



Features

- 10 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

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

General Information

The Model PTVS10-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

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	PTVS10-170C-TH	V_{WM}	170	V
	PTVS10-320C-TH		320	
	PTVS10-380C-TH		380	
	PTVS10-430C-TH		430	
	PTVS10-470C-TH		470	
Peak Current Rating per 8/20 μ 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	μA
$V_{(BR)}$ Breakdown Voltage	$I_{BR} = 10\text{ mA}$	PTVS10-170C-TH 190 PTVS10-320C-TH 336 PTVS10-380C-TH 401 PTVS10-430C-TH 440 PTVS10-470C-TH 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		$\% / ^\circ\text{C}$
C Capacitance	F = 10 kHz, $V_d = 1\text{ Vrms}$	PTVS10-170C-TH PTVS10-320C-TH PTVS10-380C-TH PTVS10-430C-TH PTVS10-470C-TH	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.

*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.

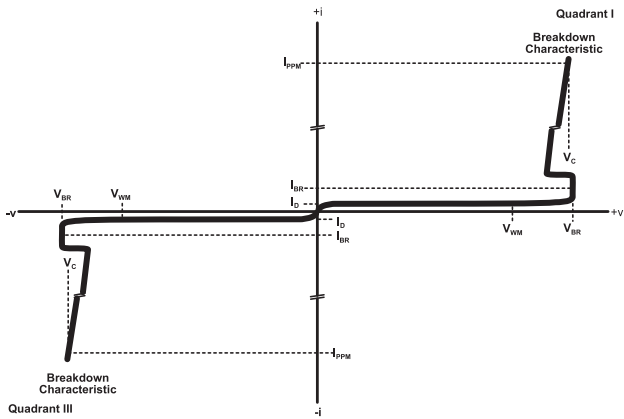
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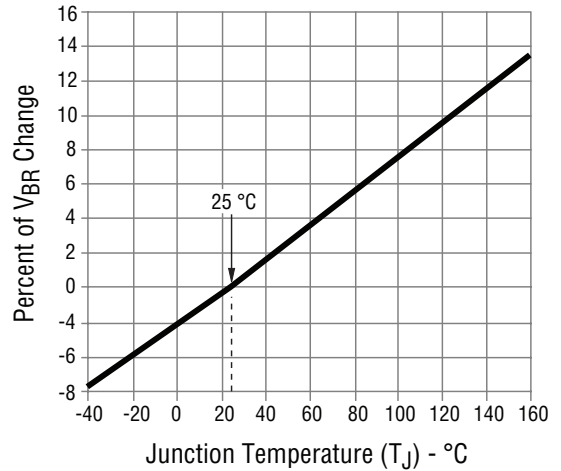
CALIFORNIA WARNING Can expose you to lead, a carcinogen and reproductive toxicant. See www.P65Warnings.ca.gov

