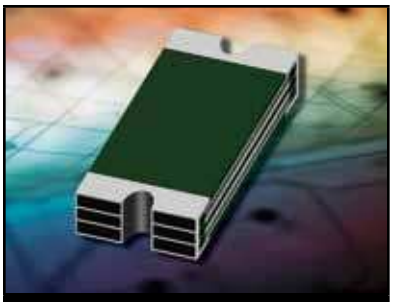
POLYMER PTC DEVICE



PTC DEVICE

DESCRIPTION

Surface mount PTC devices are the preferred over-current protection method for computer, consumer electronic, portable electronics and automotive applications. These devices are suitable for automated assembly and are designed to save on board space.

FEATURES

- Over-Current Protection
- RoHS & REACH Compliant
- Halogen-Free Material
- UL Recognized

MECHANICAL CHARACTERISTICS

- Surface Mount Device: Size 1812
- Approximate Weight: 0.0476 grams
- Lead-Free
- 12mm Tape and Reel Per EIA Standard 481

APPLICATIONS

- Motherboard USB & IEEE 1394 Protection
- USB & HDMI Port Protection - Set-Top Boxes, Game Consoles
- Battery PCM
- Mobile Internet Device (MID)
- IC VCC Protection
- Optical Electronics
- Security Systems
- Industrial Controls

ELECTRICAL SPECIFICATIONS

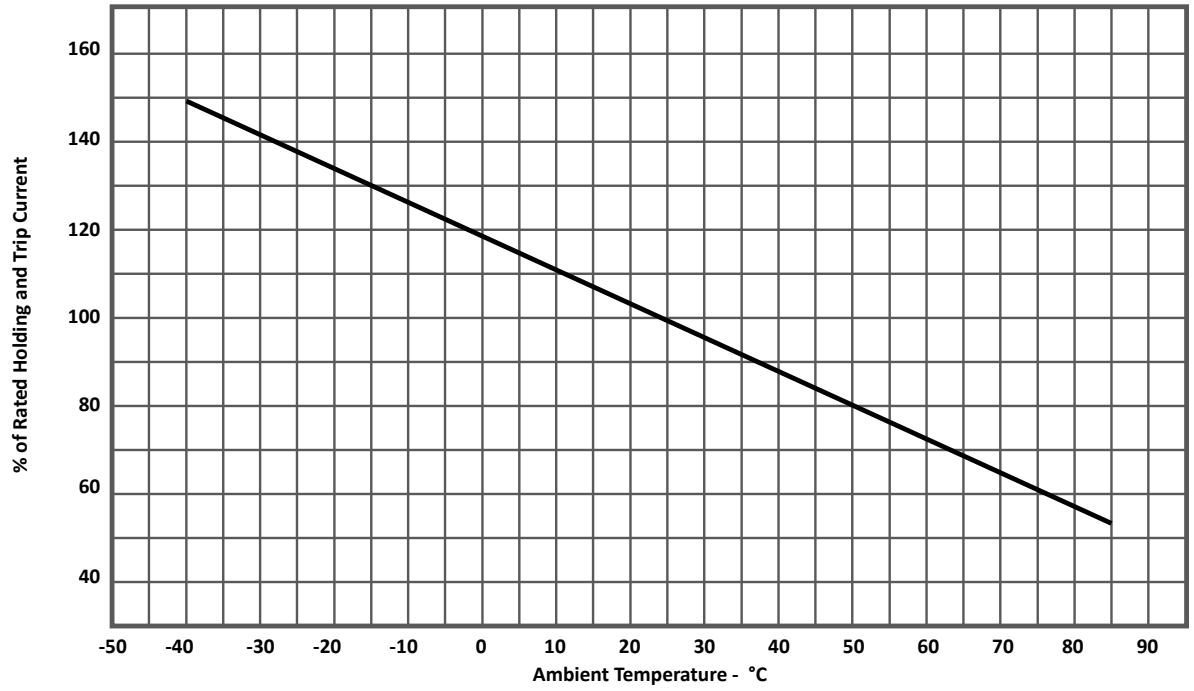
PART NUMBER	MARKING CODE	MAXIMUM HOLDING CURRENT (Note 1) I_H AMPS	MINIMUM TRIP CURRENT (Note 2) I_T AMPS	MAXIMUM INTERRUPT VOLTAGE (Note 3) V_{MAX} VOLTS	MAXIMUM FAULT CURRENT (Note 4) I_{MAX} AMPS	MAXIUM TIME-TO-TRIP CURRENT (Note 5) T_{TRIP} AMPS @ Secs	TYPICAL POWER DISSIPATION (Note 6) P_D WATTS	MINIMUM RESISTANCE (Note 7) R_{MIN} OHMS	MAXIMUM RESISTANCE (Note 8) R_{MAX} OHMS
PMPS260C-1812	260	2.60	5.00	8	100	8.00A @ 4.00s	0.8	0.010	0.040

