POLYTRONICS
POLYTRONICS TECHNOLOGY CORP.

SMD1812 HF Series Surface Mount PTC Devices

SMD1812 HF Series Surface Mount PTC Devices

Description

The 1812 series provides surface mount resettable overcurrent protection with holding current from 0.1A to 3.0A. This series offers complete portfolio in terms of holding current and working voltage, and is suitable for wide range of applications.

Features

- RoHS compliant and lead-free
- Halogen-free
- Compact design saves board space
- Low profile
- Fast response to fault current
- Compatible with high temperature solders

Applications

- USB hubs, ports and peripherals
- Set-top-box and HDMI
- Game console port protection
- Motherboard USB & IEEE 1394 protection
- Optical disk drives
- General electronics

Agency Approval and Environmental Compliance

Agency	File Number
c UL us	E201431
TÜVRheinland	R50099121

Regulation	Standard
RoHS	2011/65/EU
Halogen Free	IEC 61249-2-21:2003

Electrical Characteristics

Part Number	I_{hold} (A)	I_{trip} (A)	V_{max} (Vdc)	I_{max} (A)	$P_{d\ typ}$ (W)	Maximum Time To Trip		Resistance		Agency Approval	
						Current (A)	Time (Sec.)	R_{min} (Ω)	R_{1max} (Ω)	c UL us	TÜVRheinland
SMD1812P010TF	0.10	0.30	30	100	0.8	0.50	1.50	1.600	15.000	✓	✓
SMD1812P010TF/60	0.10	0.30	60	10	0.8	0.50	1.50	1.600	15.000	✓	✓
SMD1812P014TF	0.14	0.34	60	10	0.8	1.50	0.15	1.500	6.000	✓	✓
SMD1812P020TF	0.20	0.40	30	100	0.8	8.00	0.02	0.800	5.000	✓	✓
SMD1812P020TF-J	0.20	0.40	60	40	0.8	1.00	2.00	1.400	4.400	✓	✓
SMD1812P035TF/30	0.35	0.75	30	40	0.8	8.00	0.15	0.400	1.700	✓	✓
SMD1812P035TF/60	0.35	0.70	60	10	1.0	8.00	0.15	0.400	1.700	✓	✓
SMD1812P050TF	0.50	1.00	15	100	0.8	8.00	0.15	0.150	1.000	✓	✓
SMD1812P050TF/30	0.50	1.00	30	100	0.8	8.00	0.15	0.150	1.000	✓	✓
SMD1812P050TF/60	0.50	1.00	60	10	1.5	8.00	0.15	0.150	1.000	✓	✓
SMD1812P075TF	0.75	1.50	13.2	100	0.8	8.00	0.20	0.100	0.450	✓	✓
SMD1812P075TF/24	0.75	1.50	24	100	0.8	8.00	0.20	0.110	0.290	✓	✓
SMD1812P075TF/33	0.75	1.50	33	20	0.8	8.00	0.20	0.110	0.400	✓	✓
SMD1812P110TF	1.10	2.20	8	100	0.8	8.00	0.30	0.040	0.210	✓	✓
SMD1812P110TF/16	1.10	1.95	16	100	0.8	8.00	0.30	0.060	0.180	✓	✓
SMD1812P110TF/24	1.10	1.95	24	20	0.8	8.00	0.50	0.060	0.200	✓	✓
SMD1812P110TF/33	1.10	1.95	33	20	0.8	8.00	0.50	0.060	0.200	✓	✓
SMD1812P125TF/16	1.25	2.50	16	100	0.8	8.00	0.40	0.050	0.140	✓	✓
SMD1812P150TF/8	1.50	3.00	8	100	0.8	8.00	0.30	0.040	0.110	✓	✓

SMD1812 HF Series Surface Mount PTC Devices

Electrical Characteristics

Cont'd

Part Number	I_{hold} (A)	I_{trip} (A)	V_{max} (Vdc)	I_{max} (A)	$P_{d\ typ}$ (W)	Maximum Time To Trip		Resistance		Agency Approval	
						Current (A)	Time (Sec.)	R_{min} (Ω)	R_{1max} (Ω)	c UL us	TÜVRheinland
SMD1812P150TF/12	1.50	3.00	12	100	0.8	8.00	0.50	0.040	0.110	✓	✓
SMD1812P150TF/16	1.50	2.80	16	100	0.8	8.00	0.50	0.040	0.110	✓	✓
SMD1812P150TF/24	1.50	3.00	24	20	0.8	8.00	1.50	0.040	0.120	✓	✓
SMD1812P160TF/8(4L)	1.60	2.80	8	100	0.8	8.00	1.00	0.030	0.100	✓	✓
SMD1812P200TFT	2.00	3.50	8	100	0.8	8.00	2.00	0.020	0.070	✓	✓
SMD1812P200TF/12	2.00	3.50	12	100	1.0	8.00	2.00	0.020	0.070	✓	✓
SMD1812P200TF/16	2.00	3.50	16	100	1.0	8.00	2.00	0.020	0.070	✓	✓
SMD1812P260TFT	2.60	5.00	8	100	0.8	8.00	2.50	0.015	0.047	✓	✓
SMD1812P260TF/12	2.60	5.00	12	100	0.8	8.00	5.00	0.015	0.055	✓	✓
SMD1812P260TF/16	2.60	5.00	16	100	1.2	8.00	5.00	0.015	0.050	✓	✓
SMD1812P300TFT	3.00	5.00	6	100	0.8	8.00	4.00	0.012	0.040	✓	✓

