



Features

- Compact design to save board space - 0805 footprint
- Small size results in very fast time to react to fault events
- Low profile
- RoHS compliant* and halogen free**
- Agency recognition: 

Applications

- USB port protection - USB 2.0, 3.0 & OTG
- HDMI 1.4 Source protection
- PC motherboards - Plug and Play protection
- Mobile phones - Battery and port protection
- PDAs / digital cameras
- Game console port protection

PRCP-PSMF 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-PSMF010X	15	40	0.10	0.30	1.0	7.5	0.5	1.5	0.5
PRCP-PSMF020X	9	40	0.20	0.50	0.65	3.5	8.00	0.02	0.5
PRCP-PSMF035X	6	40	0.35	0.75	0.250	1.200	8.00	0.10	0.5
PRCP-PSMF050X	6	40	0.50	1.00	0.150	0.900	8.00	0.10	0.5
PRCP-PSMF075X	6	40	0.75	1.50	0.090	0.350	8.00	0.20	0.6
PRCP-PSMF110X	6	40	1.10	2.20	0.060	0.210	8.00	0.30	0.6

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 215No change
Vibration	MIL-STD-883C, Method 2007.1,No change
	Condition A

Test Procedures And Requirements For Model PRCP-PSMF 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 ≤ R _{1max}
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

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-PSMF010X	0.15 / 0.45	0.13 / 0.39	0.12 / 0.36	0.10 / 0.30	0.09 / 0.27	0.08 / 0.24	0.07 / 0.21	0.06/0.18	0.05 / 0.15
PRCP-PSMF020X	0.28 / 0.70	0.25 / 0.63	0.23 / 0.58	0.20 / 0.50	0.17 / 0.43	0.14 / 0.35	0.12 / 0.30	0.10/0.25	0.07 / 0.18
PRCP-PSMF035X	0.47 / 1.01	0.44 / 0.94	0.39 / 0.84	0.35 / 0.75	0.30 / 0.64	0.27 / 0.58	0.24 / 0.51	0.20/0.43	0.14 / 0.30
PRCP-PSMF050X	0.68 / 1.36	0.62 / 1.24	0.55 / 1.10	0.50 / 1.00	0.40 / 0.80	0.37 / 0.74	0.33 / 0.66	0.29/0.58	0.23 / 0.46
PRCP-PSMF075X	1.00 / 2.00	0.90 / 1.80	0.79 / 1.58	0.75 / 1.50	0.63 / 1.26	0.57 / 1.14	0.53 / 1.06	0.42/0.84	0.35 / 0.70
PRCP-PSMF110X	1.45 / 2.90	1.35 / 2.70	1.20 / 2.40	1.10 / 2.20	0.92 / 1.84	0.84 / 1.68	0.75 / 1.50	0.65/1.30	0.52 / 1.04

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

**To be considered halogen free, each homogenous material can have a maximum concentration of 900 ppm of either bromine or chlorine.

Specifications are subject to change without notice.

Customers should verify actual device performance in their specific applications.

