

Positive Thermal Coefficient Diodes

SMD2018P030~200 Series

The SMD2018 Series PTC provides surface mount overcurrent protection for applications where space is at a premium and resettable protection is desired.

Features

- RoHS compliant, lead-free and halogen-free
- Fast response to fault currents
- Compact design saves board space
- Low resistance
- Low-profile
- Compatible with high temperature solders

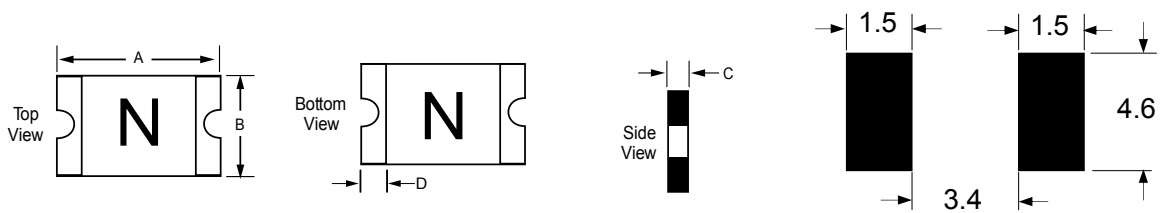
Applications

- USB peripherals
- Disk drives
- CD-ROMs
- Plug and play protection for motherboards and peripherals
- Mobile phones - battery and port protection
- Disk drives
- PDAs / digital cameras
- Game console port protection



Dimension

MARKING CODE VARIES WITH AMPERAGE RATING (See Electrical Characteristic Table) SHOWN IS 1.0AMP RATING



| Model | A | | B | | C | | D |
|------------------|------|------|------|------|------|------|------|
| | Min. | Max. | Min. | Max. | Min. | Max. | Min. |
| SMD2018P030TF | 4.72 | 5.44 | 4.22 | 4.93 | 0.60 | 1.10 | 0.30 |
| SMD2018P050TF | 4.72 | 5.44 | 4.22 | 4.93 | 0.60 | 1.10 | 0.30 |
| SMD2018P100TF | 4.72 | 5.44 | 4.22 | 4.93 | 0.45 | 0.80 | 0.30 |
| SMD2018P100TF/33 | 4.72 | 5.44 | 4.22 | 4.93 | 0.45 | 0.80 | 0.30 |
| SMD2018P150TF | 4.72 | 5.44 | 4.22 | 4.93 | 0.45 | 0.80 | 0.30 |
| SMD2018P200TF | 4.72 | 5.44 | 4.22 | 4.93 | 0.40 | 0.80 | 0.30 |

Electrical Characteristics

| Type Number | I_{hold} | I_{trip} | V_{max} | I_{max} | P_d max. | Maximum Time To Trip | | Resistance | |
|------------------|------------|------------|------------|-----------|------------|----------------------|-------------|------------------------|-------------------------|
| | (A) | (A) | $V_{(dc)}$ | (A) | (W) | Current (A) | Time (Sec.) | R_{min} (Ω) | R_{1max} (Ω) |
| SMD2018P030TF | 0.30 | 0.60 | 60 | 100 | 0.9 | 1.5 | 3.0 | 0.50 | 2.30 |
| SMD2018P050TF | 0.55 | 1.20 | 60 | 100 | 1.0 | 2.5 | 3.0 | 0.20 | 1.00 |
| SMD2018P100TF | 1.10 | 2.20 | 15 | 100 | 1.1 | 8.0 | 0.4 | 0.06 | 0.36 |
| SMD2018P100TF/33 | 1.10 | 2.20 | 33 | 100 | 1.1 | 8.0 | 0.4 | 0.06 | 0.36 |
| SMD2018P150TF | 1.50 | 3.00 | 15 | 100 | 1.1 | 8.0 | 0.8 | 0.05 | 0.17 |
| SMD2018P200TF | 2.00 | 4.20 | 10 | 100 | 1.1 | 8.0 | 2.4 | 0.03 | 0.10 |

I_{hold} = Hold current: maximum current device will pass without tripping in 20°C still air.

