

ELECTRONICS



Positive Thermal Coefficient

SMD1812 Series

Positive Thermal Coefficient - SMD1812 Series

Features

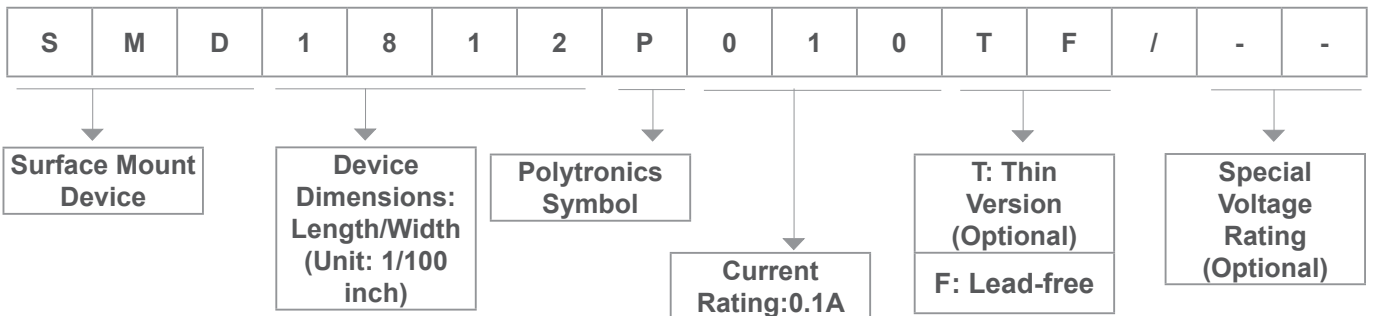
1. I(hold): 0.1~3.5A
2. RoHS compliant, lead-free and halogen-free
3. Fast response to fault currents
4. Compact design saves board space
5. Low resistance
6. Low-profile
7. Compatible with high temperature solders



Applications

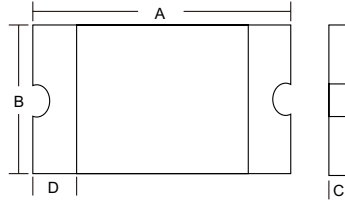
1. USB peripherals
2. Disk drives
3. CD-ROMs
4. Plug and play protection for motherboards and peripherals
5. Mobile phones - battery and port protection
6. Disk drives
7. PDAs / digital cameras
8. Game console port protecti

