Surface Mount Polymer PTC

PBS1210 Series (Standard, 1210 Size)

Features:

- Resettable over-current protection
- Small size of 1210
- Fast time-to-trip

Applications:

- Battery packs
- Portable electronic devices
- Industrial controls
- Multimedia
- Game machines
- Telecom & broadband in-struments
- HDMI 1.4 Source protection
- IEEE 1394 ports

Product Identification:

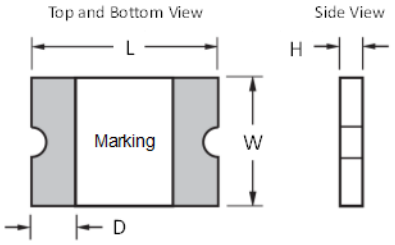
PBS 1210 - 175 F
(1) (2) (3) (4)

(1) Series Code: Surface Mount Polymer PTC
(2) Size Code: L x W (inch), the first two digits - L (length), the last two digits - W (width)
(3) Current Rating Code: 175 - 1.75A
(4) Identification Code

Agency Approval:

- UL file number: E355716
- TUV certification number: R50371875.
- Tested for EN60738-1: 2006+A1; EN60738-1:2008; EN60730-1: 2011 clause 15, 17 and Annex J

Shape and Dimensions:



Part Number	L mm (inches)		W mm (inches)		H mm (inches)		D mm (inches)
	Min.	Max.	Min.	Max.	Min.	Max.	Min.
PBS1210-005 PBS1210-010 PBS1210-020	3.00 (0.118)	3.43 (0.135)	2.35 (0.093)	2.80 (0.110)	0.80 (0.031)	1.10 (0.043)	0.30 (0.012)
PBS1210-035 PBS1210-050 PBS1210-075 PBS1210-110	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)
PBS1210-150 PBS1210-175F	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)

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Ordering Information:

Part Number	Current (A)		V_{Max} (Vdc)	I_{Max} (A)	Max. Time to Trip (sec)		Typical Power (Pd, W)	Resistance Min. (Ω)	One Hours Post Reflow Resistance R_1 Max. (Ω) [1]	Agency Approval	
	Hold (I_H)	Trip (I_T)			Current (A)	Time (sec)				UL	TUV
PBS1210-005	0.05	0.15	30	10	0.25	1.5	0.6	2.800	50.00	√	√
PBS1210-010	0.10	0.30	30	10	0.50	0.60	0.6	0.800	15.00	√	√
PBS1210-020	0.20	0.40	30	10	8.0	0.20	0.6	0.400	5.000	√	√
PBS1210-035	0.35	0.75	6	40	8.0	0.20	0.6	0.200	1.300	√	√
PBS1210-050	0.50	1.00	13.2	40	8.0	0.10	0.6	0.180	0.900	√	√
PBS1210-075	0.75	1.50	6	40	8.0	0.10	0.6	0.070	0.450	√	√
PBS1210-110	1.10	2.20	6	40	5.0	1.0	0.6	0.050	0.210	√	√
PBS1210-150	1.50	3.00	6	40	5.0	1.0	0.6	0.030	0.110	√	√
PBS1210-175F	1.75	3.50	6	40	8.0	1.0	0.7	0.020	0.080	√	√

[1] The max resistance of one-hour post reflow is a reference value. The value may change a little according to reflow conditions and soldering state.

Temperature De-rating:

Part Number	Ambient temperature								
	-40°C	-20°C	0°C	23°C	40°C	50°C	60°C	70°C	85°C
PBS1210-005	0.08	0.07	0.06	0.05	0.04	0.04	0.03	0.03	0.02
PBS1210-010	0.15	0.13	0.12	0.10	0.09	0.08	0.07	0.06	0.05
PBS1210-020	0.32	0.28	0.24	0.20	0.18	0.16	0.14	0.12	0.10
PBS1210-035	0.51	0.46	0.40	0.35	0.30	0.27	0.24	0.22	0.18
PBS1210-050	0.76	0.66	0.58	0.50	0.42	0.38	0.35	0.29	0.23
PBS1210-075	1.10	0.97	0.86	0.75	0.64	0.58	0.55	0.47	0.39
PBS1210-110	1.60	1.42	1.26	1.10	0.94	0.86	0.80	0.70	0.58
PBS1210-150	2.30	2.02	1.76	1.50	1.24	1.11	1.00	0.85	0.65
PBS1210-175F	2.80	2.45	2.10	1.75	1.55	1.45	1.35	1.25	1.10

