

SMD1812P260TFT	2.60	5.20	8.00	100.00	0.80	8.00	5.00	0.015	0.075
SMD1812P260TF/12	2.60	5.20	12.00	100.00	0.80	8.00	5.00	0.015	0.075
SMD1812P260TF/16	2.60	5.20	16.00	100.00	1.00	8.00	5.00	0.015	0.075
SMD1812P300TFT	3.00	6.00	6.00	100.00	1.00	8.00	4.00	0.012	0.060

I-hold: Holding Current: maximum current at which the device will not trip in 25°C still air.

I-trip: Tripping Current: minimum current at which the device will trip in 25°C still air.

Vmax: Maximum voltage device can withstand without damage at rated current(I_{max}).

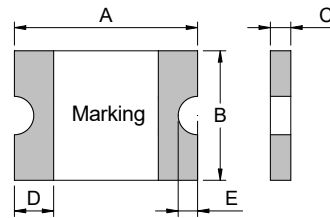
I_{max}: Maximum fault current device can withstand without damage at rated voltage(V_{max}).





















Pd typ: Typical power dissipated from device when in the tripped state at 25°C still air.











R0 min: Minimum resistance of device in initial (un-soldered) state.

R1 max: Maximum resistance of device at 25°C measured one hour after tripping or reflow soldering of 260°C for 20 sec.

2. Product Dimensions(mm)&Marking



Model	A		B		C		D		E	Marking
	Min	Max	Min	Max	Min	Max	Min	Max	Min	
SMD1812P010TF	4.37	4.73	3.07	3.41	0.65	1.15	0.30	1.20	0.20	
SMD1812P010TF/60	4.37	4.73	3.07	3.41	0.65	1.15	0.30	1.20	0.20	
SMD1812P014TF	4.37	4.73	3.07	3.41	0.65	1.15	0.30	1.20	0.20	
SMD1812P020TF	4.37	4.73	3.07	3.41	0.65	1.15	0.30	1.20	0.20	
SMD1812P020TF-J	4.37	4.73	3.07	3.41	0.65	1.15	0.30	1.20	0.20	
SMD1812P035TF/30	4.37	4.73	3.07	3.41	0.65	1.15	0.30	1.20	0.20	
SMD1812P035TF/60	4.37	4.73	3.07	3.41	1.00	1.50	0.30	1.20	0.20	
SMD1812P050TF	4.37	4.73	3.07	3.41	0.35	0.85	0.30	1.20	0.20	
SMD1812P050TF/30	4.37	4.73	3.07	3.41	0.35	0.85	0.30	1.20	0.20	
SMD1812P050TF/60	4.37	4.73	3.07	3.41	1.00	1.50	0.30	1.20	0.20	
SMD1812P075TF	4.37	4.73	3.07	3.41	0.35	0.85	0.30	1.20	0.20	
SMD1812P075TF/24	4.37	4.73	3.07	3.41	0.35	0.85	0.30	1.20	0.20	
SMD1812P075TF/33	4.37	4.73	3.07	3.41	0.35	0.85	0.30	1.20	0.20	
SMD1812P110TF	4.37	4.73	3.07	3.41	0.35	0.85	0.30	1.20	0.20	
SMD1812P110TF/16	4.37	4.73	3.07	3.41	0.35	0.85	0.30	1.20	0.20	
SMD1812P110TF/24	4.37	4.73	3.07	3.41	0.65	1.15	0.30	1.20	0.20	
SMD1812P110TF/33	4.37	4.73	3.07	3.41	0.85	1.35	0.30	1.20	0.20	
SMD1812P125TF/16	4.37	4.73	3.07	3.41	0.35	0.85	0.30	1.20	0.20	
SMD1812P150TF/8	4.37	4.73	3.07	3.41	0.35	0.85	0.30	1.20	0.20	
SMD1812P150TF/12	4.37	4.73	3.07	3.41	0.35	0.85	0.30	1.20	0.20	