SMD1812 HF Series Surface Mount PTC Devices

Note on Electrical Characteristics

- **Vocabulary**
  - I_{hold} = Hold current: maximum current device will pass without tripping in 23ºC still air.
  - I_{trip} = Trip current: minimum current at which the device will trip in 23 ºC 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 ºC still air.
  - R_{min} = Minimum resistance of device in initial (un-soldered) state.
  - R_{1max} = Maximum resistance of device at 23 ºC measured one hour after tripping or reflow soldering of 260 ºC for 20 sec.
- **Value specified is determined by using the PWB with 0.030"*1.5oz copper traces.**
- **Caution: Operation beyond the specified rating may result in damage and possible arcing and flame.**
- **Specifications are subject to change without notice.**

Polymeric PTC Selecting Guide

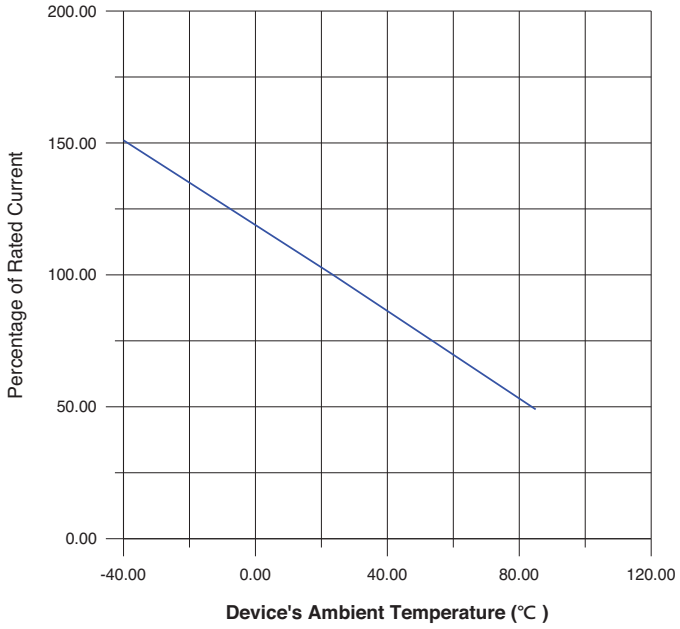
- **Determine the following operating parameters for the circuits:**
  - Normal operating current (I_{hold})
  - Maximum interrupt current (I_{max})
  - Maximum circuit voltage (V_{max})
  - Normal operating temperature surrounding device (minºC/maxºC)
- **Select the device form factor and dimension suitable for the application:**
  - Surface Mount Device (SMD)
  - Axial Leaded Device (ALD)
  - Other Customized Form Factors
  - Radial Leaded Device (RLD)
  - DISC Device
- **Compare the maximum rating for V_{max} and I_{max} of the PPTC device with the circuit in application and make sure the circuit's requirement does not exceed the device rating.**
- **Check that PPTC device's trip time (time-to-trip) will protect the circuit.**
- **Verify that the circuit operating temperature is within the PPTC device's normal operating temperature range.**
- **Verify the performance and suitability of the chosen PPTC device in the application.**

⚠WARNING

- **Mechanical Stress**
  - PPTC devices will undergo a thermal expansion during fault condition. If PPTC devices are installed or placed in an application where the space between PPTC devices and the surrounding materials (e.g., covering materials, packaging materials, encapsulate materials and the like) is insufficient, it will cause an inhibiting effect upon the thermal expansion. Pressing, twisting, bending and other kinds of mechanical stress will also adversely affect the performance of the PPTC devices, and shall not be used or applied.
- **Chemical Pollutants**
  - Silicone-based oils, oils, solvents, gels, electrolytes, fuels, acids, and the like will adversely affect the properties of PPTC devices, and shall not be used or applied.
- **Electronic and Thermal Effect**
  - PPTC devices are secondary protection devices and are used solely for sporadic, accidental over-current or over-temperature error condition, and shall NOT be used if or when constant or repeated fault conditions (such fault conditions may be caused by, among others, incorrect pin-connection of a connector) or over-extensive trip events may occur.
  - PTTC devices are different from fuses and, when a fault condition occurs, will go into high-resistance state and do not open circuit, in which case the voltage at such PPTC devices may reach a hazardous level.
  - Operation over the maximum rating or other forms of improper use may cause failure, arcing, flame and/or other damage to the PPTC devices.
  - Conductive material contamination, such as metal particle, may induce shortage, flame or arcing.
  - Due to the inductance, the operation circuits may generate a circuit voltage (Ldi/dt) above the rated voltage of PPTC devices, which shall not be used under such circumstances.
- **General**
  - Customers shall evaluate and test the properties of PPTC devices independently to verify and ensure that their individual applications will be met.
  - The performance of PPTC devices will be adversely affected if they are improperly used under electronic, thermal and/or mechanical procedures and/or conditions non-conformant to those recommended by manufacturer.
  - Customers shall be responsible for determining whether it is necessary to have back-up, failsafe and/or fool-proof protection to avoid or minimize damage that may result from extra-ordinary, irregular function or failure of PPTC devices.
  - Any and all responsibilities and liabilities are disclaimed if any item under this notice of warning is not complied with.

