



## Features

- 3 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

# PTVS3-xxxC-TH Series High Voltage, High Current TVS Diodes

### General Information

The Model PTVS3-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.



### 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	PTVS3-380C-TH PTVS3-430C-TH	$V_{WM}$	380 430	V
Peak Current Rating per 8/20 $\mu$ s IEC 61000-4-5		$I_{PPM}$	3	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	$I_{BR} = 10\text{ mA}$	PTVS3-380C-TH 401 PTVS3-430C-TH 440	422 465	443 490	V
$V_C$ Clamping Voltage (1)	$I_{PP} = 3\text{ kA}$	PTVS3-380C-TH 520 PTVS3-430C-TH 580			V
$V_{(BR)}$ Temperature Coefficient			0.1		$\%/^\circ\text{C}$
C Capacitance	$F = 10\text{ kHz}$ , $V_d = 1\text{ Vrms}$	PTVS3-380C-TH 0.35 PTVS3-430C-TH 0.40			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.

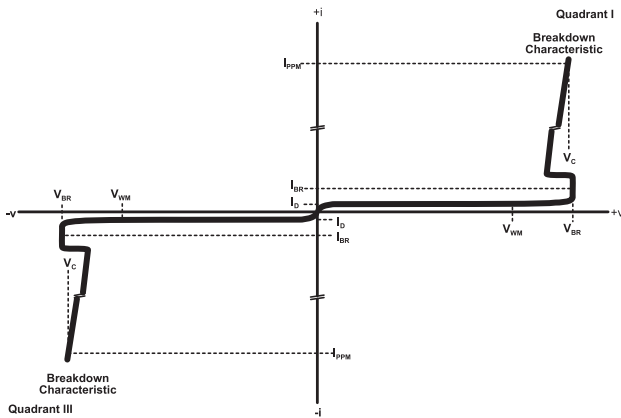
Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

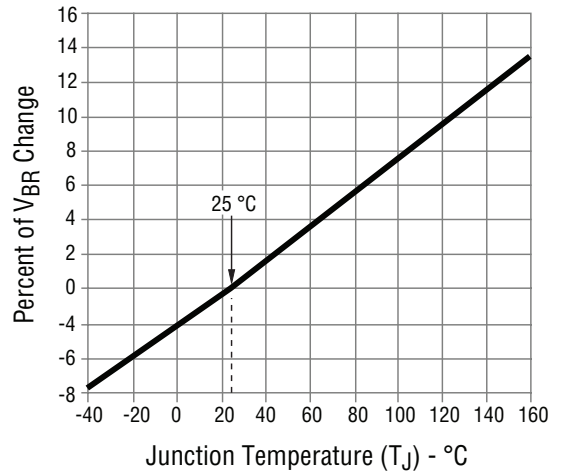
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Performance Graphs

