

Surface Mount Polymer PTC

PAS1210 Series (Automotive Grade, 1210 Size)

Features:

- Automotive grade with AEC-Q200 qualification
- 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 instruments
- USB port protection - USB 2.0, 3.0 & OTG

Product Identification:

PAS 1210-005

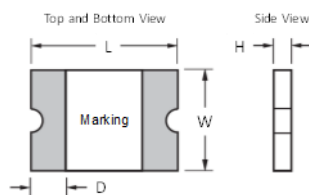
(1) (2) (3)

- (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:** 005 - 0.05A

Agency Approval:

- UL file number: E355716
- TUV certification number: R50371842, R50371875 and R50385152.
- 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.
PAS1210-005 PAS1210-010 PAS1210-020	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)
PAS1210-050	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)

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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 Re- sistance R ₁ Max. (Ω) ¹	Agency Approval	
	Hold (I _H)	Trip (I _T)			Current (A)	Time (sec)				UL	TUV
PAS1210-005	0.05	0.15	30	10	0.25	1.5	0.6	2.800	50.00	✓	✓
PAS1210-010	0.10	0.30	30	10	0.50	0.60	0.6	0.800	15.00	✓	✓
PAS1210-020	0.20	0.40	30	10	8.0	0.20	0.6	0.400	5.000	✓	✓
PAS1210-050	0.50	1.00	13.2	40	8.0	0.10	0.6	0.180	0.900	✓	✓

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.

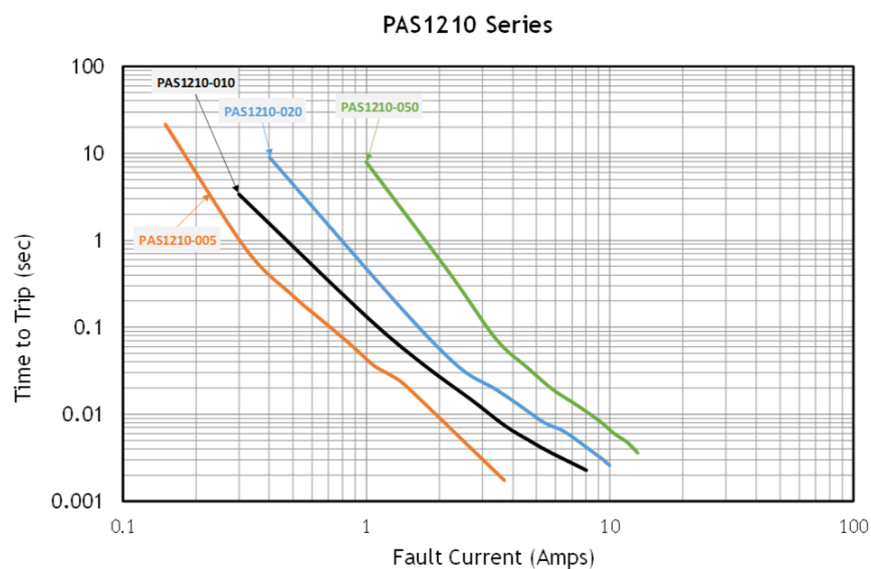
Temperature De-rating:

Part Number	Ambient temperature								
	-40°C	-20°C	0°C	23°C	40°C	50°C	60°C	70°C	85°C
PAS1210-005	0.08	0.07	0.06	0.05	0.04	0.04	0.03	0.03	0.02
PAS1210-010	0.15	0.13	0.12	0.10	0.09	0.08	0.07	0.06	0.05
PAS1210-020	0.32	0.28	0.24	0.20	0.18	0.16	0.14	0.12	0.10
PAS1210-050	0.76	0.66	0.58	0.50	0.42	0.38	0.35	0.29	0.23

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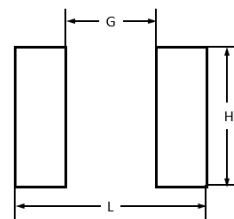
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Typical Time to Trip (@ 23°C):



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)
PAS1210-005	<u>0</u> w	3,000
PAS1210-010	<u>1</u> w	
PAS1210-020	<u>2</u> w	
PAS1210-050	<u>4</u> w	

6w → 6 = 1.1A; w = Week code (w=Y → week 49~50)

Operating Temperature Range:

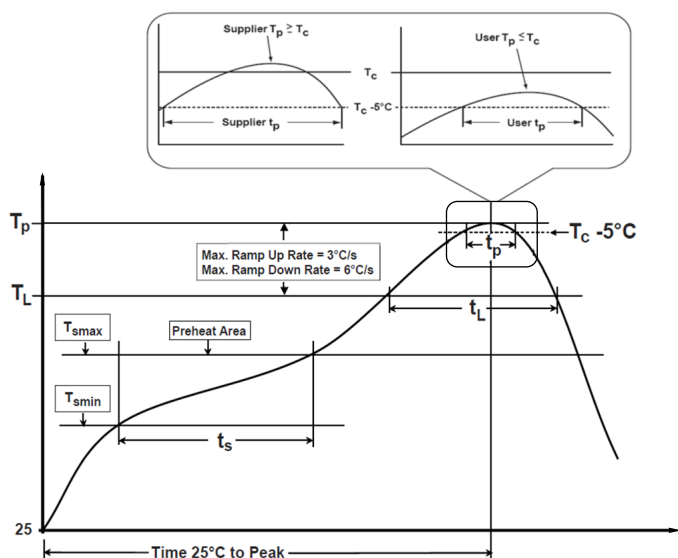
- 40°C ~ +85°C (with de-rating)

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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-up rate (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:

- PAS1210 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.

Disclaimer

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