SMD1206 Series

ROHS

Surface Mount Resettable PTCs

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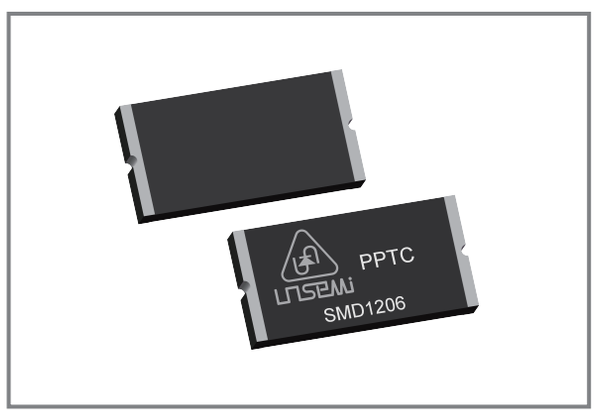
Description

The SMD1206 Series PTC provides surface mount over-current protection for applications where space is at a premium and reset table protection is desired.

Features

- RoHS compliant, Lead-Free and Halogen-Free
- Faster tripping, 1206 Dimension
- Compact design saves board space
- Compatible with high temperature solders
- Agency recognition: UL
- Low-profile



Applicable

- Battery PCM
- PDAs & Charger, Analog & digital line card
- Digital cameras
- General electronics
- USB peripherals
- Power ports

Electrical Parameters

Part Number	Marking	I_{hold} (A)	I_{trip} (A)	V max (Vdc)	I max(A)	Maximum Time To Trip		Resistance	
						Current (A)	Time (Sec.)	R min (Ω)	R 1max (Ω)
SMD1206-005	UZ	0.05	0.15	60.0	100	0.25	1.50	3.600	50.000
SMD1206-010	UN	0.10	0.25	60.0	100	0.5	1.00	1.600	15.000
SMD1206-012	UO	0.12	0.29	60.0	100	1.0	0.20	1.350	10.000
SMD1206-016	UF	0.16	0.37	30.0	100	1.0	0.30	1.200	4.500
SMD1206-020	UU	0.20	0.46	24.0	100	8.0	0.08	0.350	3.500
SMD1206-025	UV	0.25	0.50	16.0	100	8.0	0.08	0.350	2.700
SMD1206-030	UX	0.30	0.65	16.0	100	8.0	0.10	0.250	2.000
SMD1206-035	UB	0.35	0.75	16.0	100	8.0	0.10	0.250	1.300
SMD1206-050	UG	0.50	1.00	6.0	100	8.0	0.10	0.150	0.700
SMD1206-050/13.2V	UG	0.50	1.00	13.2	100	8.0	0.10	0.150	0.700
SMD1206-050/16V	UG	0.50	1.00	16.0	100	8.0	0.10	0.150	0.750
SMD1206-050/24V	UG	0.50	1.00	24.0	100	8.0	0.10	0.150	0.750
SMD1206-075	UA	0.75	1.50	6.0	100	8.0	0.20	0.090	0.500
SMD1206-075/13.2V	UA	0.75	1.50	13.2	100	8.0	0.20	0.090	0.500
SMD1206-075/16V	UA	0.75	1.50	16.0	100	8.0	0.20	0.090	0.500
SMD1206-100	UH	1.00	1.80	6.0	100	8.0	0.30	0.055	0.270
SMD1206-100/13.2V	UH	1.00	1.80	13.2	100	8.0	0.30	0.055	0.270
SMD1206-100/16V	UH	1.00	1.80	16.0	100	8.0	0.30	0.055	0.330
SMD1206-110	UJ	1.10	1.80	8.0	100	8.0	0.30	0.050	0.230
SMD1206-125	UI	1.25	2.50	6.0	100	8.0	1.00	0.040	0.200
SMD1206-150	UC	1.50	3.00	6.0	100	8.0	1.00	0.040	0.130
SMD1206-200	UK	2.00	3.50	6.0	100	8.0	1.00	0.018	0.080

Electrical Parameters

I hold= Hold current: maximum current device will pass without tripping in 25°C still air.
I trip= Trip current: minimum current at which the device will trip in 25°C still air.
V max= Maximum voltage device can withstand without damage at rated current (Imax)
I max= Maximum fault current device can withstand without damage at rated voltage (Vmax)
Pdtyp.= Power dissipated from device when in the tripped state at 25°C still air.
R min= Minimum resistance of device in initial (un-soldered) state.
R max= Maximum resistance of device in initial (un-soldered) state.
R 1max= Maximum resistance of device at 25°C measured one hour after tripping.

