



Positive Thermal Coefficient

SMD0805 Series

Positive Thermal Coefficient - SMD0805 Series

Description

The 0805 series provides miniature surface mount resettable overcurrent protection with holding current from 0.05A to 1.25A. This series is suitable for ultra portable applications where space is at a premium and the device current is low.



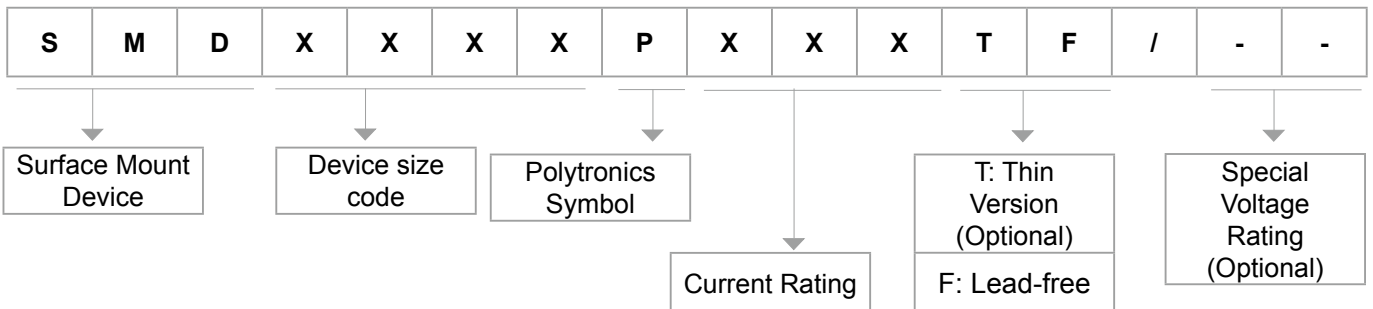
Features

- I(hold): 0.05~1.25A
- Very high voltage surge capabilities
- Available in lead-free version
- Fast response to fault current
- RoHS compliant, Lead- Free and Halogen-Free
- Low resistance
- Compact design saves board space
- Compatible with high temperature solders

Applications

- USB peripherals
- Disk drives
- CD-ROMs
- General electronics
- Disk drives
- Set-top-box and HDMI
- Mobile Internet Device (MID)
- PDAs / digital cameras
- Game console port protection
- Plug and play protection for motherboards and peripherals
- Mobile phones - battery and port protection

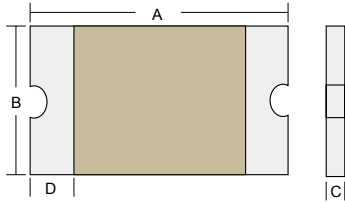
Product Name



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Lead style code

Dimensions
(mm)



Type Number	Marking	I _{hold}	I _{trip}	Maximum Time To Trip		V _{max}	I _{max}	P _{d typ}	R _{min}	R _{1max}	Package	Package Dimensions (mm)							
				Current A	Time (Sec.)							A		B		C		D	
												min	max	min	max	min	max	min	max
SMD0805P005TF	V	0.05	0.2	0.5	1.5	15	100	0.5	2	10	0805	2	2.2	1.2	1.5	0.5	1	0.2	
SMD0805P010TF	1	0.1	0.3	0.5	1.5	15	100	0.5	1	6	0805	2	2.2	1.2	1.5	0.5	1	0.2	
SMD0805P020TF	2	0.2	0.5	8	0.02	9	100	0.5	0.65	3.5	0805	2	2.2	1.2	1.5	0.45	1	0.2	
SMD0805P025TF	2	0.25	0.55	8	0.02	9	100	0.5	0.6	3	0805	2	2.2	1.2	1.5	0.45	1	0.2	
SMD0805P035TF	3	0.35	0.75	8	0.1	6	100	0.5	0.25	1.2	0805	2	2.2	1.2	1.5	0.45	1	0.2	
SMD0805P050TF	5	0.5	1	8	0.1	6	100	0.5	0.15	0.85	0805	2	2.2	1.2	1.5	0.3	0.6	0.2	
SMD0805P075TF	7	0.75	1.5	8	0.2	6	40	0.6	0.09	0.385	0805	2	2.2	1.2	1.5	0.4	1	0.2	
SMD0805P100TF	0	1	1.95	8	0.3	6	100	0.6	0.06	0.23	0805	2	2.2	1.2	1.5	0.5	1.1	0.2	
SMD0805P110TF	0	1.1	2.2	8	0.3	6	100	0.6	0.06	0.21	0805	2	2.2	1.2	1.5	0.5	1.2	0.2	
SMD0805P125TF	12	1.25	2.5	8	0.6	6	100	1.5	0.03	0.14	0805	2	2.2	1.2	1.5	0.5	1.2	0.2	

I_{hold} = Hold current: maximum current device will pass without tripping in 23°C still air.

