PTVS3-xxxC-TH Series High Voltage, High Current TVS Diodes

Features
- 3 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

General Information
The Model PTVS3-xxx-C-TH high voltage, 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 (@ 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>V_{WM}</td>
<td>380</td>
<td>V</td>
</tr>
<tr>
<td>Pawn Current Rating per 8/20 μs IEC 61000-4-5</td>
<td>I_{PPM}</td>
<td>3</td>
<td>kA</td>
</tr>
<tr>
<td>Operating Junction Temperature Range</td>
<td>T\textsubscript{J}</td>
<td>-55 to +125</td>
<td>°C</td>
</tr>
<tr>
<td>Storage Temperature Range</td>
<td>T\textsubscript{S}</td>
<td>-55 to +150</td>
<td>°C</td>
</tr>
<tr>
<td>Lead Temperature, Soldering (10 s)</td>
<td></td>
<td>260</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\textsubscript{D} Standby Current</td>
<td>V\textsubscript{D} = V_{WM}</td>
<td>10</td>
<td></td>
<td></td>
<td>μA</td>
</tr>
<tr>
<td>V\textsubscript{(BR)} Breakdown Voltage</td>
<td>I\textsubscript{BR} = 10 mA</td>
<td>401</td>
<td>422</td>
<td>443</td>
<td>V</td>
</tr>
<tr>
<td>V\textsubscript{C} Clamping Voltage (1)</td>
<td>I\textsubscript{PP} = 3 kA</td>
<td>520</td>
<td>580</td>
<td></td>
<td>V</td>
</tr>
<tr>
<td>V\textsubscript{(BR)} Temperature Coefficient</td>
<td>F = 10 kHz, V\textsubscript{d} = 1 Vrms</td>
<td>0.1</td>
<td></td>
<td></td>
<td>%/°C</td>
</tr>
<tr>
<td>C Capacitance</td>
<td>F = 10 kHz, V\textsubscript{d} = 1 Vrms</td>
<td>0.35</td>
<td>0.40</td>
<td></td>
<td>nF</td>
</tr>
</tbody>
</table>

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

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Performance Graphs

**V-I Characteristic**

![V-I Characteristic Graph]

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

![Typical V<sub>BR</sub> vs. Junction Temperature Graph]

**Typical Surge Current Derating**

![Typical Surge Current Derating Graph]

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

![Current 8/20 µs Waveform Graph]

**Typical Waveform Under Surge**

![Typical Waveform Under Surge Graph]

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.

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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:

How to Order

PTVS 3 - 380 C - T H

Series ______

PTVS = Power TVS High Current Diode

Peek Current Rating ______

3 = 3 kA

Repetitive Standoff Voltage ______

380 = 380 V

430 = 430 V

Suffix ______

C = Bidirectional Device

Package ______

T = Through-Hole

Temperature ______

H = High Temperature Series

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