Surface Mount Polymer PTC
PMS Series, 1210 Size

Features:

- Resettable over-current protection
- Small size of 1210
- Fast time-to-trip
- RoHS compliant
- Halogen free

Applications:

- Battery packs
- Portable electronic devices
- Industrial controls
- Multimedia
- Game machines
- Telecom & broadband instruments

Ordering Code:

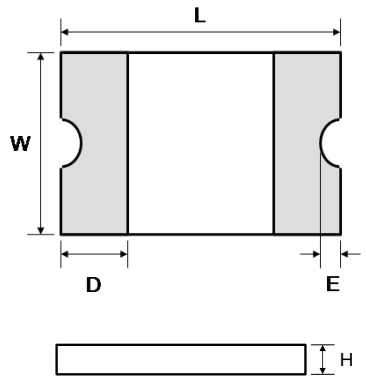
PMS 1210–150–13
(1) (2) (3) (4)

(1) Series code
(2) Size code
(3) Current rating code
150: 1.5A
(4) Voltage rating code
13: 13.2Vdc

Agency Approval:

Recognized under the components program of UL.
File number: E355716

Product Dimensions:



Part Number	L (mm) Max.	W (mm) Max.	H (mm) Max.	D (mm) Min.
PMS1210-005	3.43	2.80	0.80	0.30
PMS1210-005-60	3.43	2.80	0.80	0.30
PMS1210-010	3.43	2.80	0.80	0.30
PMS1210-020	3.43	2.80	0.80	0.30
PMS1210-035	3.43	2.80	0.80	0.30
PMS1210-035-13	3.43	2.80	0.80	0.30
PMS1210-035-24	3.43	2.80	0.80	0.30
PMS1210-050	3.43	2.80	0.80	0.30
PMS1210-050-24	3.43	2.80	0.80	0.30
PMS1210-075	3.43	2.80	0.80	0.30
PMS1210-075-13	3.43	2.80	0.80	0.30
PMS1210-100	3.43	2.80	0.80	0.30
PMS1210-110	3.43	2.80	0.80	0.30
PMS1210-150	3.43	2.80	0.80	0.30
PMS1210-150-13	3.43	2.80	0.80	0.30
PMS1210-175	3.43	2.80	0.80	0.30
PMS1210-200	3.43	2.80	1.20	0.30

Typical Ratings and Characteristics (@ 25˚C):

✧ Operating temperature: -40 to +85°C

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]	UL Certification
	Hold (I_H)	Trip (I_T)			Current (A)	Time (sec)				
PMS1210-005	0.05	0.15	30	100	0.25	1.50	0.6	2.800	50.00	
PMS1210-005-60	0.05	0.15	60	100	0.25	1.50	0.6	2.800	50.00	
PMS1210-010	0.10	0.30	30	100	0.50	0.60	0.6	0.800	15.00	
PMS1210-020	0.20	0.40	30	100	8.0	0.02	0.6	0.400	5.00	
PMS1210-035	0.35	0.75	6	100	8.0	0.20	0.6	0.200	1.300	√
PMS1210-035-13	0.35	0.75	13.2	100	8.0	0.20	0.6	0.200	1.300	
PMS1210-035-24	0.35	0.75	24	100	8.0	0.20	0.6	0.200	1.300	
PMS1210-050	0.50	1.00	13.2	100	8.0	0.10	0.6	0.180	0.900	√
PMS1210-050-24	0.50	1.00	24	100	8.0	0.10	0.6	0.180	0.900	
PMS1210-075	0.75	1.50	6	100	8.0	0.10	0.6	0.070	0.400	√
PMS1210-075-13	0.75	1.50	13.2	100	8.0	0.10	0.6	0.070	0.400	
PMS1210-100	1.00	1.80	6	100	8.0	0.30	0.6	0.055	0.230	
PMS1210-110	1.10	2.20	6	100	8.0	0.30	0.6	0.050	0.210	√
PMS1210-150	1.50	3.00	6	100	8.0	0.50	0.6	0.030	0.110	√
PMS1210-150-13	1.50	3.00	13.2	100	8.0	0.50	0.6	0.030	0.110	
PMS1210-175	1.75	3.50	6	100	8.0	0.60	0.8	0.020	0.080	
PMS1210-200	2.00	4.00	6	100	8.0	1.00	0.8	0.015	0.070	

[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.

