



## Features

- 6 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

# PTVS6-xxxC-TH Series High Voltage, High Current TVS Diodes

## General Information

The Model PTVS6-xxxC-TH high voltage, 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.



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

Rating		Symbol	Value	Unit
Repetitive Standoff Voltage	PTVS6-380C-TH PTVS6-430C-TH	$V_{WM}$	380 430	V
Peak Current Rating per 8/20 $\mu$ s IEC 61000-4-5		$I_{PPM}$	6	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	$I_{BR} = 10\text{ mA}$	PTVS6-380C-TH 401 PTVS6-430C-TH 440	422 465	443 490	V
$V_C$ Clamping Voltage (1)	$I_{PP} = 10\text{ kA}$	PTVS6-380C-TH PTVS6-430C-TH	520 580		V
$V_{(BR)}$ Temperature Coefficient			0.1		$\%/\text{^\circ C}$
C Capacitance	$F = 10\text{ kHz}$ , $V_d = 1\text{ V}_{rms}$	PTVS6-380C-TH PTVS6-430C-TH	0.65 0.70		nF

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

# BOURNS®

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

\*RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011.

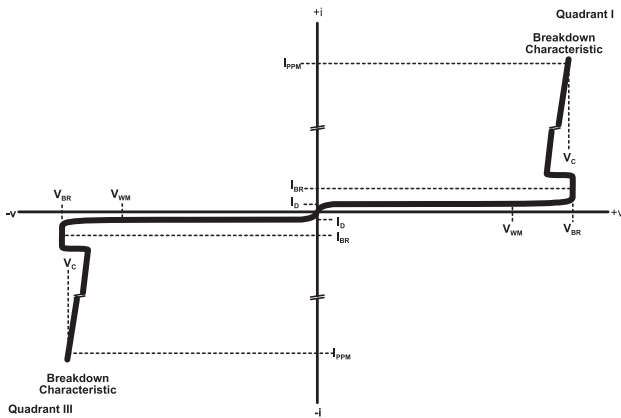
Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

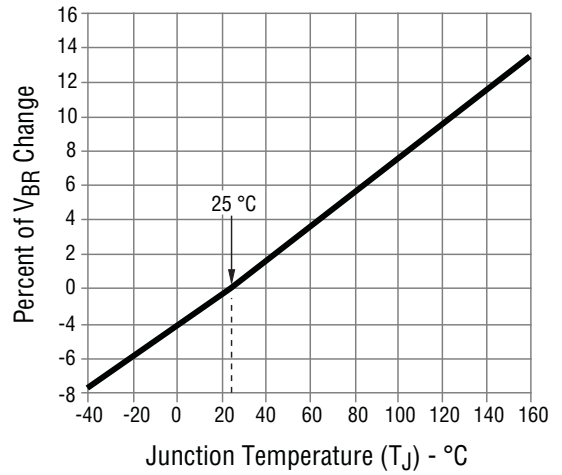
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Performance Graphs