Additional Applications

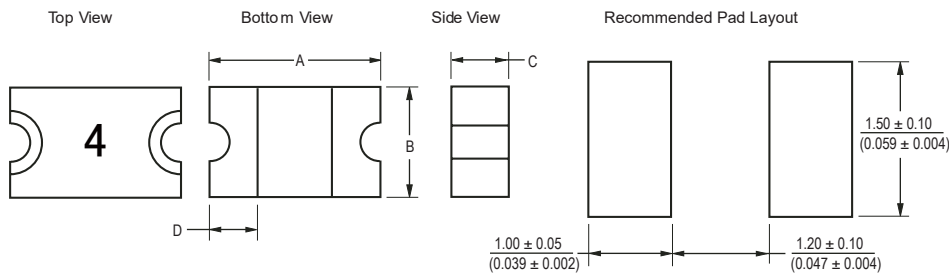
- Automotive electronic control modules

PRCP-PSMF Series - Polymer Resettable Circuit Protectors

Product Dimensions

Model	A		B		C		D
	Min.	Max.	Min.	Max.	Min.	Max.	Min.
PRCP-PSMF010X	$\frac{2.00}{(0.079)}$	$\frac{2.30}{(0.091)}$	$\frac{1.20}{(0.047)}$	$\frac{1.50}{(0.059)}$	$\frac{0.48}{(0.019)}$	$\frac{0.85}{(0.033)}$	$\frac{0.20}{(0.008)}$
PRCP-PSMF020X	$\frac{2.00}{(0.079)}$	$\frac{2.30}{(0.091)}$	$\frac{1.20}{(0.047)}$	$\frac{1.50}{(0.059)}$	$\frac{0.48}{(0.019)}$	$\frac{0.85}{(0.033)}$	$\frac{0.20}{(0.008)}$
PRCP-PSMF035X	$\frac{2.00}{(0.079)}$	$\frac{2.30}{(0.091)}$	$\frac{1.20}{(0.047)}$	$\frac{1.50}{(0.059)}$	$\frac{0.48}{(0.019)}$	$\frac{0.85}{(0.033)}$	$\frac{0.20}{(0.008)}$
PRCP-PSMF050X	$\frac{2.00}{(0.079)}$	$\frac{2.30}{(0.091)}$	$\frac{1.20}{(0.047)}$	$\frac{1.50}{(0.059)}$	$\frac{0.48}{(0.019)}$	$\frac{0.85}{(0.033)}$	$\frac{0.20}{(0.008)}$
PRCP-PSMF075X	$\frac{2.00}{(0.079)}$	$\frac{2.30}{(0.091)}$	$\frac{1.20}{(0.047)}$	$\frac{1.50}{(0.059)}$	$\frac{0.75}{(0.030)}$	$\frac{1.25}{(0.049)}$	$\frac{0.20}{(0.008)}$
PRCP-PSMF110X	$\frac{2.00}{(0.079)}$	$\frac{2.30}{(0.091)}$	$\frac{1.20}{(0.047)}$	$\frac{1.50}{(0.059)}$	$\frac{0.75}{(0.030)}$	$\frac{1.25}{(0.049)}$	$\frac{0.20}{(0.008)}$

Packaging: 3000 pcs. per reel.

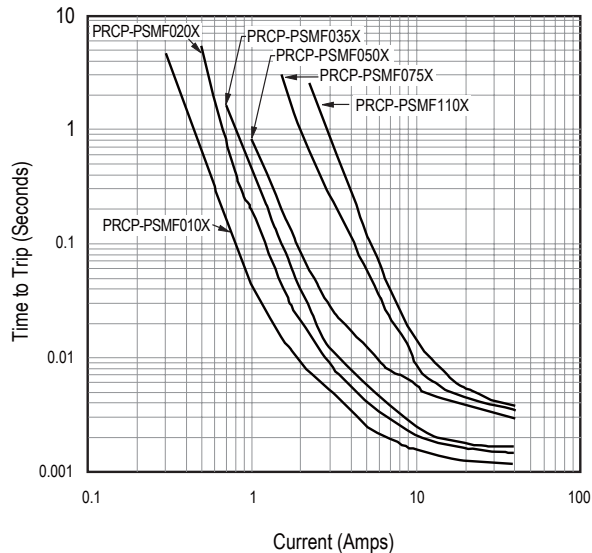
$$\text{DIMENSIONS} = \frac{\text{MM}}{(\text{INCHES})}$$


Terminal material:
Nickel/gold plated.

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

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

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.

How to Order

PRCP-PSMF 050 X - 2 E

Product Designator

Series _____
PSMF = 0805 Surface Mount Component

Hold Current, I_{hold} _____
010-110 (0.10 - 1.10 Amps)

Product Shape _____

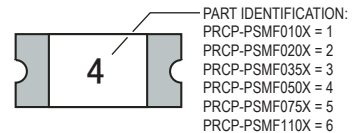
Packaging _____
Packaged per EIA 481-1
-2 = Tape and Reel

Halogen Free _____

Non hidden foil

Typical Part Marking

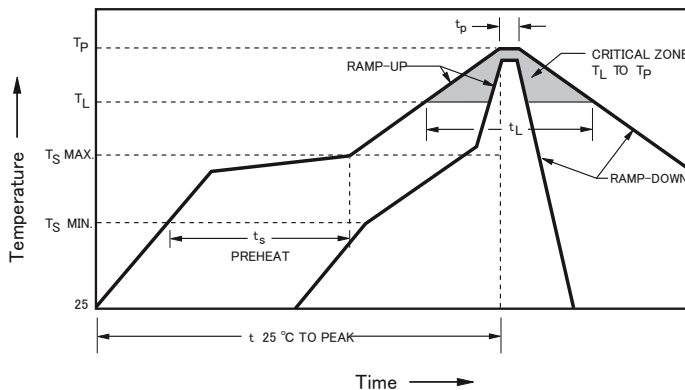
Represents total content. Layout may vary.