I_{trip} = Trip current: minimum current at which the device will trip in 20°C still air.

V_{max} = Maximum voltage device can withstand without damage at rated current (I_{max})

I_{max} = Maximum fault current device can withstand without damage at rated voltage (V_{max})

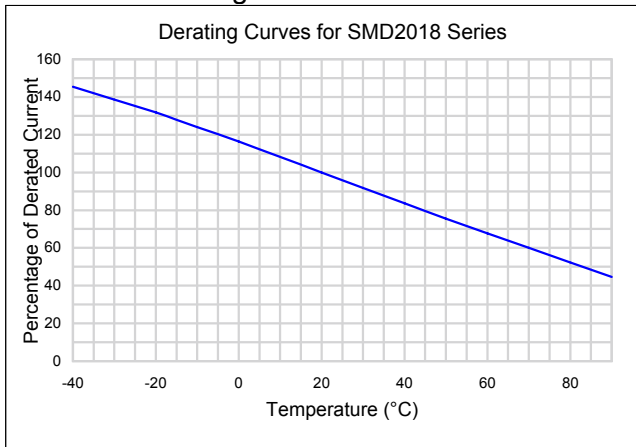
P_d = Power dissipated from device when in the tripped state at 20°C still air.

R_{min} = Minimum resistance of device in initial (un-soldered) state.

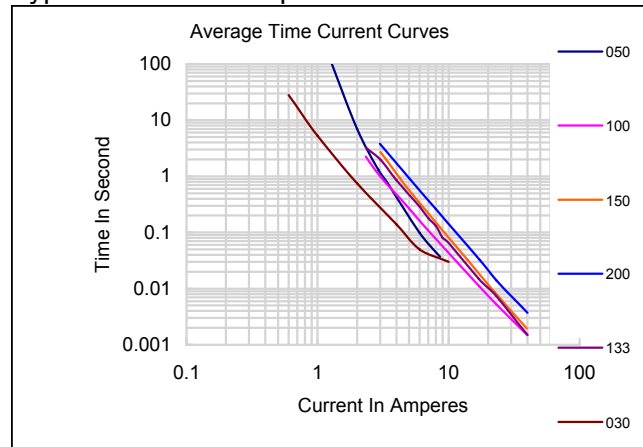
Thermal Derating Chart-IH(A)

| Model | Maximum ambient operating temperature (T_{mao}) vs. hold current (I_{hold}) | | | | | | | | |
|------------------|-------------------------------------------------------------------------------------|-------|------|------|------|------|------|------|------|
| | -40°C | -20°C | 0°C | 25°C | 40°C | 50°C | 60°C | 70°C | 85°C |
| SMD2018P030TF | 0.48 | 0.42 | 0.35 | 0.30 | 0.24 | 0.21 | 0.17 | 0.15 | 0.10 |
| SMD2018P050TF | 0.87 | 0.77 | 0.67 | 0.55 | 0.46 | 0.41 | 0.36 | 0.31 | 0.23 |
| SMD2018P100TF | 1.71 | 1.52 | 1.32 | 1.10 | 0.94 | 0.84 | 0.74 | 0.64 | 0.50 |
| SMD2018P100TF/33 | 1.71 | 1.52 | 1.32 | 1.10 | 0.94 | 0.84 | 0.74 | 0.64 | 0.50 |
| SMD2018P150TF | 2.38 | 2.10 | 1.82 | 1.50 | 1.27 | 1.13 | 0.99 | 0.85 | 0.64 |
| SMD2018P200TF | 2.95 | 2.65 | 2.35 | 2.00 | 1.74 | 1.59 | 1.44 | 1.29 | 1.06 |

