



## 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.



## 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)	$I_{PP} = 10\text{ kA}$	PTVS3-380C-TH PTVS3-430C-TH	520 580		V
$V_{(BR)}$ Temperature Coefficient			0.1		$\%/^\circ\text{C}$
C Capacitance	$F = 10\text{ kHz}$ , $V_d = 1\text{ V}_{rms}$	PTVS3-380C-TH PTVS3-430C-TH	0.35 0.40		nF

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

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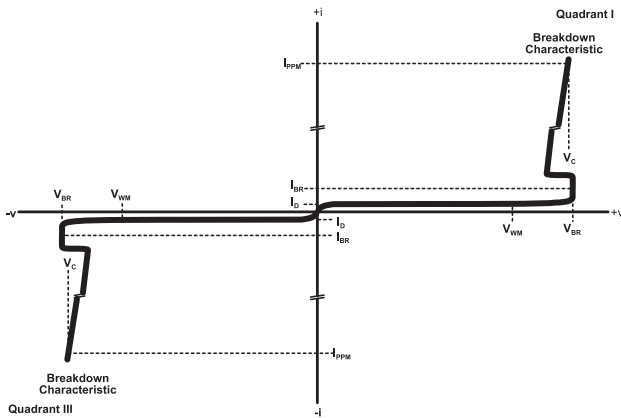
\*RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011.

Specifications are subject to change without notice.

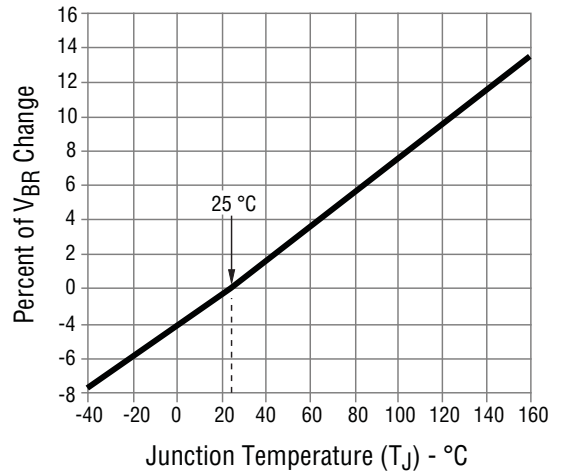
The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time. Users should verify actual device performance in their specific applications.

Performance Graphs

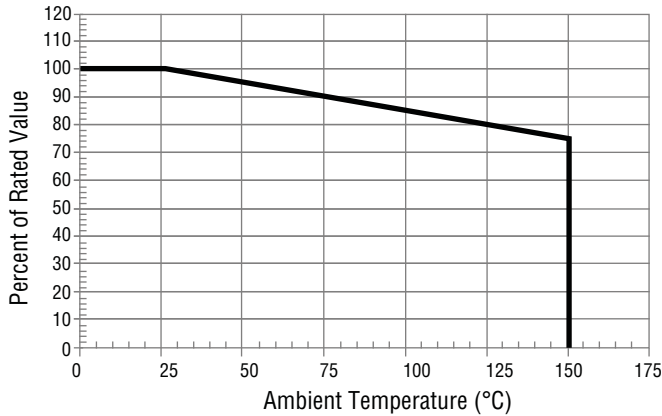
V-I Characteristic



Typical  $V_{BR}$  vs. Junction Temperature

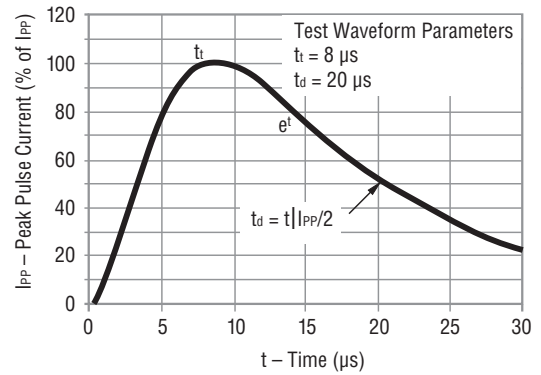


Typical Surge Current Derating

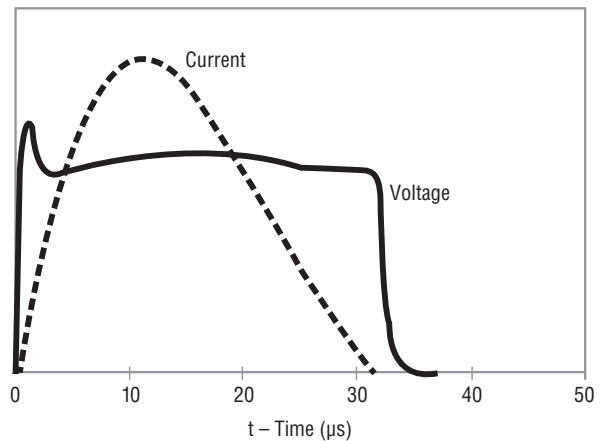


This graph shows the typical device surge current derating versus ambient temperature when subjected to the 8/20  $\mu$ s current waveform per the IEC 61000-4-5 specification. This device is not intended for continuous operation at temperatures above 125 °C.

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



Typical Waveform Under Surge



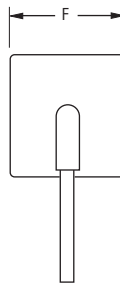
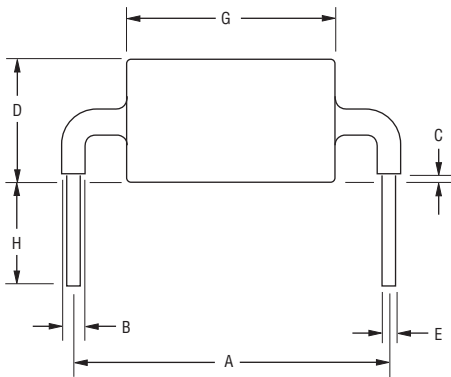
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# PTVS3-xxxC-TH Series High Voltage, High Current TVS Diodes



## 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:



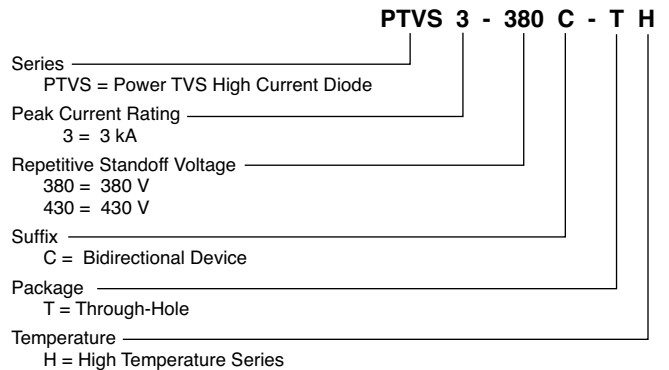
DIMENSIONS:  $\frac{\text{MM}}{\text{(INCHES)}}$

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. 11/15

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