SMD1812 HF Series Surface Mount PTC Devices

Thermal Derating Curve



Thermal Derating Chart

Recommended Hold Current (A) at Ambient Temperature (°C)

Part Number	Ambient Operation Temperature								
	-40 °C	-20 °C	0 °C	23 °C	40 °C	50 °C	60 °C	70 °C	85 °C
SMD1812P010TF	0.16	0.14	0.12	0.10	0.08	0.07	0.06	0.05	0.03
SMD1812P010TF/60	0.16	0.14	0.12	0.10	0.08	0.07	0.06	0.05	0.03
SMD1812P014TF	0.23	0.19	0.17	0.14	0.12	0.10	0.09	0.08	0.06
SMD1812P020TF	0.29	0.26	0.23	0.20	0.17	0.15	0.14	0.12	0.10
SMD1812P020TF-J	0.29	0.26	0.23	0.20	0.17	0.15	0.14	0.12	0.10
SMD1812P035TF/30	0.50	0.45	0.40	0.35	0.30	0.26	0.24	0.20	0.16
SMD1812P035TF/60	0.50	0.45	0.40	0.35	0.30	0.26	0.24	0.20	0.16
SMD1812P050TF	0.77	0.68	0.59	0.50	0.44	0.40	0.37	0.33	0.29
SMD1812P050TF/30	0.77	0.68	0.59	0.50	0.44	0.40	0.37	0.33	0.29
SMD1812P050TF/60	0.77	0.68	0.59	0.50	0.44	0.40	0.37	0.33	0.29
SMD1812P075TF	1.15	1.01	0.88	0.75	0.65	0.60	0.55	0.49	0.43
SMD1812P075TF/24	1.06	0.95	0.84	0.75	0.60	0.55	0.50	0.45	0.37
SMD1812P075TF/33	1.10	1.00	0.88	0.75	0.66	0.60	0.56	0.47	0.36
SMD1812P110TF	1.59	1.43	1.26	1.10	0.95	0.87	0.80	0.71	0.60
SMD1812P110TF/16	1.58	1.43	1.27	1.10	0.95	0.85	0.77	0.71	0.58
SMD1812P110TF/24	1.55	1.40	1.25	1.10	0.93	0.83	0.73	0.63	0.50
SMD1812P110TF/33	1.55	1.40	1.25	1.10	0.93	0.83	0.73	0.63	0.50
SMD1812P125TF/16	2.00	1.75	1.52	1.25	1.00	0.95	0.90	0.75	0.53
SMD1812P150TF/8	2.06	1.93	1.79	1.50	1.28	1.10	1.02	0.80	0.68
SMD1812P150TF/12	2.04	1.88	1.68	1.50	1.25	1.10	1.00	0.80	0.60