Product Name



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Dimension



Type Number	Marking	I hold	Itrip	Maximum Time To Trip		Vmax	Imax	P _{dmax}	Rmin	R1max	Package	Package Dimensions (mm)							
				Current A	Time s							A		B		C		D	
												min	max	min	max	min	max	min	max
SMD1812P010TF	010	0.1	0.3	0.5	1.5	30	100	0.8	0.75	15	1812	4.37	4.73	3.07	3.41	0.5	1	0.3	
SMD1812P014TF	014	0.14	0.34	1.5	0.15	60	100	0.8	0.65	6	1812	4.37	4.73	3.07	3.41	0.5	1	0.3	
SMD1812P020TF	020	0.2	0.4	8	0.02	30	100	0.8	0.35	5	1812	4.37	4.73	3.07	3.41	0.5	1	0.3	
SMD1812P030TF	030	0.3	0.6	8	0.1	30	100	0.8	0.25	3	1812	4.37	4.73	3.07	3.41	0.5	1	0.3	
SMD1812P050TF	050	0.5	1	8	0.15	15	100	0.8	0.15	1	1812	4.37	4.73	3.07	3.41	0.4	0.9	0.3	
SMD1812P050TF/30	050 30V	0.5	1	8	0.15	30	100	0.8	0.4	0.17	1812	4.37	4.73	3.07	3.41	0.5	0.9	0.3	
SMD1812P075TF	075	0.75	1.5	8	0.2	13.2	100	0.8	0.09	0.45	1812	4.37	4.73	3.07	3.41	0.4	0.9	0.3	
SMD1812P075TF/24	075 24V	0.75	1.5	8	0.2	24	100	0.8	0.11	0.29	1812	4.37	4.73	3.07	3.41	0.75	1.55	0.3	
SMD1812P075TF/33	075 33V	0.75	1.5	8	0.2	33	20	0.8	0.11	0.4	1812	4.37	4.73	3.07	3.41	0.75	1.55	0.3	
SMD1812P110TF	110	1.1	2.2	8	0.3	8	100	0.8	0.05	0.25	1812	4.37	4.73	3.07	3.41	0.4	0.9	0.3	
SMD1812P110TF/16	110 16V	1.1	2.2	8	0.3	16	100	0.8	0.05	0.25	1812	4.37	4.73	3.07	3.41	0.6	1.3	0.3	
SMD1812P110TF/24	110 24V	1.1	2.2	8	0.5	24	20	0.8	0.06	0.2	1812	4.37	4.73	3.07	3.41	0.5	1.07	0.3	
SMD1812P110TF/33	110 33V	1.1	2.2	8	0.5	33	20	0.8	0.06	0.2	1812	4.37	4.73	3.07	3.41	1.2	2	0.3	
SMD1812P125TF	125	1.25	2.5	8	0.4	16	100	0.8	0.05	0.14	1812	4.37	4.73	3.07	3.41	0.3	0.8	0.3	
SMD1812P150TF	150	1.5	3	8	0.5	8	100	0.8	0.04	0.16	1812	4.37	4.73	3.07	3.41	0.3	0.8	0.3	
SMD1812P150TF/16	150 16V	1.5	3	8	0.5	16	100	0.8	0.04	0.16	1812	4.37	4.73	3.07	3.41	0.8	1.8	0.3	
SMD1812P160TF	160	1.6	2.8	8	1	8	100	0.8	0.03	0.13	1812	4.37	4.73	3.07	3.41	0.3	0.8	0.3	
SMD1812P200TF	200	2	4	8	2	8	100	0.8	0.02	0.1	1812	4.37	4.73	3.07	3.41	0.4	0.8	0.3	
SMD1812P260TF	260	2.6	5	8	2.5	8	100	0.8	0.015	0.05	1812	4.37	4.73	3.07	3.41	0.5	1	0.3	
SMD1812P300TF	300	3	5	8	4	8	100	0.8	0.012	0.04	1812	4.37	4.73	3.07	3.41	0.5	1.2	0.3	
SMD1812P350TF	350	3.5	6	10	4	6	100	2	0.008	0.03	1812	4.37	4.73	3.07	3.41	0.5	1.2	0.3	

Vocabulary

Ihold = Hold current: maximum current device will pass without tripping in 23°C still air.

Itrip = Trip current: minimum current at which the device will trip in 23 °C still air.

Vmax = Maximum voltage device can withstand without damage at rated current (I max)

Imax = Maximum fault current device can withstand without damage at rated voltage (Vmax)

Pd typ = Typical power dissipated from device when in the tripped state at 23 °C still air.

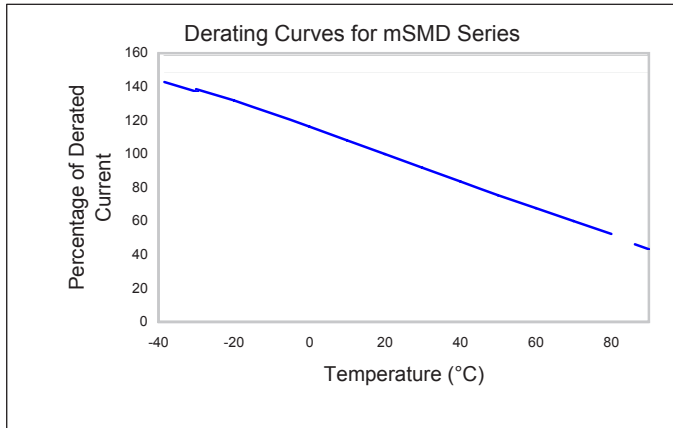
Rmin = Minimum resistance of device in initial (un-soldered) state.