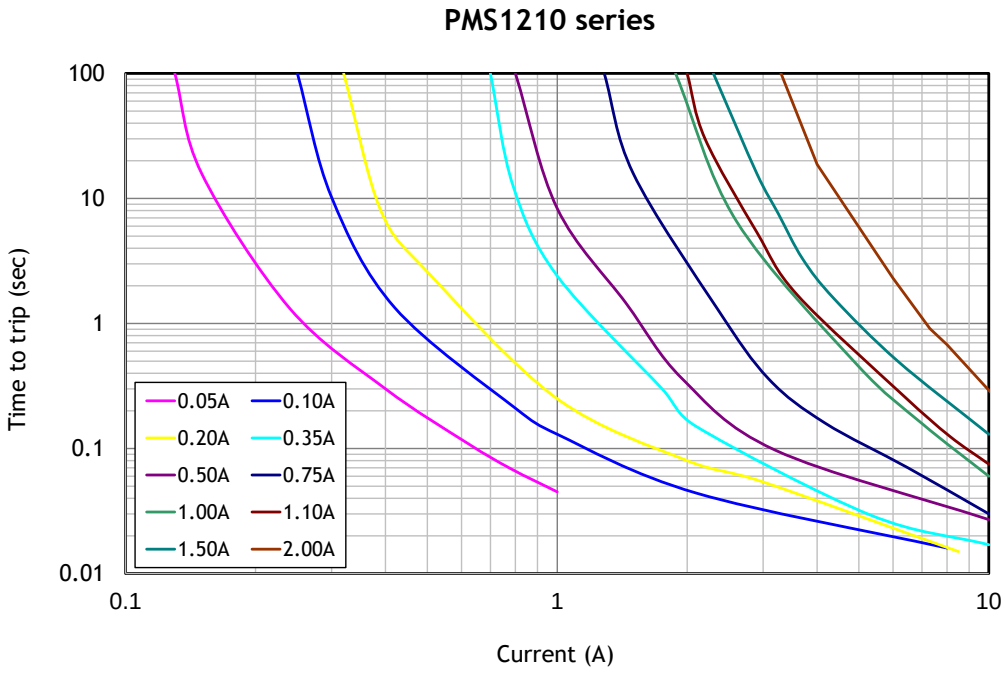
Packaging and Marking Information:

Part Number	Part Marking	Tape & Reel Quantity (piece)
PMS1210-005	αA	4,500
PMS1210-005-60	αA	
PMS1210-010	αB	
PMS1210-020	αC	
PMS1210-035	αD	
PMS1210-035-13	αD	
PMS1210-035-24	αD	4,000
PMS1210-050	αF	
PMS1210-050-24	αF	
PMS1210-075	αG	
PMS1210-075-13	αG	
PMS1210-100	αH	4,500
PMS1210-110	αH	
PMS1210-150	αL	
PMS1210-150-13	αL	
PMS1210-175	αN	
PMS1210-200	αS	

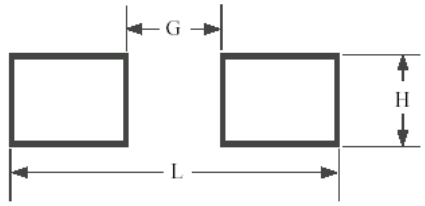
Thermal De-rating Hold Current (A) at Ambient Temperature (25°C):

Part Number	Ambient temperature								
	-40°C	-20°C	0°C	25°C	40°C	50°C	60°C	70°C	85°C
PMS1210-005	0.08	0.07	0.06	0.05	0.04	0.04	0.03	0.03	0.02
PMS1210-005-60	0.08	0.07	0.06	0.05	0.04	0.04	0.03	0.03	0.02
PMS1210-010	0.16	0.14	0.12	0.10	0.08	0.07	0.06	0.05	0.03
PMS1210-020	0.29	0.26	0.22	0.20	0.16	0.14	0.13	0.11	0.08
PMS1210-035	0.47	0.45	0.40	0.35	0.33	0.28	0.24	0.21	0.18
PMS1210-035-13	0.47	0.45	0.40	0.35	0.33	0.28	0.24	0.21	0.18
PMS1210-035-24	0.47	0.45	0.40	0.35	0.33	0.28	0.24	0.21	0.18
PMS1210-050	0.76	0.67	0.58	0.50	0.43	0.40	0.36	0.32	0.28
PMS1210-050-24	0.76	0.67	0.58	0.50	0.43	0.40	0.36	0.32	0.28
PMS1210-075	1.00	0.97	0.86	0.75	0.64	0.59	0.54	0.48	0.40
PMS1210-075-13	1.00	0.97	0.86	0.75	0.64	0.59	0.54	0.48	0.40
PMS1210-100	1.54	1.35	1.18	1.00	0.76	0.67	0.53	0.45	0.31
PMS1210-110	1.69	1.48	1.29	1.10	0.88	0.76	0.65	0.57	0.43
PMS1210-150	2.13	1.92	1.71	1.50	1.26	1.14	1.01	0.89	0.71
PMS1210-150-13	2.13	1.92	1.71	1.50	1.26	1.14	1.01	0.89	0.71
PMS1210-175	2.54	2.30	2.02	1.75	1.47	1.33	1.18	1.05	0.86
PMS1210-200	2.90	2.63	2.31	2.00	1.68	1.52	1.35	1.20	0.98

