



## Features

- 10 kA, 8/20  $\mu$ s surge capability
- Low clamping voltage under surge
- Bidirectional TVS
- Excellent performance over temperature

## Applications

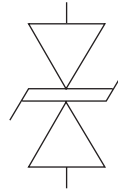
- AC line protection
- High power DC bus protection

# PTVS10-xxxC-TH Series High Voltage, High Current TVS Diodes

### General Information

The Model PTVS10-xxxC-TH high voltage, high current, bidirectional TVS diode series is designed for use in AC line and high power DC bus clamping applications.

The devices are RoHS\* compliant. They also meet IEC 61000-4-5 8/20  $\mu$ s current surge requirements.



### Additional Information

Click these links for more information:



### Absolute Maximum Ratings (@ $T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

Rating	Symbol	Value	Unit
Repetitive Standoff Voltage	$V_{WM}$	170 320 380 430 470	V
Peak Current Rating per 8/20 $\mu$ s IEC 61000-4-5	$I_{PPM}$	10	kA
Operating Junction Temperature Range	$T_J$	-55 to +125	$^\circ\text{C}$
Storage Temperature Range	$T_S$	-55 to +150	$^\circ\text{C}$
Lead Temperature, Soldering (10 s)		260	$^\circ\text{C}$

### Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_D$ Standby Current	$V_D = V_{WM}$			10	$\mu\text{A}$
$V_{(BR)}$ Breakdown Voltage	$I_{BR} = 10\text{ mA}$	190 336 401 440 470	200 352 422 465 500	210 368 442 490 530	V
$V_C$ Clamping Voltage (1)	$I_{PP} = 10\text{ kA}$		260 440 520 580 630		V
$V_{(BR)}$ Temperature Coefficient			0.1		$\%/\text{^\circ C}$
C Capacitance	F = 10 kHz, $V_d = 1\text{ Vrms}$		2.5 1.4 1.2 1.1 1.0		nF

(1)  $V_C$  measured at the time which is coincident with the peak surge current.



**WARNING Cancer and Reproductive Harm - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)**

\*RoHS Directive 2015/863, Mar 31, 2015 and Annex.

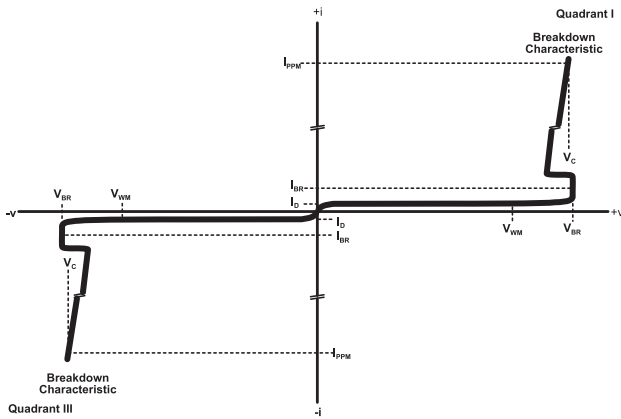
Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

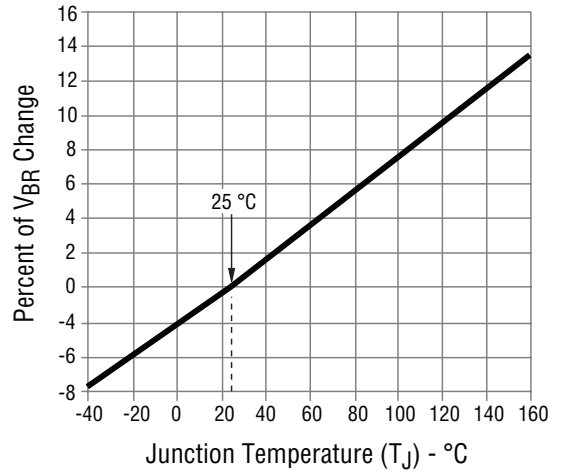
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Performance Graphs