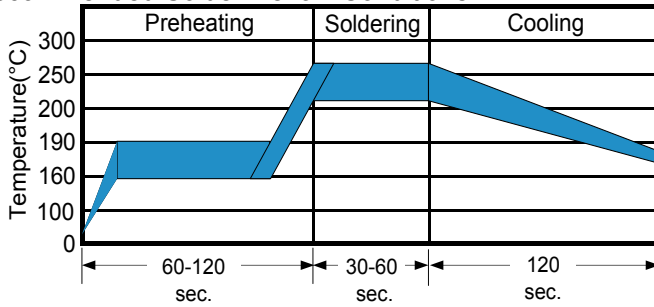
Thermal Derating Curve



Typical Time-To-Trip At 25°C



Recommended Solder Reflow Conditions



- Recommended reflow methods: IR, vapor phase oven, hot air oven.
 - Devices are not designed to be wave soldered to the bottom side of the board.
 - Recommended maximum paste thickness is 0.25 mm (0.010 inch).
 - Devices can be cleaned using standard method and solvents.
- Note: If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

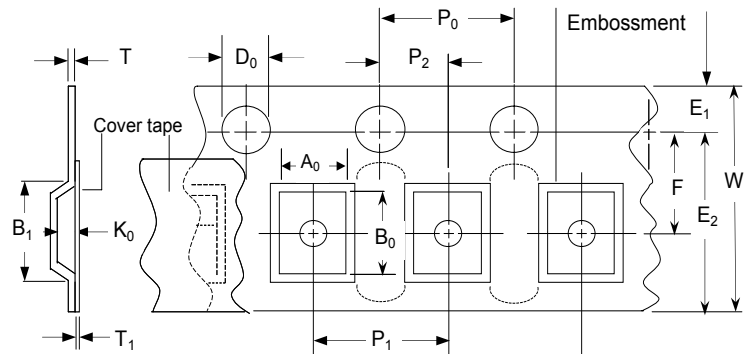
Tape And Reel Specifications (mm)

| Governing Specifications | EIA 481-2 |
|--------------------------|------------------|
| W | 12.0 ± 0.20 |
| P ₀ | 4.0 ± 0.10 |
| P ₁ | 8.0 ± 0.10 |
| P ₂ | 2.0 ± 0.05 |
| A ₀ | 4.40 ± 0.10 |
| B ₀ | 5.50 ± 0.10 |
| B _{1max.} | 8.2 |
| D ₀ | 1.5 + 0.1, -0.0 |
| F | 5.5 ± 0.05 |
| E ₁ | 1.75 ± 0.10 |
| E _{2min.} | 10.25 |
| Tmax. | 0.6 |
| T _{1max.} | 0.1 |
| K ₀ | 1.36 ± 0.1 |
| Leader min. | 390 |
| Trailer min. | 160 |
| Reel Dimensions | |
| A max. | 178 |
| N min. | 50 |
| W ₁ | 12.4 + 2.0, -0.0 |
| W _{2max.} | 18.4 |

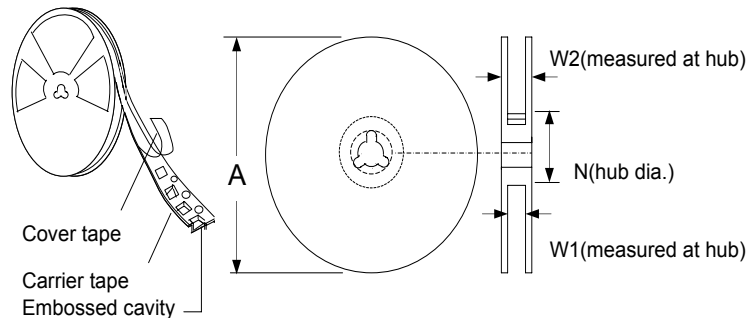
Storage And Handling

- Storage conditions : 40°C max, 70% R.H.
- Devices may not meet specified performance if storage conditions are exceeded.

EIA Tape Component Dimensions



EIA Reel Dimensions



Order Information

| SMD2018 | 050 | Tape & Reel Quantity | |
|----------------------------|---------|------------------------|----------------|
| Product name | Hold | 030, 050 | 1,500 pcs/reel |
| Size 5045 mm / 2018 mils | Current | 100, 100-33V, 150, 200 | 2,500 pcs/reel |
| SMD : surface mount device | 0.50A | | |

Tape & reel packaging per EIA481-1

Packaging

RUILONG.YUAN CO.,LTD
Tel: +86- 0755-82908296
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