

SMD1812 Series

Surface-Mount PTC Device
Rev Letter: B
Rev Date: 2009-9-21



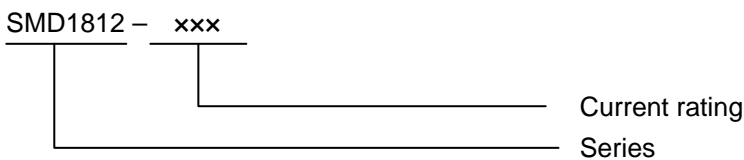
Feature

- Resettable overcurrent protection
- ROHS complaint
- Small size of 1812/4420
- Current ratings from 0.10 to 2.6A
- Fast time-to-trip
- Low resistance

Application

- Computer
- Battery
- Mobile phones
- Industrial controls
- Automotive
- Portable electronics
- Multimedia
- Game machines
- Telephony and broadband

Part Numbering



Typical Electrical Characteristics for SMD1812 Series at 25°C

Size 4532mm/1812 mils

Part number	Hold Current & Trip Current (Amps)		Maximum Voltage (V)	Maximum Current (A)	Maximum Time-to-Trip		Minimum Resistance (Ohms)	One Hour Post Reflow Resistance (Ohms)	Tripped State Power Dissipation (Watts)
	Hold	Trip			(A)	(S)			
SMD1812-010	0.10	0.20	60	10	1.5	0.16	0.700	6.000	0.72
SMD1812-014	0.14	0.34	60	10	1.5	0.16	0.700	6.000	0.75
SMD1812-020	0.20	0.40	30	10	6.0	0.02	0.600	5.000	0.80
SMD1812-050	0.50	1.00	24	40	8.0	0.15	0.150	1.000	0.80
SMD1812-075	0.75	1.50	13.2	100	8.0	0.20	0.100	0.480	1.00
SMD1812-075/24	0.75	1.50	24	40	8.0	0.30	0.100	0.480	0.80
SMD1812-110	1.10	2.20	8	100	8.0	0.30	0.040	0.260	1.20
SMD1812-110/24	1.10	2.20	24	40	8.0	0.50	0.040	0.260	0.80
SMD1812-125	1.25	2.50	6	100	8.0	0.40	0.070	0.250	0.80
SMD1812-125/24	1.25	2.50	24	40	8.0	0.40	0.070	0.250	0.80
SMD1812-150	1.50	3.00	6	100	8.0	0.50	0.040	0.110	0.80
SMD1812-150/24	1.50	3.00	24	40	8.0	1.50	0.040	0.110	1.00
SMD1812-160	1.60	3.20	8	100	8.0	1.00	0.030	0.100	0.80
SMD1812-160/24	1.60	3.20	24	40	8.0	2.00	0.030	0.100	1.00

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SMD1812-200	2.00	4.00	8	100	8.0	5.00	0.020	0.075	1.00
SMD1812-260	2.60	5.20	6	100	8.0	7.00	0.015	0.050	1.00
SMD1812-260/16	2.60	5.20	16	100	8.0	5.00	0.015	0.050	1.00

Size 11550mm/4420 mils

Part number	Hold Current & Trip Current (Amps)		Maximum Voltage (V)	Maximum Current (A)	Maximum Time-to-Trip		Minimum Resistance (Ohms)	One Hour Post Reflow Resistance (Ohms)	Tripped State Power Dissipation (Watts)
	Hold	Trip			(A)	(S)			
SMD1812-190	1.90	3.80	16	100	10.0	2.00	0.024	0.080	1.5

Thermal Derating For SMD1812 series [Hold Current (A) at Ambient Temperature(°C)]