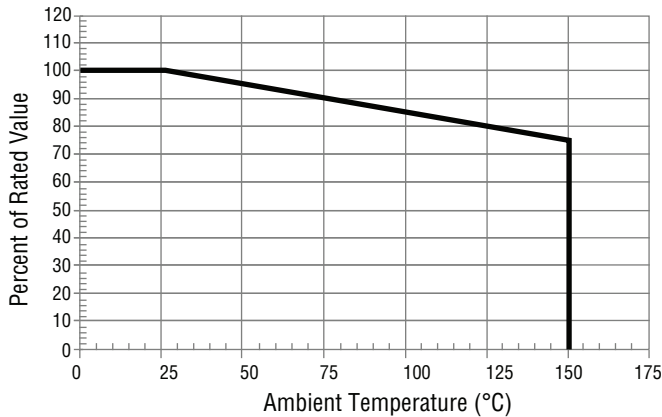
V-I Characteristic



Typical  $V_{BR}$  vs. Junction Temperature

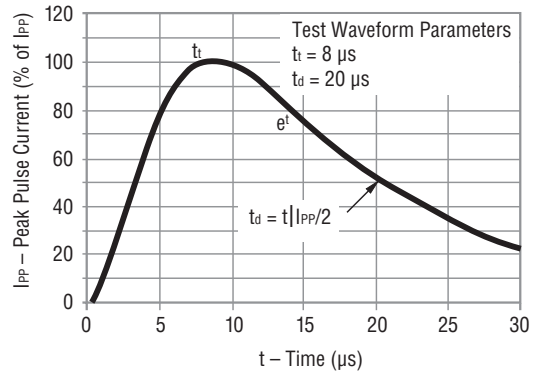


Typical Surge Current Derating

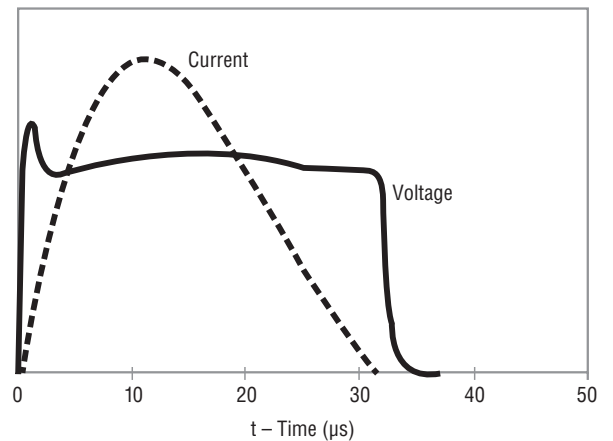


This graph shows the typical device surge current derating versus ambient temperature when subjected to the 8/20  $\mu$ s current waveform per the IEC 61000-4-5 specification. This device is not intended for continuous operation at temperatures above 125 °C.

Current 8/20  $\mu$ s Waveform per IEC 61000-4-5



Typical Waveform Under Surge



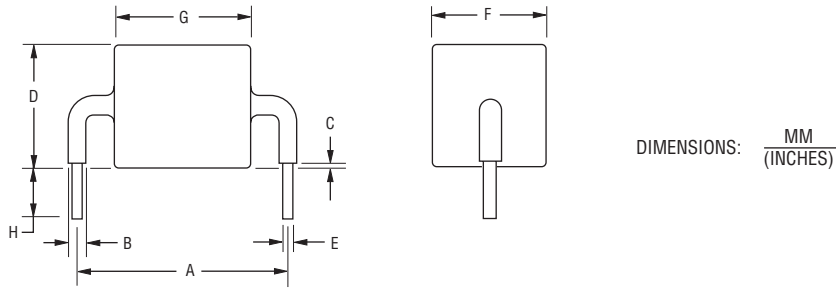
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# PTVS10-xxxC-TH Series High Voltage, High Current TVS Diodes



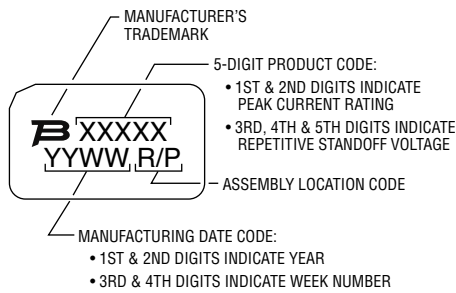
## Product Dimensions

Epoxy encapsulation materials conform to UL 94V-0. Silver plated lead finish conforms to the solderability requirements of JESD22-B102, Pb free solder. Package dimensions are shown below:

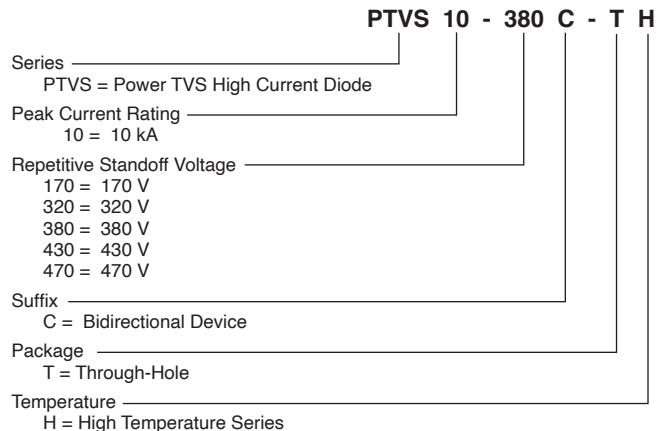


Dim.	PTVS10-170C-TH	PTVS10-320C-TH	PTVS10-380C-TH	PTVS10-430C-TH	PTVS10-470C-TH
A	$\frac{24.15 \pm 0.72}{(0.951 \pm 0.028)}$				
B	$\frac{2.40 \pm 0.50}{(0.094 \pm 0.020)}$				
C	$\frac{1.75 \pm 1.25}{(0.069 \pm 0.049)}$				
D	$\frac{15.00}{(0.591)}$ Max.				
E	$\frac{1.25 \pm 0.05}{(0.049 \pm 0.002)}$				
F	$\frac{14.00}{(0.551)}$ Max.				
G	$\frac{8.80}{(0.346)}$ Max.	$\frac{14.60}{(0.575)}$ Max.	$\frac{16.50}{(0.650)}$ Max.	$\frac{16.50}{(0.650)}$ Max.	$\frac{19.40}{(0.764)}$ Max.
H	$\frac{6.00 \pm 1.00}{(0.236 \pm 0.039)}$				

## Typical Part Marking



## How to Order



REV. 05/24

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