Temperature Rerating Chart- I hold (A)

Part Number	Ambient Operation Temperature								
	-40°C	-20°C	0°C	25°C	40°C	50°C	60°C	70°C	85°C
	Hold Current (A)								
SMD1206-005	0.090	0.080	0.060	0.050	0.040	0.036	0.033	0.029	0.020
SMD1206-010	0.180	0.160	0.120	0.100	0.080	0.072	0.066	0.058	0.040
SMD1206-012	0.216	0.192	0.144	0.120	0.096	0.086	0.079	0.070	0.048
SMD1206-016	0.288	0.256	0.192	0.160	0.128	0.115	0.106	0.093	0.064
SMD1206-020	0.310	0.260	0.220	0.200	0.180	0.160	0.150	0.130	0.070
SMD1206-025	0.370	0.330	0.290	0.250	0.220	0.200	0.170	0.150	0.120
SMD1206-030	0.444	0.396	0.348	0.300	0.264	0.240	0.204	0.180	0.144
SMD1206-035	0.500	0.450	0.400	0.350	0.300	0.270	0.240	0.210	0.150
SMD1206-050	0.710	0.640	0.570	0.500	0.420	0.390	0.350	0.310	0.250
SMD1206-050/13.2V	0.710	0.640	0.570	0.500	0.420	0.390	0.350	0.310	0.250
SMD1206-050/16V	0.710	0.640	0.570	0.500	0.420	0.390	0.350	0.310	0.250
SMD1206-050/24V	0.639	0.576	0.513	0.500	0.378	0.351	0.315	0.279	0.225
SMD1206-075	1.140	1.010	0.880	0.750	0.650	0.590	0.540	0.490	0.410
SMD1206-075/13.2V	1.140	1.010	0.880	0.750	0.650	0.590	0.540	0.490	0.410
SMD1206-075/16V	1.140	1.010	0.880	0.750	0.650	0.590	0.540	0.490	0.410
SMD1206-100	1.450	1.310	1.150	1.000	0.840	0.770	0.690	0.610	0.480
SMD1206-100/13.2V	1.305	1.179	1.035	1.000	0.756	0.693	0.621	0.549	0.432
SMD1206-100/16V	1.305	1.179	1.035	1.000	0.756	0.693	0.621	0.549	0.432
SMD1206-110	1.595	1.441	1.265	1.100	0.924	0.847	0.759	0.671	0.528
SMD1206-125	2.000	1.750	1.520	1.250	1.000	0.950	0.900	0.750	0.530
SMD1206-150	2.180	1.940	1.720	1.500	1.280	1.170	1.060	0.960	0.770
SMD1206-200	2.600	2.440	2.350	2.000	1.780	1.670	1.500	1.450	1.100

Test Procedures and Requirement

Test Item	Test Conditions	Accept/Reject Criteria
Initial Resistance	In still air at 25°C	$R_{MIN} \le R \le R1_{MAX}$
Time to Trip	Specified current, V_{MAX}, 25°C	T ≤ Maximum Time to Trip
Hold Current	30min, at IH, 25°C	No trip
Trip Cycle Life	V_{MAX}, Imax, 100cycles	No arcing or burning
Trip Endurance	V_{MAX}, 1 hour	No arcing or burning