SMD1812P150TF/16	4.37	4.73	3.07	3.41	0.35	0.85	0.30	1.20	0.20	
SMD1812P150TF/24	4.37	4.73	3.07	3.41	0.85	1.35	0.30	1.20	0.20	
SMD1812P160TF/8	4.37	4.73	3.07	3.41	0.35	0.85	0.30	1.20	0.20	
SMD1812P200TFT	4.37	4.73	3.07	3.41	0.35	0.85	0.30	1.20	0.20	
SMD1812P200TF/12	4.37	4.73	3.07	3.41	0.65	1.15	0.30	1.20	0.20	
SMD1812P200TF/16	4.37	4.73	3.07	3.41	0.65	1.15	0.30	1.20	0.20	
SMD1812P260TFT	4.37	4.73	3.07	3.41	0.35	0.85	0.30	1.20	0.20	
SMD1812P260TF/12	4.37	4.73	3.07	3.41	0.65	1.15	0.30	1.20	0.20	
SMD1812P260TF/16	4.37	4.73	3.07	3.41	0.85	1.35	0.30	1.20	0.20	
SMD1812P300TFT	4.37	4.73	3.07	3.41	0.85	1.35	0.30	1.20	0.20	

3. Thermal Derating Chart

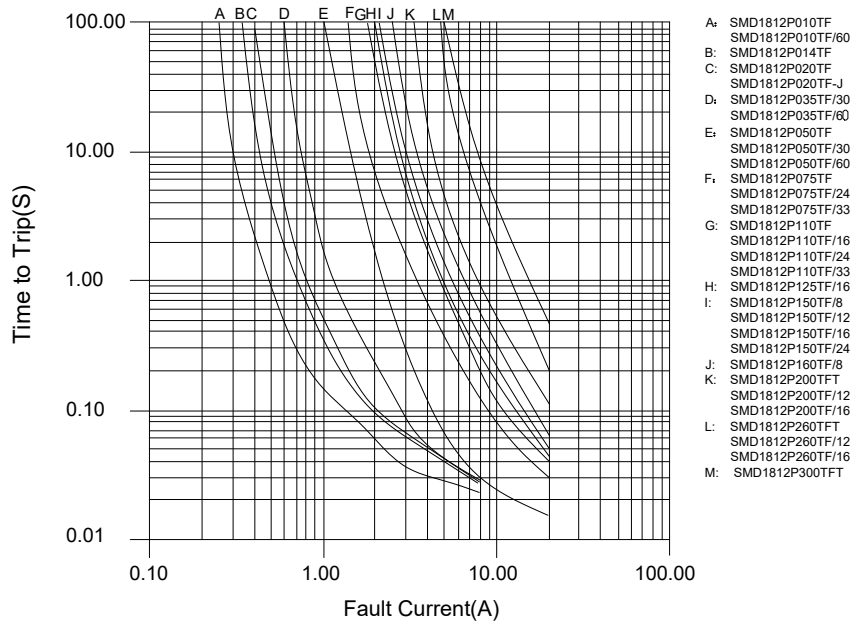
Recommended hold current(A) at ambient Temperature(°C)