BIWEEKLY DATE CODE WILL APPEAR ON THE PACKAGING LABEL:
WEEK 1 AND 2 = A
WEEK 51 AND 52 = Z

PRCP-PSMF Series - Polymer Resettable Circuit Protectors

Solder Reflow Recommendations



Notes:

- PRCP-PSMF 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.

PRCP-PSMF Series Tape and Reel Specifications

Tape Dimensions	PRCP-PSMF010X, PRCP-PSMF020X, PRCP-PSMF035X & PRCP-PSMF050X	PRCP-PSMF075X & PRCP-PSMF110X
	per EIA 481-1	per EIA 481-1
W	$\frac{8.0 \pm 0.30}{(0.315 \pm 0.012)}$	$\frac{8.0 \pm 0.30}{(0.315 \pm 0.012)}$
P ₀	$\frac{4.0 \pm 0.10}{(0.157 \pm 0.004)}$	$\frac{4.0 \pm 0.10}{(0.157 \pm 0.004)}$
P ₁	$\frac{4.0 \pm 0.10}{(0.157 \pm 0.004)}$	$\frac{4.0 \pm 0.10}{(0.157 \pm 0.004)}$
P ₂	$\frac{2.0 \pm 0.05}{(0.079 \pm 0.002)}$	$\frac{2.0 \pm 0.05}{(0.079 \pm 0.002)}$
A ₀	$\frac{1.65 \pm 0.10}{(0.065 \pm 0.004)}$	$\frac{1.65 \pm 0.10}{(0.065 \pm 0.004)}$
B ₀	$\frac{2.4 \pm 0.10}{(0.094 \pm 0.004)}$	$\frac{2.4 \pm 0.10}{(0.094 \pm 0.004)}$
B ₁ max.	$\frac{4.35}{(0.171)}$	$\frac{4.35}{(0.171)}$
D ₀	$\frac{1.50 + 0.10/-0.0}{(0.059 + 0.004/-0)}$	$\frac{1.50 + 0.10/-0.0}{(0.059 + 0.004/-0)}$
F	$\frac{3.5 \pm 0.05}{(0.138 \pm 0.002)}$	$\frac{3.5 \pm 0.05}{(0.138 \pm 0.002)}$
E ₁	$\frac{1.75 \pm 0.10}{(0.069 \pm 0.004)}$	$\frac{1.75 \pm 0.10}{(0.069 \pm 0.004)}$
E ₂ min.	$\frac{6.25}{(0.246)}$	$\frac{6.25}{(0.246)}$
T max.	$\frac{0.6}{(0.024)}$	$\frac{0.6}{(0.024)}$
T ₁ max.	$\frac{0.10}{(0.004)}$	$\frac{0.10}{(0.004)}$
K ₀	$\frac{0.95 \pm 0.10}{(0.037 \pm 0.004)}$	$\frac{1.25 \pm 0.10}{(0.049 \pm 0.004)}$
Leader min.	$\frac{390}{(15.35)}$	$\frac{390}{(15.35)}$
Trailer min.	$\frac{160}{(6.30)}$	$\frac{160}{(6.30)}$
Reel Dimensions		
A max.	$\frac{185}{(7.28)}$	$\frac{185}{(7.28)}$
N min.	$\frac{50}{(1.97)}$	$\frac{50}{(1.97)}$
W ₁	$\frac{8.4 + 1.5/-0.0}{(0.331 + 0.059/-0)}$	$\frac{8.4 + 1.5/-0.0}{(0.331 + 0.059/-0)}$
W ₂ max.	$\frac{14.4}{(0.567)}$	$\frac{14.4}{(0.567)}$