R1max = Maximum resistance of device at 23 °C measured one hour after tripping or reflow soldering of 260 °C for 20 sec.

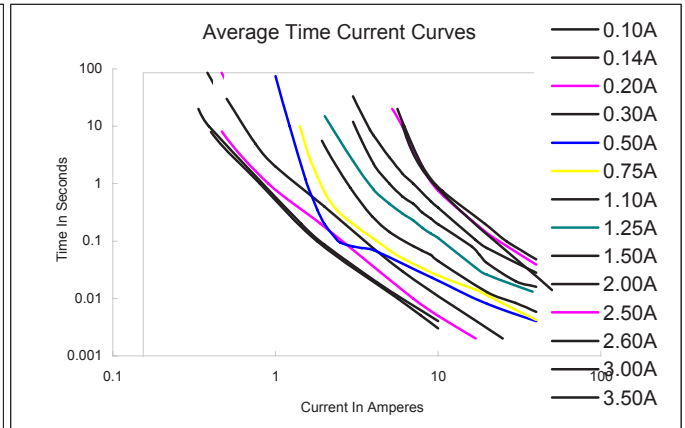
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Thermal Derating Chart-IH(A)

Thermal Derating Curve



Typical Time-To-Trip At 25°C



Type Number	-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	0.11	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
SMD1812P030TF	0.44	0.39	0.35	0.30	0.26	0.23	0.21	0.18	0.15
SMD1812P050TF	0.59	0.57	0.55	0.50	0.45	0.43	0.35	0.30	0.23
SMD1812P050TF/30	0.59	0.57	0.55	0.50	0.45	0.43	0.35	0.30	0.23
SMD1812P075TF	1.10	0.99	0.87	0.75	0.63	0.57	0.49	0.45	0.35
SMD1812P075TF/24	1.10	0.99	0.87	0.75	0.63	0.57	0.49	0.45	0.35
SMD1812P075TF/33	1.10	0.99	0.87	0.75	0.63	0.57	0.49	0.45	0.35
SMD1812P110TF/8	1.60	1.45	1.28	1.10	0.92	0.83	0.71	0.66	0.52
SMD1812P110TF/16	1.60	1.45	1.28	1.10	0.92	0.83	0.71	0.66	0.52
SMD1812P110TF/24	1.60	1.45	1.28	1.10	0.92	0.83	0.71	0.66	0.52
SMD1812P110TF/33	1.60	1.45	1.28	1.10	0.92	0.83	0.71	0.66	0.52
SMD1812P125TF/16	2.00	1.75	1.52	1.25	1.00	0.95	0.90	0.75	0.53
SMD1812P125TF	2.00	1.75	1.52	1.25	1.00	0.95	0.90	0.75	0.53
SMD1812P150TF	2.30	2.05	1.77	1.50	1.23	1.09	0.95	0.82	0.61
SMD1812P150TF/12	2.30	2.05	1.77	1.50	1.23	1.09	0.95	0.82	0.61
SMD1812P150TF/24	2.30	2.05	1.77	1.50	1.23	1.09	0.95	0.82	0.61
SMD1812P160TF	2.80	2.06	1.88	1.60	1.26	1.12	0.98	0.84	0.63
SMD1812P200TF	2.88	2.61	2.25	2.00	1.80	1.66	1.45	1.09	0.80
SMD1812P260TF	3.90	3.42	2.96	2.60	2.33	2.07	1.94	1.35	1.00
SMD1812P260TF/12	3.90	3.42	2.96	2.60	2.33	2.07	1.94	1.35	1.00
SMD1812P300TF	4.15	3.76	3.46	3.00	2.55	2.28	2.01	1.61	1.33
SMD1812P350TF	4.84	4.39	4.04	3.50	2.98	2.66	2.35	1.88	1.55

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Recommended Solder Reflow Conditions

