Positive Thermal Coefficent Diodes

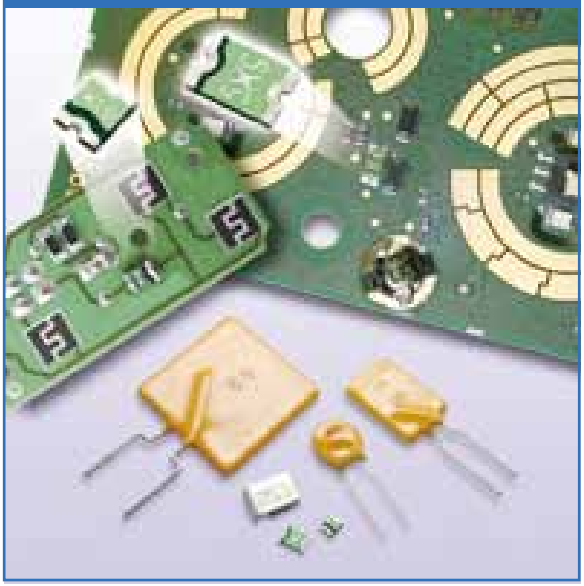
SMD0805P010~110 Series

The SMD0805 Series PTC provides surface mount overcurrent protection for applications where space is at a premium and resettable protection is desired.

Features

- RoHS compliant, lead-free and halogen-free
- Fast response to fault currents
- Compact design saves board space
- Low resistance
- Low-profile
- Compatible with high temperature solders

ROHS

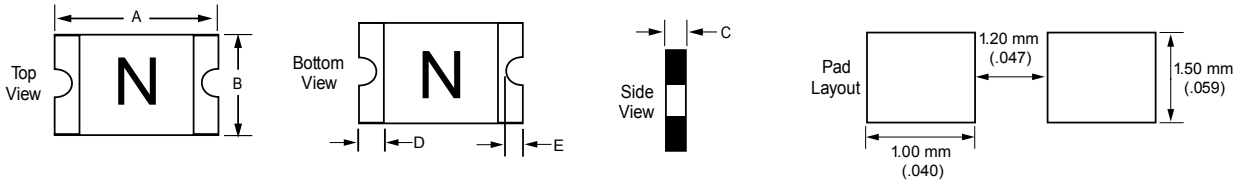


Applications

- USB peripherals
- Disk drives
- CD-ROMs
- Plug and play protection for motherboards and peripherals
- Mobile phones - battery and port protection
- Disk drives
- PDAs / digital cameras
- Game console port protection

Dimension

MARKING CODE VARIES
WITH AMPERAGE RATING
(See Electrical Characteristic Table)
SHOWN IS 1.0AMP RATING



Type Number	A	B	C	D	E
	mm	mm	mm	mm	mm
	Max	Max	Max	Min	typ
SMD0805P010TF	2.2	1.5	1.0	0.55	0.45
SMD0805P020TF	2.2	1.5	1.0	0.55	0.45
SMD0805P035TF	2.2	1.5	0.75	0.55	0.45
SMD0805P050TF	2.2	1.5	1.25	0.55	0.45
SMD0805P075TF	2.2	1.5	1.25	0.55	0.45
SMD0805P100TF	2.2	1.5	1.80	0.55	0.45
SMD0805P110TF	2.2	1.5	1.4	0.55	0.45

