

Features

- Very low profile
- Very fast tripping time
- High voltage
- RoHS compliant* and halogen free**
- 2018 footprint
- Agency recognition:

Applications

- Power Over Ethernet (IEEE 802.3 af) port protection
- Automotive electronic control module protection
- Telecom equipment low voltage protection

PRCP-SMDF Series - Polymer Resettable Circuit Protectors

Electrical Characteristics

Model	V max. Volts	I max. Amps	I _{hold}	I _{trip}	Resistance		Max. Time To Trip		Tripped Power Dissipation
			Amperes at 23 °C		Ohms at 23 °C		Amperes at 23 °C	Seconds at 23 °C	Watts at 23 °C
			Hold	Trip	R _{Min.}	R _{1Max.}			Typ.
PRCP-SMDF050	60	10	0.55	1.20	0.20	1.00	2.5	3.0	0.9

Environmental Characteristics

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	+85 °C to -40 °C, 20 times ±10 % typical resistance change
Solvent Resistance	MIL-STD-202, Method 215..... No change
Vibration	MIL-STD-883C, Method 2007.1, Condition A No change

Test Procedures And Requirements For Model PRCP-SMDF Series

Test	Test Conditions	Accept/Reject Criteria
Visual/Mech	Verify dimensions and materials	Per P.R.C.P. physical description
Resistance	In still air @ 23 °C	R min ≤ R ≤ R1 max
Time to Trip	At specified current, V max, 23 °C	T ≤ max.time to trip (seconds)
Hold Current	30 min. at I hold.....	No trip
Trip Cycle Life	V max, I max, 100 cycles	No arcing or burning
Trip Endurance	V max, 48 hours	No arcing or burning
Solderability	ANSI/J-STD-002	95% min. coverage
UL File Number	E300792	
TÜV Certificate Number	R50383882	

Thermal Derating Chart - I_{hold} / I_{trip} (Amps)

Model	Ambient Operating Temperature								
	-40 °C	-20 °C	0 °C	23 °C	40 °C	50 °C	60 °C	70 °C	85 °C
PRCP-SMDF050	0.87 / 1.90	0.77 / 1.68	0.67 / 1.46	0.55 / 1.20	0.46 / 1.00	0.41 / 0.89	0.36 / 0.79	0.31 / 0.68	0.23 / 0.50

*RoHS Directive 2015/863 Mar. 31, 2015 and Annex.

**NIDEC COMPONENTS follows the prevailing definition of "halogen free" in the industry. NIDEC COMPONENTS considers a product to be "halogen free" if (a) the Bromine (Br) content is 900 ppm or less; (b) the Chlorine(Cl) content is 900 ppm or less; and (c) the total Bromine (Br) and Chlorine (Cl) content is 1500 ppm or less.

Specifications are subject to change without notice.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.

Customers should verify actual device performance in their specific applications.

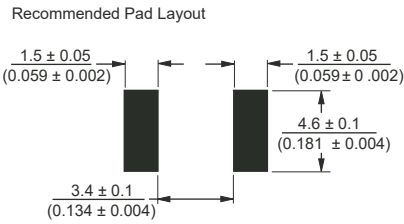
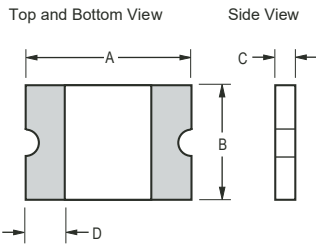
PRCP-SMDF Series - Polymer Resettable Circuit Protectors

Product Dimensions

Model	A		B		C		D
	Min.	Max.	Min.	Max.	Min.	Max.	Min.
PRCP-SMDF050	$\frac{4.72}{(0.186)}$	$\frac{5.44}{(0.214)}$	$\frac{4.22}{(0.166)}$	$\frac{4.93}{(0.194)}$	$\frac{0.79}{(0.031)}$	$\frac{1.09}{(0.043)}$	$\frac{0.30}{(0.012)}$

Packaging: 6000 pcs. per reel.