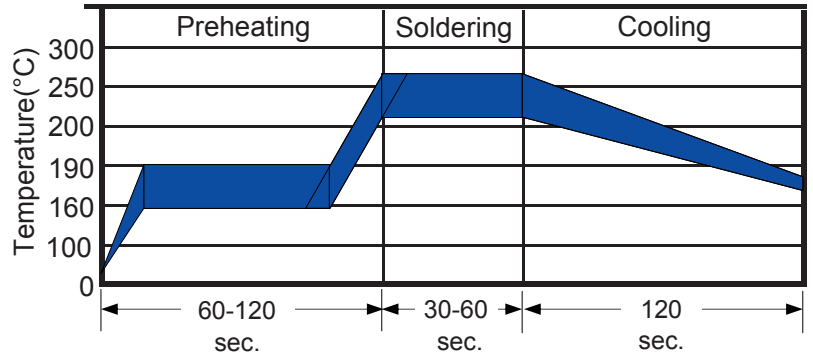
·Recommended reflow methods: IR, vapor phase oven, hot air oven, N2 environment for lead-free

·Recommended maximum paste thickness is 0.25mm (0.010 inch)

·Devices can be cleaned using standard industry methods and solvents.

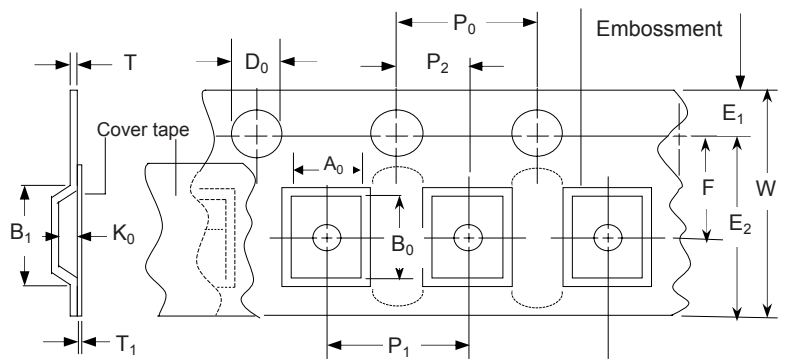
Note 1: All temperature refer to topside of the package, measured on the package body surface.

Note 2: If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

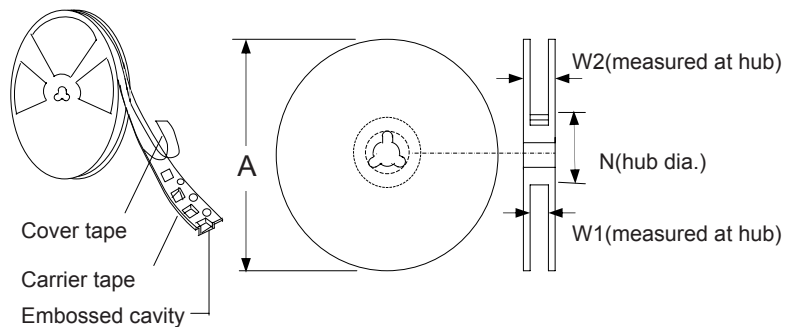


Tape And Reel Specifications (mm) EIA Tape Component Dimension

Governing Specifications	EIA 481-2
W	12 ± 0.20
P ₀	4.0 ± 0.10
P ₁	8.0 ± 0.10
P ₂	2.0 ± 0.05
A ₀	3.5 ± 0.23
B ₀	5.1 ± 0.15
B _{1max}	5.9
D ₀	1.5+0.1,-0
F	5.5 ± 0.05
E ₁	1.75 ± 0.10
E _{2min}	10.25
T _{max}	0.6
T _{1max}	0.1
K ₀	0.9 ± 0.15
Leader min.	390
Trailer min.	160
Reel Dimensions	
A max	178
N min.	60
W ₁	12.4+20,-0.0
W _{2max.}	18.4



EIA Reel Dimensions



Storage And Handling

- Storage conditions : 40°C max, 70% R.H.
- Devices may not meet specified performance if storage conditions are exceeded.