

SMD1206 Series Surface Mount PTC Devices

Features

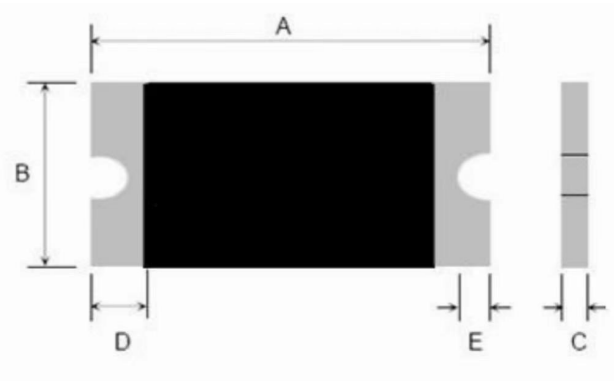
- ◆ High Conductance
- ◆ RoHS compliant and lead-free
- ◆ Halogen-Free
- ◆ For surface mounted applications to optimize layout space
- ◆ Operating Temperature: -40°C to 85°C



Applications

- ◆ USB hubs, ports and peripherals
- ◆ Set-top-box and HDMI
- ◆ Game console port protection
- ◆ Optical disk drives
- ◆ General electronics

Dimensions (unit:mm)



Part number	A		B		C		D	E
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Min.
SMD1206R005SF	3.00	3.60	1.50	1.90	0.60	1.20	0.15	0.10
SMD1206R005SF24	3.00	3.60	1.50	1.90	0.60	1.20	0.15	0.10
SMD1206R010SF	3.00	3.60	1.50	1.90	0.60	1.20	0.15	0.10
SMD1206R010SF24	3.00	3.60	1.50	1.90	0.60	1.20	0.15	0.10
SMD1206R012SF	3.00	3.60	1.50	1.90	0.60	1.20	0.15	0.10
SMD1206R012SF24	3.00	3.60	1.50	1.90	0.60	1.20	0.15	0.10
SMD1206R016SF33	3.00	3.60	1.50	1.90	0.40	1.00	0.15	0.10
SMD1206R016SF24	3.00	3.60	1.50	1.90	0.40	1.00	0.15	0.10
SMD1206R016SF	3.00	3.60	1.50	1.90	0.40	1.00	0.15	0.10
SMD1206R020SF	3.00	3.60	1.50	1.90	0.40	1.00	0.15	0.10
SMD1206R020SF30	3.00	3.60	1.50	1.90	0.40	1.00	0.15	0.10
SMD1206R020SF48	3.00	3.60	1.50	1.90	0.40	1.00	0.15	0.10
SMD1206R025SF	3.00	3.60	1.50	1.90	0.40	1.00	0.15	0.10
SMD1206R025SF24	3.00	3.60	1.50	1.90	0.40	1.00	0.15	0.10
SMD1206R025SF30	3.00	3.60	1.50	1.90	0.40	1.00	0.15	0.10
SMD1206R025SF48	3.00	3.60	1.50	1.90	0.40	1.00	0.15	0.10
SMD1206R035SF	3.00	3.60	1.50	1.90	0.35	0.8	0.15	0.10
SMD1206R035SF16	3.00	3.60	1.50	1.90	0.35	0.8	0.15	0.10
SMD1206R035SF30	3.00	3.60	1.50	1.90	0.40	0.9	0.15	0.10
SMD1206R050SF	3.00	3.60	1.50	1.90	0.35	0.8	0.15	0.10
SMD1206R050SF13.2	3.00	3.60	1.50	1.90	0.35	0.80	0.15	0.10

Part number	A		B		C		D	E
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Min.
SMD1206R050SF16	3.00	3.60	1.50	1.90	0.35	0.8	0.15	0.10
SMD1206R050SF30	3.00	3.60	1.50	1.90	0.50	1.00	0.15	0.10
SMD1206R075SF	3.00	3.60	1.50	1.90	0.35	0.80	0.15	0.10
SMD1206R075SF16	3.00	3.60	1.50	1.90	0.50	1.00	0.15	0.10
SMD1206R075SF30	3.00	3.60	1.50	1.90	0.5	1.00	0.15	0.10
SMD1206R100SF	3.00	3.60	1.50	1.90	0.35	0.80	0.15	0.10
SMD1206R100SF16	3.00	3.60	1.50	1.90	0.50	1.00	0.15	0.10
SMD1206R100SF24	3.00	3.60	1.50	1.90	0.50	1.00	0.15	0.10
SMD1206R110SF	3.00	3.60	1.50	1.90	0.35	0.80	0.15	0.10
SMD1206R110SF16	3.00	3.60	1.50	1.90	0.35	0.80	0.15	0.10
SMD1206R110SF24	3.00	3.60	1.50	1.90	0.35	0.80	0.15	0.10
SMD1206R150SF	3.00	3.60	1.50	1.90	0.50	1.00	0.15	0.10
SMD1206R150SF16	3.00	3.60	1.50	1.90	1.00	1.60	0.15	0.10
SMD1206R200SF	3.00	3.60	1.50	1.90	0.7	1.30	0.15	0.10
SMD1206R200SF12	3.00	3.60	1.50	1.90	1.00	1.60	0.15	0.10
SMD1206R260SF	3.00	3.60	1.50	1.90	1.00	1.60	0.15	0.10
SMD1206R300SF	3.00	3.60	1.50	1.90	1.00	1.60	0.15	0.10
SMD1206R350SF	3.00	3.60	1.50	1.90	1.00	1.60	0.15	0.10