UNIT = $\frac{\text{MM}}{(\text{INCHES})}$

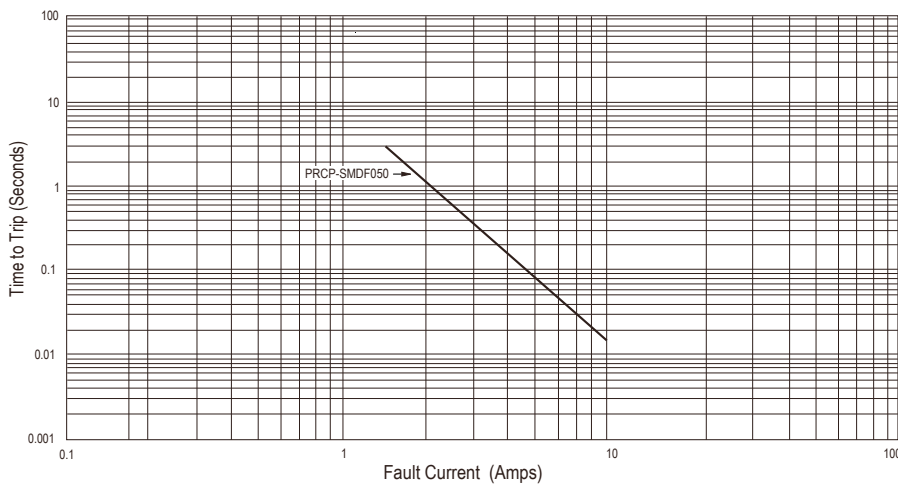


Terminal material:
Electroless Ni under immersion Au

Termination pad solderability:
Standard Au finish:
Meets ANSI/J-STD-002 Category 2.

Recommended Storage:
40 °C max./70 % RHmax.

Typical Time to Trip at 23°C



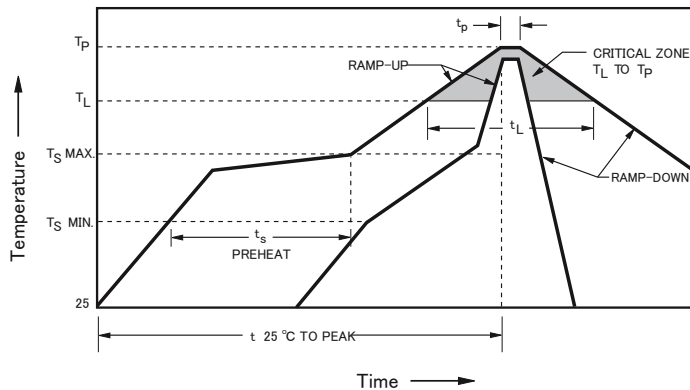
The Time to Trip curves represent typical performance of a device in a simulated application environment. Actual performance in specific customer applications may differ from these values due to the influence of other variables.

Specifications are subject to change without notice.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time. Customers should verify actual device performance in their specific applications.

PRCP-SMDF Series - Polymer Resettable Circuit Protectors

Solder Reflow Recommendations

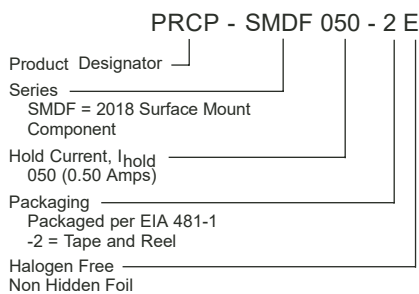


Notes:

- PRCP-SMDF models are intended for reflow soldering (including, but not limited to heating plate, hot air, IR, nitrogen, and vapor phase).
- Wave soldering is permissible only if the device is on the top of the PCB, opposite the heat source.
- Hand soldering is not recommended for these devices.
- All temperatures refer to the topside of the device, measured on the device body surface.
- If reflow temperatures exceed the recommended profile, devices may not meet the published specifications.
- Compatible with Pb and Pb-free solder reflow profiles.
- Excess solder may cause a short circuit.

