



Features

- 1 kA, 8/20 μ s surge capability
- Low clamping voltage under surge
- Bidirectional TVS
- Excellent performance over temperature
- RoHS compliant* and halogen free**

Applications

- AC line protection
- Protection of power supplies used in exposed and harsh environments
- SPDs and dongles

PTVS1-380C-TH High Voltage, High Current TVS Diodes

General Information

The Model PTVS1-380C-TH high voltage, bidirectional TVS diodes are 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}	380	V
Peak Current Rating per 8/20 μ s IEC 61000-4-5	I_{PPM}	1	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	$I_{BR} = 10\text{ mA}$	401	422	443	V
V_C Clamping Voltage (1)	$I_{PP} = 1\text{ kA}$		520		V
$V_{(BR)}$ Temperature Coefficient			0.1		$\%/\text{^\circ C}$
C Capacitance	$F = 10\text{ kHz}$, $V_d = 1\text{ Vrms}$		0.12		nF

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

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WARNING Cancer and Reproductive Harm - www.P65Warnings.ca.gov

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

** Bourns considers a product to be "halogen free" if (a) the Bromine (Br) content is 900 ppm or less; (b) the Chlorine (Cl) content is 900 ppm or less; and (c) the total Bromine (Br) and Chlorine (Cl) content is 1500 ppm or less.

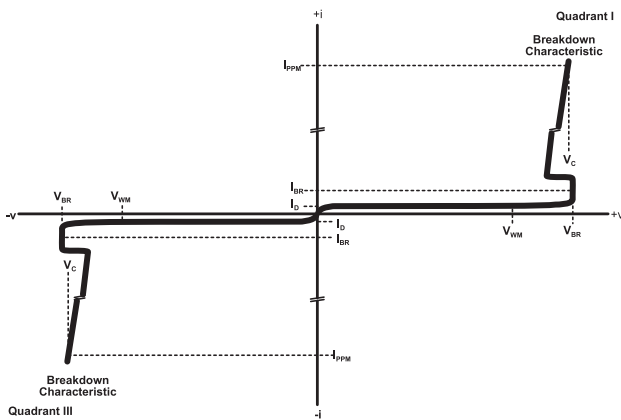
Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

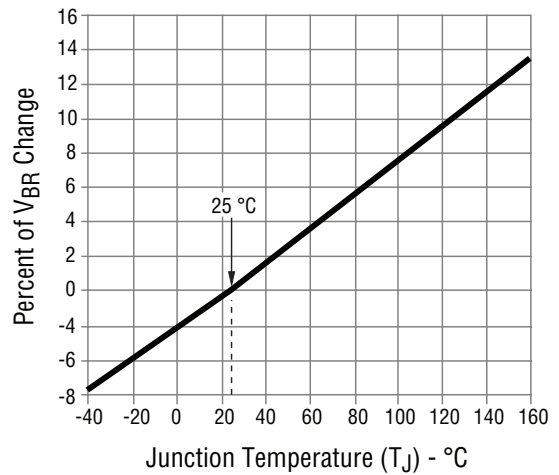
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Performance Graphs