Electrical Characteristics($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Part Number	I_H (A)	I_T (A)	U_{Max} (V)	I_{Max} (A)	P_{DTYP} (W)	Time-To-trip		R_{Min} (Ω)	R_{1Max} (Ω)
						$I_{Trip}(A)$	$T_{Max}(S)$		
SMD1206R005SF	0.05	0.15	60.0	10	0.4	0.25	1.50	3.600	50.000
SMD1206R005SF24	0.05	0.15	24.0	10	0.4	0.25	1.50	3.600	50.000
SMD1206R010SF	0.10	0.25	60.0	10	0.4	0.50	1.00	1.600	15.000
SMD1206R010SF24	0.10	0.25	24.0	10	0.4	0.50	1.00	1.600	15.000
SMD1206R012SF	0.12	0.29	60.0	10	0.4	0.50	1.00	1.600	15.000
SMD1206R012SF24	0.12	0.29	24.0	10	0.4	0.50	1.00	1.600	13.000
SMD1206R016SF33	0.16	0.37	33.0	10	0.4	1.00	0.30	1.000	6.000
SMD1206R016SF24	0.16	0.37	24.0	10	0.4	1.00	0.30	1.000	6.000
SMD1206R016SF	0.16	0.37	16.0	10	0.4	1.00	0.30	1.000	6.000
SMD1206R020SF	0.20	0.46	24.0	10	0.6	8.00	0.08	0.350	2.700
SMD1206R020SF30	0.20	0.46	30.0	10	0.6	8.00	0.08	0.350	2.700
SMD1206R020SF48	0.20	0.46	48.0	10	0.6	8.00	0.08	0.350	2.700
SMD1206R025SF	0.25	0.50	16.0	10	0.6	8.00	0.08	0.350	2.500
SMD1206R025SF24	0.25	0.50	24.0	10	0.6	8.00	0.08	0.350	2.500
SMD1206R025SF30	0.25	0.50	30.0	10	0.6	8.00	0.08	0.350	2.500
SMD1206R025SF48	0.25	0.50	48.0	10	0.6	8.00	0.08	0.350	2.500
SMD1206R035SF	0.35	0.75	6.0	35	0.6	8.00	0.10	0.250	1.300
SMD1206R035SF16	0.35	0.75	16	35	0.6	8.00	0.10	0.250	1.300
SMD1206R035SF30	0.35	0.75	30.0	35	0.6	8.00	0.10	0.250	1.300
SMD1206R050SF	0.50	1.00	6.0	35	0.6	8.00	0.10	0.150	0.700
SMD1206R050SF13.2	0.50	1.00	13.2	35	0.6	8.00	0.10	0.150	0.700
SMD1206R050SF16	0.50	1.00	16.0	35	0.6	8.00	0.10	0.150	0.700
SMD1206R050SF30	0.50	1.00	30.0	35	0.6	8.00	0.10	0.150	0.700
SMD1206R075SF	0.75	1.50	6.0	35	0.6	8.00	0.20	0.090	0.500
SMD1206R075SF16	0.75	1.50	16.0	35	0.6	8.00	0.20	0.090	0.500
SMD1206R075SF30	0.75	1.50	30.0	35	0.6	8.00	0.20	0.090	0.500

