CD0201-T2.0LC – Surface Mount TVS Diode

Features
- Bidirectional 2 volt TVS diode
- Low capacitance - <0.2 pF
- High ESD protection
- Fits 0201 footprint
- RoHS compliant*
- Halogen free**

Applications
- 2.5G/5G/10GbE
- Thunderbolt™
- USB4® / USB 3.1 / USB 3.0
- DisplayPort™

General Information
The Bourns® Model CD0201-T2.0LC is an ultra-low capacitance bidirectional device tailored to protect ultra-high speed data lines. This model features high ESD protection: ±15 kV (air) and ±12 kV (contact) per IEC 61000-4-2, as well as superior surge clamping capability: 4 V @ 7 A (8/20 μs per IEC 61000-4-5).

The Model CD0201-T2.0LC is housed in a compact 0201 package (0.6 mm x 0.3 mm x 0.3 mm), minimizing PCB layout space and easing impedance matching.

This device is designed to protect one data line where the signal polarities are both positive and negative with respect to ground. Model CD0201-T2.0LC is not recommended to be used on lines connected to the DC supply.

Maximum Ratings (@ $T_A = 25 °C$ 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 Current ($t_p = 8/20 \mu s$)</td>
<td>$I_{PP}$</td>
<td>7</td>
<td>A</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>$T_{DPR}$</td>
<td>-55 to +125</td>
<td>°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>$T_{STG}$</td>
<td>-55 to +150</td>
<td>°C</td>
</tr>
<tr>
<td>ESD Protection per IEC 61000-4-2 Contact</td>
<td>ESD</td>
<td>±12</td>
<td>kV</td>
</tr>
<tr>
<td></td>
<td></td>
<td>±15</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reverse Standoff Voltage</td>
<td>$V_{RWM}$</td>
<td>-2</td>
<td>2</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td>Breakdown Voltage @ 1 mA</td>
<td>$V_{BR}$</td>
<td>5.5</td>
<td>10</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td>Leakage Current @ 2 V</td>
<td>$I_R$</td>
<td>500</td>
<td>nA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clamping Voltage @ 8/20 μs $I_{PP}$</td>
<td>$V_C$</td>
<td>4 V @ 7 A</td>
<td>V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ESD Clamping Voltage IEC 61000-4-2, +8 kV ($I_{TLP} = 16 A$)</td>
<td>$V_C$</td>
<td>5.5</td>
<td>V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capacitance @ 2 V, 1 MHz</td>
<td>$C_J$</td>
<td>0.18</td>
<td>pF</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$^1$ Transmission Line Pulsing (TLP) conditions: $Z_0 = 50 \Omega$, $t_p = 100$ ns, $t_r = 1$ ns

Additional Information
Click these links for more information:
- PRODUCT SELECTOR
- TECHNICAL LIBRARY
- INVENTORY
- SAMPLES
- CONTACT

WARNING Cancer and Reproductive Harm - www.P65Warnings.ca.gov

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**Performance Graphs**

**Typical Capacitance Variation of C\textsubscript{IN} vs V\textsubscript{IN}**

![Graph showing capacitance variation vs input voltage](image)

**Typical TLP Measurement (Positive Pulse)**

![Graph showing TLP measurement](image)

**How to Order**

CD 0201 - T 2.0 LC

- Common Code: Chip Diode
- Package: 0201 = 0201 Package
- Model: T = Transient Voltage Suppressor
- Working Peak Reverse Voltage: 2.0 = 2.0 V\textsubscript{RWM} (Volts)
- Suffix: LC = Low Capacitance Bidirectional Diode

**Environmental Specifications**

- Moisture Sensitivity Level: 1
- ESD Classification (HBM): 3B

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Packaging Specifications

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