

Surface Mount Polymer PTC PMS Series, 1812 Size



Features:

- Resettable over-current protection
- Small size of 1812
- Fast time-to-trip
- RoHS compliant
- Halogen free

Applications:

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

Ordering Code:

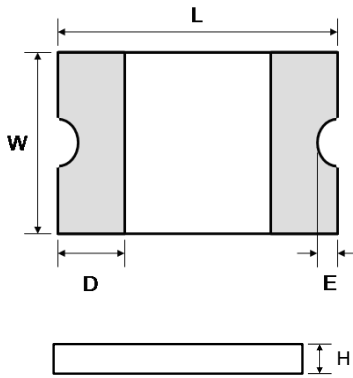
PMS 1812-150-16

(1) (2) (3) (4)

- (1) Series code
- (2) Size code
- (3) Current rating code
150: 1.5A
- (4) Voltage rating code
16: 16V

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.	E (mm) Min.
PMS1812-010	4.73	3.41	1.00	0.30	0.25
PMS1812-010-60	4.73	3.41	1.00	0.30	0.25
PMS1812-014	4.73	3.41	1.00	0.30	0.25
PMS1812-020	4.73	3.41	1.30	0.30	0.25
PMS1812-020-60	4.73	3.41	1.30	0.30	0.25
PMS1812-030	4.73	3.41	1.00	0.30	0.25
PMS1812-030-60	4.73	3.41	1.00	0.30	0.25
PMS1812-050	4.73	3.41	0.90	0.30	0.25
PMS1812-050-24	4.73	3.41	0.90	0.30	0.25
PMS1812-050-33	4.73	3.41	0.90	0.30	0.25
PMS1812-075	4.73	3.41	0.90	0.30	0.25
PMS1812-075-24	4.73	3.41	0.90	0.30	0.25
PMS1812-075-33	4.73	3.41	0.90	0.30	0.25
PMS1812-100	4.73	3.41	0.90	0.30	0.25
PMS1812-110	4.73	3.41	0.90	0.30	0.25
PMS1812-110-16	4.73	3.41	0.90	0.30	0.25
PMS1812-110-24	4.73	3.41	0.90	0.30	0.25
PMS1812-125	4.73	3.41	1.30	0.30	0.25
PMS1812-150	4.73	3.41	0.90	0.30	0.25
PMS1812-150-13	4.73	3.41	0.90	0.30	0.25
PMS1812-150-16	4.73	3.41	0.90	0.30	0.25
PMS1812-150-24	4.73	3.41	0.90	0.30	0.25
PMS1812-160	4.73	3.41	0.90	0.30	0.25
PMS1812-160-13	4.73	3.41	0.90	0.30	0.25
PMS1812-160-16	4.73	3.41	0.90	0.30	0.25
PMS1812-200	4.73	3.41	0.90	0.30	0.25
PMS1812-200-13	4.73	3.41	0.90	0.30	0.25
PMS1812-200-16	4.73	3.41	0.90	0.30	0.25
PMS1812-260	4.73	3.41	1.30	0.30	0.25
PMS1812-300	4.73	3.41	1.30	0.30	0.25
PMS1812-350	4.73	3.41	1.30	0.30	0.25
PMS1812-375	4.73	3.41	1.80	0.30	0.25

