



## Features

- Bidirectional ESD protection
- Low clamping voltage
- Ultra-small SMD package
- RoHS compliant\*

## Applications

- Portable electronics
- Cellular handsets and accessories
- Audio & video equipment
- Communication systems
- Computers and peripherals

# CD0201-T20C - Surface Mount TVS Diode

### General Information

The Bourns® Model CD0201-T20C device provides signal and power line ESD protection for electronic devices such as cellular phones, handheld electronics and other portable electronic applications.

The device is available in a compact industry-standard 0201 sized chip package (0603 metric measuring 0.6 mm x 0.3 mm). It is intended to be mounted directly onto a printed circuit board.

The device is designed to meet IEC 61000-4-2 (ESD) protection requirements. The combination of its small size and high ESD surge capability makes the Model CD0201-T20C well-suited for use in protecting sensitive electronics from damage or latch-up due to ESD in portable applications.

The Model CD0201-T20C TVS diode has a working peak voltage of 20 V.



### Maximum Ratings (@ T<sub>A</sub> = 25 °C Unless Otherwise Noted)

Parameter	Symbol	Value	Unit
Maximum Working Peak Reverse Voltage	V <sub>RWM</sub>	±20	V
ESD Protection per IEC 61000-4-2 Contact Discharge Air Discharge	V <sub>ESD</sub>	±20 ±20	kV
Operating Temperature Range	T <sub>OPR</sub>	-55 to +85	°C
Storage Temperature Range	T <sub>STG</sub>	-55 to +150	°C

### Electrical Characteristics (@ T<sub>A</sub> = 25 °C Unless Otherwise Noted)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Breakdown Voltage	V <sub>BR</sub>	I <sub>BR</sub> = 1 mA	22.8		27.3	V
Leakage Current	I <sub>R</sub>	V <sub>RWM</sub> = 20 V			0.1	μA
ESD Clamping Voltage (Note 1)	V <sub>C</sub>	IEC 61000-4-2 +8 kV (I <sub>TLP</sub> = 16 A)			34	V
Junction Capacitance	C <sub>J</sub>	V <sub>R</sub> = 0 V, f = 1 MHz		6.5	10	pF

Note 1: ESD Clamping Voltage was measured by a Transmission Line Pulsing (TLP) System. TLP conditions:  
Z<sub>0</sub> = 50 Ω, t<sub>p</sub> = 100 ns, t<sub>r</sub> = 1 ns.



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**WARNING** Cancer and Reproductive Harm - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

\*RoHS Directive 2015/863, Mar 31, 2015 and Annex.  
Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

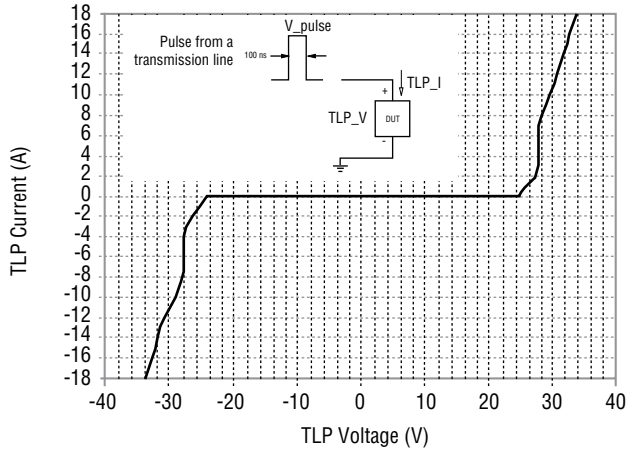
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# CD0201-T20C - Surface Mount TVS Diode