Part Number	I_H (A)	I_T (A)	U_{Max} (V)	I_{Max} (A)	P_{DTYP} (W)	Time-To-trip		R_{Min} (Ω)	R_{1Max} (Ω)
						$I_{Trip}(A)$	$T_{Max}(S)$		
SMD1206R100SF	1.00	1.80	6.0	35	0.6	8.00	0.30	0.050	0.270
SMD1206R100SF16	1.00	1.80	16.0	35	0.6	8.00	0.30	0.050	0.270
SMD1206R100SF24	1.00	1.80	24.0	35	0.6	8.00	0.30	0.050	0.270
SMD1206R110SF	1.10	2.20	6.0	35	0.6	8.00	0.30	0.040	0.250
SMD1206R110SF16	1.10	2.20	16.0	35	0.6	8.00	0.30	0.040	0.250
SMD1206R110SF24	1.10	2.20	24.0	35	0.6	8.00	0.30	0.040	0.250
SMD1206R150SF	1.50	3.00	6.0	35	0.8	8.00	0.30	0.025	0.130
SMD1206R150SF16	1.50	3.00	16.0	35	0.8	8.00	0.30	0.025	0.130
SMD1206R200SF	2.00	3.50	6.0	35	0.8	8.00	1.50	0.015	0.080
SMD1206R200SF12	2.00	3.50	12.0	35	0.8	8.00	1.50	0.015	0.080
SMD1206R260SF	2.60	5.20	6.0	35	0.8	8.00	2.00	0.010	0.060
SMD1206R300SF	3.00	6.00	6.0	35	1.0	8.00	4.00	0.010	0.050
SMD1206R350SF	3.50	7.00	6.0	35	1.2	10.0	5.00	0.005	0.040

Notes:

I_H = Hold current: maximum current device will pass without tripping in 25°C still air.

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

U_{Max} = Maximum voltage device can withstand without damage at rated current (I_{max}).

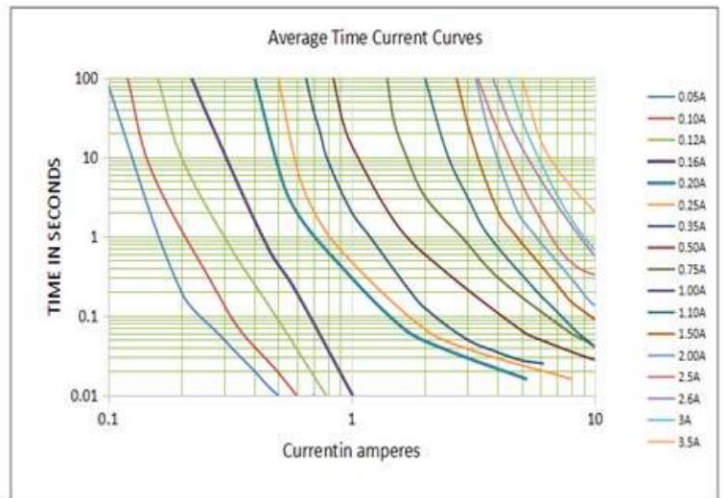
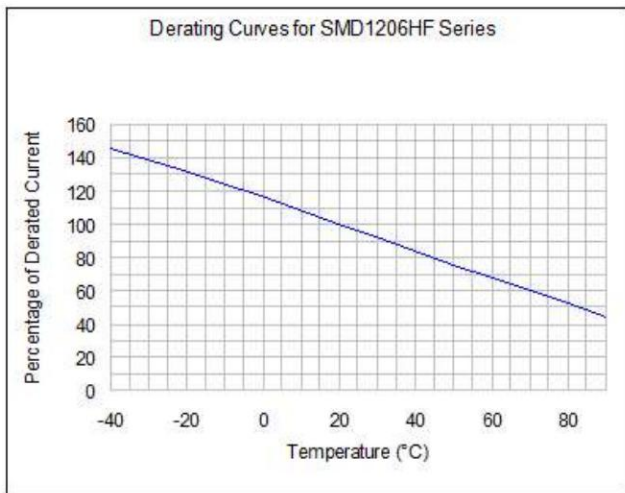
I_{max} = Maximum fault current device can withstand without damage at rated voltage (V_{max}).

P_{DTYP} = Typical 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.