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

V_{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_{d typ} = Typical power dissipated from device when in the tripped state at 23 °C still air.

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

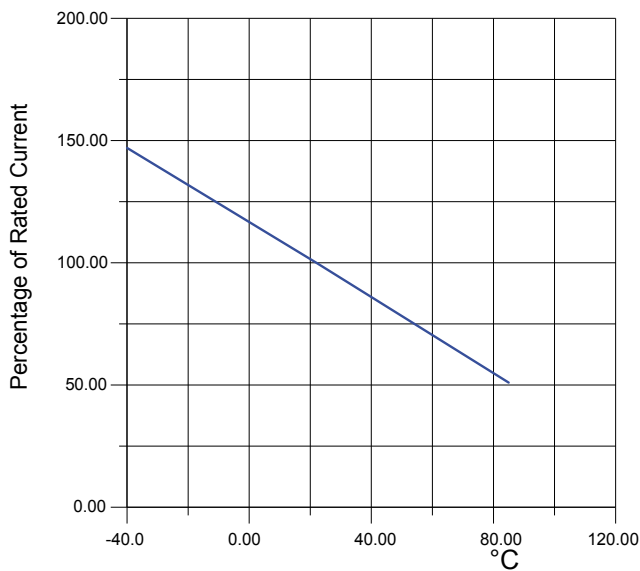
R_{1max} = Maximum resistance of device at 23 °C measured one hour after tripping or reflow soldering of 260 °C for 20 sec.

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Thermal Derating Chart Recommended Hold Current (A) at Ambient Temperature (°C)

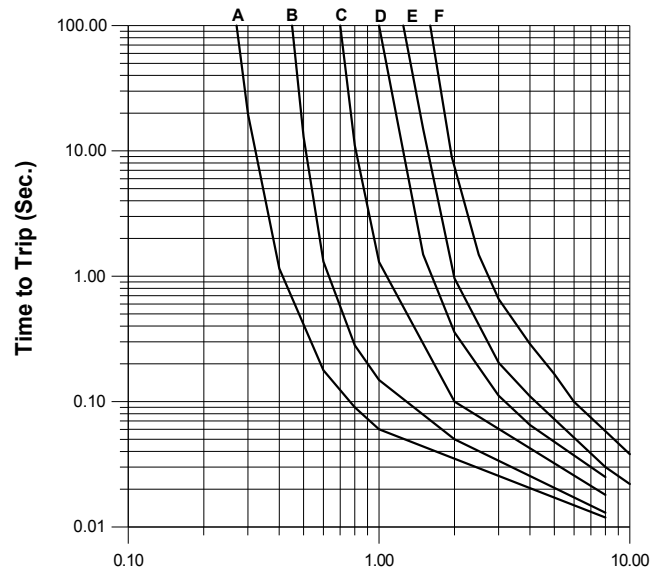
Part Number	-40°C	-20°C	0°C	23°C	40°C	50 °C	60°C	70°C	85°C
SMD0805P005TF	0.08	0.07	0.06	0.05	0.04	0.04	0.03	0.03	0.02
SMD0805P010TF	0.16	0.14	0.12	0.10	0.08	0.07	0.06	0.05	0.05
SMD0805P020TF	0.28	0.25	0.23	0.20	0.17	0.14	0.12	0.10	0.07
SMD0805P025TF	0.32	0.29	0.27	0.25	0.21	0.18	0.16	0.14	0.10
SMD0805P035TF	0.47	0.41	0.38	0.35	0.29	0.26	0.24	0.20	0.14
SMD0805P050TF	0.68	0.59	0.54	0.50	0.41	0.37	0.34	0.29	0.20
SMD0805P075TF	1.00	0.97	0.86	0.75	0.64	0.59	0.54	0.48	0.40
SMD0805P100TF	1.35	1.25	1.10	1.00	0.82	0.74	0.65	0.55	0.42
SMD0805P110TF	1.45	1.35	1.20	1.10	0.92	0.84	0.75	0.65	0.52
SMD0805P125TF	2.00	1.75	1.52	1.25	1.00	0.95	0.90	0.75	0.53