Size 4532mm/1812 mils

Part number	Maximum Ambient Temperature									
	-40°C	-20°C	0°C	20°C	25°C	40°C	50°C	60°C	70°C	85°C
SMD1812-010	0.17	0.16	0.14	0.12	0.10	0.08	0.07	0.06	0.05	0.04
SMD1812-014	0.23	0.20	0.18	0.16	0.14	0.12	0.11	0.10	0.07	0.05
SMD1812-020	0.33	0.29	0.26	0.22	0.20	0.17	0.16	0.15	0.13	0.09
SMD1812-050	0.76	0.69	0.61	0.53	0.50	0.45	0.40	0.36	0.33	0.23
SMD1812-075	1.11	1.02	0.89	0.80	0.75	0.65	0.59	0.54	0.47	0.38
SMD1812-075/24	1.50	1.25	1.00	0.80	0.75	0.65	0.60	0.55	0.48	0.39
SMD1812-110	1.65	1.50	1.32	1.15	1.10	0.99	0.85	0.78	0.68	0.52
SMD1812-110/24	2.00	1.70	1.40	1.15	1.10	0.99	0.86	0.79	0.69	0.53
SMD1812-125	1.89	1.64	1.41	1.28	1.25	1.09	0.98	0.86	0.74	0.56
SMD1812-125/24	1.89	1.64	1.41	1.28	1.25	1.09	0.98	0.86	0.74	0.56
SMD1812-150	2.28	2.05	1.85	1.55	1.50	1.26	1.14	1.05	0.92	0.73
SMD1812-150/24	2.10	1.90	1.70	1.55	1.50	1.26	1.14	1.05	0.92	0.73
SMD1812-160	2.45	2.15	1.89	1.64	1.60	1.34	1.25	1.15	0.96	0.79
SMD1812-160/24	2.50	2.20	1.89	1.64	1.60	1.40	1.25	1.13	0.99	0.79
SMD1812-200	2.90	2.61	2.40	2.05	2.00	1.70	1.51	1.41	1.21	0.95
SMD1812-260	3.80	3.61	3.12	2.64	2.60	2.28	2.10	1.85	1.61	1.29
SMD1812-260/16	3.75	3.45	3.08	2.68	2.60	2.35	2.10	1.84	1.62	1.26

Size 11550mm/4420 mils

Part number	Maximum Ambient Temperature									
	-40°C	-20°C	0°C	20°C	25°C	40°C	50°C	60°C	70°C	85°C
SMD1812-190	3.15	2.75	2.21	1.92	1.90	1.50	1.25	1.12	0.82	0.37

Typical Product Dimensions in Millimeters(Inches)

Size 4532mm/1812 mils

Part number	A	B	C	D	E	Figures for Dimension
	Max.	Max.	Max.	Min.	Min.	

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SMD1812-010	4.73(0.186)	3.41(0.134)	1.00(0.039)	0.30(0.012)	0.30(0.012)	1
SMD1812-014	4.73(0.186)	3.41(0.134)	1.00(0.039)	0.30(0.012)	0.30(0.012)	1
SMD1812-020	4.73(0.186)	3.41(0.134)	0.89(0.035)	0.30(0.012)	0.30(0.012)	1
SMD1812-050	4.73(0.186)	3.41(0.134)	0.80(0.031)	0.30(0.012)	0.30(0.012)	1
SMD1812-075	4.73(0.186)	3.41(0.134)	0.80(0.031)	0.30(0.012)	0.30(0.012)	1
SMD1812-075/24	4.73(0.186)	3.41(0.134)	1.30(0.051)	0.30(0.012)	0.30(0.012)	1
SMD1812-110	4.73(0.186)	3.41(0.134)	0.80(0.031)	0.30(0.012)	0.30(0.012)	1
SMD1812-110/24	4.73(0.186)	3.41(0.134)	1.30(0.051)	0.30(0.012)	0.30(0.012)	1
SMD1812-125	4.73(0.186)	3.41(0.134)	1.00(0.039)	0.30(0.012)	0.30(0.012)	1
SMD1812-125/24	4.73(0.186)	3.41(0.134)	1.30(0.051)	0.30(0.012)	0.30(0.012)	1
SMD1812-150	4.73(0.186)	3.41(0.134)	1.00(0.039)	0.30(0.012)	0.30(0.012)	1
SMD1812-150/24	4.73(0.186)	3.41(0.134)	1.30(0.051)	0.30(0.012)	0.30(0.012)	1
SMD1812-160	4.73(0.186)	3.41(0.134)	1.00(0.039)	0.30(0.012)	0.30(0.012)	1
SMD1812-160/24	4.73(0.186)	3.41(0.134)	1.30(0.051)	0.30(0.012)	0.30(0.012)	1
SMD1812-200	4.73(0.186)	3.41(0.134)	1.00(0.039)	0.30(0.012)	0.30(0.012)	1
SMD1812-260	4.73(0.186)	3.41(0.134)	1.30(0.039)	0.30(0.012)	0.30(0.012)	1
SMD1812-260/16	4.73(0.186)	3.41(0.134)	1.30(0.051)	0.30(0.012)	0.30(0.012)	1

Size 11550mm/4420 mils

Part number	A	B	C	D	E	Figures for Dimension
	Max.	Max.	Max.	Min.	Min.	
SMD1812-190	12.00(0.472)	5.33(0.210)	0.55(0.022)	0.30(0.012)	0.30(0.012)	1

