



Features

- 3 kA, 8/20 μ 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 μ s current surge requirements.

Agency Approval

Description	
UL	File Number: E215609

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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 μ 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	μA
$V_{(BR)}$ Breakdown Voltage	$I_{BR} = 10\text{ mA}$	PTVS3-380C-TH PTVS3-430C-TH	401 440	422 465	443 490	V
V_C Clamping Voltage (1)	$I_{PP} = 3\text{ kA}$	PTVS3-380C-TH PTVS3-430C-TH		520 580		V
$V_{(BR)}$ Temperature Coefficient				0.1		%/ $^\circ\text{C}$
C Capacitance	$F = 10\text{ kHz}$, $V_d = 1\text{ Vrms}$	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.



CALIFORNIA WARNING Can expose you to lead, a carcinogen and reproductive toxicant.
See www.P65Warnings.ca.gov

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

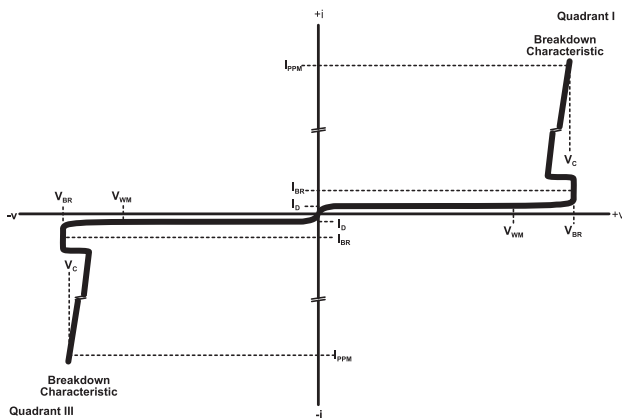
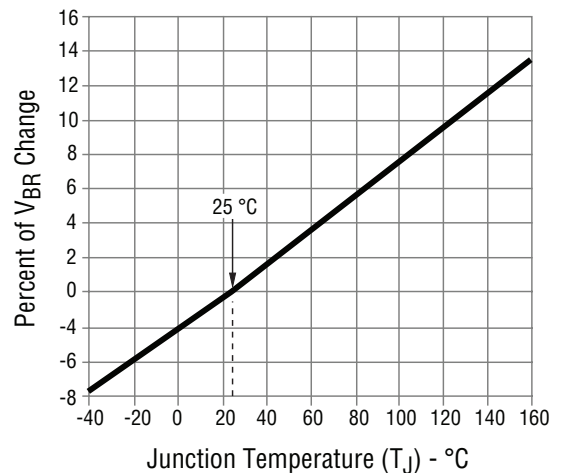
Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

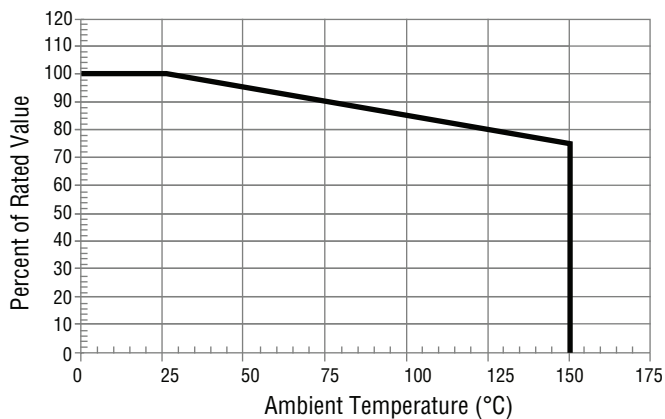
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Performance Graphs