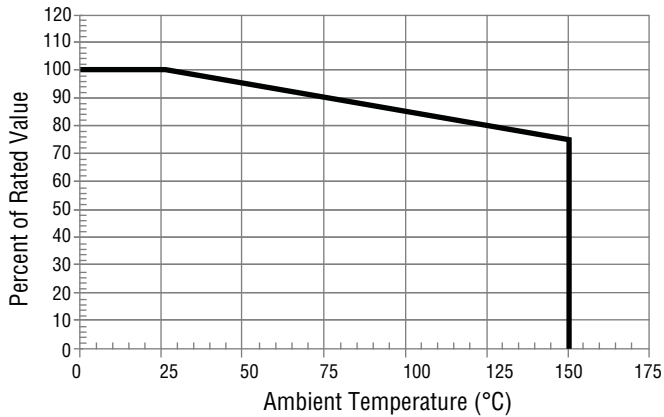
V-I Characteristic



Typical  $V_{BR}$  vs. Junction Temperature

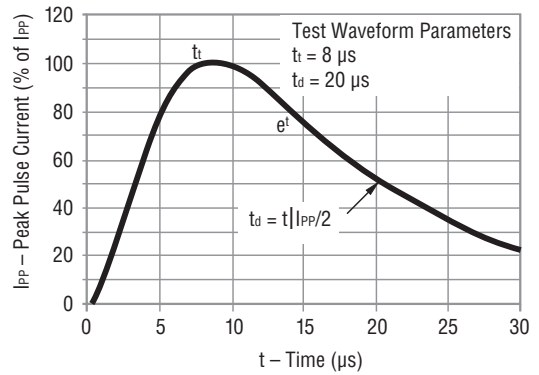


Typical Surge Current Derating

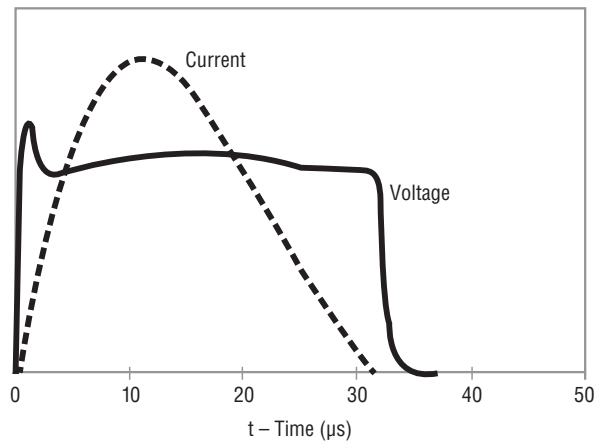


This graph shows the typical device surge current derating versus ambient temperature when subjected to the 8/20  $\mu$ s current waveform per the IEC 61000-4-5 specification. This device is not intended for continuous operation at temperatures above 125 °C.

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



Typical Waveform Under Surge



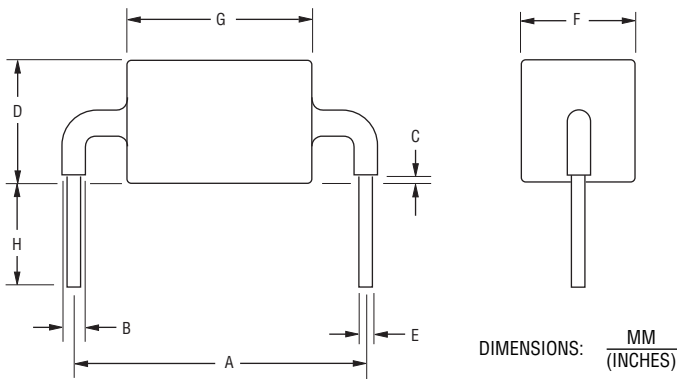
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# PTVS6-xxxC-TH Series High Voltage, High Current TVS Diodes



## 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:

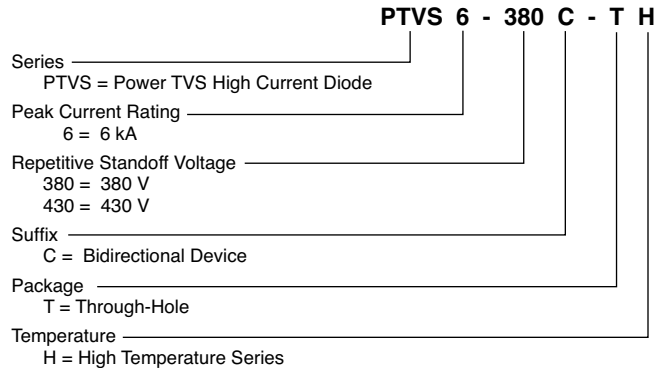


Dim.	PTVS6-380C-TH	PTVS6-430C-TH
A	$24.15 \pm 0.72$ (0.951 $\pm$ 0.028)	
B	$2.40 \pm 0.50$ (0.094 $\pm$ 0.020)	
C	$1.75 \pm 1.25$ (0.069 $\pm$ 0.049)	
D	$12.00$ (0.472) Max.	
E	$1.25 \pm 0.05$ (0.049 $\pm$ 0.002)	
F	$11.50$ (0.453) Max.	
G	$16.50$ (0.650) Max.	
H	$6.00 \pm 1.00$ (0.236 $\pm$ 0.039)	

## Typical Part Marking

PTVS6-380C-TH .....6380  
PTVS6-430C-TH .....6430

## How to Order



REV. 11/15

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