**Features**
- 10 kA, 8/20 µs surge capability
- 1 kA, 10/350 µs surge capability
- Low clamping voltage under surge
- Bidirectional TVS
- Surface mount package

**Applications**
- High power DC bus protection

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**PTVS10-086C-M High Current TVS Diode**

**General Information**

The Bourns® Model PTVS10-086C-M high current bidirectional TVS diode is designed for use in high power DC bus clamping applications.

The device is RoHS® compliant and is designed to meet IEC 61000-4-5 8/20 µs current surge requirements.

**Absolute Maximum Ratings (@ \( T_A = 25 \, ^\circ C \) 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>86</td>
<td>V</td>
</tr>
<tr>
<td>Peak Current Rating per 8/20 µs IEC 61000-4-5</td>
<td>( I_{PPM} )</td>
<td>10</td>
<td>kA</td>
</tr>
<tr>
<td>Peak Current Rating per 10/350 µs</td>
<td>( I_{PPM} )</td>
<td>1</td>
<td>kA</td>
</tr>
<tr>
<td>Operating Junction Temperature Range</td>
<td>( T_J )</td>
<td>-55 to +125</td>
<td>°C</td>
</tr>
<tr>
<td>Storage Temperature Range</td>
<td>( T_S )</td>
<td>-55 to +150</td>
<td>°C</td>
</tr>
</tbody>
</table>

**Electrical Characteristics (@ \( T_A = 25 \, ^\circ C \) Unless Otherwise Noted)**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Test Conditions</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>( I_D ) Standby Current</td>
<td>( V_D = V_{WM} )</td>
<td>10</td>
<td>( \mu A )</td>
</tr>
<tr>
<td>( V_{BRJ} ) Breakdown Voltage</td>
<td>( I_{BRJ} = 10 , mA )</td>
<td>96</td>
<td>101</td>
</tr>
<tr>
<td>( V_C ) Clamping Voltage ¹</td>
<td>( I_{PP} = 10 , kA (, 8/20 , \mu s , waveshape) )</td>
<td>157</td>
<td></td>
</tr>
<tr>
<td>( V_{BRJ} ) Temperature Coefficient</td>
<td></td>
<td>0.1</td>
<td></td>
</tr>
<tr>
<td>C Capacitance</td>
<td>( F = 10 , kHz, \ V_D = 1 , V_{rms} )</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

Note:
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](http://www.P65Warnings.ca.gov)


Users should verify actual device performance in their specific applications.

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PTVS10-086C-M High Current TVS Diodes

Performance Graphs

V-I Characteristic

Typical VBR vs. Junction Temperature

Typical Surge Current Derating

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

Application

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

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PTVS10-086C-M High Current TVS Diodes

Product Dimensions
This is an RoHS compliant*, molded package with 100 % Sn on the terminations, and a flammability rating of UL 94-V-0.

Recommended Pad Layout

Typical Part Marking
PTVS10-086C-M.........................................................10086

How to Order
Series ............... PTVS = Power TVS High Current Diode
Peak Current Rating ............... 10 = 10 kA
Repetitive Standoff Voltage ............... 086 = 86 V
Suffix
C = Bidirectional Device
M = Surface Mount

Environmental Specifications
Moisture Sensitivity Level.................................1
ESD Classification (HBM).................................3B

Dimensions:

<table>
<thead>
<tr>
<th>Dim.</th>
<th>Min. (MM)</th>
<th>Max. (MM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>6.94</td>
<td>7.24</td>
</tr>
<tr>
<td>b</td>
<td>5.15</td>
<td>5.65</td>
</tr>
<tr>
<td>b1</td>
<td>10.55</td>
<td>11.05</td>
</tr>
<tr>
<td>C</td>
<td>0.37</td>
<td>0.45</td>
</tr>
<tr>
<td>D</td>
<td>13.45</td>
<td>14.60</td>
</tr>
<tr>
<td>E</td>
<td>17.85</td>
<td>18.72</td>
</tr>
<tr>
<td>E1</td>
<td>15.50</td>
<td>16.05</td>
</tr>
<tr>
<td>L</td>
<td>2.30</td>
<td>2.80</td>
</tr>
<tr>
<td>L1</td>
<td>2.50</td>
<td>2.90</td>
</tr>
<tr>
<td>L2</td>
<td>13.16</td>
<td>13.76</td>
</tr>
</tbody>
</table>

Mold flash or protrusion shall not exceed 0.25 mm.

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