SMD1812 HF Series Surface Mount PTC Devices

Thermal Derating Chart

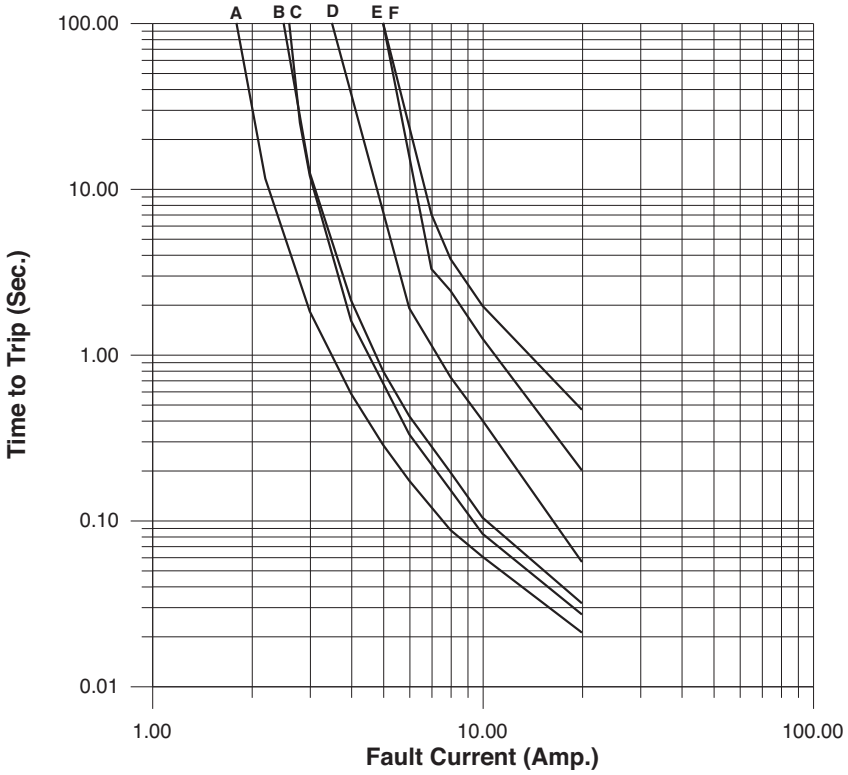
Cont'd

Recommended Hold Current (A) at Ambient Temperature (°C)

Part Number	Ambient Operation Temperature								
	-40 °C	-20 °C	0 °C	23 °C	40 °C	50 °C	60 °C	70 °C	85 °C
SMD1812P150TF/16	2.04	1.88	1.68	1.50	1.25	1.10	1.00	0.80	0.60
SMD1812P150TF/24	2.05	1.87	1.67	1.50	1.25	1.08	0.95	0.77	0.60
SMD1812P160TF/8(4L)	2.20	2.06	1.91	1.60	1.36	1.17	1.09	0.85	0.72
SMD1812P200TFT	2.60	2.44	2.22	2.00	1.78	1.67	1.50	1.45	1.29
SMD1812P200TF/12	2.60	2.44	2.22	2.00	1.78	1.67	1.50	1.45	1.29
SMD1812P200TF/16	2.60	2.44	2.22	2.00	1.78	1.67	1.50	1.45	1.29
SMD1812P260TFT	3.40	3.16	3.00	2.60	2.30	2.15	2.00	1.85	1.63
SMD1812P260TF/12	3.40	3.16	3.00	2.60	2.30	2.15	2.00	1.85	1.63
SMD1812P260TF/16	3.40	3.16	3.00	2.60	2.30	2.15	2.00	1.85	1.63
SMD1812P300TFT	4.13	3.75	3.30	3.00	2.62	2.43	2.25	2.00	1.78

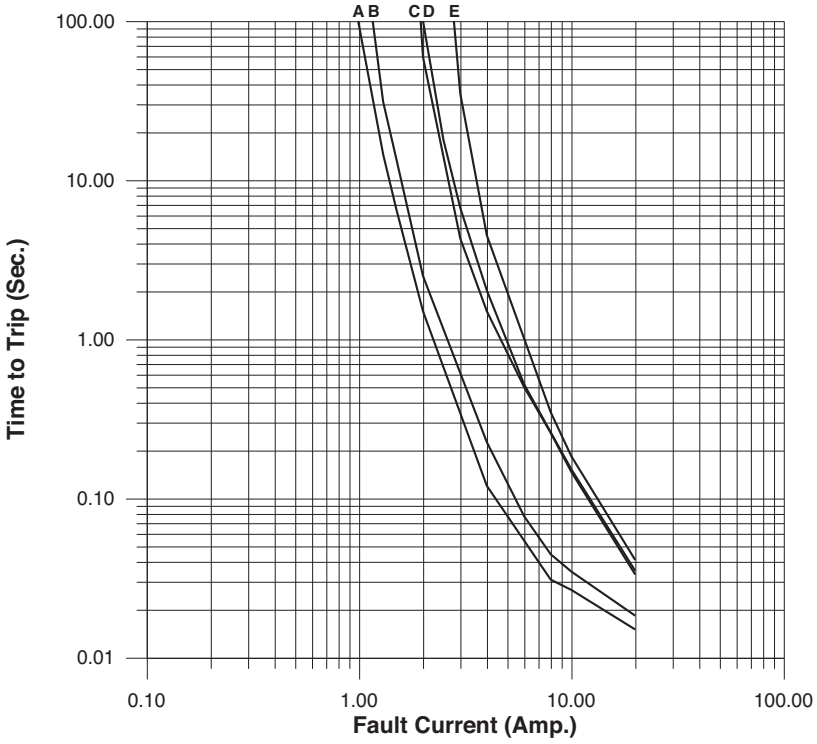
SMD1812 HF Series Surface Mount PTC Devices