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)				
PMS1812-010	0.10	0.30	30	100	0.5	1.50	0.8	0.750	15.0	√
PMS1812-010-60	0.10	0.30	60	100	0.5	1.50	0.8	0.750	15.0	
PMS1812-014	0.14	0.34	60	100	1.5	0.15	0.8	0.650	6.00	
PMS1812-020	0.20	0.40	30	100	8.0	0.02	0.8	0.350	5.00	
PMS1812-020-60	0.20	0.40	60	100	8.0	0.02	0.8	0.350	5.00	
PMS1812-030	0.30	0.60	30	100	8.0	0.10	0.8	0.250	3.00	
PMS1812-030-60	0.30	0.60	60	100	8.0	0.10	0.8	0.250	3.00	
PMS1812-050	0.50	1.00	15	100	8.0	0.15	0.8	0.150	1.00	√
PMS1812-050-24	0.50	1.00	24	100	8.0	0.15	0.8	0.150	1.00	
PMS1812-050-33	0.50	1.00	33	100	8.0	0.15	0.8	0.150	1.00	
PMS1812-075	0.75	1.50	13.2	100	8.0	0.20	0.8	0.090	0.450	√
PMS1812-075-24	0.75	1.50	24	100	8.0	0.20	0.8	0.090	0.450	
PMS1812-075-33	0.75	1.50	33	100	8.0	0.20	0.8	0.090	0.450	
PMS1812-100	1.00	1.80	8	100	8.0	0.30	0.8	0.055	0.270	
PMS1812-110	1.10	2.20	8	100	8.0	0.30	0.8	0.050	0.250	√
PMS1812-110-16	1.10	2.20	16	100	8.0	0.30	0.8	0.050	0.250	
PMS1812-110-24	1.10	2.20	24	100	8.0	0.30	0.8	0.050	0.250	
PMS1812-125	1.25	2.50	16	100	8.0	0.40	0.8	0.050	0.140	
PMS1812-150	1.50	3.00	8	100	8.0	0.50	0.8	0.040	0.160	√
PMS1812-150-13	1.50	3.00	13.2	100	8.0	0.50	0.8	0.040	0.160	
PMS1812-150-16	1.50	3.00	16	100	8.0	0.50	0.8	0.040	0.160	
PMS1812-150-24	1.50	3.00	24	100	8.0	0.50	0.8	0.040	0.160	
PMS1812-160	1.60	2.80	8	100	8.0	1.00	0.8	0.030	0.130	√
PMS1812-160-13	1.60	2.80	13.2	100	8.0	1.00	0.8	0.030	0.130	
PMS1812-160-16	1.60	2.80	16	100	8.0	1.00	0.8	0.030	0.130	
PMS1812-200	2.00	4.00	8	100	8.0	2.00	0.8	0.020	0.100	√
PMS1812-200-13	2.00	4.00	13.2	100	8.0	2.00	0.8	0.020	0.100	
PMS1812-200-16	2.00	4.00	16	100	8.0	2.00	0.8	0.020	0.100	√
PMS1812-260	2.60	5.00	8	100	8.0	2.50	0.8	0.015	0.050	√
PMS1812-300	3.00	5.00	8	100	8.0	4.00	0.8	0.012	0.040	
PMS1812-350	3.50	6.00	6	100	10.0	4.00	2.0	0.008	0.030	
PMS1812-375	3.75	7.00	6	100	12.0	4.00	2.0	0.007	0.028	

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.

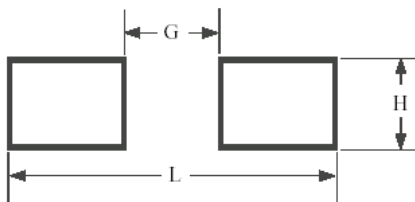
Packaging and Marking Information:

Part Number	Part Marking	Tape & Reel Quantity (piece)
PMS1812-010	α010	1,500
PMS1812-010-60	α010	
PMS1812-014	α014	
PMS1812-020	α020	
PMS1812-020-60	α020	
PMS1812-030	α030	
PMS1812-030-60	α030	
PMS1812-050	α050	
PMS1812-050-24	α050	
PMS1812-050-33	α050	
PMS1812-075	α075	
PMS1812-075-24	α075	
PMS1812-075-33	α075	
PMS1812-100	α100	
PMS1812-110	α110	
PMS1812-110-16	α110	
PMS1812-110-24	α110	
PMS1812-125	α125	
PMS1812-150	α150	
PMS1812-150-13	α150	
PMS1812-150-16	α150	
PMS1812-150-24	α150	
PMS1812-160	α160	
PMS1812-160-13	α160	
PMS1812-160-16	α160	
PMS1812-200	α200	
PMS1812-200-13	α200	
PMS1812-200-16	α200	
PMS1812-260	α260	
PMS1812-300	α300	
PMS1812-350	α350	
PMS1812-375	α375	