Electriacl Characteristics

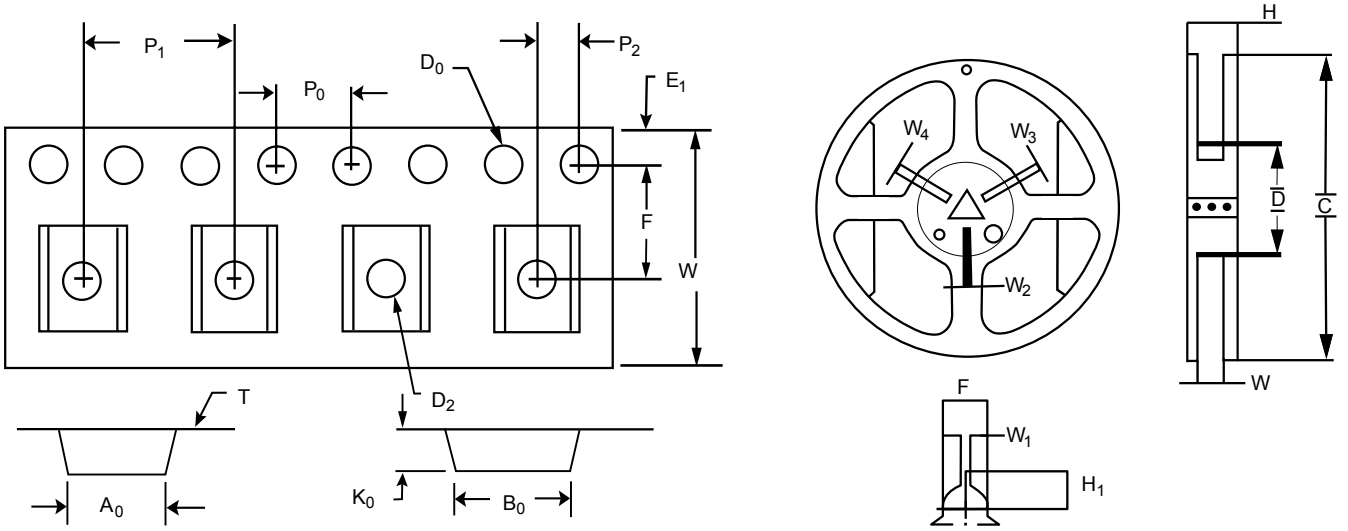
Type Number	I hold	Itrip	Vmax	Imax	Pd max.	Maximum Time To Trip		Resistance	
	(A)	(A)	V(dc)	(A)	(W)	Current (A)	Time (Sec.)	R min (Ω)	R 1max (Ω)
SMD0805P010TF	0.10	0.30	15	100	0.5	0.50	1.50	1.000	6.000
SMD0805P020TF	0.20	0.50	9	100	0.5	8.00	0.02	0.650	3.500
SMD0805P035TF	0.35	0.75	6	100	0.5	8.00	0.10	0.250	1.200
SMD0805P050TF	0.50	1.00	6	100	0.5	8.00	0.10	0.150	0.850
SMD0805P075TF	0.75	1.50	6	40	0.6	8.00	0.20	0.090	0.350
SMD0805P100TF	1.00	1.95	6	40	0.6	8.00	0.30	0.060	0.210
SMD0805P110TF	1.10	2.00	6	100	0.8	8.00	0.10	0.050	0.160

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 = 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_{typ} = Typical 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.

Temperature Rerating

	Ambient Operation Temperature								
	-40°C	-20°C	0°C	23°C	40°C	50°C	60°C	70°C	85°C
Part Number	Hold Current (A)								
0805P010	0.14	0.12	0.11	0.10	0.08	0.07	0.06	0.05	0.03
0805P020	0.28	0.25	0.23	0.20	0.17	0.14	0.12	0.10	0.07
0805P035	0.47	0.44	0.39	0.35	0.30	0.27	0.24	0.20	0.14
0805P050	0.68	0.62	0.55	0.50	0.40	0.37	0.33	0.29	0.23
0805P075	1.00	0.90	0.79	0.75	0.63	0.57	0.53	0.41	0.34
0805P100	1.35	1.25	1.10	1.00	0.82	0.74	0.65	0.55	0.42

