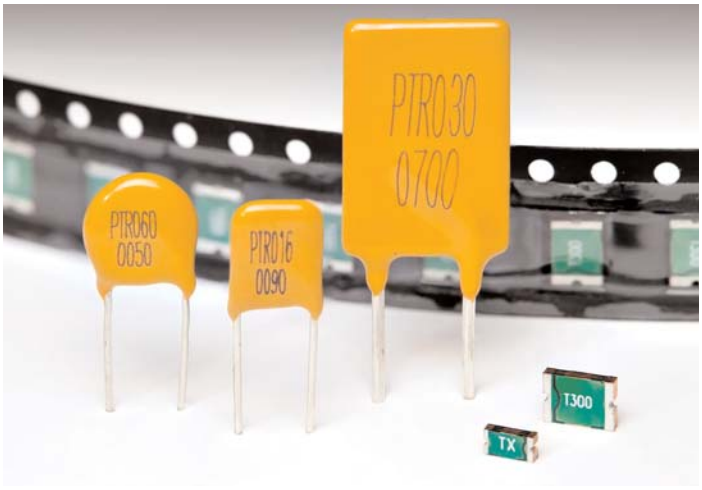
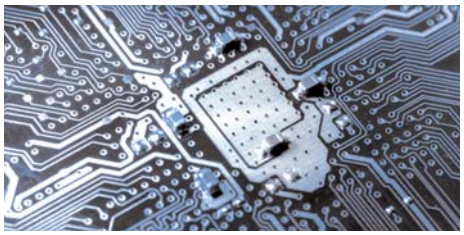
COOPER Bussmann





Cooper Bussmann PolyTron™ PTC Device Selection Guide

Selecting Polymer Positive Temperature Coefficient (PTC) Devices for Overcurrent and Overtemperature Protection

The Cooper Bussmann family of PolyTron™ PTC devices is ideally suited for protecting applications sensitive to high ambient operating temperatures or subject to frequent overcurrent conditions.

PTCs operate as a positive temperature coefficient device. High temperatures and excessive current will cause the device resistance to increase until it limits the unsafe current level.

Upon reaching the design temperature/current limit, the PTC will effectively "open" the circuit to provide protection from the overcurrent or elevated ambient temperature condition.

Once the fault is removed or the ambient temperature cools, the PTC will automatically "reset" and conduct safe current levels again, allowing current to flow through the circuit.

PTCs are commonly used in applications where constant uptime is required and/or in circuits not easily accessible by a user or service technician.

Available in surface mount and radial packages, Cooper Bussmann PolyTron PTC devices help improve the safety and reliability of customer equipment worldwide.

PolyTron PTC Device Packages

- Radial: 16, 30 and 60Vdc from 0.10 to 15 amps
- Surface Mount: 1206 and 1812 - 6-60Vdc from 0.1 to 3.0 amps

Features

- Fast trip times and resettable protection
- Overcurrent and over temperature protection
- Wide range of current (I_{hold}) and voltage (V_{max}) offerings
- Low resistance
- RoHS compliant, lead-free, halogen-free

Wide Product Applications

- Medical Equipment
- Industrial Power and Transmission
- White Goods
- Telecommunications and Networking
- Computer and Peripherals
- Consumer and Automotive Electronics
- Battery and Rechargeable Devices

Agency Standards

- cULus – UL Recognition for US and Canada
- TÜV – European Standard (Germany Agency)

Introduction

This is a general selection guide. Its intent is to provide an understanding of the package styles and ratings most suited for an application. For final selection, please consult your local Cooper Bussmann representative or website for additional details.

Cooper Bussmann PolyTron™ PTC devices are ideally suited for applications encountering frequent overcurrent conditions for which traditional fuse protection would prove impractical or undesirable such as consumer electronics, I/O ports, medical equipment and process control applications where constant uptime is required.

Specifications		PolyTron PTC Device Series				
		Surface Mount		Radial Leaded		
		PTS1206	PTS1812	PTR016V	PTR030V	PTR060V
						
Chip Size		1206	1812	- -	- -	- -
Hold Current (I_{hold})		0.05-2.0A	0.10-3.0A	09-15.0A	0.90-9.0A	0.10-3.75A
Max Voltage (V_{max})		6-60V	6-60V	16V	30V	60V
Max Fault Current (I_{max})		100A	10-100A	40-100A	40-100A	40A
Operating Temperature Range - °C		-40/+85	-40/+85	-40/+85	-40/+85	-40/+85
Applications	**Application Areas**					
Computers	CPU			X		
	USB	X	X	X		
	IEEE 1284 Parallel data bus	X	X	X		
	IEEE 802.3					X
	IEEE 1394		X		X	
	I/O Ports	X	X	X		
	PC Card	X	X	X		
	SCSI	X	X	X		
	Video port	X	X	X		
	LCD Monitor	X	X	X		
Consumer Electronics	Set top box	X	X			
	Loudspeaker				X	
	Smart card reader	X				
	Mobile phone	X				
	Linear AC/DC adapter	X	X		X	X
	Portable electronic input port	X	X			
	Electromagnetic loads, motors				X	X
	Solenoid protection		X		X	X
Medical Electronics	Voltage/current input terminals	X	X			

PolyTron PTC Device Selection

1) Determine circuit parameters:
   a. Normal operating current – I_{hold}
   b. Maximum circuit voltage – V_{max}
   c. Ambient operating temperature – °C
   d. Maximum fault current – I_{max}
2) Select package (radial lead or SMD Chip) based on size constraints and PCB assembly method.
3) Compare PolyTron™ PTC device data sheet ratings for V_{max} and I_{max} at www.cooperbussmann.com/datasheets/elx.
   The circuit parameters should not exceed the ratings of the device.
4) Verify that the ambient operating temperature of the circuit is within the device's normal operating range. Thermally derate I_{hold} and I_{max} as necessary using the equation:
   a. $I_{hold} = I_{max}$/Thermal derating factor
5) Check that the trip time will adequately protect the circuit.
6) Verify that the post trip resistance ($R1_{max}$) of the device is taken into account.
7) Test and evaluate the suitability and performance of the chosen PolyTron PTC device in the actual application.

Technical Application Assistance

Application Engineering

- Call 636-527-1270
- E-mail fusetech@cooperindustries.com

Data Sheets (www.cooperbussmann.com/DatasheetsElx)

- PTS1206 Series #4397
- PTS1812 Series #4398
- PTR016V Series #4399
- PTR030V Series #4400
- PTR060V Series #4401

Design Kits

- DKPPR-18835-R Radial PolyTron PTC Devices
- DKPPS-18836-R SMD PolyTron PTC Devices

Online Resources (www.cooperbussmann.com/elx)

- Application Notes
- Ordering Product Samples
- Product Profiler Technical Reference and Competitive Cross (www.cooperbussmann.com/ProductSearch.aspx)

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