Model	Ambient Operating Temperature								
	-40°C	-20°C	0°C	25°C	40°C	50°C	60°C	70°C	85°C
SMD1812P010TF	0.16	0.14	0.12	0.10	0.08	0.07	0.06	0.05	0.03
SMD1812P010TF/60	0.16	0.14	0.12	0.10	0.08	0.07	0.06	0.05	0.03
SMD1812P014TF	0.23	0.19	0.17	0.14	0.12	0.10	0.09	0.08	0.06
SMD1812P020TF	0.29	0.26	0.23	0.20	0.17	0.15	0.14	0.12	0.10
SMD1812P020TF-J	0.29	0.26	0.23	0.20	0.17	0.15	0.14	0.12	0.10
SMD1812P035TF/30	0.50	0.45	0.40	0.35	0.30	0.26	0.24	0.20	0.16
SMD1812P035TF/60	0.50	0.45	0.40	0.35	0.30	0.26	0.24	0.20	0.16
SMD1812P050TF	0.77	0.68	0.59	0.50	0.44	0.40	0.37	0.33	0.29
SMD1812P050TF/30	0.77	0.68	0.59	0.50	0.44	0.40	0.37	0.33	0.29
SMD1812P050TF/60	0.77	0.68	0.59	0.50	0.44	0.40	0.37	0.33	0.29
SMD1812P075TF	1.15	1.01	0.88	0.75	0.65	0.60	0.55	0.49	0.43
SMD1812P075TF/24	1.15	1.01	0.88	0.75	0.65	0.60	0.55	0.49	0.43
SMD1812P075TF/33	1.15	1.01	0.88	0.75	0.65	0.60	0.55	0.49	0.43
SMD1812P110TF	1.59	1.43	1.26	1.10	0.95	0.87	0.80	0.71	0.60
SMD1812P110TF/16	1.59	1.43	1.26	1.10	0.95	0.87	0.80	0.71	0.60
SMD1812P110TF/24	1.59	1.43	1.26	1.10	0.95	0.87	0.80	0.71	0.60
SMD1812P110TF/33	1.59	1.43	1.26	1.10	0.95	0.87	0.80	0.71	0.60
SMD1812P125TF/16	2.00	1.75	1.52	1.25	1.00	0.95	0.90	0.75	0.53
SMD1812P150TF/8	2.06	1.93	1.79	1.50	1.28	1.10	1.02	0.80	0.68
SMD1812P150TF/12	2.06	1.93	1.79	1.50	1.28	1.10	1.02	0.80	0.68
SMD1812P150TF/16	2.06	1.93	1.79	1.50	1.28	1.10	1.02	0.80	0.68
SMD1812P150TF/24	2.06	1.93	1.79	1.50	1.28	1.10	1.02	0.80	0.68
SMD1812P160TF/8	2.20	2.06	1.91	1.60	1.36	1.17	1.09	0.85	0.72
SMD1812P200TFT	2.60	2.44	2.22	2.00	1.78	1.67	1.50	1.45	1.29
SMD1812P200TF/12	2.60	2.44	2.22	2.00	1.78	1.67	1.50	1.45	1.29
SMD1812P200TF/16	2.60	2.44	2.22	2.00	1.78	1.67	1.50	1.45	1.29
SMD1812P260TFT	3.40	3.16	3.00	2.60	2.30	2.15	2.00	1.85	1.63
SMD1812P260TF/12	3.40	3.16	3.00	2.60	2.30	2.15	2.00	1.85	1.63

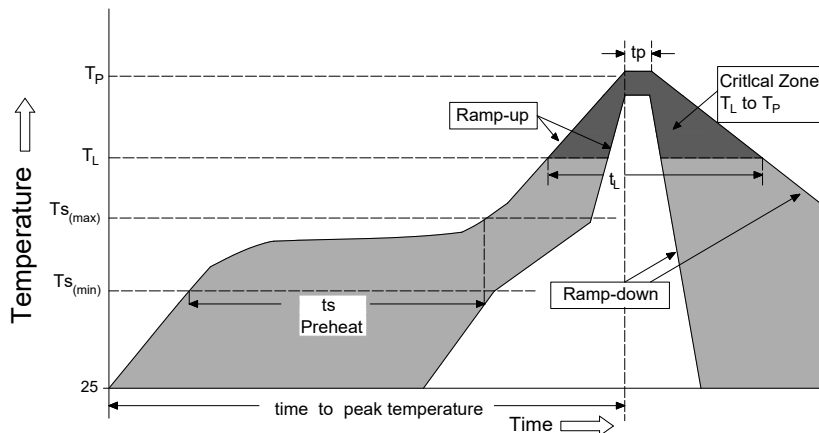
SMD1812P260TF/16	3.40	3.16	3.00	2.60	2.30	2.15	2.00	1.85	1.63
SMD1812P300TFT	4.13	3.75	3.30	3.00	2.62	2.43	2.25	2.00	1.78

4. Typical time to trip at 25°C

SMD1812 Series TTT Vs Fault current chart



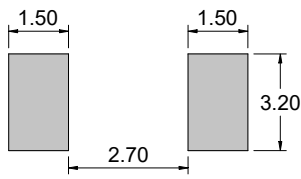
5. Soldering parameters



Profile Feature		Pb-Free Assembly
Average Ramp-Up Rate ($T_{s(max)}$ to T_P)		3°C/second max
Pre Heat:	Temperature Min ($T_{s(min)}$)	150°C
	Temperature Max ($T_{s(max)}$)	200°C
	Time (Min to Max) (t_s)	60 – 180 secs
Time Maintained Above:	Temperature (T_L)	217°C
	Temperature (t_L)	60 – 150 seconds
Peak / Classification Temperature (T_P)		260 ^{+0/-5} °C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes Max.