NOTES
1. The maximum current at which the device will not trip at 25°C in still air.
2. The minimum current at which the device will always trip at 25°C in still air.
3. The maximum interrupt voltage the device can withstand without damage at the rated current.
4. The maximum fault current the device can withstand without damage at the rated voltage.
5. The maximum time to trip at the assigned current.
6. The typical amount of power dissipated by the device when in state air environment.
7. The minimum device resistance at 25°C prior to tripping.
8. The maximum device resistance at 25°C measured one hour post reflow.

TYPICAL DEVICE CHARACTERISTICS

TEST PROCEDURES AND REQUIREMENTS		
TEST	**CONDITIONS**	**ACCEPTANCE CRITERIA**
Resistance	In Still Air @ 25°C	R_{min} <= R <= R_{max}
Time to Trip (T_{Trip})	Specified Current V_{max} - In Still Air @ 25°C	T <= Max Time to Trip
Holding Current (I_H)	30 Minutes at I_H - In Still Air @ 25°C	No Trip
Trip Life Cycle	V_{max}, I_{max}, 100 Cycles - In Still Air @ 25°C	No Arcing or Burning
Trip Endurance	V_{max}, 60 Minutes - In Still Air @ 25°C	No Arcing or Burning

FIGURE 1
THERMAL DERATING CURVE
(Rated Holding Current at Ambient Temperature)

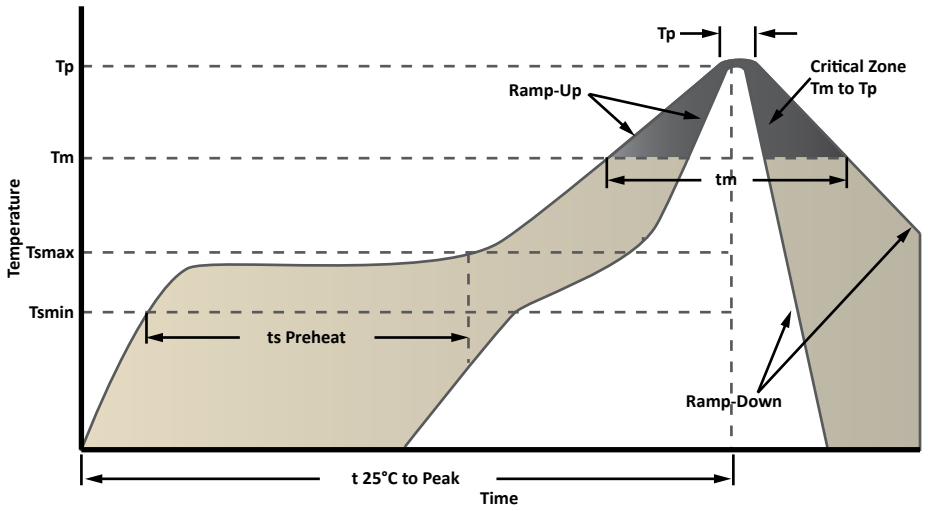


MAXIMUM AMBIENT OPERATING TEMPERATURES - °C										
BASE PART NUMBER										
PMPS260C-1812	T (°C)	-40	-20	0	25	40	50	60	70	85
	$I_{H(Max)}$	3.40	3.16	3.00	2.60	2.30	2.15	2.00	1.85	1.63

