

Positive Thermal Coefficient Diodes

SMD2920P030~300 Series

The SMD2920 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

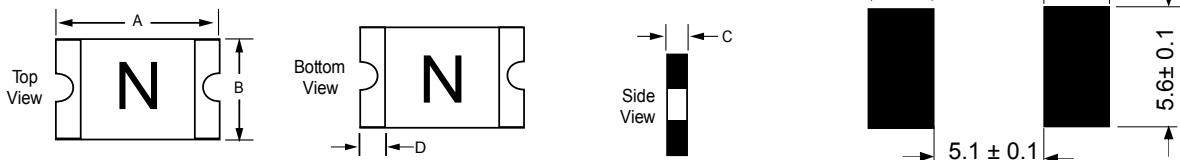
Applications

- 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



| Type Number | A | | B | | C | | D |
|------------------|------|------|------|------|------|------|------|
| | Min. | Max. | Min. | Max. | Min. | Max. | Min. |
| SMD2920P030TF | 6.73 | 7.98 | 4.80 | 5.44 | 0.60 | 1.15 | 0.30 |
| SMD2920P050TF | 6.73 | 7.98 | 4.80 | 5.44 | 0.60 | 1.15 | 0.30 |
| SMD2920P075TF | 6.73 | 7.98 | 4.80 | 5.44 | 0.60 | 1.15 | 0.30 |
| SMD2920P075TF/60 | 6.73 | 7.98 | 4.80 | 5.44 | 0.60 | 1.15 | 0.30 |
| SMD2920P100TF | 6.73 | 7.98 | 4.80 | 5.44 | 0.40 | 1.00 | 0.30 |
| SMD2920P125TF | 6.73 | 7.98 | 4.80 | 5.44 | 0.40 | 0.90 | 0.30 |
| SMD2920P150TF | 6.73 | 7.98 | 4.80 | 5.44 | 0.40 | 0.90 | 0.30 |
| SMD2920P185TF | 6.73 | 7.98 | 4.80 | 5.44 | 0.30 | 0.90 | 0.30 |
| SMD2920P200TF | 6.73 | 7.98 | 4.80 | 5.44 | 0.30 | 0.90 | 0.30 |
| SMD2920P200TF/24 | 6.73 | 7.98 | 4.80 | 5.44 | 0.30 | 0.90 | 0.30 |
| SMD2920P250TF | 6.73 | 7.98 | 4.80 | 5.44 | 0.30 | 0.90 | 0.30 |
| SMD2920P260TF | 6.73 | 7.98 | 4.80 | 5.44 | 0.30 | 0.90 | 0.30 |
| SMD2920P300TF | 6.73 | 7.98 | 4.80 | 5.44 | 0.30 | 0.90 | 0.30 |
| SMD2920P300TF/15 | 6.73 | 7.98 | 4.80 | 5.44 | 0.30 | 0.90 | 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) |
| SMD2920P030TF | 0.30 | 0.60 | 60 | 100 | 1.5 | 1.50 | 3.00 | 0.600 | 4.800 |
| SMD2920P050TF | 0.50 | 1.00 | 60 | 100 | 1.5 | 2.50 | 4.00 | 0.180 | 1.400 |
| SMD2920P075TF | 0.75 | 1.50 | 33 | 100 | 1.5 | 8.00 | 0.30 | 0.100 | 1.000 |
| SMD2920P075TF/60 | 0.75 | 1.50 | 60 | 100 | 1.5 | 8.00 | 0.30 | 0.065 | 1.000 |
| SMD2920P100TF | 1.10 | 2.20 | 33 | 100 | 1.5 | 8.00 | 0.50 | 0.065 | 0.410 |
| SMD2920P125TF | 1.25 | 2.50 | 33 | 100 | 1.5 | 8.00 | 2.00 | 0.050 | 0.250 |
| SMD2920P150TF | 1.50 | 3.00 | 33 | 100 | 1.5 | 8.00 | 2.00 | 0.035 | 0.230 |
| SMD2920P185TF | 1.85 | 3.70 | 33 | 100 | 1.5 | 8.00 | 2.50 | 0.030 | 0.150 |
| SMD2920P200TF | 2.00 | 4.00 | 16 | 100 | 1.5 | 8.00 | 4.50 | 0.020 | 0.120 |
| SMD2920P200TF/24 | 2.00 | 4.00 | 24 | 100 | 1.5 | 8.00 | 4.50 | 0.020 | 0.120 |
| SMD2920P250TF | 2.50 | 5.00 | 16 | 100 | 1.5 | 8.00 | 16.00 | 0.020 | 0.085 |
| SMD2920P260TF | 2.60 | 5.20 | 6 | 100 | 1.5 | 8.00 | 10.00 | 0.014 | 0.075 |
| SMD2920P300TF | 3.00 | 6.00 | 6 | 40 | 1.5 | 8.00 | 20.00 | 0.012 | 0.048 |
| SMD2920P300TF/15 | 3.00 | 6.00 | 16 | 100 | 1.5 | 8.00 | 20.00 | 0.012 | 0.048 |