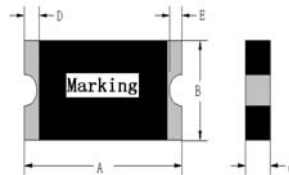


Figure 1

Typical Time-to-trip Curves at Room Temperature

SMD1812 Series

A= SMD1812-010, SMD1812-014

B = SMD1812-020

C = SMD1812-050, SMD1812-050/24

D = SMD1812-075, SMD1812-075/24

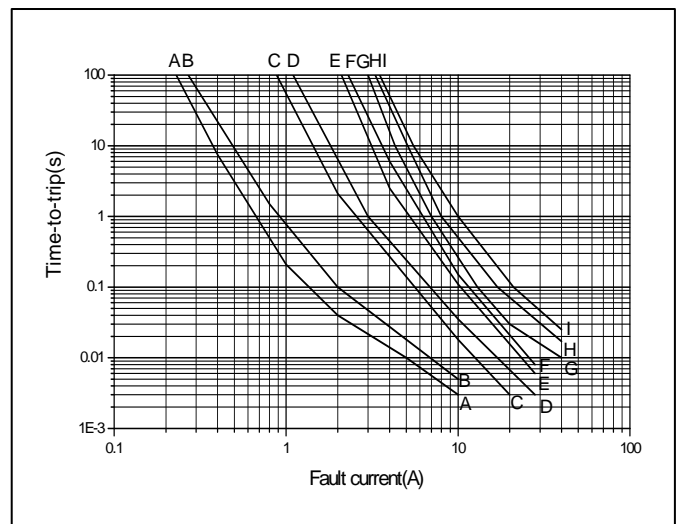
E = SMD1812-110, SMD1812-110/24,
 SMD1812-125, SMD1812-125/24

F = SMD1812-150, SMD1812-150/24,
 SMD1812-160, SMD1812-160/24

G = SMD1812-200, SMD1812-200/24

H = SMD1812-190

I = SMD1812-260, SMD1812-260/24

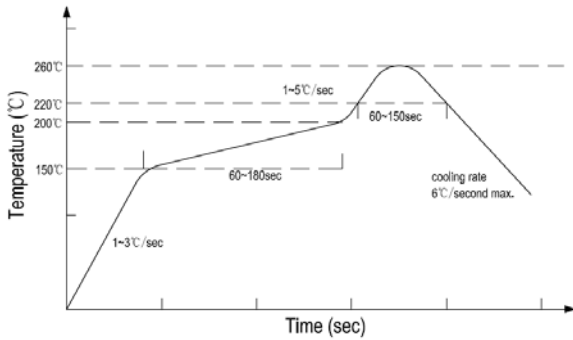


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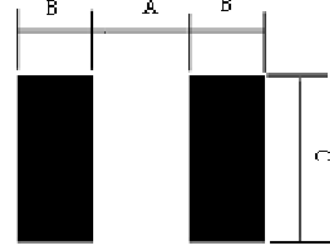
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Solder Reflow Recommendation



Reflow –curve



Footprint(mm)

- * Recommended reflow methods: IR, hot air oven, nitrogen oven.
- * Devices can be cleaned using standard industry methods and solvents.

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.

Environmental Specifications

- Recommended storage conditions: 40°C max, 70% R.H. max
- Thermal Shock: -40°C to 85°C, 30 min cycle, 20 cycles.
- Passive aging: 85°C, 1000 hours
- Vibration: per MIL-STD-883C
- Moisture Resistance: 85% RH, 85°C, 1000hrs
- Solder leach resistance and terminal adhesion: Per EIA-576 test

Packaging Information

Size 4532mm/1812 mils

Part number	Tape & Reel		Recommended Pad Layout Figures[mm(In.)]		
	Quantity	Tape spc code	Dimension A(Nom.)	Dimension B(Nom.)	Dimension C(Nom.)
SMD1812	1500	1812A/B	3.45(0.141)	1.78(0.071)	3.15(0.121)

Size 11550mm/4420 mils

Part number	Tape & Reel		Recommended Pad Layout Figures[mm(In.)]		
	Quantity	Tape spc code	Dimension A(Nom.)	Dimension B(Nom.)	Dimension C(Nom.)
SMD1812-190	1000		9.57(0.381)	1.45(0.061)	4.75(0.191)



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 overcurrent or overtemperature fault conditions and should not be used when repeated fault conditions or prolonged trip events are anticipated.

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- 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.