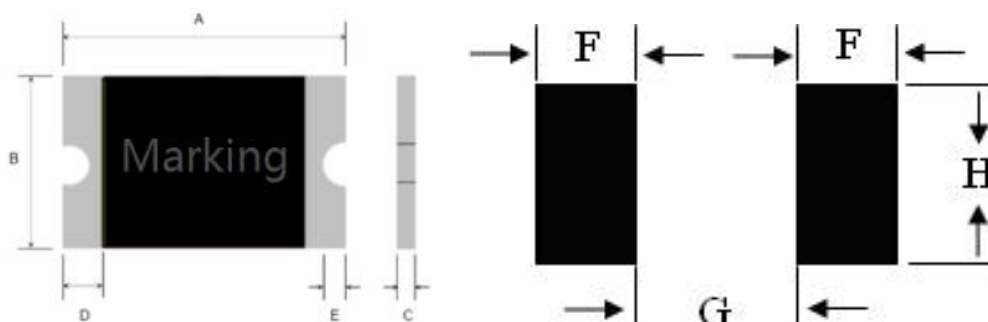


PPTC SMD1812 Series Surface-mount Devices

Features:

- RoHS Compliant & Halogen Free
- Faster tripping, 1812 Dimension, Surface mountable, Solid state
- Maximum Voltage: 6~60Vdc
- Operating Current: 0.1A~3.5A,
- Operating Temperature: -40℃ TO 85

Product Dimensions



Unit : mm

Model	Dimensions (mm)							
	A(min)	A(max)	B(min)	B(max)	C(min)	C(max)	D(min)	E(min)
SMD1812-010-30V	4.37	4.73	3.07	3.41	0.50	1.00	0.30	0.15
SMD1812-010-60V	4.37	4.73	3.07	3.41	0.50	1.00	0.30	0.15
SMD1812-014-33V	4.37	4.73	3.07	3.41	0.50	1.00	0.30	0.15
SMD1812-014-60V	4.37	4.73	3.07	3.41	0.50	1.10	0.30	0.15
SMD1812-020-30V	4.37	4.73	3.07	3.41	0.50	1.00	0.30	0.15
SMD1812-030-30V	4.37	4.73	3.07	3.41	0.50	1.00	0.30	0.15
SMD1812-050-15V	4.37	4.73	3.07	3.41	0.40	0.90	0.30	0.15
SMD1812-050-24V	4.37	4.73	3.07	3.41	0.40	0.90	0.30	0.15
SMD1812-050-30V	4.37	4.73	3.07	3.41	0.40	1.00	0.30	0.15
SMD1812-075-13.2V	4.37	4.73	3.07	3.41	0.40	0.90	0.30	0.15
SMD1812-075-24V	4.37	4.73	3.07	3.41	0.50	1.20	0.30	0.15
SMD1812-075-33V	4.37	4.73	3.07	3.41	0.40	0.90	0.30	0.15
SMD1812-110-16V	4.37	4.73	3.07	3.41	0.40	0.90	0.30	0.15
SMD1812-110-8V	4.37	4.73	3.07	3.41	0.60	1.30	0.30	0.15
SMD1812-110-24V	4.37	4.73	3.07	3.41	0.70	1.70	0.30	0.15
SMD1812-110-33V	4.37	4.73	3.07	3.41	0.50	1.20	0.30	0.15
SMD1812-125-8V	4.37	4.73	3.07	3.41	0.30	0.90	0.30	0.15
SMD1812-125-16V	4.37	4.73	3.07	3.41	0.30	0.90	0.30	0.15
SMD1812-150-8V	4.37	4.73	3.07	3.41	0.50	1.20	0.30	0.15
SMD1812-150-16V	4.37	4.73	3.07	3.41	0.80	1.70	0.30	0.15
SMD1812-150-24V	4.37	4.73	3.07	3.41	0.30	0.80	0.30	0.15
SMD1812-160-8V	4.37	4.73	3.07	3.41	0.40	1.20	0.30	0.15

SMD1812-200-8V	4.37	4.73	3.07	3.41	0.50	1.20	0.30	0.15
SMD1812-200-12V	4.37	4.73	3.07	3.41	0.50	1.20	0.30	0.15
SMD1812-200-16V	4.37	4.73	3.07	3.41	0.50	1.20	0.30	0.15
SMD1812-260-8V	4.37	4.73	3.07	3.41	0.60	1.50	0.30	0.15
SMD1812-260-12V	4.37	4.73	3.07	3.41	0.80	1.70	0.30	0.15
SMD1812-260-16V	4.37	4.73	3.07	3.41	0.50	1.50	0.30	0.15

