



## Features

- 6 kA, 8/20  $\mu$ s surge capability
- Low clamping voltage under surge
- Bidirectional TVS
- Excellent performance over temperature

## Applications

- High power DC bus protection

# PTVS6-xxxC-TH Series High Current TVS Diodes

## General Information

The Model PTVS6-xxxC-TH Series high current bidirectional TVS diodes are designed for use in high power DC bus clamping applications. These devices offer bidirectional port protection and are available with standoff voltage ratings of 58 V and 76 V.

The devices are RoHS\* compliant. They also meet IEC 61000-4-5 8/20  $\mu$ s current surge requirements.



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

| Rating   |                                | Symbol    | Value       | Unit             |
|--|--------------------------------|-----------|-------------|------------------|
| Repetitive Standoff Voltage                        | PTVS6-058C-TH<br>PTVS6-076C-TH | $V_{WM}$  | 58<br>76    | V                |
| Peak Current Rating per 8/20 $\mu$ s IEC 61000-4-5 |                                | $I_{PPM}$ | 6           | 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         | $\mu\text{A}$       |
| $V_{(BR)}$ Breakdown Voltage   | $I_{BR} = 10\text{ mA}$              | 64<br>85 | 66<br>92   | 70<br>95   | V                   |
| $V_C$ Clamping Voltage <sup>(1)</sup> per IEC61000-4-5 (8/20 $\mu$ s current waveform) | $I_{PP} = 6\text{ kA}$               |          |            | 110<br>140 | V                   |
| $V_{(BR)}$ Temperature Coefficient   |                                      |          | 0.1        |            | $\%/^\circ\text{C}$ |
| C Capacitance  | F = 10 kHz,<br>$V_d = 1\text{ Vrms}$ |          | 4.5<br>3.3 |            | nF                  |

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

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Asia-Pacific: Tel: +886-2 2562-4117 • Fax: +886-2 2562-4116

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The Americas: Tel: +1-951 781-5500 • Fax: +1-951 781-5700

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**WARNING Cancer and Reproductive Harm - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)**

\*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.

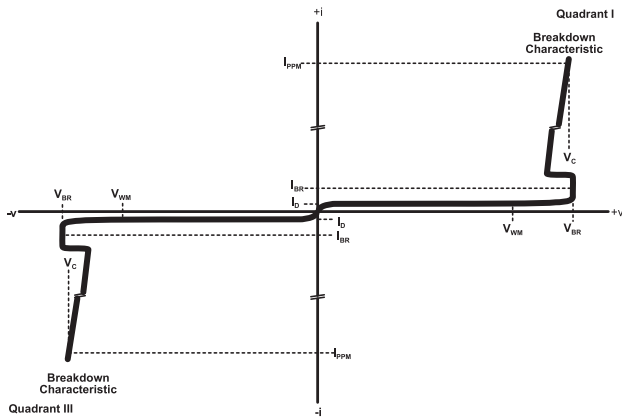
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# PTVS6-xxxC-TH Series High Current TVS Diodes