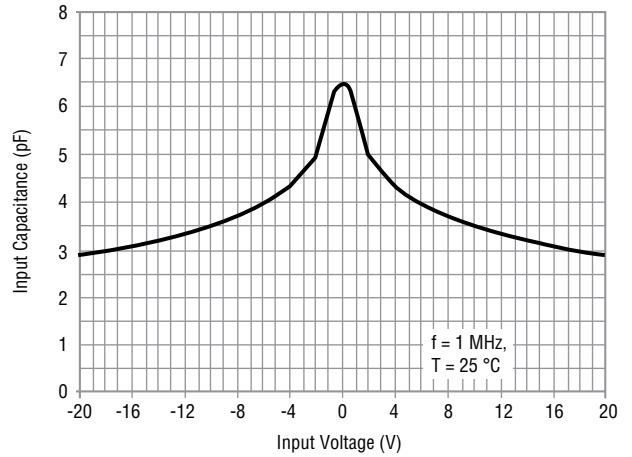


## Performance Graphs

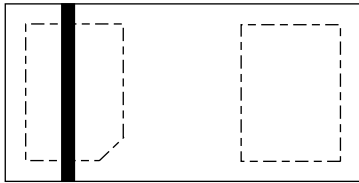
### Transmission Line Pulsing



### Capacitance



### Typical Part Marking



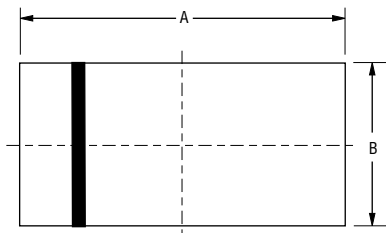
### How to Order

**CD 0201 - T 20 C**

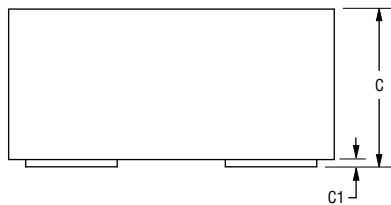
Common Code \_\_\_\_\_  
 Chip Diode \_\_\_\_\_  
 Package \_\_\_\_\_  
 0201 = 0201 Package \_\_\_\_\_  
 Series \_\_\_\_\_  
 T = TVS Diode \_\_\_\_\_  
 Maximum Reverse Working Peak Voltage \_\_\_\_\_  
 20 = 20 V \_\_\_\_\_  
 Suffix \_\_\_\_\_  
 C = Bidirectional Diode \_\_\_\_\_

### Product Dimensions

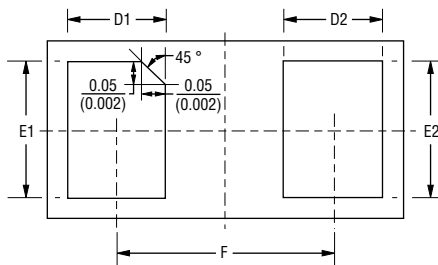
TOP VIEW



SIDE VIEW



BOTTOM VIEW



DIMENSIONS:  $\frac{\text{MM}}{\text{(INCHES)}}$

Dim.	0201 Package
A	$\frac{0.6 \pm 0.05}{(0.024 \pm 0.002)}$
B	$\frac{0.3 \pm 0.05}{(0.012 \pm 0.002)}$
C	$\frac{0.3 \pm 0.02}{(0.012 \pm 0.001)}$
C1	$\frac{0.025 \pm 0.025}{(0.001 \pm 0.001)}$
D1	$\frac{0.18 \pm 0.05}{(0.007 \pm 0.002)}$
D2	$\frac{0.19 \pm 0.05}{(0.007 \pm 0.002)}$
E1 / E2	$\frac{0.25 \pm 0.05}{(0.01 \pm 0.002)}$
F	$\frac{0.35}{(0.014)}$

Specifications are subject to change without notice.