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})

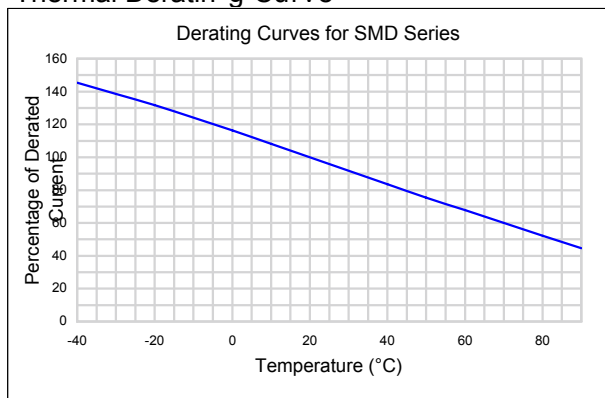
P_d = Power dissipated from device when in the tripped state at 20°C still air.

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

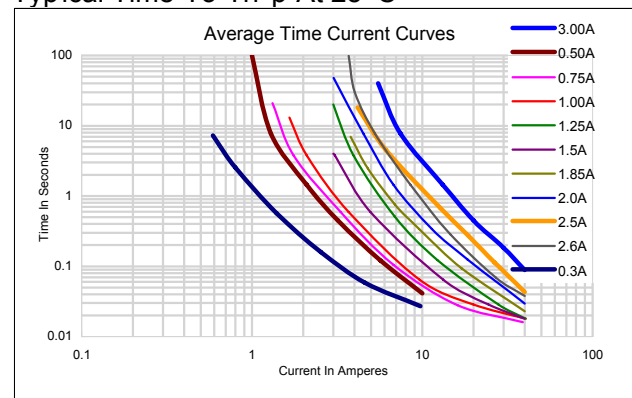
Thermal Derating Chart-IH(A)

| Type number | -40°C | -20°C | 0°C | 23°C | 40°C | 50°C | 60°C | 70°C | 85°C |
|------------------|-------|-------|------|------|------|------|------|------|------|
| SMD2920P030TF | 0.45 | 0.40 | 0.35 | 0.30 | 0.25 | 0.23 | 0.20 | 0.17 | 0.14 |
| SMD2920P050TF | 0.76 | 0.67 | 0.59 | 0.50 | 0.42 | 0.38 | 0.33 | 0.29 | 0.23 |
| SMD2920P075TF | 1.13 | 1.01 | 0.88 | 0.75 | 0.62 | 0.56 | 0.50 | 0.44 | 0.34 |
| SMD2920P075TF/60 | 1.13 | 1.01 | 0.88 | 0.75 | 0.62 | 0.56 | 0.50 | 0.44 | 0.34 |
| SMD2920P100TF | 1.66 | 1.47 | 1.29 | 1.10 | 0.91 | 0.83 | 0.73 | 0.64 | 0.50 |
| SMD2920P125TF | 1.89 | 1.68 | 1.46 | 1.25 | 1.04 | 0.94 | 0.83 | 0.73 | 0.56 |
| SMD2920P150TF | 2.27 | 2.01 | 1.76 | 1.50 | 1.25 | 1.13 | 1.00 | 0.87 | 0.74 |
| SMD2920P185TF | 2.80 | 2.47 | 2.17 | 1.85 | 1.54 | 1.39 | 1.22 | 1.07 | 0.85 |
| SMD2920P200TF | 3.02 | 2.68 | 2.34 | 2.00 | 1.66 | 1.50 | 1.32 | 1.16 | 0.90 |
| SMD2920P200TF/24 | 3.02 | 2.68 | 2.34 | 2.00 | 1.66 | 1.50 | 1.32 | 1.16 | 0.90 |
| SMD2920P250TF | 3.78 | 3.35 | 2.93 | 2.50 | 2.08 | 1.88 | 1.65 | 1.45 | 1.13 |
| SMD2920P260TF | 3.64 | 3.25 | 2.91 | 2.60 | 2.26 | 2.08 | 1.95 | 1.74 | 1.13 |
| SMD2920P300TF | 4.53 | 4.02 | 3.51 | 3.00 | 2.52 | 2.26 | 1.99 | 1.75 | 1.34 |
| SMD2920P300TF/15 | 4.53 | 4.02 | 3.51 | 3.00 | 2.52 | 2.26 | 1.99 | 1.75 | 1.34 |

