

## Positive Thermal Coefficient Diodes

### SMD1210P005~150 Series

The SMD1210 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

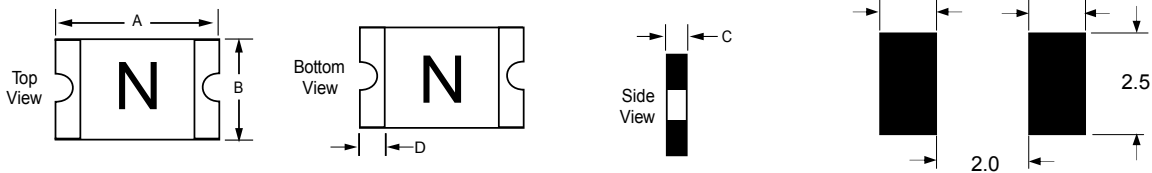
#### Applications

- 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



Model	A		B		C		D
	Min.	Max.	Min.	Max.	Min.	Max.	Min.
SMD1210P010TF	3.00	3.43	2.35	2.80	0.30	1.25	0.30
SMD1210P020TF	3.00	3.43	2.35	2.80	0.30	1.25	0.30
SMD1210P035TF	3.00	3.43	2.35	2.80	0.30	0.85	0.30
SMD1210P050TF	3.00	3.43	2.35	2.80	0.30	0.85	0.30
SMD1210P075TF	3.00	3.43	2.35	2.80	0.30	1.30	0.30
SMD1210P100TF	3.00	3.43	2.35	2.80	0.30	1.30	0.30
SMD1210P110TF	3.00	3.43	2.35	2.80	0.30	1.30	0.30
SMD1210P125TF	3.00	3.43	2.35	2.80	0.40	1.50	0.30

## Electrical Characteristics

Type Number	$I_{hold}$	$I_{trip}$	$V_{max}$	$I_{max}$	$P_d$ max.	Maximum Time To Trip		Resistance	
	(A)	(A)	$V_{(dc)}$	(A)	(W)	Current (A)	Time (Sec.)	$R_{min}$ ( $\Omega$ )	$R_{1max}$ ( $\Omega$ )
SMD1210P005TF	0.05	0.15	30	100	0.6	0.25	1.50	2.80	50.00
SMD1210P010TF	0.10	0.30	40	100	0.6	0.50	0.60	0.80	15.00
SMD1210P020TF	0.20	0.40	30	100	0.6	8.00	0.02	0.40	5.00
SMD1210P035TF	0.35	0.75	6	100	0.6	8.00	0.20	0.20	1.30
SMD1210P050TF	0.50	1.00	13.2	100	0.6	8.00	0.10	0.18	0.90
SMD1210P075TF	0.75	1.50	6	100	0.6	8.00	0.10	0.07	0.40
SMD1210P110TF	1.10	2.20	6	100	0.6	8.00	0.30	0.05	0.21
SMD1210P150TF	1.50	3.00	6	100	0.6	8.00	0.50	0.30	0.11

$I_{hold}$  = 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.

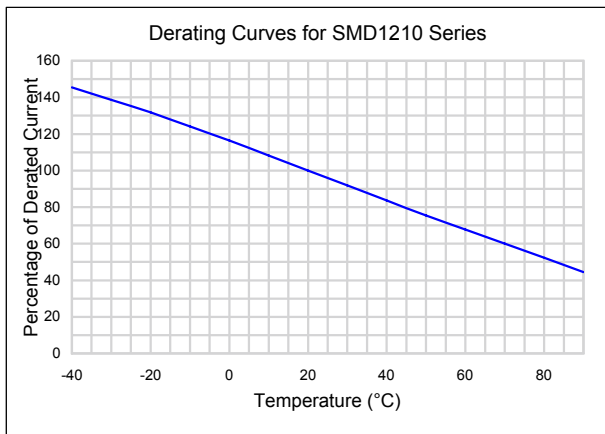
$R_{typ}$  = Typical resistance of device in initial (un-soldered) state.

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

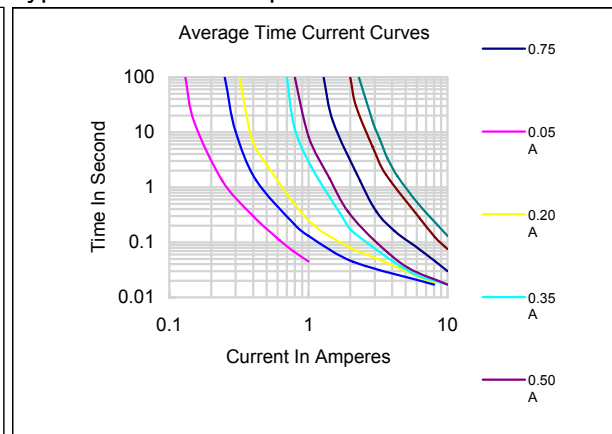
## Thermal Derating Chart-IH(A)