TYPICAL DEVICE CHARACTERISTICS

SOLDERING PARAMETERS	
PROFILE FEATURES	**PB-FREE ASSEMBLY**
Average Ramp-Up Rate - Tsmin to Tp	3°C/Second Max
Preheat - Temperature Min (Tsmin) - Temperature Max (Tsmax) - Time (Tsmin to Tsmax)	 150°C 200°C 60-180 Seconds
Time Maintained Above: - Temperature (Tm) - Time (tm)	 217°C 60-150 Seconds
Peak Temperature (Tp)	260°C
Time within 5°C of Tp (tp)	20-40 Seconds
Ramp-Down Rate	6°C/Seconds Max
Time 25°C to Tp	8 Minutes Max

1. All temperatures refer to topside of the package, measured on the package body surface.
2. Recommended reflow methods: IR, Vapor Phase, Hot Air Oven.
3. Devices are not designed to be wave soldered to the bottom side of the board.
4. Devices can be cleaned using standard industry methods and solvents.
5. If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.



NOTICES

The devices are intended for protection against overcurrent or overtemperature fault conditions and should not be used when repeated fault conditions are anticipated. Operation beyond maximum ratings or improper use may result in device damage and possible arcing and flame.

WARNING

Operation beyond the maximum ratings or improper use may result in device damage and possible electrical arcing and flame. Polymeric thermistors operate by thermal expansion of the conductive polymer. If devices are placed under pressure or installed in space that would prevent thermal expansion, they may not properly protect against fault conditions. Designs must be selected in such a manner that adequate space is maintained over the life of the product.

Twisting, bending, or placing the Polymeric thermistors in tension will decrease the ability of the device to protect against electrical faults. No residual force should remain on the device after installation. Mechanical damage to Polymeric thermistors chip may affect device performance and should be avoided.

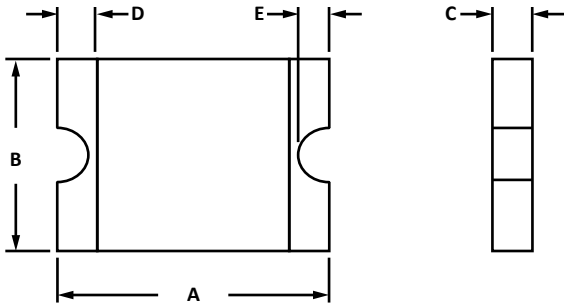
Chemical contamination of Polymeric thermistors should be avoided. Certain greases, solvents, hydraulic fluids, fuels, industrial cleaning agents, volatile components of adhesives, silicones and electrolytes can have an adverse effect on the device performance.

Environmental conditions must not harm the thermistors. Use thermistors only in normal atmospheric conditions. Avoid use in deoxidizing gases, corrosive agents, humid or salty conditions. Contact with any liquids and solvents should be prevented. Device performance can be impacted negatively if devices are handled in a manner inconsistent with recommended electronic, thermal and mechanical procedures for electronic components.

PACKAGE OUTLINE AND PAD LAYOUT INFORMATION

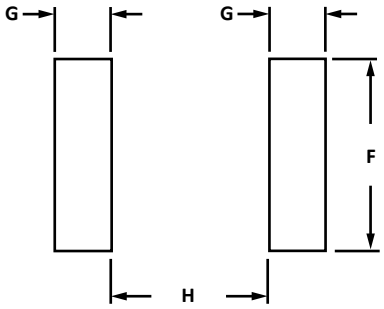
OUTLINE DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.37	4.73	0.17	0.19
B	3.07	3.41	0.12	0.13
C	0.90		0.035	
D	0.30	1.20	0.02	0.05
E	0.15	0.65	0.006	0.026

NOTES
1. Dimensions are exclusive of mold flash and metal burrs.