Thermal Derating Curve



Device Ambient Temperature (°C)

Average Time-Current Curve

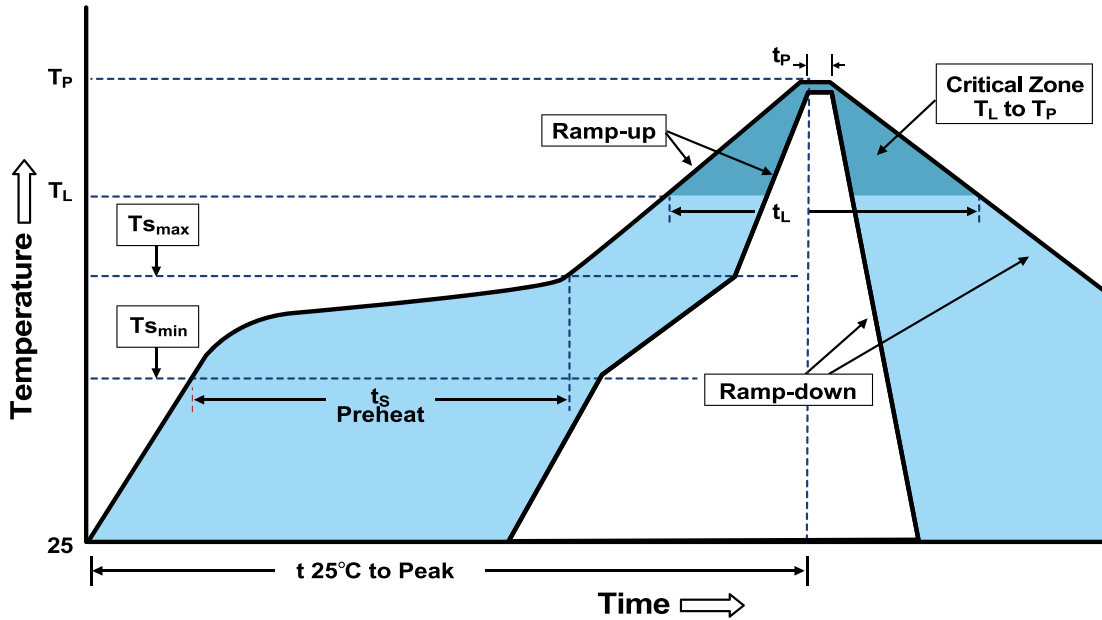


Fault Current (Amp.)

- A— SMD0805P010TF
- B— SMD0805P020TF
- C— SMD0805P035TF
- D— SMD0805P050TF
- E— SMD0805P075TF
- F— SMD0805P100TF
- SMD0805P110TF

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Soldering Parameters



Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate ($T_{s_{max}}$ to T_P)	3°C/second max.
Preheat	
-Temperature Min ($T_{s_{min}}$)	150°C
-Temperature Max ($T_{s_{max}}$)	200°C
-Time ($T_{s_{min}}$ to $T_{s_{max}}$)	60-180 seconds
Time maintained above:	
-Temperature (T_L)	217°C
-Time (t_L)	60-150 seconds
Peak Temperature (T_P)	260°C
Time within 5°C of actual Peak Temperature (t_p)	20-40 seconds
Ramp-Down Rate	6 °C /second max.
Time 25°C to Peak Temperature	8 minutes max.
Storage Condition	0°C ~35°C, ≤70%RH