Model	Maximum ambient operating temperature ( $T_{mao}$ ) vs. hold current ( $I_{hold}$ )								
	-40°C	-20°C	0°C	23°C	40°C	50°C	60°C	70°C	85°C
SMD1210P010TF	0.08	0.07	0.06	0.05	0.04	0.04	0.03	0.03	0.02
SMD1210P020TF	0.16	0.14	0.12	0.10	0.08	0.07	0.06	0.05	0.03
SMD1210P035TF	0.29	0.26	0.22	0.20	0.16	0.14	0.13	0.11	0.08
SMD1210P050TF	0.47	0.45	0.40	0.35	0.33	0.28	0.24	0.21	0.18
SMD1210P075TF	0.76	0.67	0.58	0.50	0.43	0.40	0.36	0.32	0.28
SMD1210P100TF	1.00	0.97	0.86	0.75	0.64	0.59	0.54	0.48	0.40
SMD1210P110TF	1.69	1.48	1.29	1.10	0.88	0.76	0.65	0.57	0.43
SMD1210P125TF	2.13	1.92	1.71	1.50	1.26	1.14	1.01	0.89	0.71

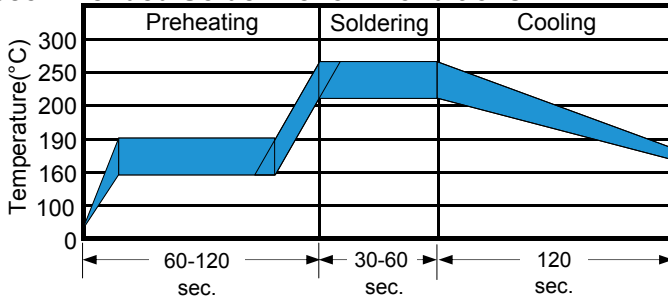
Thermal Derating Curve



Typical Time-To-Trip At 25°C



## Recommended Solder Reflow Conditions

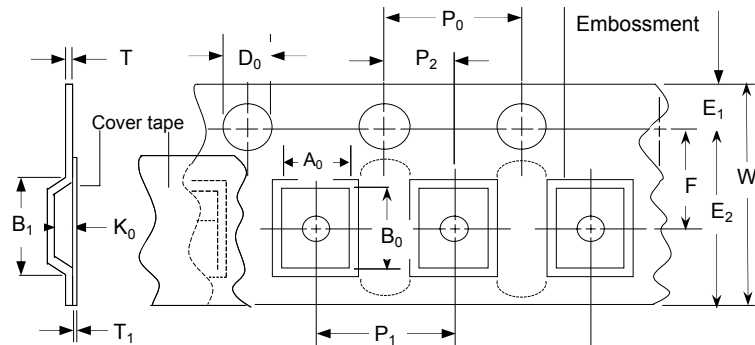


- Recommended reflow methods : IR, vapor phase oven, hot air oven.
  - Devices are not designed to be wave soldered to the bottom side of the board.
  - Recommended maximum paste thickness is 0.25 mm (0.010 inch).
  - Devices can be cleaned using standard method and solvents.
- Note : If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

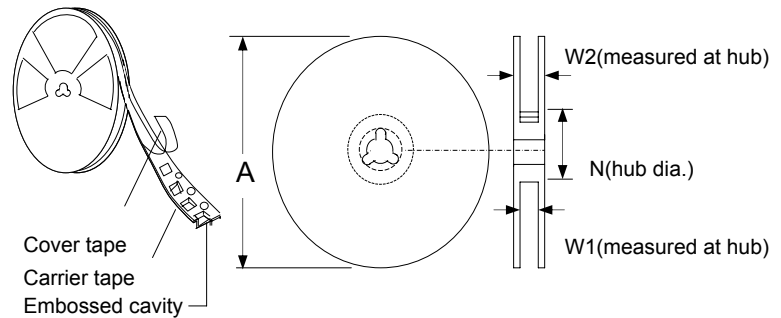
## Tape And Reel Specifications (mm)

Governing Specifications	EIA 481-2
W	8.0 ± 0.20
P <sub>0</sub>	4.0 ± 0.10
P <sub>1</sub>	4.0 ± 0.10
P <sub>2</sub>	2.0 ± 0.10
A <sub>0</sub>	2.82 ± 0.10
B <sub>0</sub>	3.52 ± 0.10
B <sub>1,max.</sub>	4.35
D <sub>0</sub>	1.5 + 0.1, -0.0
F	7.5 ± 0.05
E <sub>1</sub>	1.75 ± 0.10
E <sub>2,min.</sub>	6.25
Tmax.	0.6
T <sub>1,max.</sub>	0.1
K <sub>0</sub>	0.90 ± 0.1
Leader min.	390
Trailer min.	160
<b>Reel Dimensions</b>	
A max.	178
N min.	50
W <sub>1</sub>	8.4 + 1.5, -0.0
W <sub>2,max.</sub>	22.4

## EIA Tape Component Dimensions



## EIA Reel Dimensions



## Storage And Handling

- Storage conditions : 40°C max, 70% R.H.
- Devices may not meet specified performance if storage conditions are exceeded.

## Order Information

SMD1210	050	Tape & Reel Quantity	
Product name	Hold	050,075	4,000 pcs/reel
Size 3225 mm / 1210 mils	Current	The others	4,500 pcs/reel
SMD : surface mount device	0.50A		

Tape & reel packaging per EIA481-1

## Packaging

Leiditech Electronics are trademarks.

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