



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, 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 μ s current surge requirements.



Absolute Maximum Ratings (@ $T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

Rating	Symbol	Value	Unit
Repetitive Standoff Voltage	V_{WM}	170 320 380 430 470	V
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	$I_{BR} = 10\text{ mA}$	190 336 401 440 470	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, $V_d = 1\text{ Vrms}$		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.

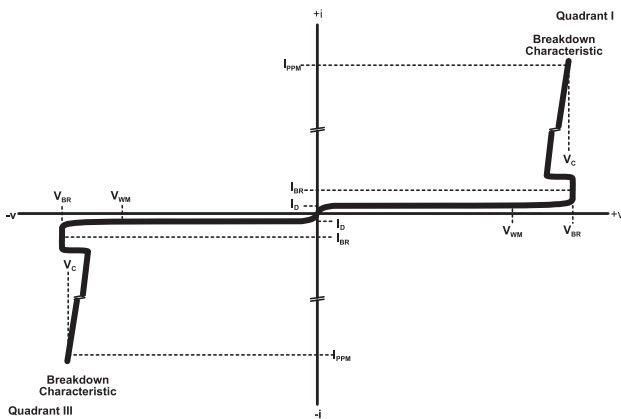
*RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011. Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

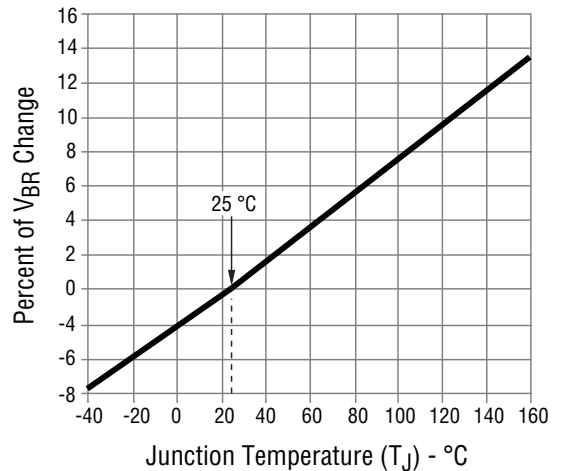
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Performance Graphs

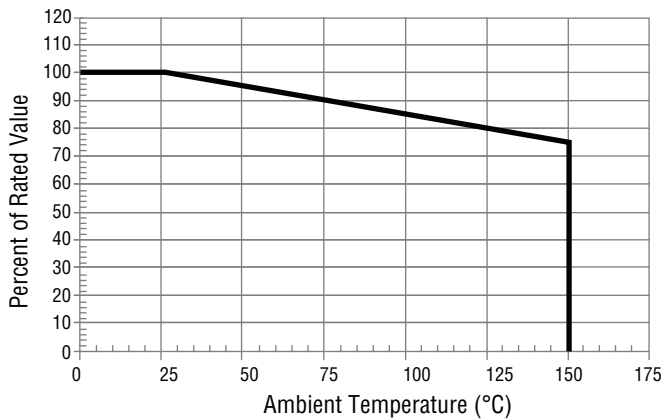
V-I Characteristic



Typical V_{BR} vs. Junction Temperature

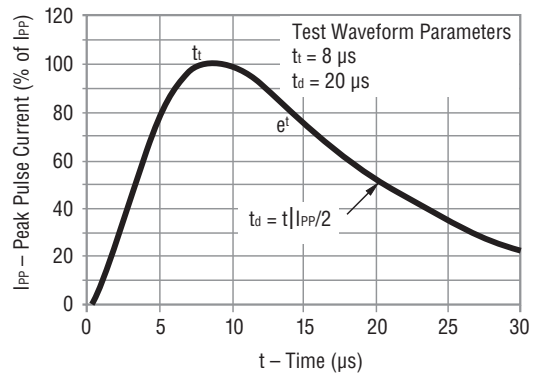


Typical Surge Current Derating

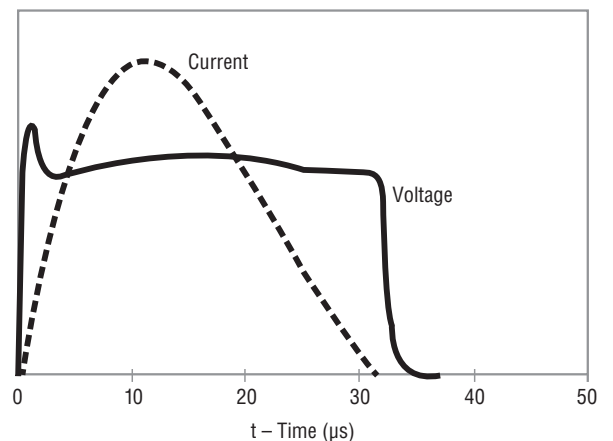


This graph shows the typical device surge current derating versus ambient temperature when subjected to the 8/20 μ s current waveform per the IEC 61000-4-5 specification. This device is not intended for continuous operation at temperatures above 125 °C.

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



Typical Waveform Under Surge



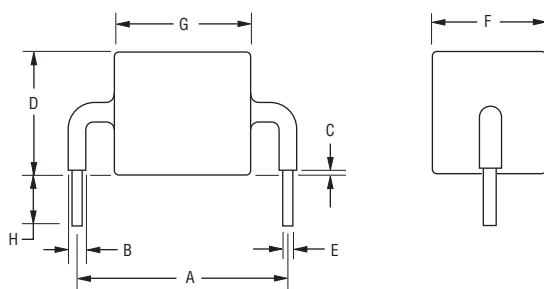
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Product Dimensions

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.	PTVS10-170C-TH	PTVS10-320C-TH	PTVS10-380C-TH	PTVS10-430C-TH	PTVS10-470C-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	$\frac{15.00}{(0.591)}$ Max.				
E	$\frac{1.25 \pm 0.05}{(0.049 \pm 0.002)}$				
F	$\frac{14.00}{(0.551)}$ Max.				
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	$\frac{6.00 \pm 1.00}{(0.236 \pm 0.039)}$				

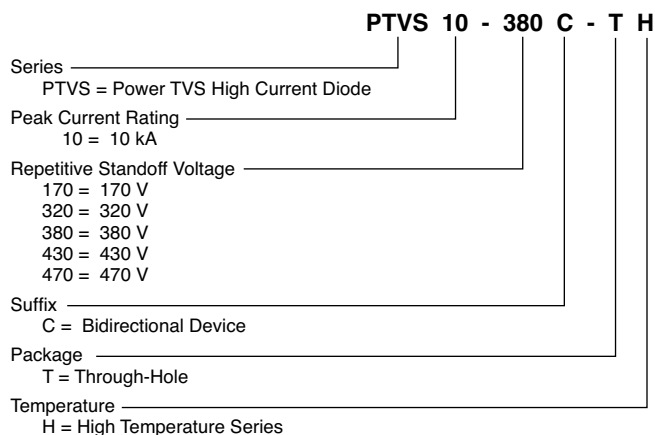
Typical Part Marking

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



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How to Order



REV. 11/15

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