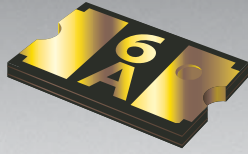



RoHS COMPLIANT



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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 °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-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

*** UL only

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-USMF Series

Test	Test Conditions	Accept/Reject Criteria
Visual/Mech.....	Verify dimensions and materials.....	Per PRCP 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

UL File Number.....E300792

CSA File Number.....CA1730526

TÜV Certificate Number.....R 50075506

* RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011.

** 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. 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.

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

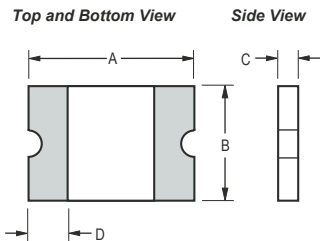
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Product Dimensions

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

Packaging: 3000 pcs. per reel.

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



Terminal material:

Electroless Ni under immersion Au

Termination pad solderability:

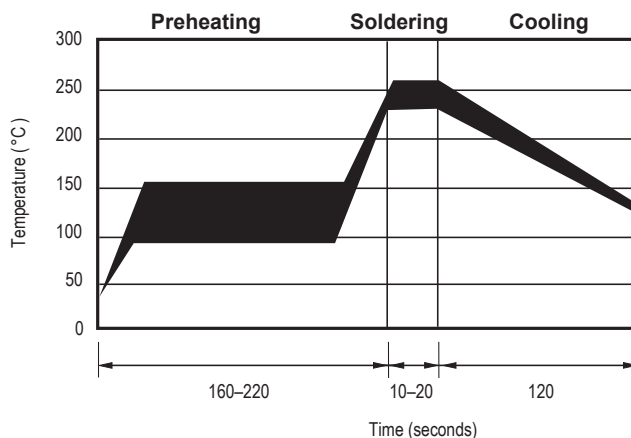
Standard Au finish:

Meets ANSI/J-STD-002 Category 2.

Recommended Storage:

40 °C max./70 % RH max.

Solder Reflow Recommendations



Notes:

- PRCP-USMF models cannot be wave soldered.
- If reflow temperatures exceed the recommended profile, device may not meet the performance requirements.
- Compatible with Pb and Pb-free solder reflow profiles.

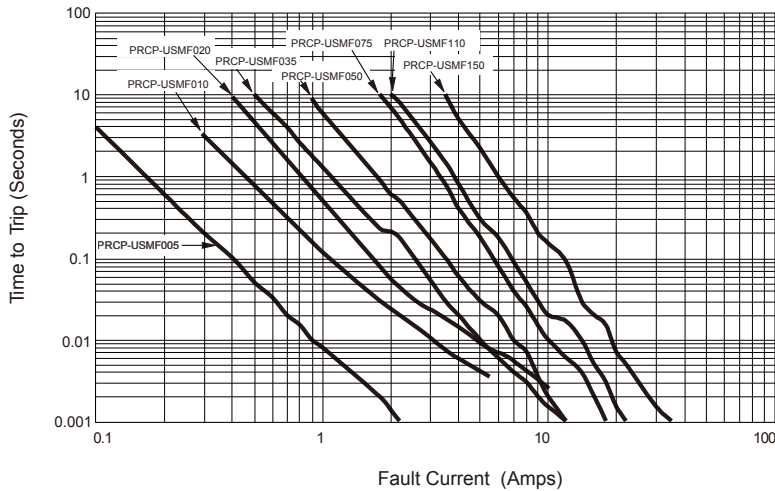
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Thermal Derating Chart- I_{hold} / I_{trip} (Amps)

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

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 C

Product Designator

Series USMF= 1210 Surface Mount Component

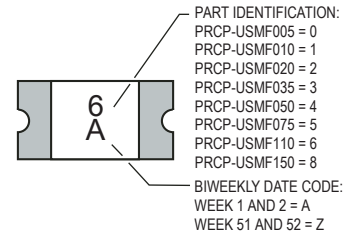
Hold Current, I_{hold} 005-150 (0.05-1.50 Amps)

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

Halogen Free

Typical Part Marking

Represents total content. Layout may vary.



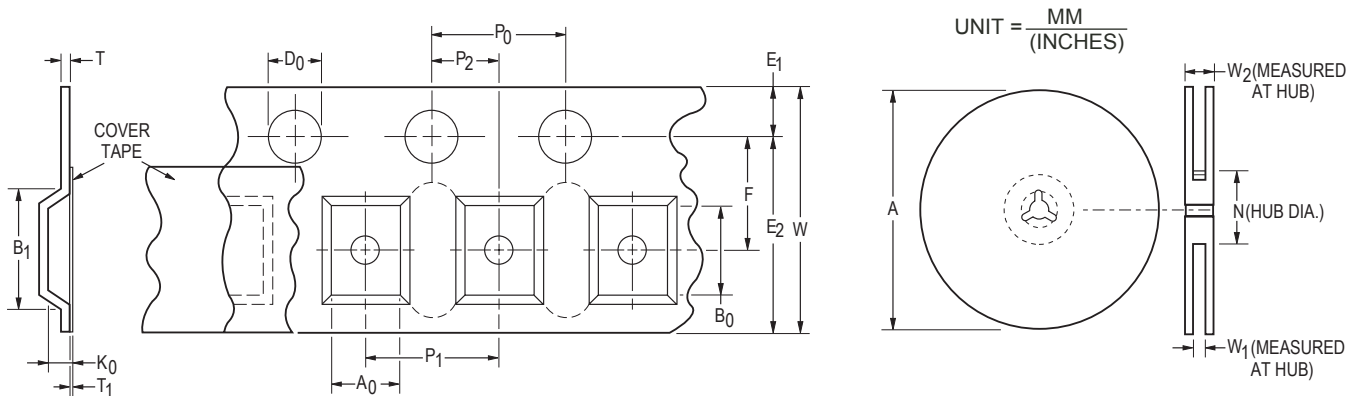
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PRCP-USMF Series Tape and Reel Specifications

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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)



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Revision History

Date	Rev.	Reason
02/06/2006	A	Initial issue
03/13/2006	B	Updated TÜV File Number
03/30/2006	C	Updated UL, CSA File Number
06/28/2007	D	Updated Typical Time to Trip at 23 °C
07/19/2007	E	Updated Thermal Derating Chart
01/14/2009	F	Updated How to Order
03/28/2014	G	Added the acquisition of UL in USMF 150
05/09/2014	H	Updated Electrical Characteristics and Thermal Derating Chart
07/16/2015	I	Updated Features and Applications

Revision : I
Issue date : 07/16/15

PRCP-USMF SERIES