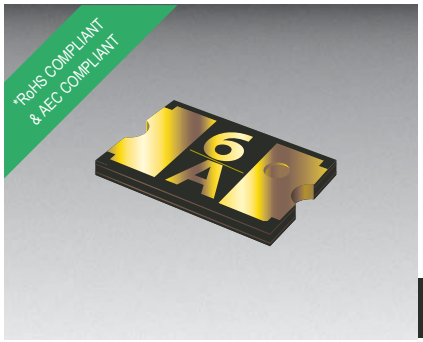


Features

- Compliant with AEC-Q200 Rev-C- Stress Test Qualification for Passive Components in Automotive Applications
- Fast tripping resettable circuit protection
- Surface mount packaging for automated assembly
- Small footprint size (1210)
- RoHS compliant* and halogen free**
- Agency recognition

PRCP-USMF 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 ℃		Ohms at 23 ℃		Amperes at 23 ℃	Seconds at 23 ℃	Watts at 23 ℃
			Hold	Trip	$R_{Min.}$	$R_{1Max.}$			Typ.
PRCP-USMF005	30	10	0.05	0.15	2.800	50.000	0.25	1.50	0.6
PRCP-USMF010	30	10	0.10	0.30	0.800	15.000	0.50	0.60	0.6
PRCP-USMF020	30	10	0.20	0.40	0.400	5.000	8.00	0.02	0.6
PRCP-USMF035	6	40	0.35	0.75	0.200	1.300	8.00	0.20	0.6
PRCP-USMF050	13.2	40	0.50	1.00	0.180	0.900	8.00	0.10	0.6
PRCP-USMF075	6	40	0.75	1.50	0.070	0.450	8.00	0.10	0.6
PRCP-USMF110	6	40	1.10	2.20	0.050	0.210	5.00	1.00	0.6
PRCP-USMF150	6	40	1.50	3.00	0.030	0.110	5.00	5.00	0.6

Environmental Characteristics

Operating Temperature..... -40 ℃ to 85 ℃
Maximum Device Surface Temperature in Tripped State.....125 ℃
Passive Aging.....+85 ℃,1000 hours.....±5 % typical resistance change
Humidity Aging.....+85 ℃,85 % R.H. 1000 hours.....±5 % typical resistance change
Thermal Shock.....+85 ℃ to -40 ℃,20 times.....±10 % typical resistance change
Solvent Resistance.....MIL-STD-202, Method215.....No change
Vibration.....MIL-STD-883C,Method 2007.1, Condition A.....No change

Test Procedures And Requirements For Model PRCP-USMF 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 ℃	Rmin ≤ R ≤ R1max
Time to Trip	At specified current,Vmax,23 ℃	T ≤ max.time to trip (seconds)
Hold Current	30 min at Ihold	No trip
Trip Cycle Life	Vmax,Imax,100 cycles	No arcing or burning
Trip Endurance	Vmax,48 hours	No arcing or burning
Solderability	ANSI/J-STD-002	95% min. coverage

* RoHS Directive 2015/863, Mar. 31 2015 and Annex.
** To be considered halogen free, (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.Specifi cations 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.

Applications

- Game consoles
- PC motherboards
- USB port protection-USB 2.0,3.0 & OTG
- HDMI 1.4 Source protection
- IEEE 1394 ports
- Mobile phones
- Digital cameras