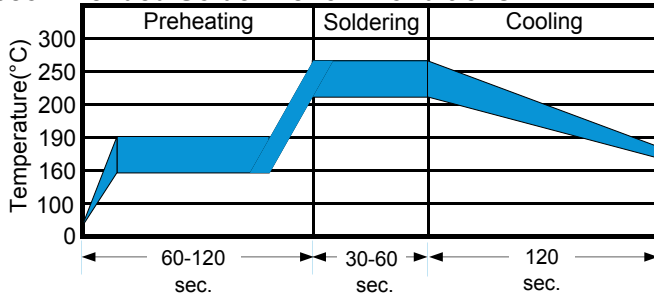
Thermal Derating Curve



Typical Time-To-Trip At 25°C



Recommended Solder Reflow Conditions

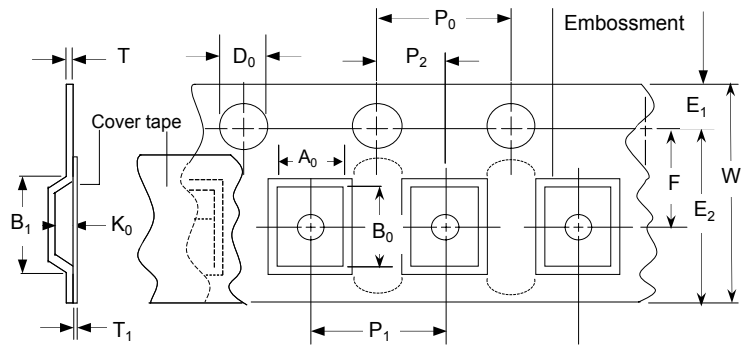


- Recommended reflow methods : IR, vapor phase oven, hot air oven.
 - Devices are not designed to be wave soldered to the bottom side of the board.
 - Recommended maximum paste thickness is 0.25 mm (0.010 inch).
 - Devices can be cleaned using standard method and solvents.
- Note : If reflow temperatures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

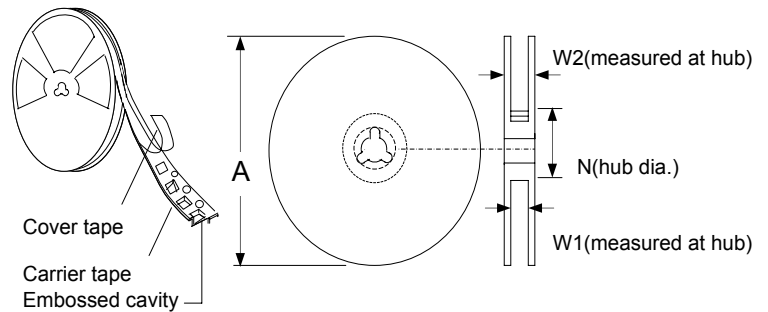
Tape And Reel Specifications (mm)

| Governing Specifications | EIA 481-2 |
|--------------------------|------------------|
| W | 16.0 ± 0.3 |
| P ₀ | 4.0 ± 0.10 |
| P ₁ | 8.0 ± 0.10 |
| P ₂ | 2.0 ± 0.05 |
| A ₀ | 5.70 ± 0.10 |
| B ₀ | 8.00 ± 0.10 |
| B _{1max.} | 12.1 |
| D ₀ | 1.5 + 0.1, -0 |
| F | 7.5 ± 0.05 |
| E ₁ | 1.75 ± 0.10 |
| E _{2min.} | 14.25 |
| Tmax. | 0.6 |
| T _{1max.} | 0.1 |
| K ₀ | 0.80 ± 0.1 |
| Leader min. | 390 |
| Trailer min. | 160 |
| Reel Dimensions | |
| A max. | 178 |
| N min. | 60 |
| W ₁ | 16.4 + 2.0, -0.0 |
| W _{2max.} | 22.4 |

EIA Tape Component Dimentions



EIA Reel Dimentions



Storage And Handling

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

Order Information

Packaging

| SMD2920 | 050L | Tape & Reel Quantity |
|----------------------------|---------|----------------------|
| Product name | Hold | 2,000 pcs/reel |
| Size 7555mm/2920 mils | Current | |
| SMD : surface mount device | 0.50A | |

Tape & reel packaging per EIA481-1

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