Recommended Solder Pad Layout Dimensions (mm)

Device	F	G	H
	Normal Value	Normal Value	Normal Value
1812 Series	1.78	3.2	3.2

Thermal Derating Chart-IH (A)

Model	Maximum ambient operating temperatures (℃)								
	-40	-20	0	25	40	50	60	70	85
SMD1812-010-30V/60V	0.16	0.14	0.12	0.10	0.08	0.07	0.06	0.05	0.03
SMD1812-014-33V/60V	0.23	0.19	0.17	0.14	0.12	0.10	0.09	0.08	0.06
SMD1812-020-30V	0.29	0.26	0.23	0.20	0.17	0.15	0.14	0.12	0.10
SMD1812-030-30V	0.44	0.39	0.35	0.30	0.26	0.23	0.21	0.18	0.15
SMD1812-050-15V/24V/30V	0.59	0.57	0.55	0.50	0.45	0.43	0.35	0.30	0.23
SMD1812-075-13.2V/24V/33V	1.10	0.99	0.87	0.75	0.63	0.57	0.49	0.45	0.35
SMD1812-110-16V	1.60	1.45	1.28	1.10	0.92	0.83	0.71	0.66	0.52
SMD1812-110-8V	1.60	1.45	1.28	1.10	0.92	0.83	0.71	0.66	0.52
SMD1812-110-24V	1.60	1.45	1.28	1.10	0.92	0.83	0.71	0.66	0.52
SMD1812-110-33V	1.60	1.45	1.28	1.10	0.92	0.83	0.71	0.66	0.52
SMD1812-125-16V	2.00	1.75	1.52	1.25	1.00	0.95	0.90	0.75	0.53
SMD1812-125-8V	2.00	1.75	1.52	1.25	1.00	0.95	0.90	0.75	0.53
SMD1812-150-8V	2.30	2.05	1.77	1.50	1.23	1.09	0.95	0.82	0.61
SMD1812-150-16V	2.30	2.05	1.77	1.50	1.23	1.09	0.95	0.82	0.61
SMD1812-150-24V	2.30	2.05	1.77	1.50	1.23	1.09	0.95	0.82	0.61
SMD1812-160-8V	2.45	2.15	1.89	1.60	1.34	1.25	1.15	0.96	0.79
SMD1812-200-8V	2.89	2.61	2.30	2.00	1.75	1.66	1.45	1.39	1.19
SMD1812-200-12V	2.89	2.61	2.30	2.00	1.75	1.66	1.45	1.39	1.19
SMD1812-200-16V	2.89	2.61	2.30	2.00	1.75	1.66	1.45	1.39	1.19
SMD1812-260-16V	3.76	3.39	2.99	2.60	2.28	2.16	1.89	1.81	1.55
SMD1812-260-12V	3.38	3.05	2.69	2.60	2.05	1.94	1.70	1.63	1.39
SMD1812-260-16V	3.38	3.05	2.69	2.60	2.05	1.94	1.70	1.63	1.39
SMD1812-300-6V	4.34	3.92	3.45	3.00	2.63	2.49	2.18	2.09	1.79