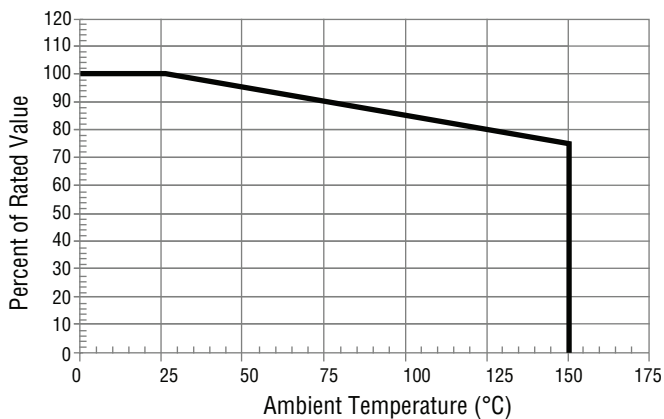
V-I Characteristic



Typical V_{BR} vs. Junction Temperature

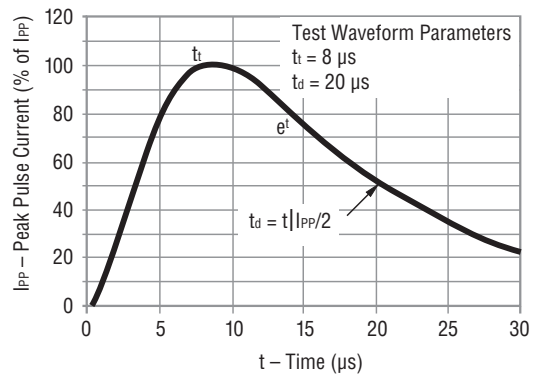


Typical Surge Current Derating

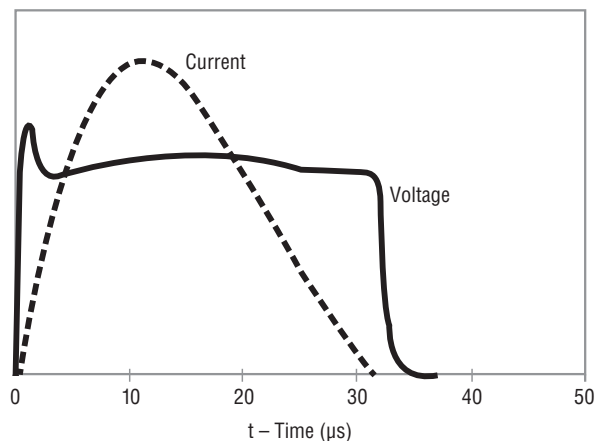


This graph shows the typical device surge current derating versus ambient temperature when subjected to the 8/20 μ s current waveform per the IEC 61000-4-5 specification. This device is not intended for continuous operation at temperatures above 125 $^{\circ}$ C.

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



Typical Waveform Under Surge



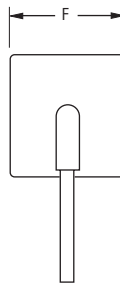
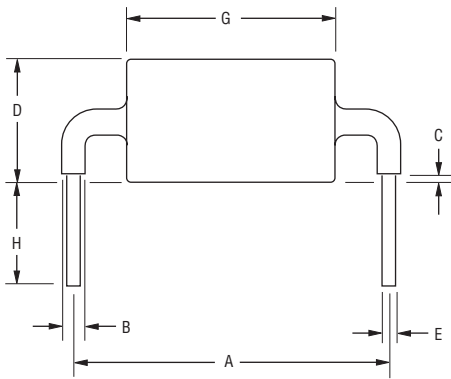
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Product Dimensions

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.	PTVS1-380C-TH
A	$\frac{24.15 \pm 0.72}{(0.951 \pm 0.028)}$
B	$\frac{2.00 \pm 0.50}{(0.079 \pm 0.020)}$
C	$\frac{0.50 \pm 0.50}{(0.020 \pm 0.020)}$
D	$\frac{8.00}{(0.315)}$ Max.
E	$\frac{1.25 \pm 0.05}{(0.049 \pm 0.002)}$
F	$\frac{8.00}{(0.315)}$ Max.
G	$\frac{14.50}{(0.571)}$ Max.
H	$\frac{6.00 \pm 1.00}{(0.236 \pm 0.039)}$

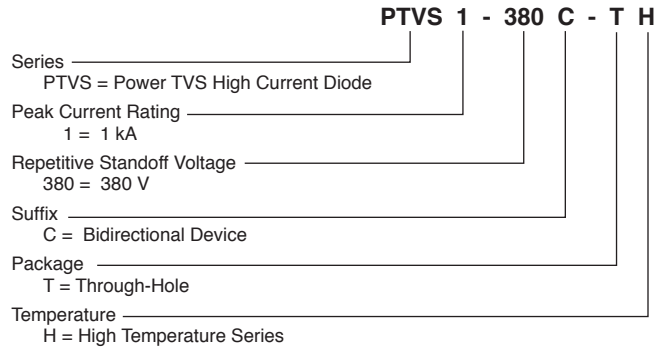
Typical Part Marking

PTVS1-380C-TH1380

Environmental Specifications

Moisture Sensitivity LevelN/A
ESD Classification (HBM).....N/A

How to Order



REV. 10/12/18

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