Features

- 10 kA, 8/20 µs surge capability
- Low clamping voltage under surge
- Bidirectional TVS
- Excellent performance over temperature

Applications

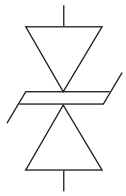
- AC line protection
- High power DC bus protection

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

General Information

The Model PTVS10-xxxC-TH high voltage, high current, 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 µs current surge requirements.



Absolute Maximum Ratings (@ T_A = 25 °C Unless Otherwise Noted)

Rating		Symbol	Value	Unit
Repetitive Standoff Voltage	PTVS10-170C-TH PTVS10-320C-TH PTVS10-380C-TH PTVS10-430C-TH PTVS10-470C-TH	V_{WM}	170 320 380 430 470	V
Peak Current Rating per 8/20 μs IEC 61000-4-5		I_{PPM}	10	kA
Operating Junction Temperature Range		T_J	-55 to +125	°C
Storage Temperature Range		T_S	-55 to +150	°C
Lead Temperature, Soldering (10 s)			260	°C

Electrical Characteristics (@ T_A = 25 °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 mA	PTVS10-170C-TH PTVS10-320C-TH PTVS10-380C-TH PTVS10-430C-TH PTVS10-470C-TH	190 336 401 440 470	200 352 422 465 500	210 368 442 490 530	V
V_C Clamping Voltage (1)	I_{PP} = 10 kA	PTVS10-170C-TH PTVS10-320C-TH PTVS10-380C-TH PTVS10-430C-TH PTVS10-470C-TH		260 440 520 580 630		V
$V_{(BR)}$ Temperature Coefficient				0.1		%/°C
C Capacitance	F = 10 kHz, V_d = 1 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 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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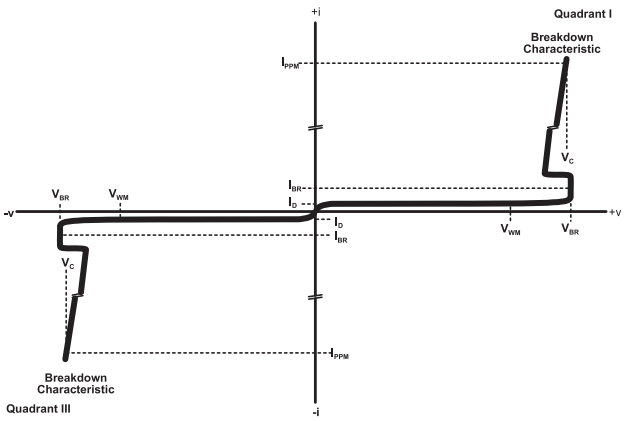
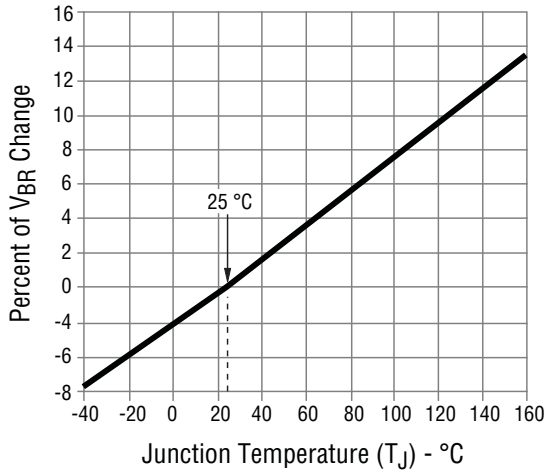
Performance Graphs