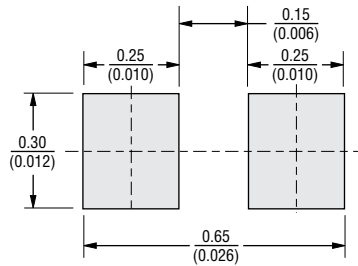
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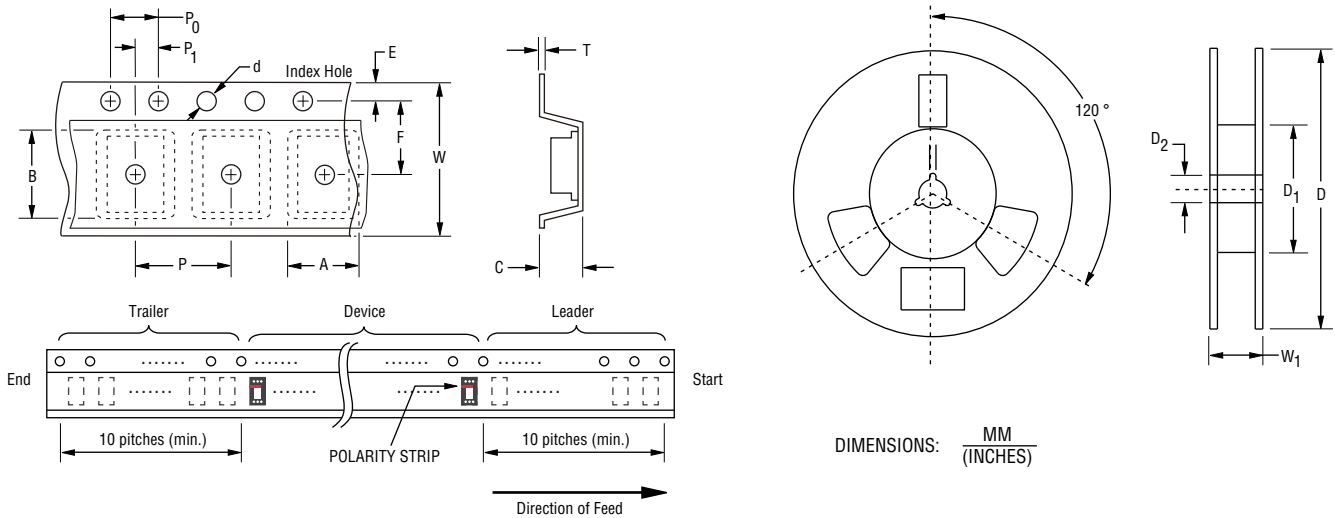
# CD0201-T20C - Surface Mount TVS Diode

**BOURNS®**

## Recommended PCB Footprint



## Packaging Information



DIMENSIONS:  $\frac{\text{MM}}{\text{(INCHES)}}$

Item	Symbol	CD0201-T20C
Carrier Width	A	$\frac{0.36 \pm 0.03}{(0.014 \pm 0.001)}$
Carrier Length	B	$\frac{0.66 \pm 0.03}{(0.026 \pm 0.001)}$
Carrier Depth	C	$\frac{0.33 \pm 0.03}{(0.013 \pm 0.001)}$
Sprocket Hole	d	$\frac{1.5 + 0.1/-0}{(0.059 + 0.004/-0)}$
Reel Outside Diameter	D	$\frac{180 \pm 2}{(7.087 \pm 0.079)}$
Reel Inner Diameter	D <sub>1</sub>	$\frac{50}{(1.969)}$ MIN.
Feed Hole Diameter	D <sub>2</sub>	$\frac{13 + 0.5/-0.2}{(0.512 + 0.02/-0.008)}$
Sprocket Hole Position	E	$\frac{1.75 \pm 0.10}{(0.069 \pm 0.004)}$

Item	Symbol	CD0201-T20C
Punch Hole Position	F	$\frac{3.5 \pm 0.05}{(0.138 \pm 0.002)}$
Punch Hole Pitch	P	$\frac{2.0 \pm 0.10}{(0.079 \pm 0.004)}$
Sprocket Hole Pitch	P <sub>0</sub>	$\frac{4.0 \pm 0.10}{(0.157 \pm 0.004)}$
Embossment Center	P <sub>1</sub>	$\frac{2.0 \pm 0.05}{(0.079 \pm 0.002)}$
Overall Tape Thickness	T	$\frac{0.23 \pm 0.02}{(0.009 \pm 0.001)}$
Tape Width	W	$\frac{8.0 \pm 0.10}{(0.315 \pm 0.004)}$
Reel Width	W <sub>1</sub>	$\frac{14.4}{(0.567)}$ MAX.
Quantity per Reel	--	12,000

09/19

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