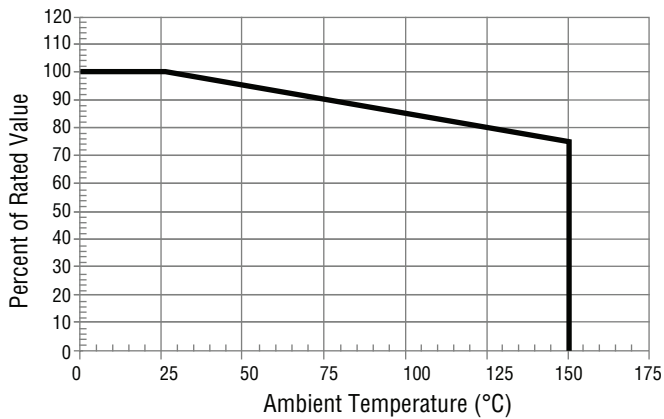
V-I Characteristic



Typical  $V_{BR}$  vs. Junction Temperature

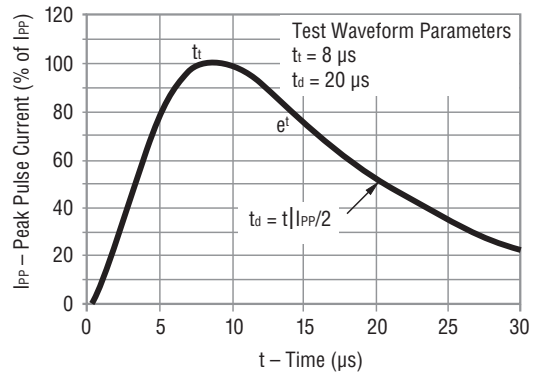


Typical Surge Current Derating

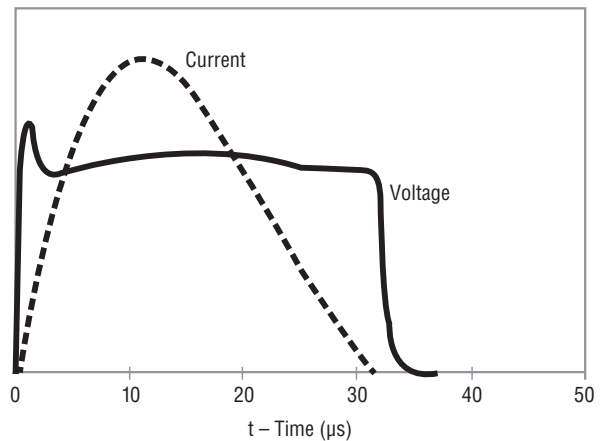


This graph shows the typical device surge current derating versus ambient temperature when subjected to the 8/20  $\mu$ s current waveform per the IEC 61000-4-5 specification. This device is not intended for continuous operation at temperatures above 125 °C.

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



Typical Waveform Under Surge



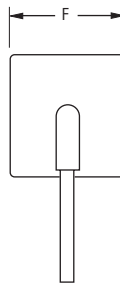
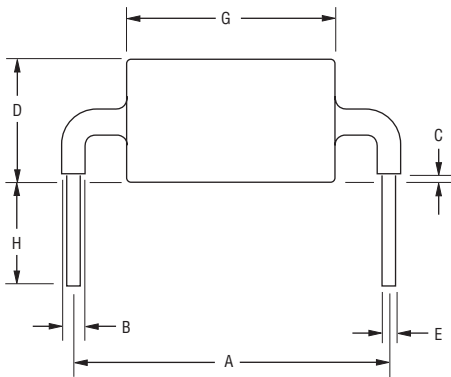
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# PTVS3-xxxC-TH Series High Voltage, High Current TVS Diodes



## 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:



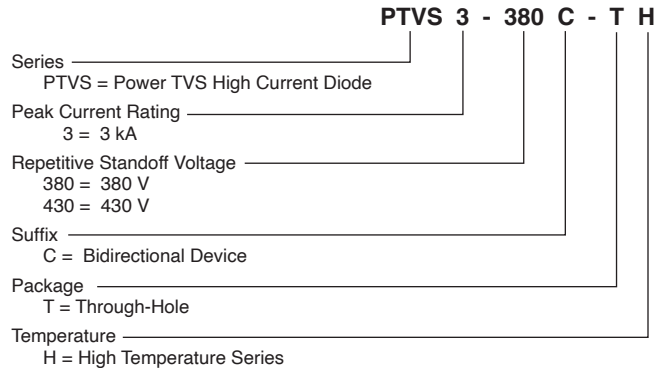
DIMENSIONS:  $\frac{\text{MM}}{\text{(INCHES)}}$

Dim.	PTVS3-380C-TH	PTVS3-430C-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	$\frac{10.80}{(0.425)}$ Max.	
E	$\frac{1.25 \pm 0.05}{(0.049 \pm 0.002)}$	
F	$\frac{9.30}{(0.366)}$ Max.	
G	$\frac{16.50}{(0.650)}$ Max.	
H	$\frac{6.00 \pm 1.00}{(0.236 \pm 0.039)}$	

## Typical Part Marking

PTVS3-380C-TH .....3380  
 PTVS3-430C-TH .....3430

## How to Order



REV. 04/17

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