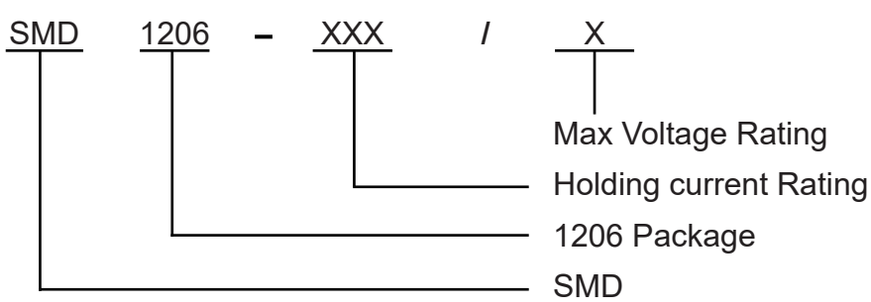
Physical Characteristics

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

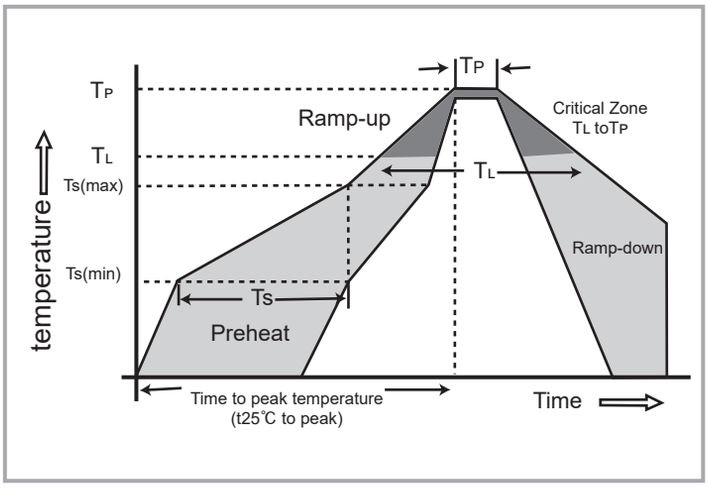
Environmental Specifications

Test Item	Test Conditions	Resistance Change
Passive Aging	85°C ,1000 hours	±10% typical
Humidity Aging	85°C/85%RH.1000 hours	±5% typical
Thermal Shock	MIL-STD-202,Method 107G +85 °C/-40°C ,20 times	-30% typical
Solvent Resistance	MIL-STD-202,Method 215	No change
Vibration	ML-STD-883C,Test Condition A	No change

Part Numbering System



Soldering Parameters



- 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 lead free process.

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

Reflow Condition		Lead–free assembly
Pre Heat	-Temperature Min ($T_{s(min)}$)	150°C
	-Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (T_s)	60 -120 Seconds
Average ramp up rate (Liquidus Temp T_L) to peak		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_L) (Liquidus)	217°C
	- Time (min to max) (T_s)	60 -150 Seconds
Peak Temperature (T_P)		260 +0/-5°C
Time within 5°C of actual peak Temperature (T_P)		30 Seconds
Ramp-down Rate		3°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes Max
Do not exceed		260°C

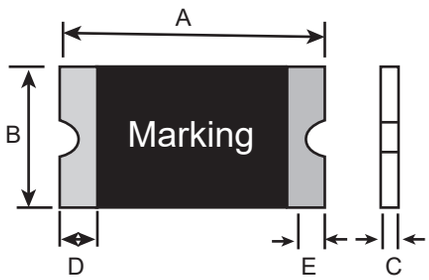
Caution:

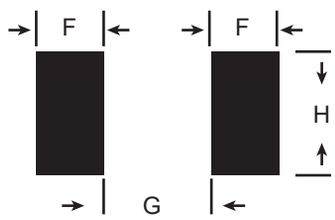
1、If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements

2、Operation beyond the specified rating may result in damage and possible arcing and flame.

3、PPTC 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.

