



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™

CD0201-T2.0LC – Surface Mount TVS Diode

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.



Additional Information

Click these links for more information:



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

| Parameter | Symbol | Value | Unit |
|---|------------------|-------------|------|
| Peak Pulse Current (t _p = 8/20 μs) | I _{PP} | 7 | A |
| Operating Temperature | T _{OPR} | -55 to +125 | °C |
| Storage Temperature | T _{STG} | -55 to +150 | °C |
| ESD Protection per IEC 61000-4-2 | ESD | ±12 ±15 | kV |
| Contact | | | |
| Air | | | |

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

| Parameter | Symbol | Min. | Typ. | Max. | Unit |
|--|------------------|------|-----------|------|------|
| Reverse Standoff Voltage | V _{RWM} | -2 | | 2 | V |
| Breakdown Voltage @ 1 mA | V _{BR} | 5.5 | | 10 | V |
| Leakage Current @ 2 V | I _R | | | 500 | nA |
| Clamping Voltage @ 8/20 μs @ I _{PP} | V _C | | 4 V @ 7 A | | V |
| ESD Clamping Voltage IEC 61000-4-2, +8 kV (I _{TLP} = 16 A) ¹ | V _C | | 5.5 | | V |
| Capacitance @ 2 V, 1 MHz | C _J | | 0.18 | | pF |

¹ Transmission Line Pulsing (TLP) conditions: Z₀ = 50 Ω, t_p = 100 ns, t_r = 1 ns



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

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“USB4” is a registered trademark of USB Implementers Forum.

“DisplayPort” is a trademark of VESA.

* RoHS Directive 2015/863, Mar 31, 2015 and Annex.

** Bourns considers a product to be “halogen free” if (a) the Bromine (Br) content is 900 ppm or less; (b) the Chlorine (Cl) content is 900 ppm or less; and (c) the total Bromine (Br) and Chlorine (Cl) content is 1500 ppm or less.

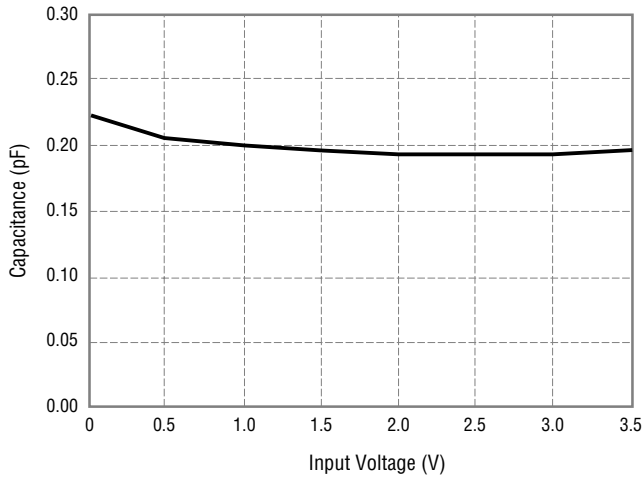
Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

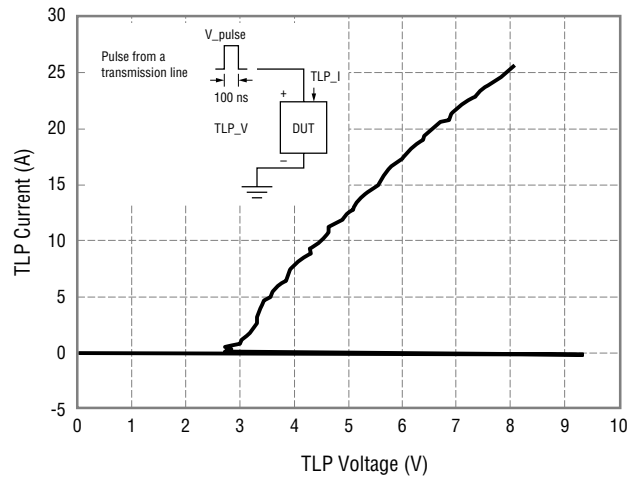
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Performance Graphs

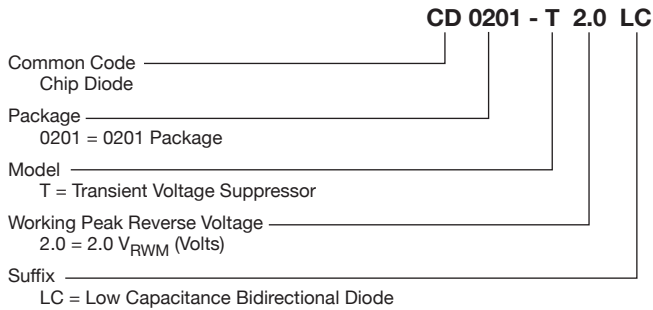
Typical Capacitance Variation of C_{IN} vs V_{IN}



Typical TLP Measurement (Positive Pulse)