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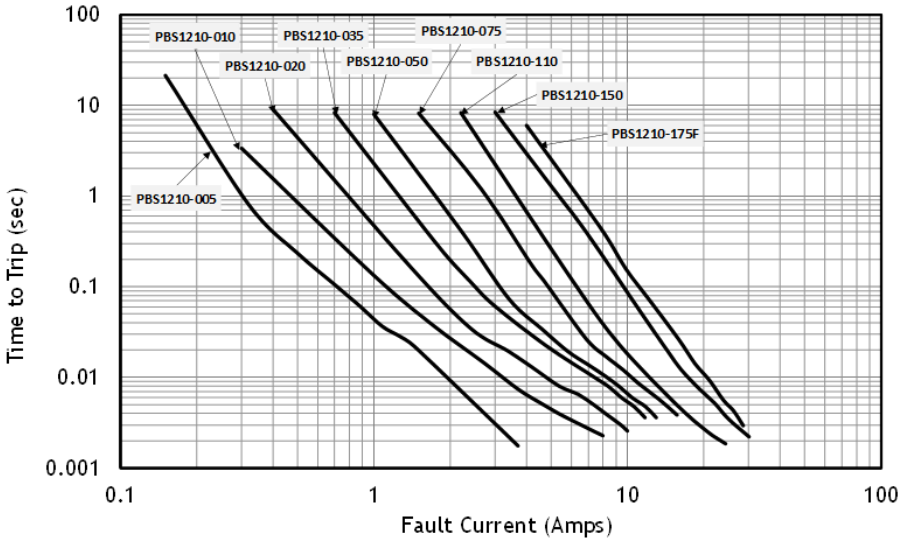
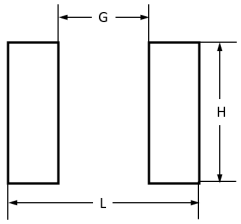
Typical Time to Trip (@ 23℃):



Recommended Land Pattern:

Chip Size	1210	Unit
G	1.8±0.1	mm
H	2.8±0.1	mm
L	3.8±0.1	mm



Packaging and Marking:

Part Number	Part Marking	Tape & Reel Quantity (piece)
PBS1210-005	0 w	3,000
PBS1210-010	1 w	
PBS1210-020	2 w	
PBS1210-035	3 w	
PBS1210-050	4 w	
PBS1210-075	5 w	
PBS1210-110	6 w	
PBS1210-150	8 w	
PBS1210-175F	9 w	

Operating Temperature Range:

- -40°C ~ + 85°C (with de-rating)

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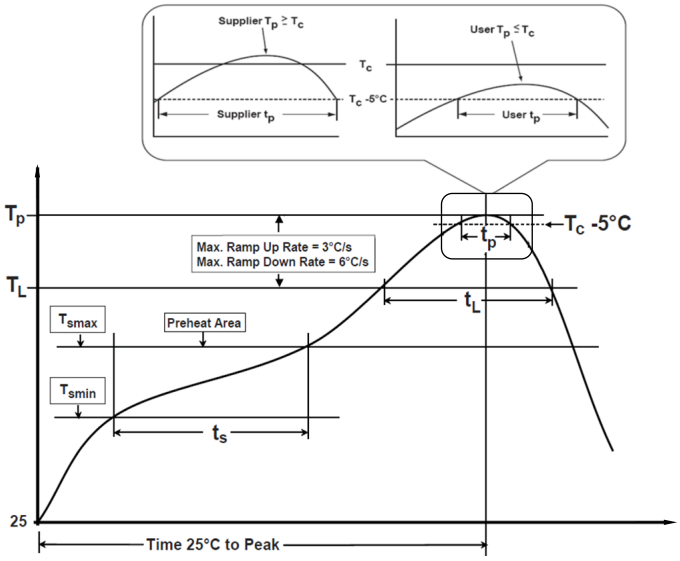
Recommended Temperature Profile:

* Recommended Temperature Profile for Reflow Soldering



Profile Feature	Pb-Free Assembly
Preheat/Soak Temperature Min (T_{smin}) Temperature Max (T_{smax}) Time (t_s) from (T_{smin} to T_{smax})	 150°C 200°C 60~180 seconds
Ramp-uprate (T_L to T_p)	3°C/second max.
Liquidous temperature (T_L) Time (t_L) maintained above T_L	217°C 60~150 seconds
Peak package body temperature (T_p)	260°C
Time (t_p)*within 5°C of the specified classification temperature (T_c)	20~40 seconds *
Ramp-down rate (T_p to T_L)	6°C/second max.
Time 25°C to peak temperature	8 minutes max.
* Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum	

Note:

- PBS1210 series cannot be wave soldered. Please contact AEM for hand soldering recommendations.
- If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.
- Compatible with Pb and Pb-free solder reflow profiles.
- Excess solder may cause a short circuit, especially during hand soldering.

Caution:

- Operation beyond the rated voltage or current may result in rupture electrical arcing or flame.

WARNING:

- Operation beyond the maximum ratings or improper use may result in device damage and possible electrical arcing and flame.
- The devices are intended for protection against occasional over-current or over-temperature fault conditions and should not be used when repeated fault conditions or prolonged trip events are anticipated.
- Contamination of the PPTC material with certain silicon based oils or some aggressive solvents can adversely impact the performance of the devices.
- Device performance can be impacted negatively if devices are handled in a manner inconsistent with recommended electronic, thermal and mechanical procedures for electronic components.
- Operation in circuit with a large inductance can generate a circuit voltage (L di/dt) above the rated voltage of the PPTC device.

Do not use this product in any Automotive Power train or Safety equipment such as ECU, ABS systems, or Battery Pack, Battery Management System, Battery Charger for Electric Vehicles and Plug-in Hybrid Vehicles. Only AEM products clearly described as "for Automotive Use" on its catalog can be used for automobile applications such as Power train and Safety equipment.

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