- ◆ All temperature refer to topside of the package, measured on the package body surface
- ◆ If reflow temperature exceeds the recommended profile, devices may not meet the performance requirements
- ◆ Recommended reflow methods: IR, vapor phase oven, hot air oven, N2 environment for lead
- ◆ Recommended maximum paste thickness is 0.25mm (0.010inch)
- ◆ Devices can be cleaned using standard industry methods and solvents

6. Recommended Pad Layout(mm) & Physical Specifications



Terminal Material	Tin-Plated Nickel-Copper (Solder Material: Matte Tin (Sn))
Lead Solderability	Meets EIA Specification RS186-9E, ANSI/J-STD-002 Category 3.

7. Environmental Specifications

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	MIL-STD-202, Method 107; +85 °C to -40 °C, 20 times;-30 % typical resistance change
Solvent Resistance	MIL-STD-202, Method 215 ; No change
Vibration	MIL-STD-883, Method 2007, Condition A; No change
Moisture Sensivity Level	Level 1, J-STD-020
Storage Conditions	+40 °C Max. 70% RH Max. Packed in original packaging.

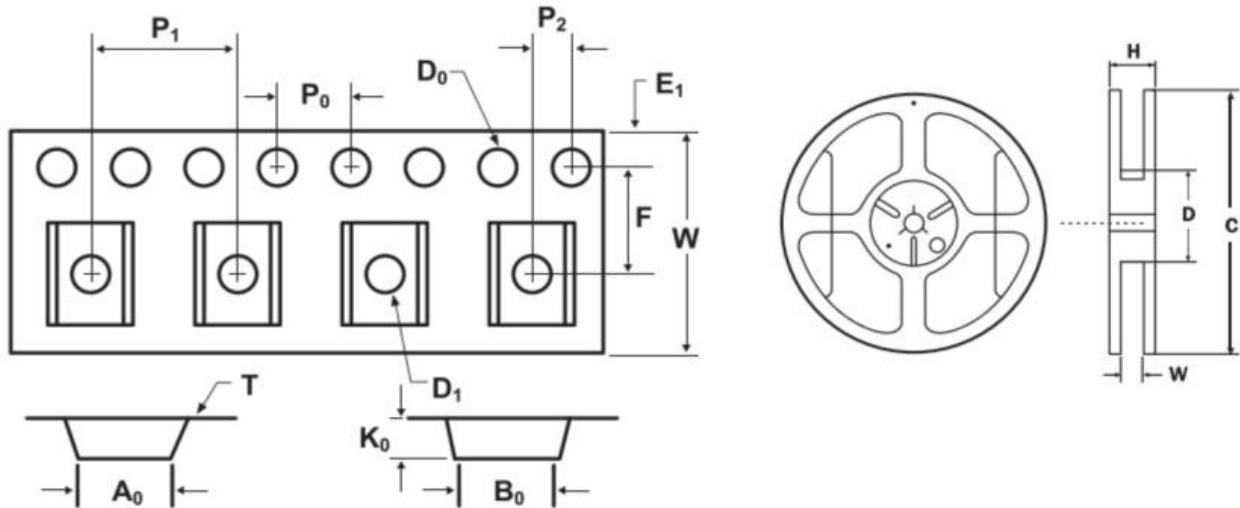
8. Test Procedures And Requirements

No.	Test	Test Conditions	Accept/Reject Criteria
1	R0 min	Resistance measurement at 25°C	$R0min \leq R \leq R1max$
2	R1 max	Resistance measurement one hour after post trip	$R0min \leq R \leq R1max$
3	I-hold	Hold rated current 1800 second without trip, @ 25°C	No trip
4	I-trip	Device must trip within 900 second under rated current, @25°C	Trip
5	Max. time to trip	At specified current, 25 °C	$T \leq \text{max. time to trip (seconds)}$
6	Trip Cycle Life	V_{max} , I_{max} , 100 cycles	No arcing or burning
7	Trip Endurance	V_{max} , I_{max} 24 hours	No arcing or burning
8	Solderability	ANSI/J-STD-002	95 % min. coverage