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

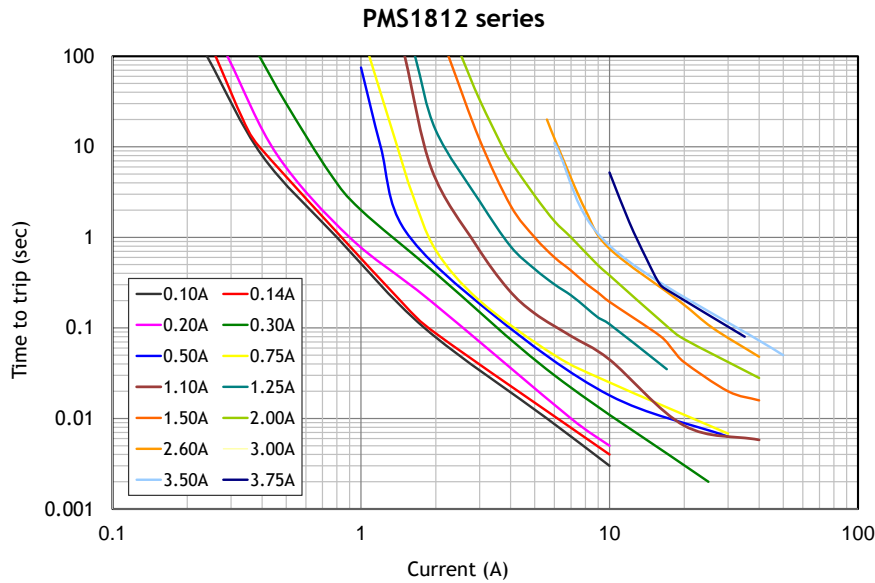
Part Number	Ambient temperature								
	-40°C	-20°C	0°C	25°C	40°C	50°C	60°C	70°C	85°C
PMS1812-010	0.16	0.14	0.12	0.10	0.08	0.07	0.06	0.05	0.03
PMS1812-010-60	0.16	0.14	0.12	0.10	0.08	0.07	0.06	0.05	0.03
PMS1812-014	0.23	0.19	0.17	0.14	0.12	0.10	0.09	0.08	0.06
PMS1812-020	0.29	0.26	0.23	0.20	0.17	0.15	0.14	0.12	0.10
PMS1812-020-60	0.29	0.26	0.23	0.20	0.17	0.15	0.14	0.12	0.10
PMS1812-030	0.44	0.39	0.35	0.30	0.26	0.23	0.21	0.18	0.15
PMS1812-030-60	0.44	0.39	0.35	0.30	0.26	0.23	0.21	0.18	0.15
PMS1812-050	0.59	0.57	0.55	0.50	0.45	0.43	0.35	0.30	0.23
PMS1812-050-24	0.59	0.57	0.55	0.50	0.45	0.43	0.35	0.30	0.23
PMS1812-050-33	0.59	0.57	0.55	0.50	0.45	0.43	0.35	0.30	0.23
PMS1812-075	1.10	0.99	0.87	0.75	0.63	0.57	0.49	0.45	0.35
PMS1812-075-24	1.10	0.99	0.87	0.75	0.63	0.57	0.49	0.45	0.35
PMS1812-075-33	1.10	0.99	0.87	0.75	0.63	0.57	0.49	0.45	0.35
PMS1812-100	1.45	1.32	1.16	1.00	0.84	0.75	0.68	0.60	0.48
PMS1812-110	1.60	1.45	1.28	1.10	0.92	0.83	0.71	0.66	0.52
PMS1812-110-16	1.60	1.45	1.28	1.10	0.92	0.83	0.71	0.66	0.52
PMS1812-110-24	1.60	1.45	1.28	1.10	0.92	0.83	0.71	0.66	0.52
PMS1812-125	2.00	1.75	1.52	1.25	1.00	0.95	0.90	0.75	0.53
PMS1812-150	2.30	2.05	1.77	1.50	1.23	1.09	0.95	0.82	0.61
PMS1812-150-13	2.30	2.05	1.77	1.50	1.23	1.09	0.95	0.82	0.61
PMS1812-150-16	2.30	2.05	1.77	1.50	1.23	1.09	0.95	0.82	0.61
PMS1812-150-24	2.30	2.05	1.77	1.50	1.23	1.09	0.95	0.82	0.61
PMS1812-160	2.40	2.15	1.88	1.60	1.26	1.12	0.98	0.84	0.63
PMS1812-160-13	2.40	2.15	1.88	1.60	1.26	1.12	0.98	0.84	0.63
PMS1812-160-16	2.40	2.15	1.88	1.60	1.26	1.12	0.98	0.84	0.63
PMS1812-200	2.88	2.61	2.25	2.00	1.80	1.66	1.45	1.09	0.80
PMS1812-200-13	2.88	2.61	2.25	2.00	1.80	1.66	1.45	1.09	0.80
PMS1812-200-16	2.88	2.61	2.25	2.00	1.80	1.66	1.45	1.09	0.80
PMS1812-260	3.90	3.42	2.96	2.60	2.33	2.07	1.94	1.35	1.00
PMS1812-300	4.15	3.76	3.46	3.00	2.55	2.28	2.01	1.61	1.33
PMS1812-350	5.04	4.57	3.94	3.50	3.15	2.91	2.54	1.91	1.40
PMS1812-375	5.45	4.94	4.36	3.75	3.14	2.83	2.54	2.25	1.82