Dimensions Unit: mm





Part Number	A		B		C		D	E
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
SMD1206-005	3.00	3.50	1.50	1.80	0.60	1.10	0.15	0.10
SMD1206-010	3.00	3.50	1.50	1.80	0.60	1.10	0.15	0.10
SMD1206-012	3.00	3.50	1.50	1.80	0.60	1.10	0.15	0.10
SMD1206-016	3.00	3.50	1.50	1.80	0.40	0.90	0.15	0.10
SMD1206-020	3.00	3.50	1.50	1.80	0.40	0.90	0.15	0.10
SMD1206-025	3.00	3.50	1.50	1.80	0.40	0.90	0.15	0.10
SMD1206-030	3.00	3.50	1.50	1.80	0.40	0.90	0.15	0.10
SMD1206-035	3.00	3.50	1.50	1.80	0.40	0.90	0.15	0.10
SMD1206-050	3.00	3.50	1.50	1.80	0.35	0.85	0.15	0.10
SMD1206-050/13.2V	3.00	3.50	1.50	1.80	0.35	0.85	0.15	0.10
SMD1206-050/16V	3.00	3.50	1.50	1.80	0.35	0.85	0.15	0.10
SMD1206-050/24V	3.00	3.50	1.50	1.80	0.35	0.85	0.15	0.10
SMD1206-075	3.00	3.50	1.50	1.80	0.35	0.85	0.15	0.10
SMD1206-075/13.2V	3.00	3.50	1.50	1.80	0.35	0.85	0.15	0.10
SMD1206-075/16V	3.00	3.50	1.50	1.80	0.60	1.30	0.15	0.10
SMD1206-100	3.00	3.50	1.50	1.80	0.40	0.80	0.15	0.10
SMD1206-100/13.2V	3.00	3.50	1.50	1.80	0.40	1.30	0.15	0.10
SMD1206-100/16V	3.00	3.50	1.50	1.80	0.40	1.30	0.15	0.10
SMD1206-110	3.00	3.50	1.50	1.80	0.40	0.80	0.15	0.10
SMD1206-125	3.00	3.50	1.50	1.80	0.60	1.20	0.15	0.10
SMD1206-150	3.00	3.50	1.50	1.80	0.60	1.50	0.15	0.10
SMD1206-200	3.00	3.50	1.50	1.80	0.70	1.70	0.15	0.10

Layout Dimensions Unit: mm

Part Number	F	G	H
	Normal Value	Normal Value	Normal Value
SMD1206 Series	1.0±0.1	2.0±0.1	1.9±0.1

Ordering Information

Part Number	Quantity
SMD1206-005 -- SMD1206-075	3,500 pcs/Reel
SMD1206-100 -- SMD1206-200	3,500 pcs/Reel
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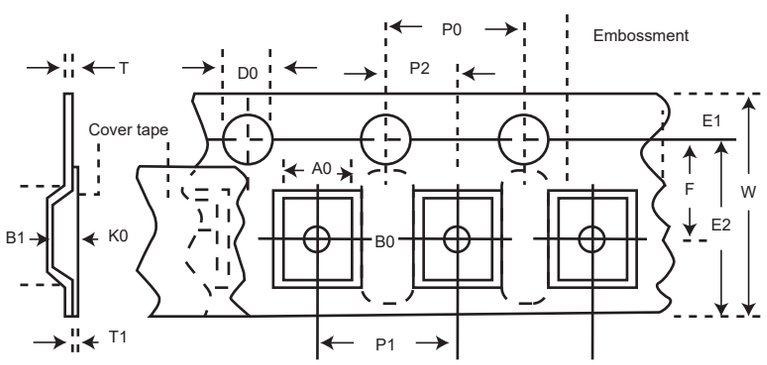
Tape Specification and Reel Specifications

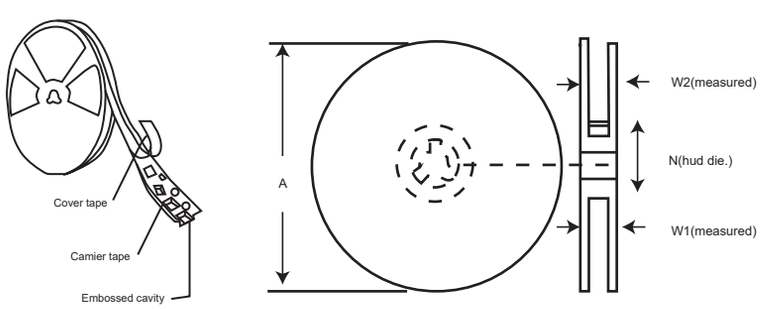
Coverning Specifications EIA 481-1(Unit:mm)	
W	8.00±0.10
P0	4.00±0.10
P1	4.00±0.10
P2	2.00±0.05
A0	0.95±0.10
B0	1.85±0.10
D0	1.55±0.05
F	3.50±0.05
E1	1.75±0.10
T	0.20±0.02
Leader min.	390
Traile min.	160

Reel Dimensions	
A	178±1.0
N	59±1.0
W1	8.5 + 1.0/-0.2
W2	12.0±1.0

ELA Tape Component Dimentions



EIA Reel Dimentions



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