Typical Time to Trip (@ 25˚C):

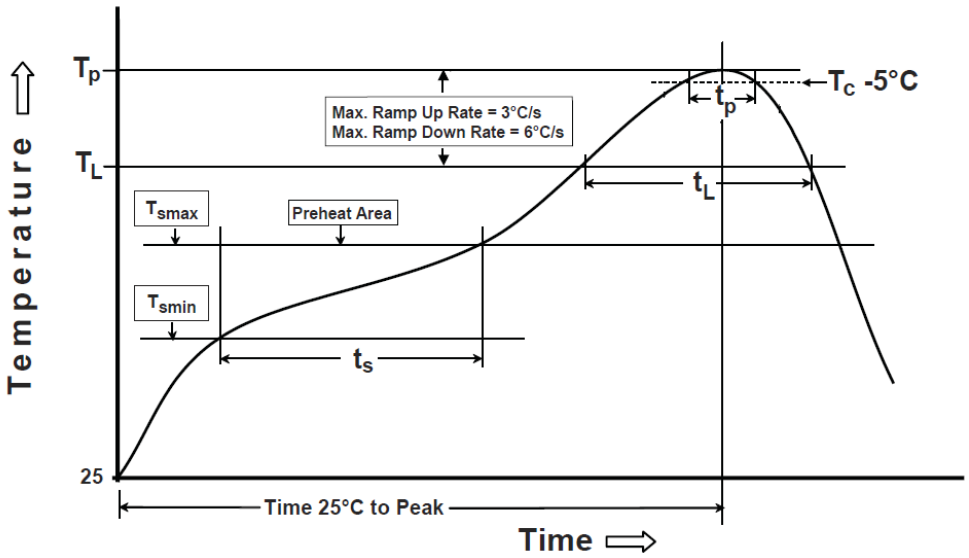


Recommended Foot Print Dimensions:



G (mm)	H (mm)	L (mm)
1.8	2.8	3.8

Recommended Reflow Soldering Profile:



Profile Feature	Pb-Free Assembly
Preheat/Soak	
Temperature Min (T_{smin})	150°C
Temperature Max(T_{smax})	200°C
Time(t_s) from (T_{smin} to T_{smax})	60~120 seconds
Ramp-uprate (T_L to T_p)	3°C/second max.
Liquidous temperature(T_L)	217°C
Time(t_L) maintained above T_L	60~150 seconds
Peak package body temperature (T_p)	260°C
Time (t_p)*within 5°C of the specified classification temperature (T_c)	30 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:

- PMS1210 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.

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.

Recommended Reflow Soldering Profile:

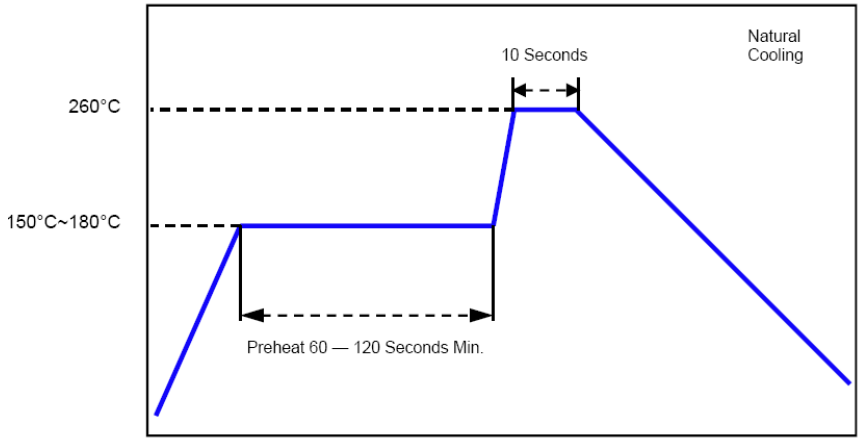


Fig. 3 Recommended reflow soldering profile

1. Recommended reflow methods: IR, hot air oven, nitrogen oven.
2. Recommended maximum paste thickness: 0.25mm (0.010 inch).
3. Devices can be cleaned using standard industry methods and solvents.
4. Soldering temperature and time should not exceed the recommended conditions.

Note: If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

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.