Performance Graphs

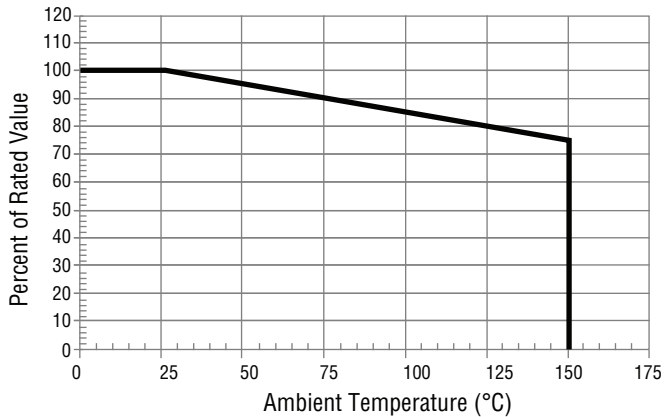
V-I Characteristic



Typical V_{BR} vs. Junction Temperature

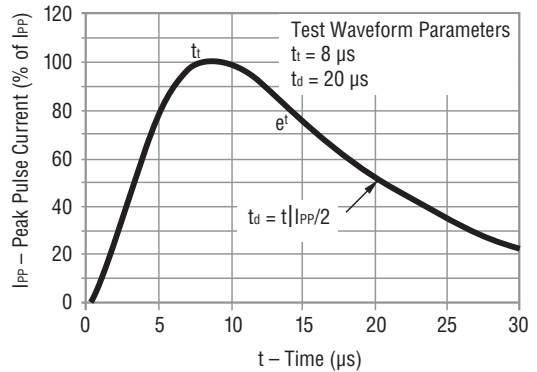


Typical Surge Current Derating

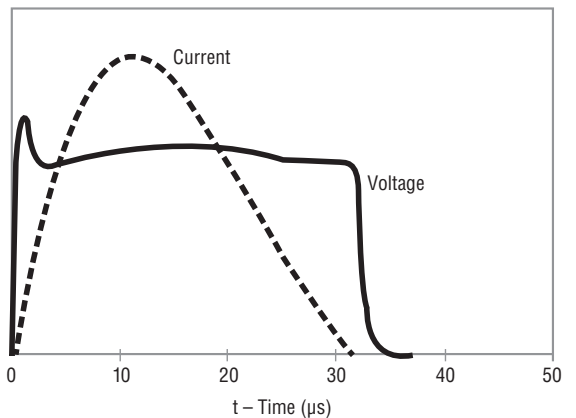


This graph shows the typical device surge current derating versus ambient temperature when subjected to the 8/20 μ s current waveform per the IEC 61000-4-5 specification. This device is not intended for continuous operation at temperatures above 125 °C.

Current 8/20 μ s Waveform per IEC 61000-4-5



Typical Waveform Under Surge



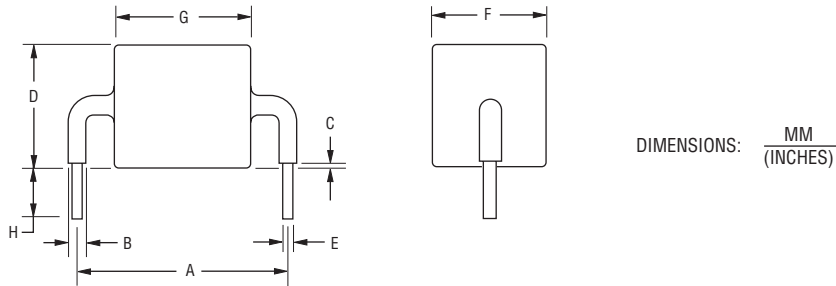
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PTVS10-xxxC-TH Series High Voltage, High Current TVS Diodes



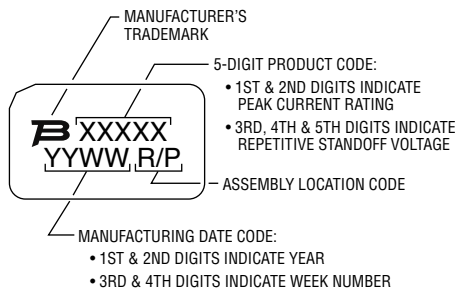
Product Dimensions

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:

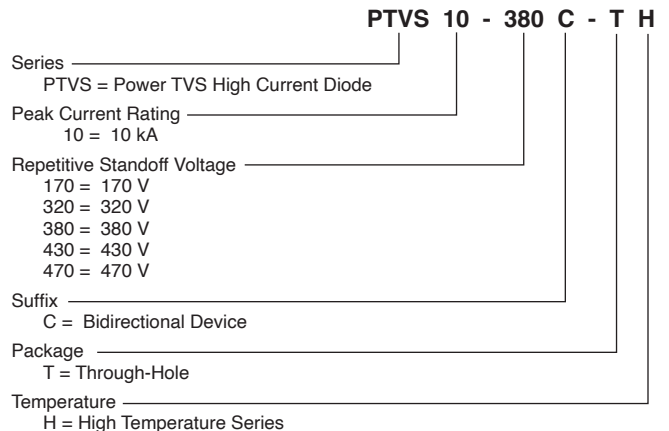


Dim.	PTVS10-170C-TH	PTVS10-320C-TH	PTVS10-380C-TH	PTVS10-430C-TH	PTVS10-470C-TH
A	24.15 ± 0.72 (0.951 ± 0.028)				
B	2.40 ± 0.50 (0.094 ± 0.020)				
C	1.75 ± 1.25 (0.069 ± 0.049)				
D	15.00 Max. (0.591)				
E	1.25 ± 0.05 (0.049 ± 0.002)				
F	14.00 Max. (0.551)				
G	$\frac{8.80}{(0.346)}$ Max.	$\frac{14.60}{(0.575)}$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

Typical Part Marking



How to Order



REV. 04/26

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