PTVS6-xxxC-SH Series High Current TVS Diodes

Features
- 6 kA, 8/20 μs surge capability
- Low clamping voltage under surge
- Bidirectional TVS
- Surface mount package

Applications
- High power DC bus protection

General Information
The PTVS6-xxxC-SH range of high current bidirectional TVS diodes is 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 μs current surge requirements.

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

<table>
<thead>
<tr>
<th>Rating</th>
<th>Symbol</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repetitive Standoff Voltage</td>
<td>VWM</td>
<td>58</td>
<td>V</td>
</tr>
<tr>
<td></td>
<td></td>
<td>76</td>
<td></td>
</tr>
<tr>
<td>Peak Current Rating per 8/20 μs IEC 61000-4-5</td>
<td>Ippm</td>
<td>6</td>
<td>kA</td>
</tr>
<tr>
<td>Operating Junction Temperature Range</td>
<td>TJ</td>
<td>-55 to +125</td>
<td>°C</td>
</tr>
<tr>
<td>Storage Temperature Range</td>
<td>TS</td>
<td>-55 to +150</td>
<td>°C</td>
</tr>
</tbody>
</table>

Electrical Characteristics (@ TA = 25 °C Unless Otherwise Noted)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Test Conditions</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>I(D) Standby Current</td>
<td>VD = VWM</td>
<td></td>
<td>10</td>
<td></td>
<td>μA</td>
</tr>
<tr>
<td>V(BR) Breakdown Voltage</td>
<td>I(BR) = 10 mA</td>
<td>64</td>
<td>67</td>
<td>70</td>
<td>V</td>
</tr>
<tr>
<td>V(C) Clamping Voltage</td>
<td>I(p) = 3 kA</td>
<td>85</td>
<td>90</td>
<td>95</td>
<td>V</td>
</tr>
<tr>
<td>V(BR) Temperature Coefficient</td>
<td>F = 10 kHz, Vd = 1 Vrms</td>
<td>0.1</td>
<td></td>
<td></td>
<td>%/°C</td>
</tr>
<tr>
<td>C Capacitance</td>
<td>F = 10 kHz, Vd = 1 Vrms</td>
<td>4.5</td>
<td></td>
<td></td>
<td>nF</td>
</tr>
</tbody>
</table>

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

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. Specifications are subject to change without notice. Users should verify actual device performance in their specific applications. The products described herein and this document are subject to specific legal disclaimers as set forth on the last page of this document, and at www.bourns.com/docs/legal/disclaimer.pdf.
**PTVS6-xxxC-SH Series High Current TVS Diodes**

**Performance Graphs**

**V-I Characteristic**

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.

**Typical V<sub>BR</sub> vs. Junction Temperature**

**Typical Surge Current Derating**

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

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Product Dimensions

This is a Pb free product, with epoxy encapsulations meeting UL Class 94V-0. Ag plated leads meet solderability requirements of JESD22-B102. Package dimensions are shown below.

<table>
<thead>
<tr>
<th>Device</th>
<th>Dimension D</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTVS6-058C-SH</td>
<td>7.00 ± 0.50 (0.276 ± 0.020)</td>
</tr>
<tr>
<td>PTVS6-076C-SH</td>
<td>7.90 ± 0.50 (0.311 ± 0.020)</td>
</tr>
</tbody>
</table>

Application

A typical application for Power TVS products includes DC power line protection.

Recommended Printed Wiring Land Pattern Dimensions

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>1.80 (0.071)</td>
</tr>
<tr>
<td></td>
<td>8.55 (0.331)</td>
</tr>
</tbody>
</table>

Typical Part Marking

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

How to Order

Series
PTVS = Power TVS High Current Diode
Peak Current Rating
6 = 6 kA
Repetitive Standoff Voltage
058 = 58 V
076 = 76 V
Suffix
C = Bidirectional Device
Package
S = Surface Mount
Temperature
H = High Temperature Series

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