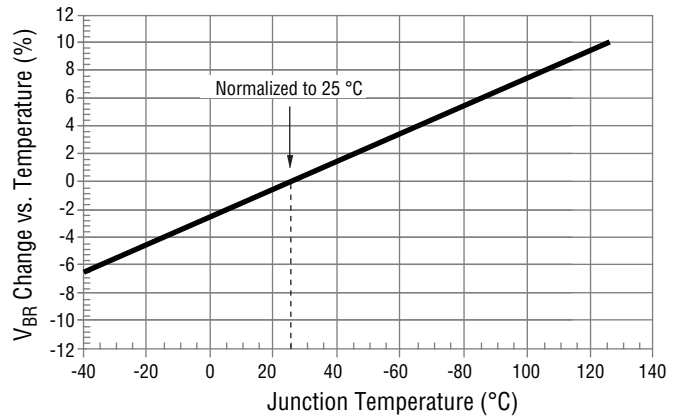


## Performance Graphs

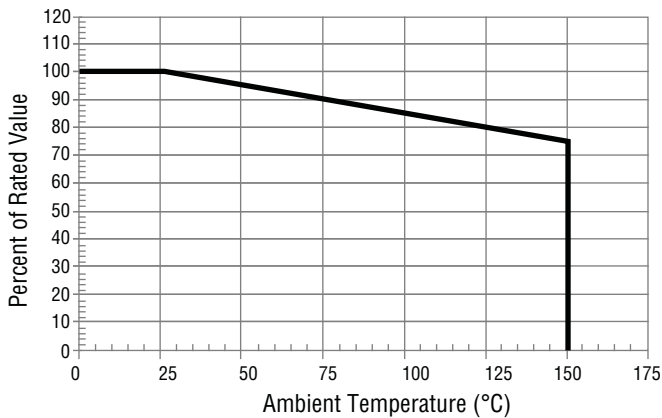
### V-I Characteristic



### Percentage $V_{BR}$ Change 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  $\mu$ s current waveform per the IEC 61000-4-5 specification. This device is not intended for continuous operation at temperatures above 125 °C.

Specifications are subject to change without notice. Users should verify actual device performance in their specific applications.

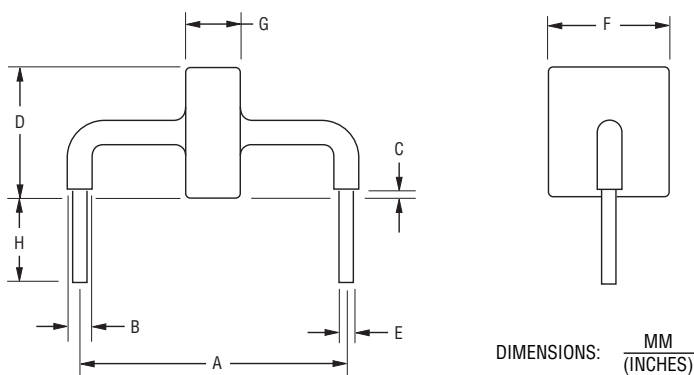
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## Product Dimensions

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:

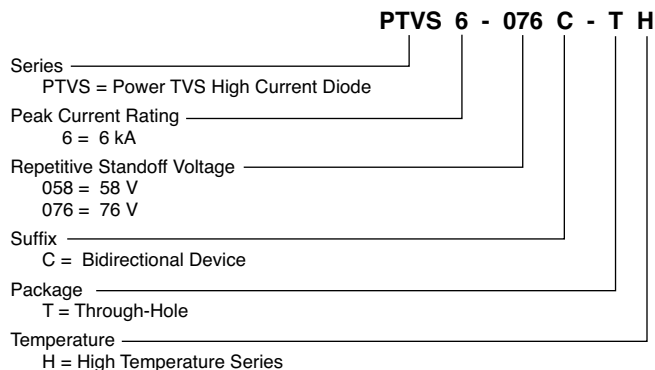


| Dim. | PTVS6-058C-TH                              | PTVS6-076C-TH               |
|------|--|-----------------------------|
| A    | $\frac{24.15 \pm 0.72}{(0.951 \pm 0.028)}$ |                             |
| B    | $\frac{2.40 \pm 0.50}{(0.094 \pm 0.020)}$  |                             |
| C    | $\frac{1.75 \pm 1.25}{(0.069 \pm 0.049)}$  |                             |
| D    | $\frac{12.00}{(0.472)}$ Max.               |                             |
| E    | $\frac{1.25 \pm 0.05}{(0.049 \pm 0.002)}$  |                             |
| F    | $\frac{11.50}{(0.453)}$ Max.               |                             |
| G    | $\frac{5.00}{(0.197)}$ Max.                | $\frac{6.00}{(0.236)}$ Max. |
| H    | $\frac{6.00 \pm 1.00}{(0.236 \pm 0.039)}$  |                             |

## Typical Part Marking

PTVS6-058C-TH .....6058  
 PTVS6-076C-TH .....6076

## How to Order



REV. 11/15

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