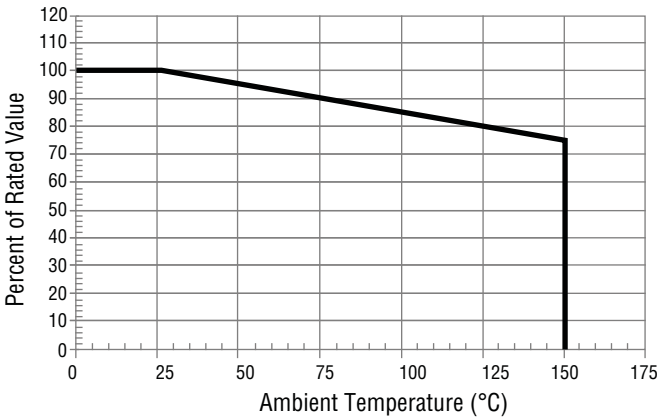
V-I Characteristic



Typical V_{BR} vs. Junction Temperature

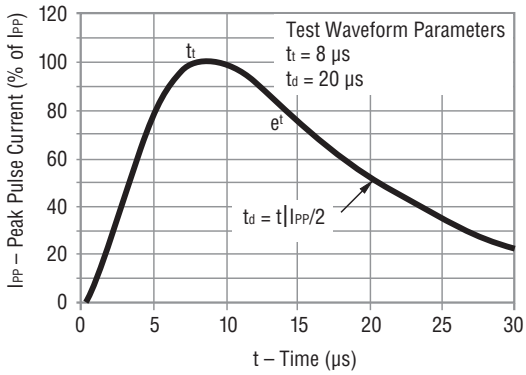


Typical Surge Current Derating

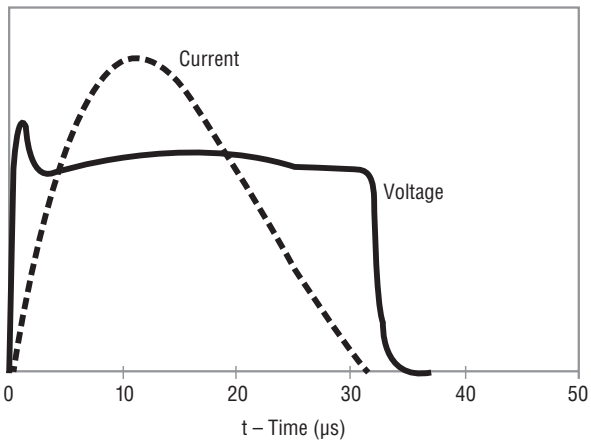


This graph shows the typical device surge current derating versus ambient temperature when subjected to the 8/20 µs current waveform per the IEC 61000-4-5 specification. This device is not intended for continuous operation at temperatures above 125 °C.

Current 8/20 µs Waveform per IEC 61000-4-5

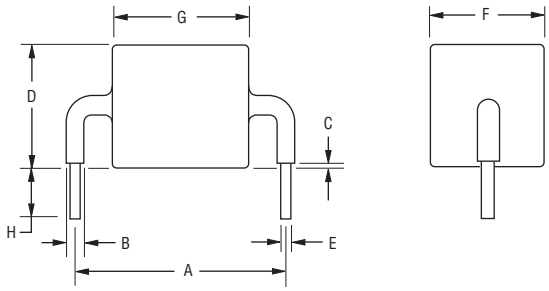


Typical Waveform Under Surge



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: MM / (INCHES)

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 (0.591) Max.				
E	1.25 ± 0.05 (0.049 ± 0.002)				
F	14.00 (0.551) Max.				
G	8.80 (0.346) Max.	14.60 (0.575) Max.	16.50 (0.650) Max.	16.50 (0.650) Max.	19.40 (0.764) Max.
H	6.00 ± 1.00 (0.236 ± 0.039)				

Typical Part Marking

PTVS10-170C-TH 10170
PTVS10-320C-TH 10320
PTVS10-380C-TH 10380
PTVS10-430C-TH 10430
PTVS10-470C-TH 10470

How to Order

PTVS 10 - 380 C - T H

Series
PTVS = Power TVS High Current Diode

Peak Current Rating
10 = 10 kA

Repetitive Standoff Voltage
170 = 170 V
320 = 320 V
380 = 380 V
430 = 430 V
470 = 470 V

Suffix
C = Bidirectional Device

Package
T = Through-Hole

Temperature
H = High Temperature Series

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