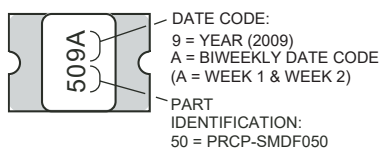
Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate (Ts max to Tp)	3 °C/ second max.
PREHEAT: Temperature Min. (Ts min) Temperature Max. (Ts max) Time (Ts min to Ts max) (ts)	150 °C 200 °C 60~180 seconds
TIME MAINTAINED ABOVE: Temperature (TL) Time (tL)	217 °C 60~150 seconds
Peak Temperature (Tp)	260 °C
Time within 5 °C of Actual Peak Temperature (tp)	20~40 seconds
Ramp-Down Rate	6 °C / second max.
Time 25 °C to Peak Temperature	8 minutes max.

How to Order



Typical Part Marking

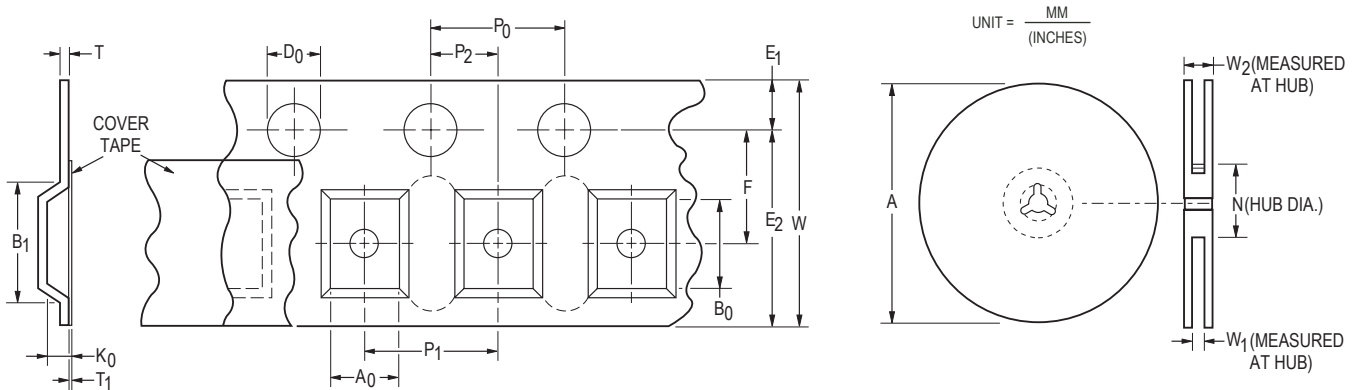
Represents total content. Layout may vary.



Specifications are subject to change without notice.
 The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.
 Customers should verify actual device performance in their specific applications.

PRCP-SMDF Series Tape and Reel Specifications

Tape Dimensions	PRCP-SMDF Series per EIA 481-2
W	16.0 ± 0.3 (0.630 ± 0.012)
P ₀	4.0 ± 0.1 (0.157 ± 0.004)
P ₁	8.0 ± 0.1 (0.315 ± 0.004)
P ₂	2.0 ± 0.1 (0.079 ± 0.004)
A ₀	5.1 ± 0.15 (0.201 ± 0.006)
B ₀	5.6 ± 0.23 (0.220 ± 0.009)
B ₁ max.	12.1 (0.476)
D ₀	$1.5 + 0.1/-0.0$ ($0.059 + 0.004/-0.0$)
F	7.5 ± 0.10 (0.295 ± 0.004)
E ₁	1.75 ± 0.10 (0.069 ± 0.004)
E ₂ min.	14.25 (0.561)
T max.	0.6 (0.024)
T ₁ max.	0.1 (0.004)
K ₀	1.0 ± 0.15 (0.039 ± 0.015)
Leader min.	390 (15.35)
Trailer min.	160 (6.30)
Reel Dimensions	
A max.	331 (13.03)
N min.	50 (1.97)
W ₁	$16.4 + 2.0/-0.0$ ($0.646 + 0.079/-0.0$)
W ₂ max.	22.4 (0.882)



Specifications are subject to change without notice.
 The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.
 Customers should verify actual device performance in their specific applications.