Average Time-Current Curve



A — SMD1812P110TF
B — SMD1812P150TF/8
C — SMD1812P160TF/8(4L)
D — SMD1812P200TFT
SMD1812P200TF/12
SMD1812P200TF/16
E — SMD1812P260TFT
SMD1812P260TF/12
SMD1812P260TF/16
F — SMD1812P300TFT

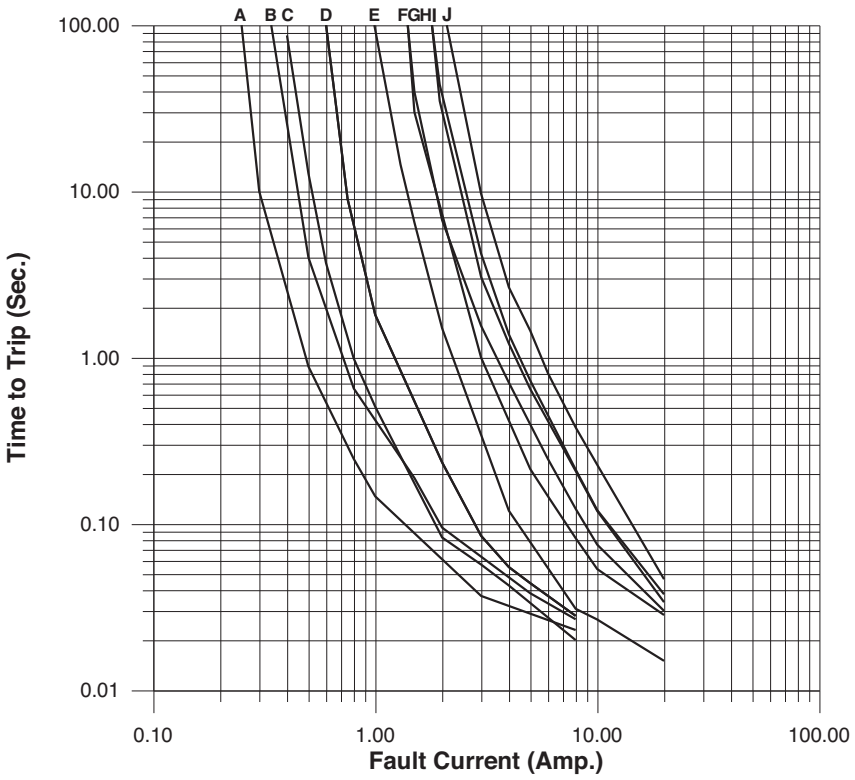
Average Time-Current Curve



A — SMD1812P050TF
B — SMD1812P075TF
C — SMD1812P110TF/16
D — SMD1812P125TF/16
E — SMD1812P150TF/12
SMD1812P150TF/16

SMD1812 HF Series Surface Mount PTC Devices

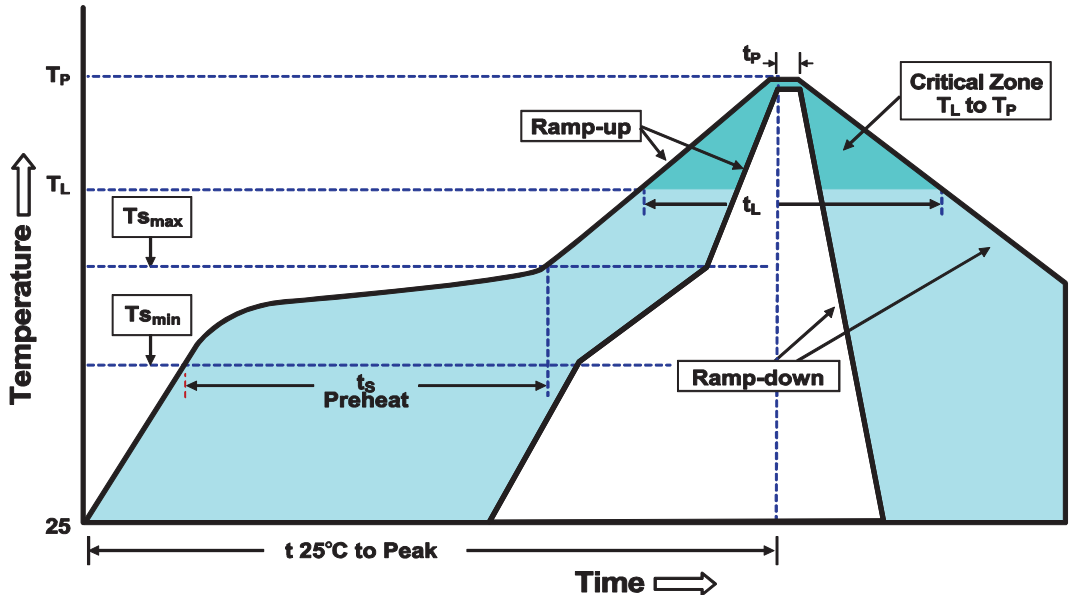
Average Time-Current Curve



A — SMD1812P010TF
SMD1812P010TF/60
B — SMD1812P014TF
C — SMD1812P020TF
SMD1812P020TF-J
D — SMD1812P035TF/30
SMD1812P035TF/60
E — SMD1812P050TF/30
SMD1812P050TF/60
F — SMD1812P075TF/33
G — SMD1812P075TF/24
H — SMD1812P110TF/33
I — SMD1812P110TF/24
J — SMD1812P150TF/24