Recommended Foot Print Dimensions:



G (mm)	H (mm)	L (mm)
3.15	3.25	6.01

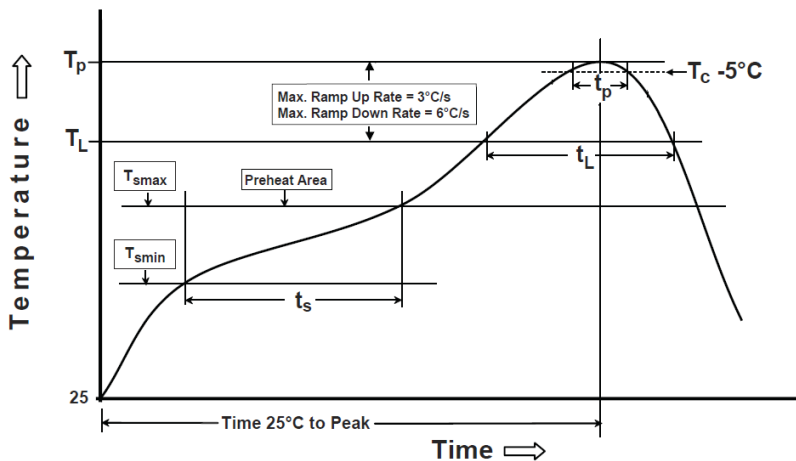
Typical Time to Trip (@ 25°C):



Environmental Specifications:

Test	Conditions	Resistance change
Passive aging	+85°C, 1000hrs	±5% typical
Humidity aging	+85°C, 85%R.H., 168 hours	±5% typical
Thermal shock	+85°C to -40°C, 20 times	±33% typical
Resistance to solvent	MIL-STD-202, Method 215	No change
Vibration	MIL-STD-202, Method 201	No change
Ambient operating conditions: -40°C to +85°C		
Maximum surface temperature of the device in the tripped state is 125°C		
In case of special use, please contact our engineer		

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:

- PMS1206 series cannot be wave soldered. Please contact AEM for hand soldering recommendations.
- Storage conditions : 40°C max, 70% R.H. Devices may not meet specified performance if storage conditions are exceed.
- 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.