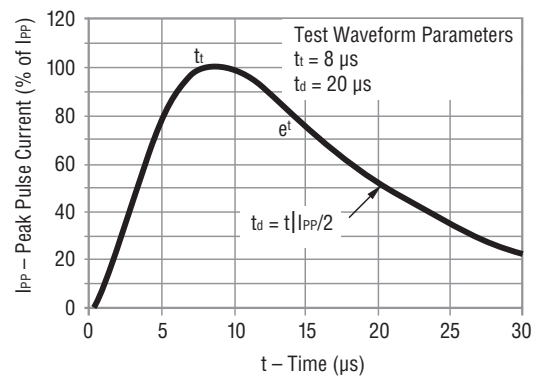
V-I Characteristic

Typical V_{BR} vs. Junction Temperature

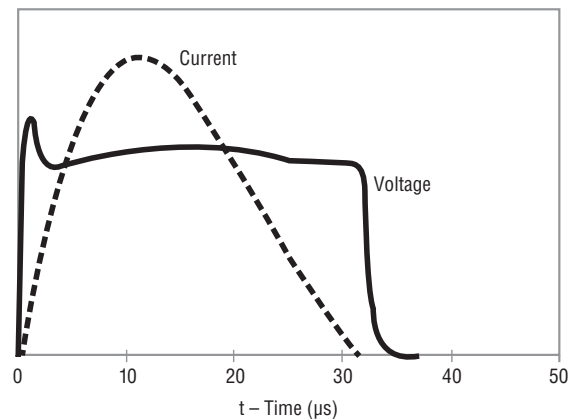
Typical Surge Current Derating



This graph shows the typical device surge current derating versus ambient temperature when subjected to the 8/20 μ 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 μ s Waveform per IEC 61000-4-5

Typical Waveform Under Surge

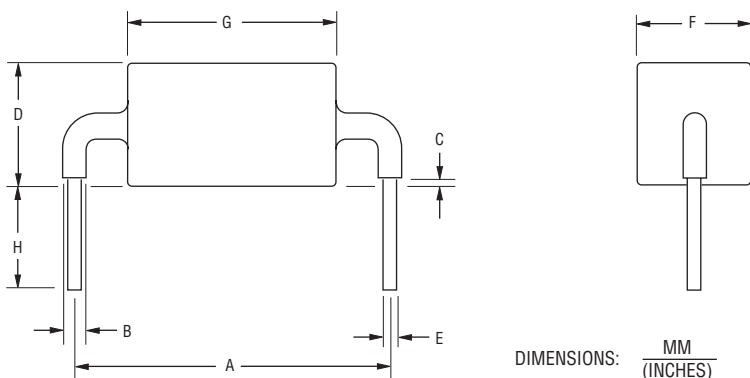


PTVS3-xxxC-TH Series High Voltage, High Current TVS Diodes

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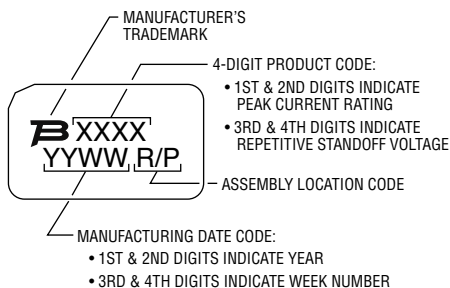
Product Dimensions

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.	PTVS3-380C-TH	PTVS3-430C-TH
A	24.15 ± 0.72 (0.951 $\pm$ 0.028)	
B	2.40 ± 0.50 (0.094 $\pm$ 0.020)	
C	1.75 ± 1.25 (0.069 $\pm$ 0.049)	
D	10.80 (0.425) Max.	
E	1.25 ± 0.05 (0.049 $\pm$ 0.002)	
F	9.30 (0.366) Max.	
G	16.50 (0.650) Max.	
H	6.00 ± 1.00 (0.236 $\pm$ 0.039)	

Typical Part Marking



How to Order

Series	PTVS	3	-	380	C	-	T	H
PTVS = Power TVS High Current Diode								
Peak Current Rating								
3 = 3 kA								
Repetitive Standoff Voltage								
380 = 380 V								
430 = 430 V								
Suffix								
C = Bidirectional Device								
Package								
T = Through-Hole								
Temperature								
H = High Temperature Series								

REV. 11/25

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

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