


**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 <sub>hold</sub>	I <sub>trip</sub>	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 <sub>Min.</sub>	R <sub>1Max.</sub>			Typ.
PRCP-SMDF050	60	10	0.55	1.20	0.200	1.0	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<sub>hold</sub> / I<sub>trip</sub> (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.

\*\*COPAL follows the prevailing definition of "halogen free" in the industry.COPAL 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.

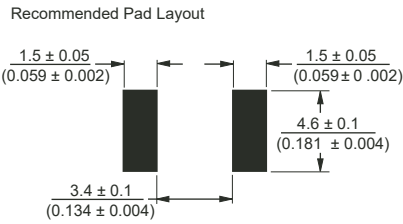
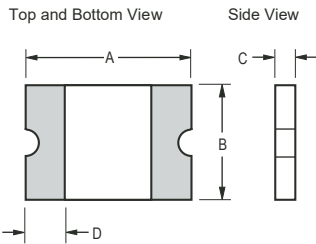
# PRCP-SMDF Series - Polymer Resettable Circuit Protectors

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

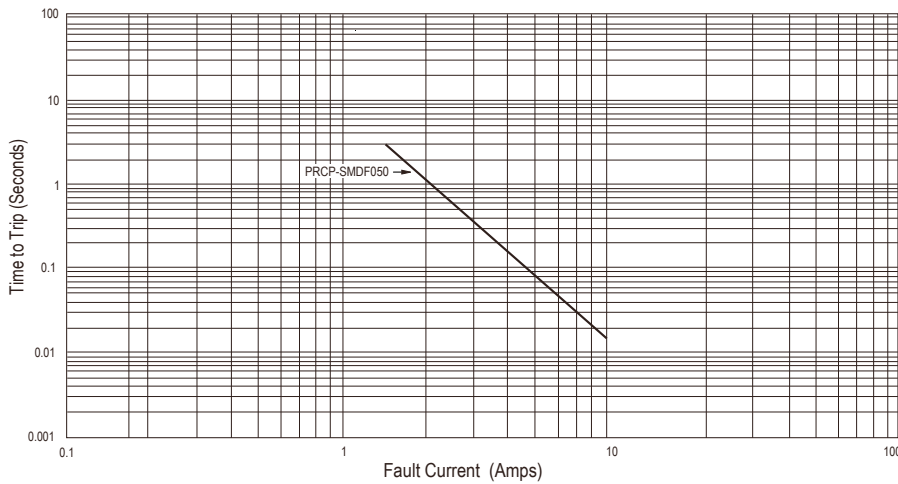


Terminal material:  
Electroless Ni under immersion Au

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



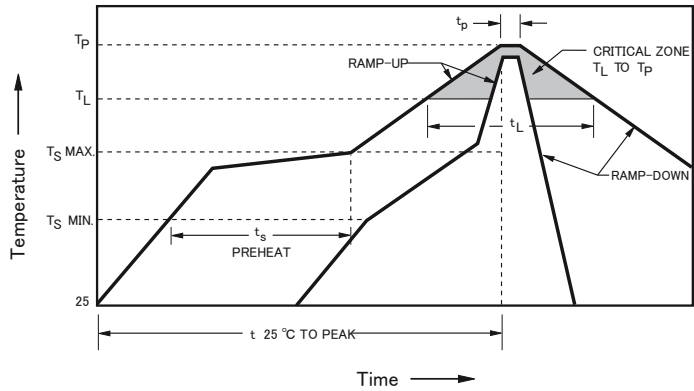
The Time to Trip curves represent typical performance of a device in a simulated application environment. Actual performance in specific customer applications may differ from these values due to the influence of other variables.

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

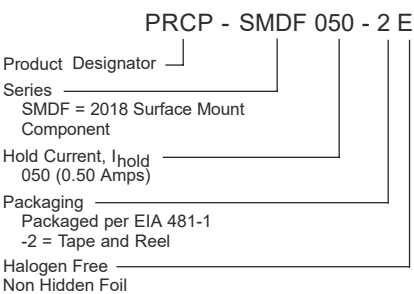
## Solder Reflow Recommendations



- 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.

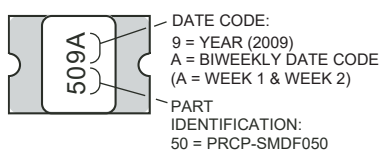
Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate ( $T_{s\ max}$ to $T_p$ )	3 °C / second max.
PREHEAT: Temperature Min. ( $T_{s\ min}$ ) Temperature Max. ( $T_{s\ max}$ ) Time ( $T_{s\ min}$ to $T_{s\ max}$ ) ( $t_s$ )	150 °C 200 °C 60~180 seconds
TIME MAINTAINED ABOVE: Temperature ( $T_L$ ) Time ( $t_L$ )	217 °C 60~150 seconds
Peak Temperature ( $T_p$ )	260 °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	8 minutes max.

## How to Order



## Typical Part Marking

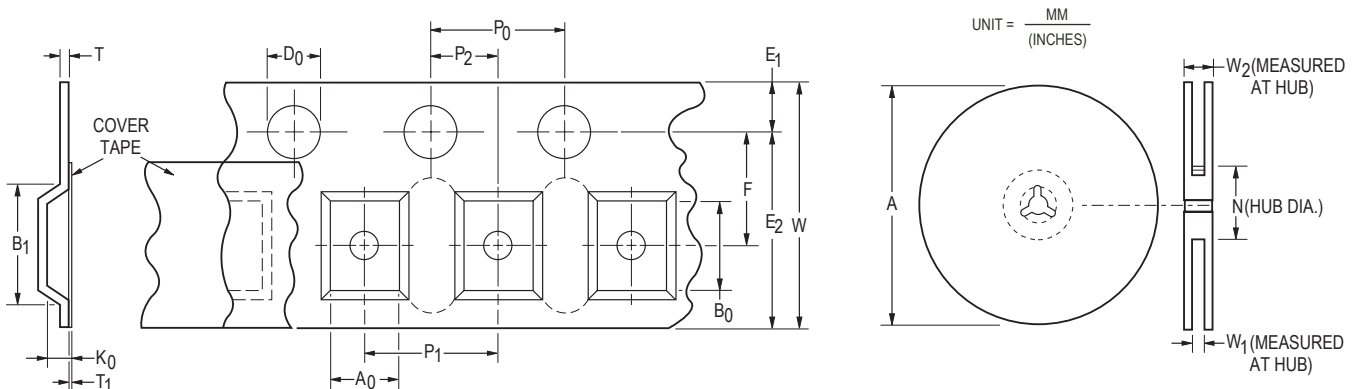
Represents total content. Layout may vary.



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