POLYMER PTC THERMISTOR

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.

APPLICATIONS

- Transmission Equipment: Central Office Linecard, DLC Linecard, NGN Linecard, MSAN Linecard, FTTx Linecard
- Customer Premise Equipment (CPE): IAD-VoDSL, ATA, STB, VoIPGW, VoCable, Wireless VoIP Router, PC Telephony Card
- PBX and Other Switches
- Main Distribution Frames
- Building Enterance Equipment
- Station Protection Modules

FEATURES

- High Voltage Endurance
- Low Parasitic Capacitance, Flat Impedance with Frequency
- RoHS Compliant
- UL Certificate (File No.: E305346)
- Fast Response Time
- Lead-Free Solder Termination
- Low Resistance

BASIC REFERENCE DATA

PARAMETER	VALUE	UNITS
Maximum Voltage (RMS)	600	V
Temperature Range	-40 to +85	°C
Resistance (25°C)	6-12	Ω

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	MAXIMUM VOLTAGE RATE V_{RATE} VOLTS	MINIMUM RESISTANCE (Note 7) R_{MIN} OHMS	MAXIMUM RESISTANCE (Note 8) R_{MAX} OHMS
PSFRV600-150B	KT600-150	0.15	0.30	600	3.0	1A @ 12s	250	6.00	22.0

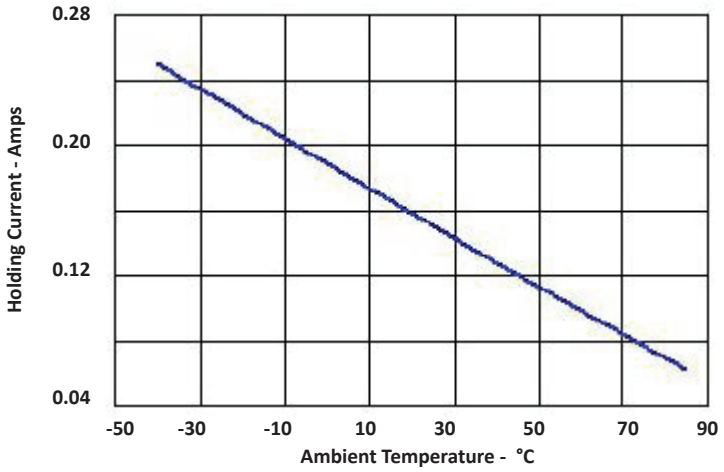
NOTES
1. The maximum current at which the device will not trip at 25°C in still air.
2. The minimum current at which the device will always trip at 25°C in still air.
3. The maximum interrupt voltage the device can withstand without damage at the rated current.
4. The maximum fault current the device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

TYPICAL DEVICE CHARACTERISTICS

RELIABILITY CHARACTERISTICS		
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)	60 Minutes at I_H	No Trip
Trip Life Cycle	250V, I_{MAX}, 20 Cycles	No Arcing or Burning
Trip Endurance	250V, 15 Minutes	No Arcing or Burning

ENVIRONMENTAL PERFORMANCE	
TEST	**CONDITIONS**
Dry Temperature	TA = 85°C, 1000 Hours
Low-Temperature Storage Test	TA = -5°C, 1000 Hours
Thermal Shock	-5°C 30 Minutes, 85°C 30 Minutes, 5 Cycles
Resistance to Soldering Heat	260 ± 10°C, 10 Seconds
Damp-heat Steady-state Test	TA = 85°C, RH = 85%, 1000 Hours
Solvent Resistance Test	IPA, 2 Minutes, 25°C

