trailer                             | 160mm           |                 | 160mm           |
| Q'ty                                | 2500pcs/Reel    |                 | 1500pcs/Reel    |

| REEL DIMENSIONS: EIA-481-1 (mm) |           |
|---------------------------------|-----------|
| C                               | Ø178±1.0  |
| D                               | Ø60.2±0.5 |
| W                               | 9.0±1.5   |
| H                               | 11.0±0.5  |