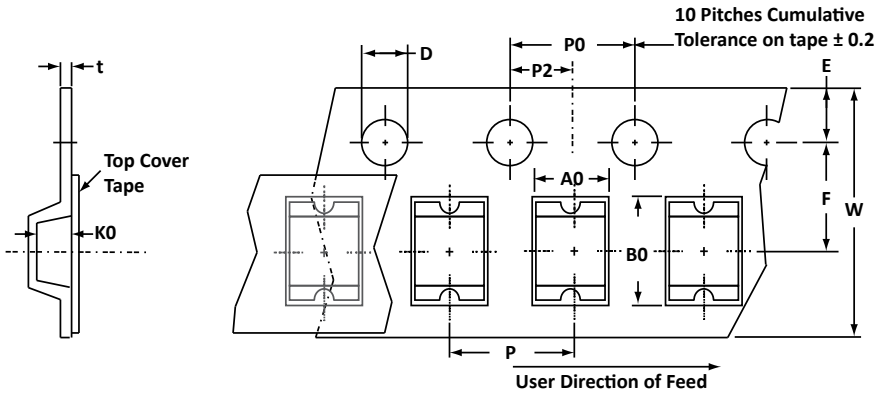


OUTLINE DIMENSIONS		
DIM	MILLIMETERS	INCHES
	NOM	NOM
F	1.80	0.07
G	1.00	0.04
H	1.80	0.07

NOTES
1. Dimensions are exclusive of mold flash and metal burrs.



TAPE AND REEL



SPECIFICATIONS												
REEL DIA.	TAPE WIDTH	A0	B0	K0	D	E	F	W	P0	P2	P	t
178mm (7")	12mm	3.50 ± 0.10	4.90 ± 0.10	0.80 ± 0.10	1.55 ± 0.05	1.75 ± 0.10	5.50 ± 0.10	12.00 ± 0.30	4.00 ± 0.10	2.00 ± 0.05	4.00 ± 0.10	0.25±0.05

NOTES
1. Dimensions are in millimeters.
2. Surface mount product is taped and reeled in accordance with EIA-481.
3. Suffix - T7 = 7" Reel - 2,000 pieces per 8mm tape.
4. Marking on Part - marking code.

ORDERING INFORMATION					
BASE PART NUMBER	LEADFREE SUFFIX	TAPE SUFFIX	QTY/REEL	REEL SIZE	TUBE QTY
PMPS260C-1812	N/A	-T7	2,000	7"	N/A

This device is only available in a Lead-Free configuration. The ambient temperature for storage is -40°C~40°C, with a maximum relative humidity recommended at 70%RH.

COMPANY INFORMATION

COMPANY PROFILE

In business more than 20 years, ProTek Devices™ is a privately held semiconductor company. The company offers a product line of overvoltage protection and overcurrent protection components. These include transient voltage suppressor array (TVS arrays) avalanche breakdown diode, steering diode TVS array and electronics SMD chip fuses. These components deliver circuit protection in electronic systems from numerous overvoltage and overcurrent events. They include lightning; electrostatic discharge (ESD); nuclear electromagnetic pulses (NEMP); inductive switching; and electromagnetic interference (EMI) / radio frequency interference (RFI). ProTek Devices also offers high performance interface and linear products. They include analog switches; multiplexers; LED drivers; LED wafer die for ESD protection; audio control ICs; RF and related high frequency products.

CONTACT US

Corporate Headquarters
2929 South Fair Lane
Tempe, Arizona 85282
USA

By Telephone
General: 602-431-8101
Sales: & Marketing: 602-414-5109
Customer Service: 602-414-5114
Product Technical Support: 602-414-5107

By Fax
General: 602-431-2288

By E-mail:
Sales: sales@protekdevices.com
Customer Service: service@protekdevices.com
Technical Support: support@protekdevices.com

ProTek Devices (Asia Pacific) Pte. Ltd.
8 Ubi Road 2, #06-19
Zervex
Singapore - 408538
Tel: +65-67488312
Fax: +65-67488313

Web
www.protekdevices.com