Electrical Characteristic

Model	V _{max}	I _{max}	I _{hold}	I _{trip}	Maximum Time to Trip		Resistance (Ω)	
	(Vdc)	(A)	(A)	(A)	Current (A)	Time (S)	Rmin	Rmax
SMD1812-010-30V	30.0	100	0.10	0.30	0.5	1.50	0.750	15.000
SMD1812-010-60V	60.0	100	0.10	0.30	0.5	1.50	0.750	15.000
SMD1812-014-33V	33.0	100	0.14	0.34	1.5	0.15	0.650	6.000
SMD1812-014-60V	60.0	100	0.14	0.34	1.5	0.15	0.650	6.000
SMD1812-020-30V	30.0	100	0.20	0.40	8.0	0.02	0.350	5.000
SMD1812-030-30V	30.0	100	0.30	0.60	8.0	0.10	0.250	3.000
SMD1812-050-15V	15.0	100	0.50	1.00	8.0	0.15	0.150	1.000
SMD1812-050-24V	24.0	100	0.50	1.00	8.0	0.15	0.150	1.000
SMD1812-050-30V	30.0	100	0.50	1.00	8.0	0.15	0.150	1.000
SMD1812-075-13.2V	13.2	100	0.75	1.50	8.0	0.20	0.090	0.450
SMD1812-075-24V	24	100	0.75	1.50	8.0	0.20	0.090	0.450
SMD1812-075-33V	33	100	0.75	1.50	8.0	0.20	0.090	0.450
SMD1812-110-16V	16.0	100	1.10	2.20	8.0	0.30	0.050	0.250
SMD1812-110-8V	8.0	100	1.10	2.20	8.0	0.30	0.050	0.250
SMD1812-110-24V	24.0	100	1.10	2.20	8.0	0.30	0.050	0.250
SMD1812-110-33V	33.0	100	1.10	2.20	8.0	0.30	0.050	0.250
SMD1812-125-8V	8.0	100	1.25	2.50	8.0	0.40	0.050	0.200
SMD1812-125-16V	16.0	100	1.25	2.50	8.0	0.40	0.050	0.200
SMD1812-150-8V	8.0	100	1.50	3.00	8.0	0.50	0.040	0.160
SMD1812-150-16V	16.0	100	1.50	3.00	8.0	0.50	0.040	0.160
SMD1812-150-24V	24.0	100	1.50	3.00	8.0	0.50	0.040	0.160
SMD1812-160-8V	8.0	100	1.60	2.80	8.0	1.00	0.030	0.130
SMD1812-200-8V	8.0	100	2.00	4.00	8.0	2.00	0.020	0.100
SMD1812-200-12V	12.0	100	2.00	4.00	8.0	2.00	0.020	0.100
SMD1812-200-16V	16.0	100	2.00	4.00	8.0	2.00	0.020	0.100
SMD1812-260-8V	8.0	100	2.60	5.00	8.0	2.50	0.015	0.050
SMD1812-260-12V	12.0	100	2.60	5.00	8.0	2.50	0.015	0.060
SMD1812-260-16V	16.0	100	2.60	5.00	8.0	2.50	0.015	0.060
SMD1812-300-6V	6.0	100	3.00	5.00	8.0	4.00	0.012	0.040

Physical Characteristics

Terminal Materials	Tin-Plated Nickle-copper
Soldering Zone	Meets EIA specification RS 186-9E and ANSI/J-STD-002 Category 3.

Test Procedures And Requirements

Test	Test Conditions	Accept/Reject Criteria
Resistance	In still air at 25°C	$R_{\min} \leq R \leq R_{\max}$
Time to Trip	Specified current, $V_{\max}$, 25°C	$T \leq \text{Maximum Time to Trip}$
Hold Current	30min, at I_H , 25°C	No trip
Trip Cycle Life	$V_{\max}$, $I_{\max}$, 100 cycles	No arcing or burning
Trip Endurance	$V_{\max}$, 1 hour	No arcing or burning

Physical Characteristics and Environmental Specifications

Test	Conditions	Resistance change
Passive aging	85°C, 1000 hours	±10%
Humidity aging	85°C/85%RH, 1000 hours	±5%
Thermal shock	MIL-STD-202, Method 107G +85°C/-40°C, 20 times	-30% typical resistance change
Resistance to solvent	MIL-STD-202, Method 215	no change
Vibration	MIL-STD-883C, Test Condition A	No change

Electrical Specifications:

I_H =Hold current: maximum current at which the device will not trip at 25°C still air.

I_T =Trip current: minimum current at which the device will always trip at 25°C still air.

$V_{\max}$ =Maximum voltage device can withstand without damage at rated current.

$I_{\max}$ =Maximum fault current device can withstand without damage at rated voltage.

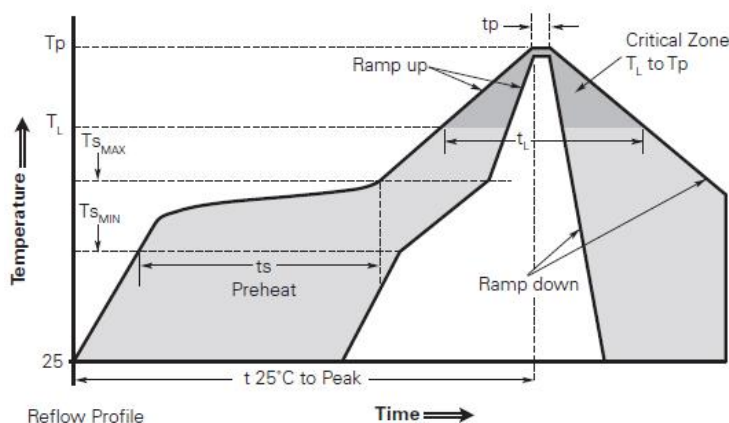
T_{trip} =Maximum time to trip(s) at assigned current.

P_d =Typical power dissipation: typical amount of power dissipated by the device when in still air environment.

$R_{\min}$ =Minimum device resistance at 25°C prior to tripping.

$R_{\max}$ =Maximum device resistance at 25°C prior to tripping.