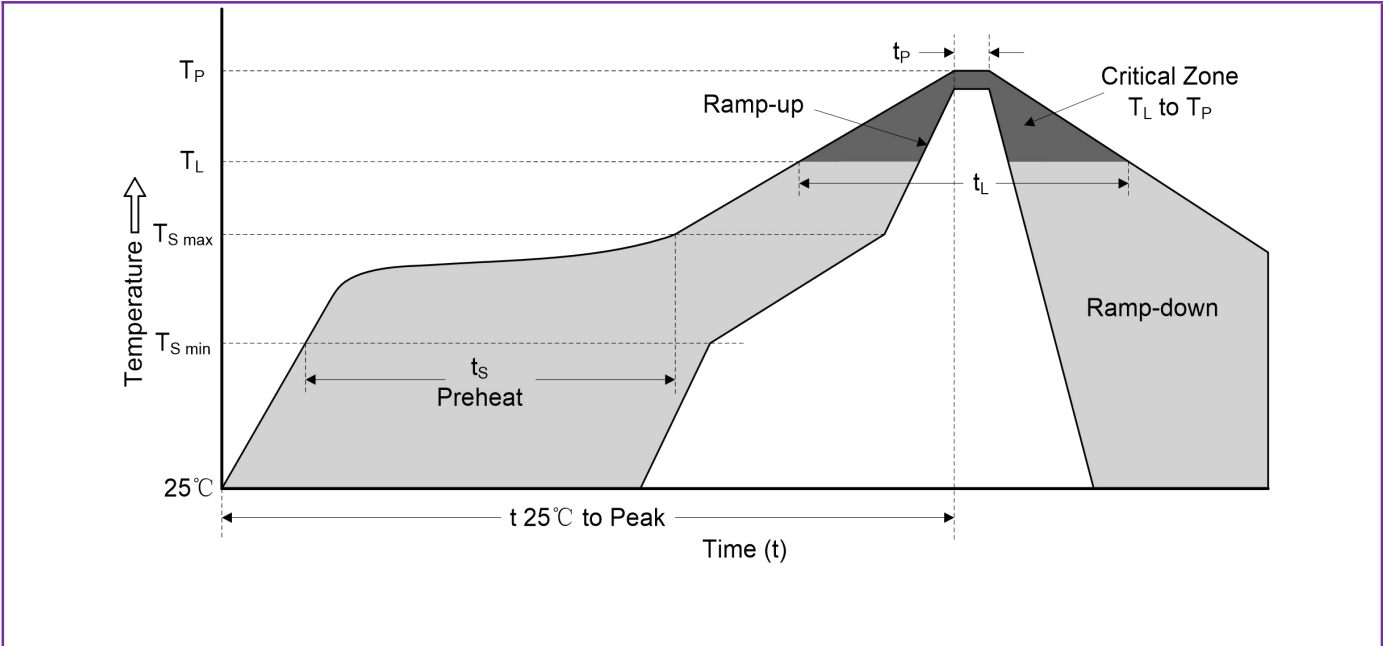
R_{Max} = Maximum resistance of device in initial (un-soldered) state.

R_{1max} = Maximum resistance of device at 25 °C measured one hour after tripping or reflow soldering of 260 °C for 20 sec.

Ratings and Characteristic Curves ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Part Number	Ambient Operation Temperature								
	-40 $^{\circ}\text{C}$	-20 $^{\circ}\text{C}$	0 $^{\circ}\text{C}$	25 $^{\circ}\text{C}$	40 $^{\circ}\text{C}$	50 $^{\circ}\text{C}$	60 $^{\circ}\text{C}$	70 $^{\circ}\text{C}$	85 $^{\circ}\text{C}$
SMD1206R005SF	0.074	0.066	0.058	0.05	0.0425	0.0375	0.035	0.03	0.0275
SMD1206R010SF	0.148	0.132	0.116	0.10	0.085	0.075	0.07	0.06	0.055
SMD1206R012SF	0.18	0.16	0.14	0.12	0.10	0.09	0.08	0.07	0.07
SMD1206R020SF	0.30	0.26	0.23	0.20	0.17	0.15	0.14	0.12	0.11
SMD1206R025SF	0.37	0.33	0.29	0.25	0.22	0.20	0.17	0.15	0.12
SMD1206R035SF	0.50	0.45	0.40	0.35	0.30	0.27	0.24	0.21	0.15
SMD1206R050SF	0.71	0.64	0.57	0.50	0.42	0.39	0.35	0.31	0.25
SMD1206R075SF	1.14	1.01	0.88	0.75	0.65	0.59	0.54	0.49	0.41
SMD1206R100SF	1.45	1.31	1.15	1.00	0.84	0.77	0.69	0.61	0.48
SMD1206R110SF	1.60	1.45	1.30	1.10	0.95	0.80	0.72	0.66	0.55
SMD1206R150SF	2.18	1.94	1.72	1.50	1.28	1.17	1.06	0.96	0.77
SMD1206R200SF	2.88	2.63	2.34	2.00	1.74	1.58	1.42	1.17	0.93
SMD1206R260SF	3.43	3.22	2.93	2.60	2.23	2.03	1.87	1.57	1.35
SMD1206R300SF	4.05	3.66	3.36	3.00	2.50	2.28	2.00	1.62	1.35
SMD1206R350SF	4.65	4.23	3.92	3.50	2.92	2.68	2.35	1.91	1.42

Reflow Soldering Parameters



Reflow Condition		Lead-free Assembly
Pre heat	-Temperature Min (TS min)	150℃
	-Temperature Max (TS max)	200℃
	-Time (min to max) (ts)	60-180 seconds
Average ramp-up rate (TL to TP)		3℃/second max.
TS max to TL -Ramp-up Rate		3℃/second max.
Reflow	-Temperature (TL) (Liquidus)	217℃
	-Time (min to max) (ts)	60-150 seconds
Peak Temperature (TP)		260(+0/-5)℃
Time within 5℃ of actual Peak Temperature (tp)		20-40 seconds
Ramp-down Rate		6℃/second max.
Time 25℃ to Peak Temperature(Tp)		8 minutes max.
Do not exceed		260℃