PRCP-USMF Series - Polymer Resettable Circuit Protectors

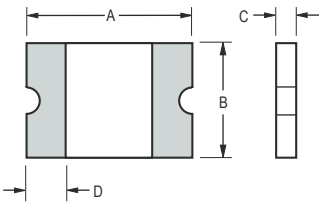
Product Dimensions

Model	A		B		C		D
	Min.	Max.	Min.	Max.	Min.	Max.	Min.
PRCP-USMF005	3.00 (0.118)	3.43 (0.135)	2.35 (0.093)	2.80 (0.110)	0.80 (0.031)	1.1 (0.043)	0.30 (0.012)
PRCP-USMF010	3.00 (0.118)	3.43 (0.135)	2.35 (0.093)	2.80 (0.110)	0.80 (0.031)	1.1 (0.043)	0.30 (0.012)
PRCP-USMF020	3.00 (0.118)	3.43 (0.135)	2.35 (0.093)	2.80 (0.110)	0.80 (0.031)	1.1 (0.043)	0.30 (0.012)
PRCP-USMF035	3.00 (0.118)	3.43 (0.135)	2.35 (0.093)	2.80 (0.110)	0.55 (0.022)	0.85 (0.033)	0.30 (0.012)
PRCP-USMF050	3.00 (0.118)	3.43 (0.135)	2.35 (0.093)	2.80 (0.110)	0.55 (0.022)	0.85 (0.033)	0.30 (0.012)
PRCP-USMF075	3.00 (0.118)	3.43 (0.135)	2.35 (0.093)	2.80 (0.110)	0.55 (0.022)	0.85 (0.033)	0.30 (0.012)
PRCP-USMF110	3.00 (0.118)	3.43 (0.135)	2.35 (0.093)	2.80 (0.110)	0.55 (0.022)	0.85 (0.033)	0.30 (0.012)
PRCP-USMF150	3.00 (0.118)	3.43 (0.135)	2.35 (0.093)	2.80 (0.110)	0.40 (0.016)	0.85 (0.033)	0.30 (0.012)

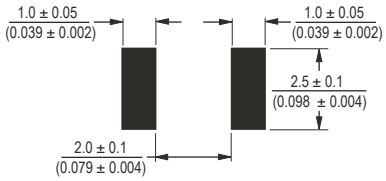
Packaging:3000 pcs.per reel.

UNIT = MM / (INCHES)

Top and Bottom View ***Side View***



Recommended Pad Layout



Terminal material:
Electroless Ni under immersion Au

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

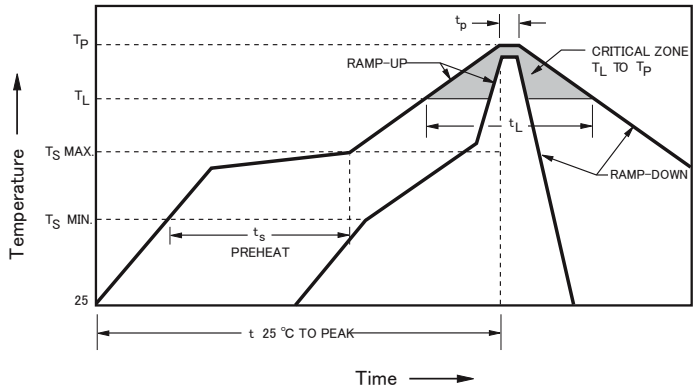
Recommended Storage:
40 ℃ max./70 % RH max.

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-USMF005	0.08 / 0.24	0.07 / 0.21	0.06 / 0.18	0.05 / 0.15	0.04 / 0.12	0.04 / 0.12	0.03 / 0.09	0.03 / 0.09	0.02 / 0.06
PRCP-USMF010	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-USMF020	0.32 / 0.64	0.28 / 0.56	0.24 / 0.48	0.20 / 0.40	0.18 / 0.36	0.16 / 0.32	0.14 / 0.28	0.12 / 0.24	0.10 / 0.20
PRCP-USMF035	0.51 / 1.09	0.46 / 0.99	0.40 / 0.86	0.34 / 0.75	0.30 / 0.64	0.27 / 0.58	0.24 / 0.51	0.22 / 0.47	0.18 / 0.39
PRCP-USMF050	0.76 / 1.52	0.66 / 1.32	0.58 / 1.16	0.48 / 1.00	0.42 / 0.84	0.38 / 0.76	0.35 / 0.70	0.29 / 0.58	0.23 / 0.52
PRCP-USMF075	1.10 / 2.20	0.97 / 1.94	0.86 / 1.72	0.72 / 1.50	0.64 / 1.28	0.58 / 1.16	0.55 / 1.10	0.47 / 0.94	0.39 / 0.78
PRCP-USMF110	1.60 / 3.20	1.42 / 2.84	1.26 / 2.52	1.10 / 2.20	0.94 / 1.88	0.86 / 1.72	0.80 / 1.60	0.70 / 1.40	0.58 / 1.16
PRCP-USMF150	2.30 / 4.60	2.02 / 4.04	1.76 / 3.52	1.43 / 3.00	1.24 / 2.48	1.11 / 2.22	1.00 / 2.00	0.85 / 1.70	0.65 / 1.30