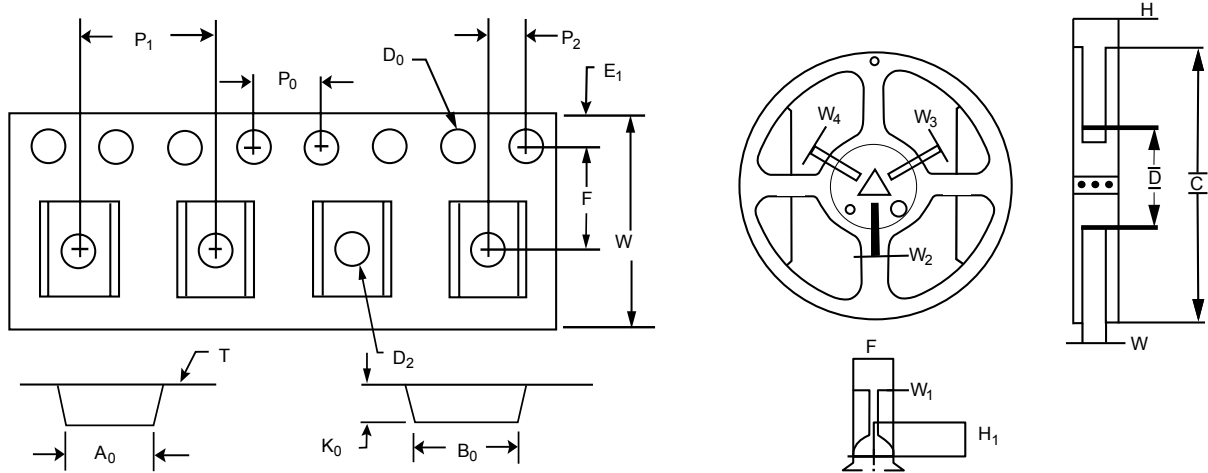
- Recommended reflow methods: IR, vapor phase oven, hot air oven, N2 environment for lead-free
- Recommended maximum paste thickness is 0.25mm (0.010 inch)
- Devices can be cleaned using standard industry methods and solvents.

Note 1: All temperatures refer to the top side 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.

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Tape and Reel Specificatons



TAPE SPECIFICATIONS: EIA-481-1 (mm)

	0805L010 0805L020 0805L035	0805L050	0805L075	0805L110 0805L125
W	8.0+/- 0.10	8.0+/- 0.10	8.0+/- 0.10	8.0+/- 0.10
F	3.5+/- 0.05	3.5+/- 0.05	3.5+/- 0.05	3.5+/- 0.05
E1	1.75+/- 0.10	1.75+/- 0.10	1.75+/- 0.10	1.75+/- 0.10
D0	1.55+/- 0.05	1.55+/- 0.05	1.55+/- 0.05	1.55+/- 0.05
D1	1.0 (min)	1.0 (min)	1.0 (min)	1.0 (min)
P0	4.0+/- 0.10	4.0+/- 0.10	4.0+/- 0.10	4.0+/- 0.10
P1	4.0+/- 0.10	4.0+/- 0.10	4.0+/- 0.10	4.0+/- 0.10
P2	2.0+/- 0.05	2.0+/- 0.05	2.0+/- 0.05	2.0+/- 0.05
A0	1.45+/- 0.10	1.45+/- 0.10	1.45+/- 0.10	1.45+/- 0.10
B0	2.30+/- 0.10	2.30+/- 0.10	2.30+/- 0.10	2.30+/- 0.10
T	0.25+/- 0.10	0.25+/- 0.10	0.25+/- 0.10	0.25+/- 0.10
K0	0.9+/- 0.10	0.9+/- 0.10	0.9+/- 0.10	0.9+/- 0.10
Leader min.	390	390	390	390
Trailer min.	160	160	160	160

REEL DIMENSIONS: EIA-481-1 (mm)

H	12.0+/- 0.05
W	9.0+/- 0.5
D	Ø60+0.5
F	Ø13.0+/- 0.2
C	Ø178+/- 1.0
H1	11+/- 0.5
W1	2.2+/- 0.5
W2	3.0+0.5
W3	4.0+0.5
W4	5.5+0.5

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Packaging

Part Number	Halogen Free	Packaging Option	Quantity	Quantity & Packaging Codes
SMD0805P005TF	Yes	Tape and Reel	5000	YR
SMD0805P010TF	Yes	Tape and Reel	5000	YR
SMD0805P020TF	Yes	Tape and Reel	5000	YR
SMD0805P025TF	Yes	Tape and Reel	5000	YR
SMD0805P035TF	Yes	Tape and Reel	5000	YR
SMD0805P050TF	Yes	Tape and Reel	4000	YR
SMD0805P075TF	Yes	Tape and Reel	4000	YR
SMD0805P100TF	Yes	Tape and Reel	4000	YR
SMD0805P110TF	Yes	Tape and Reel	4000	YR
SMD0805P125TF	Yes	Tape and Reel	4000	YR

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