Tape and Reel Specifications

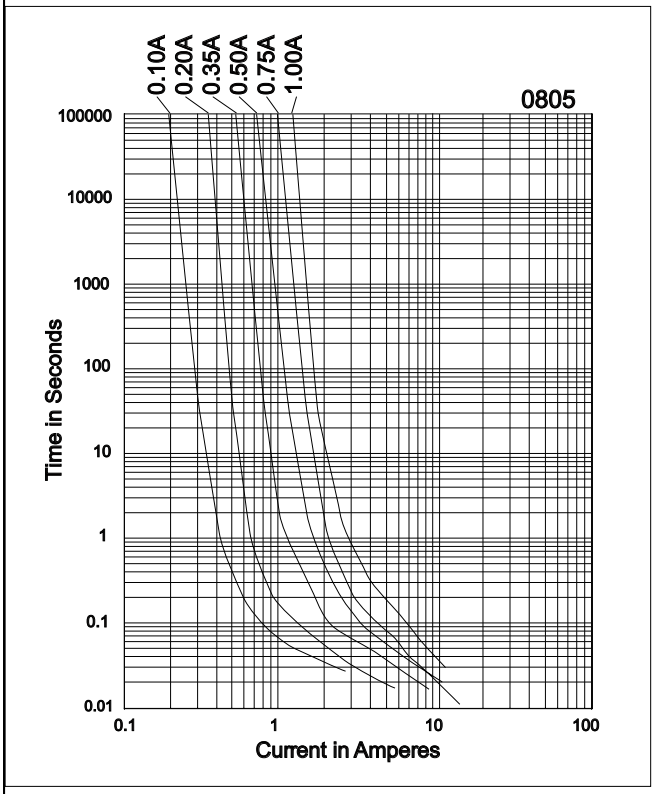


Tape and Reel Specifications

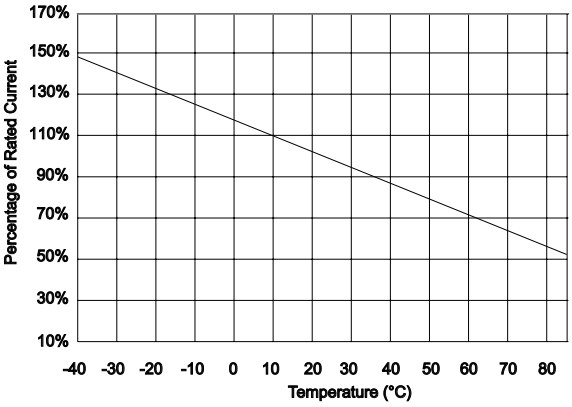
TAPE SPECIFICATIONS: EIA-481-1 (mm)				
	0805L010 0805L020 0805L035	0805L050	0805L075	0805L100
W	8.0+/-0.10	8.0+/-0.10	8.0+/-0.10	8.0+/-0.10
F	3.5+/-0.05	3.5+/-0.05	3.5+/-0.05	3.5+/-0.05
E_1	1.75+/-0.10	1.75+/-0.10	1.75+/-0.10	1.75+/-0.10
D_0	1.55+/-0.05	1.55+/-0.05	1.55+/-0.05	1.55+/-0.05
D_1	1.0 (min)	1.0 (min)	1.0 (min)	1.0 (min)
P_0	4.0+/-0.10	4.0+/-0.10	4.0+/-0.10	4.0+/-0.10
P_1	4.0+/-0.10	4.0+/-0.10	4.0+/-0.10	4.0+/-0.10
P_2	2.0+/-0.05	2.0+/-0.05	2.0+/-0.05	2.0+/-0.05
A_0	1.45+/-0.10	1.42+/-0.10	1.65+/-0.10	1.65+/-0.10
B_0	2.30+/-0.10	2.24+/-0.10	2.35+/-0.10	2.35+/-0.10
T	0.25+/-0.10	0.20+/-0.10	0.20+/-0.10	0.25+/-0.10
K_0	0.9+/-0.10	1.04+/-0.10	1.05+/-0.10	1.50+/-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
H_1	11+/-0.5
W_1	2.2+/-0.5
W_2	3.0+0.5
W_3	4.0+0.5
W_4	5.5+0.5

Average Time Current Curves



Temperature Rerating Curve



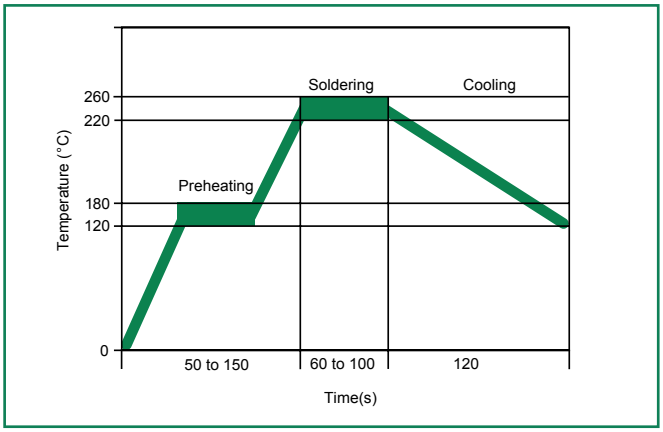
The average time current curves and Temperature Rerating curve performance is affected by a number or variables, and these curves provided as guidance only. Customer must verify the performance in their application.

Soldering Parameters

Condition	Reflow
Peak Temp/ Duration Time	260°C / 10 Sec
Time above liquids (TAL) 220°C	60 Sec ~ 100 Sec
Preheat 120°C~ 180°C	50 Sec ~ 150 Sec
Storage Condition	0°C~35°C, ≦70%RH

- Recommended reflow methods: IR, vapor phase oven, hot air oven, N_2 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: If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.



Physical Specifications

Terminal Material	Solder-Plated Copper (Solder Material: Matte Tin (Sn))
Lead Solderability	Meets EIA Specification RS186-9E, ANSI/J-STD-002, Category 3

Environmental Specifications

Operating/Storage Temperature	-40°C to +85°C
Maximum Device Surface Temperature in Tripped State	125°C
Passive Aging	+85°C, 1000 hours -/+5% typical resistance change
Humidity Aging	+85°C, 85%, R.H.,1000 hours -/+5% typical resistance change
Thermal Shock	MIL–STD–202, Method 107G +85°C/-40°C 20 times -30% typical resistance change
Solvent Resistance	MIL–STD–202, Method 215 No change
Vibration	MIL–STD–883C, Method 2007.1, Condition A No change
Moisture Sensitivity Level	Level 1, J–STD–020C

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