SMD1812 HF Series Surface Mount PTC Devices

Soldering Parameters



Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate (Ts_{max} to T_P)	3°C/second max.
Preheat -Temperature Min (Ts_{min}) -Temperature Max (Ts_{max}) -Time (Ts_{min} to Ts_{max})	 150°C 200°C 60-180 seconds
Time maintained above: -Temperature (T_L) -Time (t_L)	 217°C 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, 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 1: All temperature refer to topside 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.

SMD1812 HF Series Surface Mount PTC Devices

Physical Dimensions (mm.)

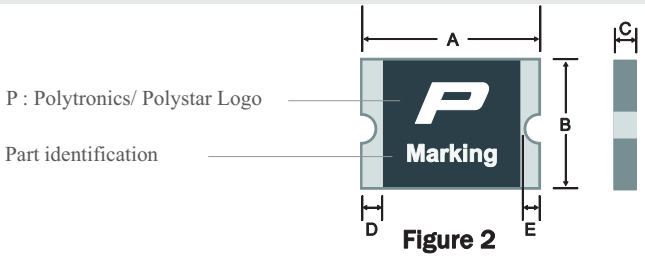


Figure 2

Part Number	A		B		C		D		E	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
SMD1812P010TF	4.37	4.73	3.07	3.41	0.75	1.25	0.30	1.20	0.15	0.65
SMD1812P010TF/60	4.37	4.73	3.07	3.41	0.75	1.25	0.30	1.20	0.15	0.65
SMD1812P014TF	4.37	4.73	3.07	3.41	0.75	1.95	0.30	1.20	0.15	0.65
SMD1812P020TF	4.37	4.73	3.07	3.41	0.55	1.00	0.30	1.20	0.15	0.65
SMD1812P020TF-J	4.37	4.73	3.07	3.41	0.75	1.25	0.30	1.20	0.15	0.65
SMD1812P035TF/30	4.37	4.73	3.07	3.41	0.65	1.25	0.30	1.20	0.15	0.65
SMD1812P035TF/60	4.37	4.73	3.07	3.41	1.20	1.80	0.30	1.20	0.15	0.65
SMD1812P050TF	4.37	4.73	3.07	3.41	0.50	0.75	0.30	1.20	0.15	0.50
SMD1812P050TF/30	4.37	4.73	3.07	3.41	0.50	1.00	0.30	1.20	0.15	0.65
SMD1812P050TF/60	4.37	4.73	3.07	3.41	1.20	1.80	0.30	1.20	0.15	0.65
SMD1812P075TF	4.37	4.73	3.07	3.41	0.50	0.75	0.30	1.20	0.15	0.50
SMD1812P075TF/24	4.37	4.73	3.07	3.41	0.75	1.55	0.30	1.20	0.15	0.65
SMD1812P075TF/33	4.37	4.73	3.07	3.41	0.75	1.55	0.30	1.20	0.15	0.65
SMD1812P110TF	4.37	4.73	3.07	3.41	0.30	0.71	0.30	1.20	0.15	0.65
SMD1812P110TF/16	4.37	4.73	3.07	3.41	0.75	1.25	0.30	1.20	0.15	0.65
SMD1812P110TF/24	4.37	4.73	3.07	3.41	0.55	1.07	0.30	1.20	0.15	0.65
SMD1812P110TF/33	4.37	4.73	3.07	3.41	1.20	2.00	0.30	1.20	0.15	0.65
SMD1812P125TF/16	4.37	4.73	3.07	3.41	0.75	1.25	0.30	1.20	0.15	0.65
SMD1812P150TF/8	4.37	4.73	3.07	3.41	0.40	0.71	0.30	1.20	0.15	0.65
SMD1812P150TF/12	4.37	4.73	3.07	3.41	0.75	1.25	0.30	1.20	0.15	0.65
SMD1812P150TF/16	4.37	4.73	3.07	3.41	0.75	1.25	0.30	1.20	0.15	0.65
SMD1812P150TF/24	4.37	4.73	3.07	3.41	0.80	1.80	0.30	1.20	0.15	0.65
SMD1812P160TF/8(4L)	4.37	4.73	3.07	3.41	0.40	0.75	0.30	1.20	0.15	0.65
SMD1812P200TFT	4.37	4.73	3.07	3.41	0.20	0.60	0.30	1.20	0.15	0.65
SMD1812P200TF/12	4.37	4.73	3.07	3.41	0.80	1.20	0.30	1.20	0.15	0.65
SMD1812P200TF/16	4.37	4.73	3.07	3.41	0.80	1.20	0.30	1.20	0.15	0.65
SMD1812P260TFT	4.37	4.73	3.07	3.41	0.50	1.00	0.30	1.20	0.15	0.65
SMD1812P260TF/12	4.37	4.73	3.07	3.41	0.80	1.34	0.30	1.20	0.15	0.65
SMD1812P260TF/16	4.54	4.90	3.16	3.50	1.20	2.00	0.30	1.20	0.15	0.65
SMD1812P300TFT	4.37	4.73	3.07	3.41	0.50	1.00	0.30	1.20	0.15	0.65

