General Information

The markets of portable communications, computing and video equipment are challenging the semiconductor industry to develop increasingly smaller electronic components.

Bourns offers Transient Voltage Suppressor Array diodes for surge and ESD protection applications, in 0402 chip package size format. The Transient Voltage Suppressor Array series offers a choice of voltage types ranging from 3 V to 36 V in a bidirectional configuration. Bourns® Chip Diodes conform to JEDEC standards, are easy to handle on standard pick and place equipment and their flat configuration minimizes roll away.

The Bourns® device will meet IEC 61000-4-2 (ESD), IEC 61000-4-4 (EFT) and IEC 61000-4-5 (Surge) requirements.

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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Pulse Power (( t_p = 8/20 , \mu s ))</td>
<td>( P_{pp} )</td>
<td>250</td>
<td>W</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>( T_J )</td>
<td>-55 (^\circ) C to 150 (^\circ) C</td>
<td>(^\circ) C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>( T_{STG} )</td>
<td>-55 (^\circ) C to 150 (^\circ) C</td>
<td>(^\circ) C</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>( T3.3LC )</th>
<th>( T05LC )</th>
<th>( T08LC )</th>
<th>( T12LC )</th>
<th>( T15LC )</th>
<th>( T24LC )</th>
<th>( T36LC )</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min. Breakdown Voltage @ 1 mA</td>
<td>( V_{BR} )</td>
<td>4.0</td>
<td>6.0</td>
<td>8.5</td>
<td>13.3</td>
<td>16.7</td>
<td>26.7</td>
<td>40.0</td>
<td>V</td>
</tr>
<tr>
<td>Working Peak Voltage</td>
<td>( V_{WM} )</td>
<td>3.3</td>
<td>5.0</td>
<td>8.0</td>
<td>12.0</td>
<td>15.0</td>
<td>24.0</td>
<td>36.0</td>
<td>V</td>
</tr>
<tr>
<td>Maximum Clamping Voltage @ 1A</td>
<td>( V_f )</td>
<td>7.0</td>
<td>11.0</td>
<td>13.4</td>
<td>19.0</td>
<td>24</td>
<td>43</td>
<td>64</td>
<td>V</td>
</tr>
<tr>
<td>Maximum Clamping Voltage @ 8/20 ( \mu s ) ( V_C @ I_{PP} )</td>
<td>( V_f )</td>
<td>12.5 V @ 16 A</td>
<td>13.5 V @ 15 A</td>
<td>18 V @ 11 A</td>
<td>26.9 V @ 7.4 A</td>
<td>34.5 V @ 5.8 A</td>
<td>50.6 V @ 5 A</td>
<td>80 V @ 2.5 A</td>
<td>V</td>
</tr>
<tr>
<td>Maximum Leakage Current @ ( V_{WM} )</td>
<td>( I_{D \text{max}} )</td>
<td>75 ( \mu A )</td>
<td>10 ( \mu A )</td>
<td>1 ( \mu A )</td>
<td>1 ( \mu A )</td>
<td>1 ( \mu A )</td>
<td>1 ( \mu A )</td>
<td>1 ( \mu A )</td>
<td>( \mu A )</td>
</tr>
<tr>
<td>Typical Capacitance @ 0 V, 1 MHz</td>
<td>( C )</td>
<td>70</td>
<td>35</td>
<td>32</td>
<td>30</td>
<td>25</td>
<td>20</td>
<td>18</td>
<td>pF</td>
</tr>
</tbody>
</table>

Notes:
1. See Peak Pulse Power vs. Pulse Time.
2. See Pulse Wave Form.
3. Max. Leakage Current <5 \( \mu A @ 2.8 \, V \).
4. Max. Leakage Current <500 nA @ 3.3 V.

All devices are bidirectional. Electrical Characteristics apply in both directions.
CD0402-TxxLC – TVS Diode Array Series

Product Dimensions

This is a 0402 package with lead free 100 % Sn plating on the bond pads. It weighs approximately 30 mg and has a flammability rating of UL 94V-0.

Recommended Footprint

Recommended Footprint

How To Order

Common Code
Chip Diode

Package
– 0402 = 0402 Chip Package

Model
– T = Transient Voltage Suppressor

Working Peak Reverse Voltage
3.3 = 3.3 VRWM (Volts)
05 = 5 VRWM (Volts)
08 = 8 VRWM (Volts)
12 = 12 VRWM (Volts)
15 = 15 VRWM (Volts)
24 = 24 VRWM (Volts)
36 = 36 VRWM (Volts)

Suffix
– LC = Low Capacitance Bidirectional Diode

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

**Peak Pulse Power vs Pulse Time**

![Graph showing peak pulse power vs pulse time](image)

**Pulse Wave Form**

![Graph showing pulse wave form](image)

**Power Derating Curve**

![Graph showing power derating curve](image)

**Overshoot & Clamping Voltage**

![Graph showing overshoot and clamping voltage](image)

**Typical Clamping Voltage vs. Peak Pulse Current**

![Graph showing typical clamping voltage vs. peak pulse current](image)

Specifications are subject to change without notice.
Customers should verify actual device performance in their specific applications.
CD0402-TxxLC – TVS Diode Array Series

Block Diagram

There is no part marking on the back side of the devices. The part number for the device is located on the Tape and Reel label.

Typical Part Marking

Packaging

The surface mount product is packaged in an 8 mm x 4 mm Tape and Reel format per EIA-481 standard.

Reliable Electronic Solutions

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

Europe:
Tel: +41-41 768 5555 • Fax: +41-41 768 5510

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

www.bourns.com