How to Order



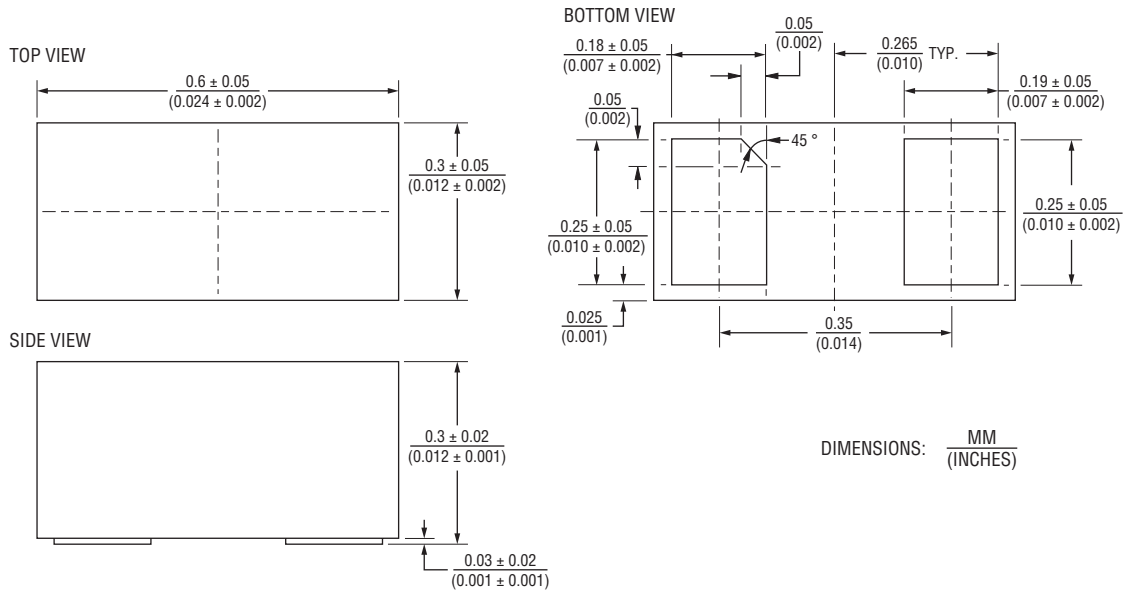
Environmental Specifications

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

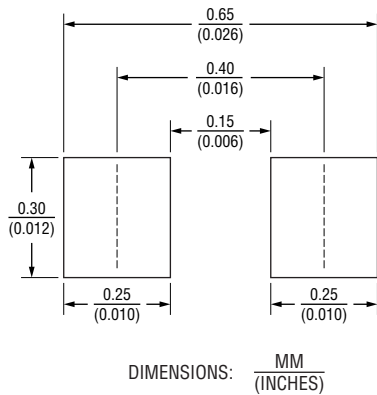
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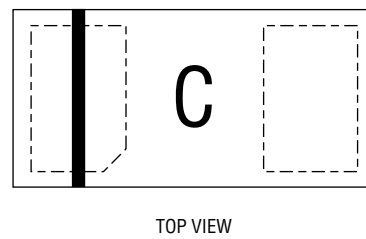
Product Dimensions



Recommended PCB Footprint



Typical Part Marking

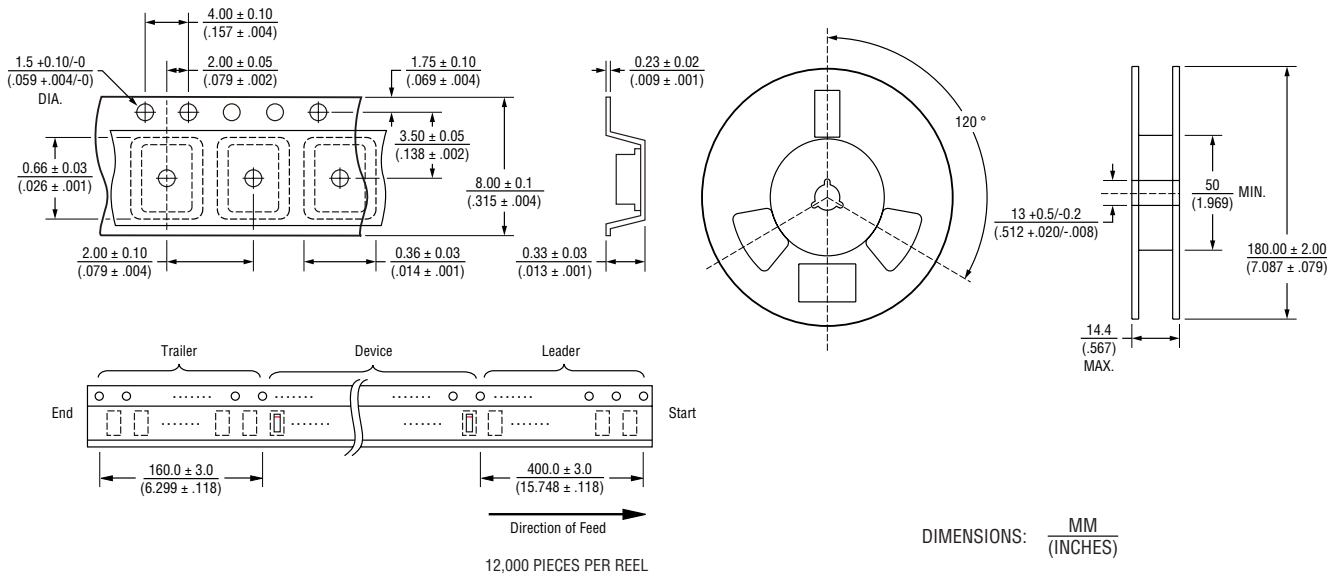


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Packaging Specifications

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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