SMD1812 HF Series Surface Mount PTC Devices

Environmental Specifications

Operating 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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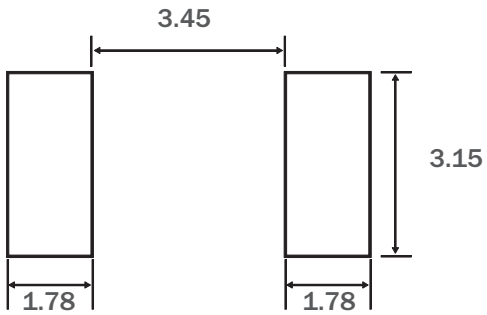
Packaging Quantity and Marking

Recommended Pad Layout (mm.)



Part Number	Marking	Quantity
SMD1812P010TF	010	1500
SMD1812P010TF/60	0160	1500
SMD1812P014TF	014	1500
SMD1812P020TF	020	2000
SMD1812P020TF-J	020・J	1500
SMD1812P035TF/30	0330	1500
SMD1812P035TF/60	0360	1000
SMD1812P050TF	050	2000
SMD1812P050TF/30	0530	2000
SMD1812P050TF/60	0560	1000
SMD1812P075TF	075	2000
SMD1812P075TF/24	0724	1500
SMD1812P075TF/33	0733	1500
SMD1812P110TF	110	2000
SMD1812P110TF/16	1116	1500
SMD1812P110TF/24	1124	1500
SMD1812P110TF/33	1133	1000
SMD1812P125TF/16	125	1500
SMD1812P150TF/8	150	2000
SMD1812P150TF/12	1512	1500
SMD1812P150TF/16	1516	1500
SMD1812P150TF/24	1524	1000
SMD1812P160TF/8(4L)	160	2000
SMD1812P200TFT	20	2000
SMD1812P200TF/12	2012	1500
SMD1812P200TF/16	2016	1500
SMD1812P260TFT	260	1500
SMD1812P260TF/12	2612	1000
SMD1812P260TF/16	2616	1000
SMD1812P300TFT	30	1500

◎ 12 mm tape on 7 inch reel per EIA-481 (equivalent to IEC286, part 3)

SMD1812 HF Series Surface Mount PTC Devices

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.

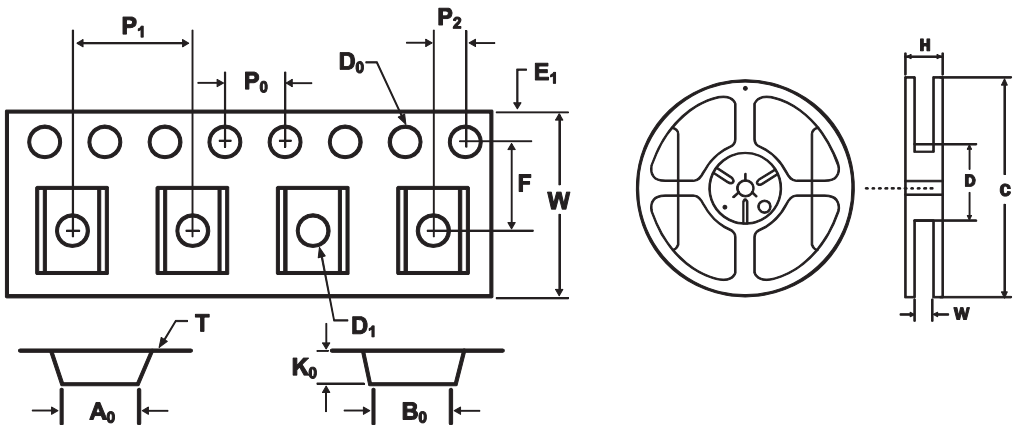
SMD1812 HF Series Surface Mount PTC Devices

Tape Specifications: EIA-481 (mm.)