Solder Reflow Conditions



Profile Feature

- Average ramp up rate($T_{S_{MAX}}$ to T_P)

Preheat

- Temperature min ($T_{S_{MIN}}$)
- Temperature max ($T_{S_{MAX}}$)
- Time($T_{S_{MIN}}$ to $T_{S_{MAX}}$)

Time maintained above:

- Temperature(T_L)
- Time(T_L)
- Peak/Classification temperature(T_P)

Time within 5°C of actual peak temperature

- Time(T_P)
- Ramp down rate
- Time 25°C to peak temperature

Pb-Free Assembly

$3^{\circ}\text{C}/\text{Second}$ max

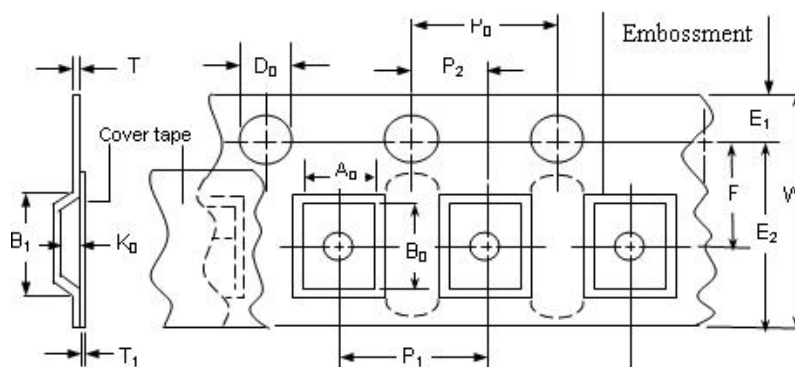
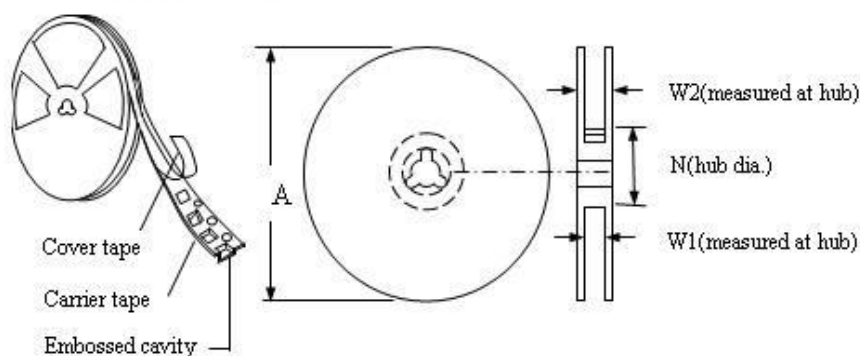
- Recommended reflow methods: IR, vapor phase oven, hot air oven, N2 environment for lead-free.
- Devices are not designed to be wave soldered to the bottom side of the board.
- Recommended maximum paste thickness is 0.25mm (0.010inch).
- Devices can be cleaned using standard industry methods and solvents.
- Soldering temperature profile meets RoHs leadfree process.

Note: All temperatures refer topside of the package.measured on The package body surface

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

Tape Specifications and Reel Dimensions

Covering Specifications EIA	
481-1	
W	12.00+0.30/-0
P0	8.0 $\pm$ 0.10
P1	4.0 $\pm$ 0.10
P2	2.0 $\pm$ 0.10
A0	3.50 $\pm$ 0.10
B0	4.90 $\pm$ 0.10
D0	1.50+0.10/-0
F	5.50 $\pm$ 0.05
E1	1.75 $\pm$ 0.10
T	0.30 $\pm$ 0.10
Leader min.	390
Trailer min.	160
Reel Dimensions	
A	178 $\pm$ 1.0
N	59 $\pm$ 1
W1	8.5+1.0/-0.2
W2	12.0 $\pm$ 1

EIA Tape Component Dimensions

EIA Reel Dimensions




Warning:

PPTC devices are intended for protection against occasional over-current or over-temperature fault conditions, and should not be used when repeated fault conditions are anticipated. Operation beyond maximum ratings of improper use may result in device damage and possible electrical arcing and flame.

Notes:

The specification is intended to present application, product and technical data to assist the user in selecting PPTC circuit protection devices. However, users should independently evaluate and test the suitability of each product. YINT makes no warranties as to the accuracy or completeness of the information and disclaims any liability resulting from its use. YINT's only obligations are those in the YINT Standard Terms and Conditions of Sale and in no case will YINT be liable for any incidental, indirect, or consequential damages arising from the sale, resale, or misuse of its products. YINT reserves the right to change or update, without notice, any information contained in this specification.