PRCP-USMF Series - Polymer Resettable Circuit Protectors

Solder Reflow Recommendations

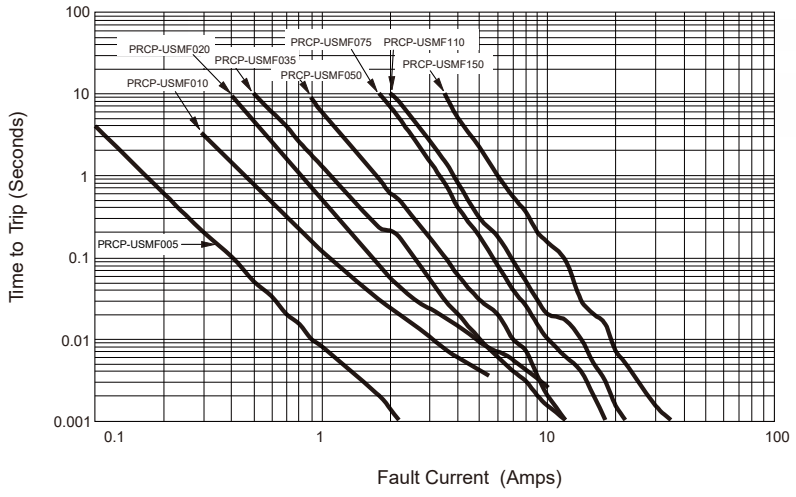


Notes:

- PRCP-USMF 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 T_p)	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 (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.

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.

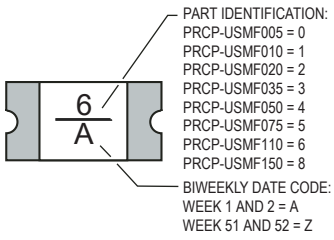
How to Order

PRCP - USMF 010 -2 E

- Product Designator
- Series
  USMF= 1210 Surface Mount Component
- Hold Current, I_{hold}
  005-150 (0.05-1.50 Amps)
- Packaging
  Packaged per EIA 481-1
  -2 = Tape and Reel
- Halogen Free
  Non Hidden Foil

Typical Part Marking

Represents total content. Layout may vary.



PRCP-USMF Series Tape and Reel Specifications

Tape Dimensions	PRCP-USMF Series per EIA 481-2
W	8.0±0.3 (0.315±0.012)
P_0	4.0±0.1 (0.157±0.004)
P_1	4.0±0.1 (0.157±0.004)
P_2	2.0±0.05 (0.079±0.002)
A_0	2.76±0.10 (0.109±0.004)
B_0	3.50±0.10 (0.138±0.004)
B_1 max.	4.35 (0.171)
D_0	1.5 + 0.1/-0.0 (0.059 + 0.004/-0)
F	3.5±0.05 (0.138±0.002)
E_1	1.75±0.10 (0.069±0.004)
E_2 min.	6.25 (0.246)
T max.	0.6 (0.024)
T_1 max.	0.1 (0.004)
K_0	1.07±0.10 (0.042±0.004)
Leader min.	390 (15.35)
Trailer min.	160 (6.30)
Reel Dimensions	
A max.	185 (7.283)
N min.	50 (1.97)
W_1	8.4 + 1.5/ -0.0 (0.331 + 0.059/-0.0)
W_2 max.	14.4 (0.567)