	P020TF P050TF, P050TF/30, P075TF, P110TF P160TF/8(4L) P150TF/8 P200TFT	P010TF, P010TF/60 P014TF, P020TF-J P035TF/30 P075TF/24, P075TF/33 P110TF/16, P110TF/24 P125TF/16, P150TF/12 P150TF/16 P200TF/12, P200TF/16 P260TFT, P300TFT	P035TF/60 P050TF/60 P110TF/33 P150TF/24 P260TF/12 P260TF/16
W	12.00 ± 0.30	12.00 ± 0.30	12.00 ± 0.10
F	5.50 ± 0.05	5.50 ± 0.05	5.50 ± 0.05
E_1	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
D_1	1.55 (MIN)	1.50 ± 0.10	1.50 (MIN)
P_0	4.00 ± 0.10	4.00 ± 0.10	4.00 ± 0.08
P_1	8.00 ± 0.10	8.00 ± 0.10	8.00 ± 0.10
P_2	2.00 ± 0.05	2.00 ± 0.05	2.00 ± 0.05
A_0	3.58 ± 0.10	3.50 ± 0.10	3.58 ± 0.10
B_0	4.93 ± 0.10	4.85 ± 0.10	4.93 ± 0.10
T	0.25 ± 0.10	0.25 ± 0.10	0.25 ± 0.10
K_0	0.87 ± 0.06	1.25 ± 0.10	2.10 ± 0.10
Leader min.	390	390	390
Trailer min.	160	160	160

Reel Dimensions: EIA-481 (mm.)

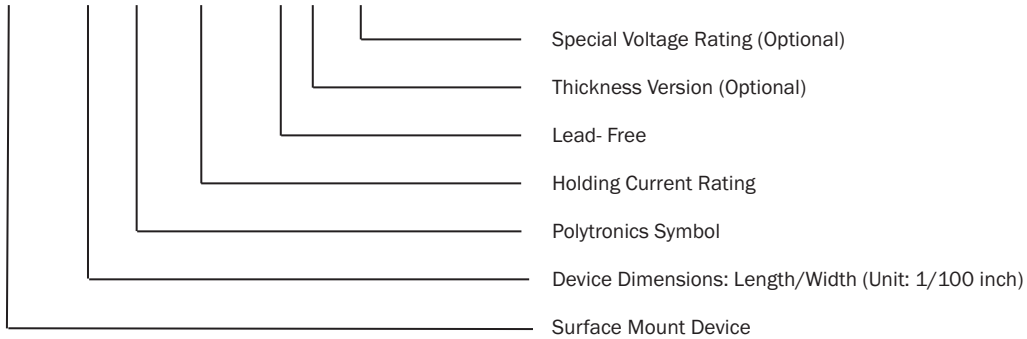
C	Ø178 ± 1.0
D	Ø60.2 ± 0.5
H	16.0 ± 0.5
W	13.2 ± 1.5



SMD1812 HF Series Surface Mount PTC Devices

Part Number System

SMD 1812 P □□□ TF T /□□



Cross Reference

Polytronics / EVERFUSE®	Cross Reference	
	TE Connectivity / PolySwitch®	Bourns / Multifuse®
SMD1812P010TF	miniSMDC010F	MF-MSMF010
SMD1812P010TF/60	miniSMDC010F	MF-MSMF010
SMD1812P014TF	miniSMDC014F	MF-MSMF014
SMD1812P020TF	miniSMDC020F	MF-MSMF020
SMD1812P020TF-J	-	MF-MSMF020/60
SMD1812P035TF/30	-	-
SMD1812P035TF/60	-	-
SMD1812P050TF	miniSMDC050F	MF-MSMF050
SMD1812P050TF/30	-	-
SMD1812P050TF/60	-	-
SMD1812P075TF	miniSMDC075F	MF-MSMF075
SMD1812P075TF/24	miniSMDM075F/24	MF-MSMF075/24
SMD1812P075TF/33	-	-
SMD1812P110TF	miniSMDC110F	MF-MSMF110
SMD1812P110TF/16	miniSMDC110F/16	MF-MSMF110/16
SMD1812P110TF/24	miniSMDC110F/24	-
SMD1812P110TF/33	-	-
SMD1812P125TF/16	miniSMDC125F/16	MF-MSMF125
SMD1812P150TF/8	miniSMDC150F	MF-MSMF150
SMD1812P150TF/12	miniSMDC150F/12	-
SMD1812P150TF/16	miniSMDC150F/16	-
SMD1812P150TF/24	miniSMDM150F/24	-
SMD1812P160TF/8(4L)	miniSMDM160F	MF-MSMF160
SMD1812P200TFT	miniSMDC200F	MF-MSMF200
SMD1812P200TF/12	-	-
SMD1812P200TF/16	-	-
SMD1812P260TFT	miniSMDC260F	MF-MSMF260
SMD1812P260TF/12	miniSMDC260F/12	-
SMD1812P260TF/16	miniSMDC260F/16	-
SMD1812P300TFT	miniSMDC300F	-

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"Multifuse" is a registered trademark of Bourns, Inc.

"PolySwitch" is a registered trademark of TE Connectivity Ltd.