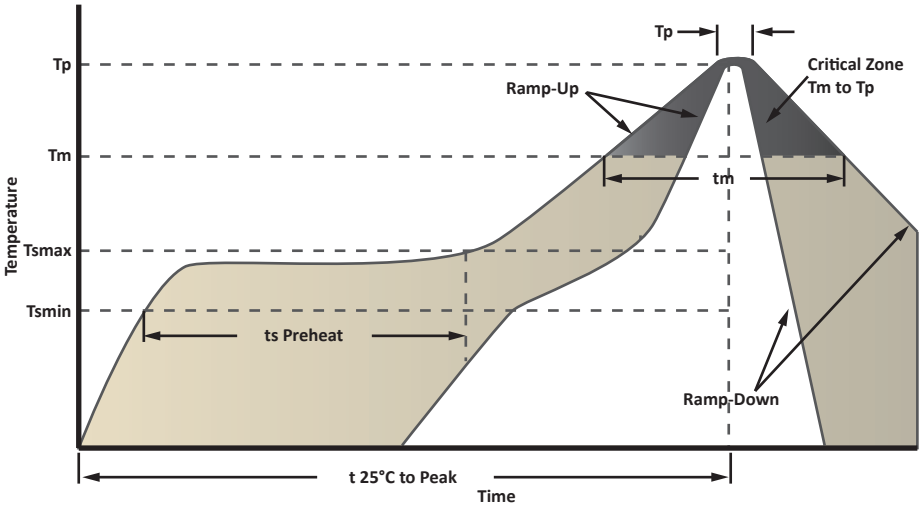
FIGURE 1
THERMAL DERATING CURVE
(Rated Holding Current at Ambient Temperature)



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.

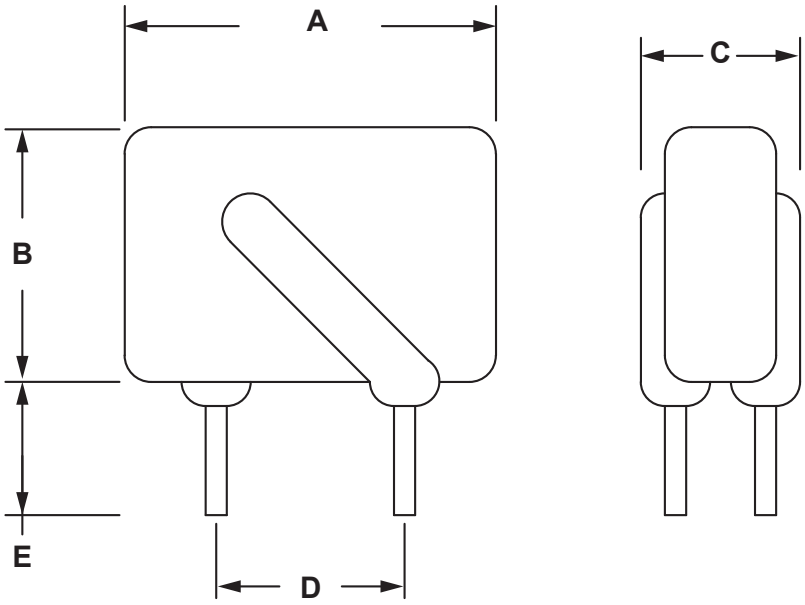
Chemical contamination of Polymeric thermistors should be avoided. Certain greases, solvents, hydraulic fluids, fuels, industrial cleaning agents, volatile components of adhesives, silicones and electrolytes can have an adverse effect on the device performance.

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.

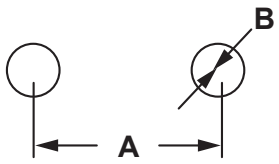
PACKAGE OUTLINE

OUTLINE DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	-	14.0	-	0.55
B	-	13.0	-	0.52
C	-	6.0	-	0.24
D	5.1	-	0.20	-
E	5.0	-	0.20	-

NOTES
1. Controlling dimensions: millimeters.



PAD LAYOUT		
DIM	MILLIMETERS	INCHES
	NOM	NOM
A	5.1	0.20
B	0.8 - 0.9	0.031 - 0.035



ORDERING INFORMATION					
BASE PART NUMBER	LEADFREE SUFFIX	TAPE SUFFIX	QTY/REEL	REEL SIZE	TUBE QTY
PSFRV600-150B	N/A	N/A	N/A	N/A	200
This device is only available in a Lead-Free configuration.					

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 LED wafer die for ESD protection 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:
Asia Sales: asiasales@protekdevices.com
Europe Sales: europesales@protekdevices.com
U.S. Sales: ussales@protekdevices.com
Distributor Sales: distysales@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