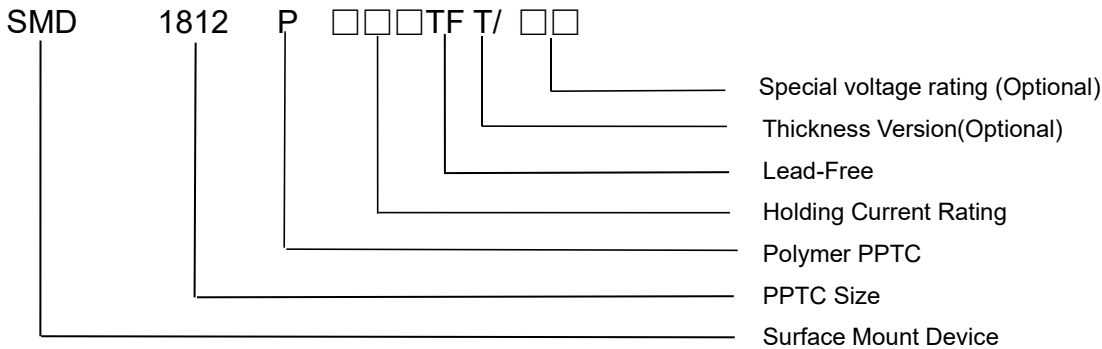
9. Tape and Reel Specifications & Packaging quantity per Reel

TAPE SPECIFICATIONS: EIA-481-1 (mm)				REEL DIMENSIONS: EIA-481-1 (mm)	
Item	SMD1812P050TF	SMD1812P010TF	SMD1812P035TF/60	C	Ø178±1.0
	SMD1812P050TF/30	SMD1812P010TF/60	SMD1812P050TF/60	D	Ø60.2±0.5
	SMD1812P075TF	SMD1812P014TF	SMD1812P110TF/33	W	13.2±1.5
	SMD1812P075TF/24	SMD1812P020TF	SMD1812P150TF/24	H	16.0±0.5
	SMD1812P075TF/33	SMD1812P020TF-J	SMD1812P260TF/16		
	SMD1812P110TF	SMD1812P035TF/30	SMD1812P300TFT		
	SMD1812P110TF/16	SMD1812P110TF/24			
	SMD1812P125TF/16	SMD1812P200TF/12			
	SMD1812P150TF/8	SMD1812P200TF/16			
	SMD1812P150TF/12	SMD1812P260TF/12			
	SMD1812P150TF/16				
	SMD1812P160TF/8				
	SMD1812P200TFT				
	SMD1812P260TFT				
	W	12.0±0.10	12.0±0.10	12.0±0.10	
F	5.50±0.05	5.50±0.05	5.50±0.05		
E1	1.75±0.10	1.75±0.10	1.75±0.10		
D0	1.55±0.05	1.55±0.05	1.55±0.05		

D1	1.50 min	1.50 min	1.50 min
P0	4.0±0.10	4.0±0.10	4.0±0.10
P1	8.0±0.10	8.0±0.10	8.0±0.10
P2	2.0±0.05	2.0±0.05	2.0±0.05
A0	3.58±0.10	3.58±0.10	3.50±0.10
B0	4.93±0.10	4.93±0.10	4.90±0.10
T	0.25±0.05	0.25±0.05	0.25±0.05
K0	0.87±0.10	1.30±0.10	1.70±0.10
Leader	390mm	390mm	390mm
Trailer	160mm	160mm	160mm
Q'ty	2,000pcs/Reel	1,500pcs/Reel	1,000pcs/Reel



10. Part Ordering Number System



⚠ Warning:

- Users shall independently assess the suitability of these devices for each of their applications
- Operation of these devices beyond the stated maximum ratings could result in damage to the devices and lead to electrical arcing and/or fire
- These devices are intended to protect against the effects of temporary over-current or over-temperature conditions and are not intended to perform as protective devices where such conditions are expected to be repetitive or prolonged in duration
- Exposure to silicon-based oils, solvents, electrolytes, acids, and similar materials can adversely affect the performance of these PPTC devices
- These devices undergo thermal expansion under fault conditions, and thus shall be provided with adequate space and be protected against mechanical stresses
- Circuits with inductance may generate a voltage ($L di/dt$) above the rated voltage of the PPTC device.