

Features

- Bidirectional TVS 3.3 V
- Low capacitance - 13 pF
- ESD protection 15 kV
- 0402 DFN package
- RoHS compliant*

Applications

- Computers and peripherals
- Communication systems
- Audio & video equipment
- Portable instrumentation
- Handheld portable devices

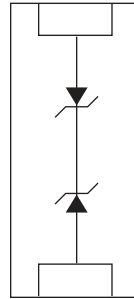
CDDFN2-T3.3B - Surface Mount TVS Diode

General Information

The Bourns® Model CDDFN2-T3.3B low capacitance device provides ESD, EFT and surge protection for external ports of electronic devices such as cellular phones, handheld electronics and other portable electronic devices.

The device measures 1.0 mm x 0.60 mm x 0.55 mm and is available in a DFN-2 package intended to be mounted directly onto an FR4 printed circuit board. The device will fit a 0402 footprint.

The device is designed to meet IEC 61000-4-2 (ESD), IEC 61000-4-4 (EFT) and IEC61000-4-5 (Surge) protection requirements.



Additional Information

Click these links for more information:



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

Parameter	Symbol	Value	Unit
Storage Temperature	T _{STG}	-55 to +150	°C
Operating Temperature	T _{OPR}	-55 to +85	°C
ESD Protection per IEC 61000-4-2	Contact Discharge	15	kV
	Air Discharge	15	kV
EFT Protection per IEC 61000-4-4 (5/50 ns)	EFT	50	A
Peak Pulse Current per IEC 61000-4-5 (8/20 μs)	I _{pp}	5	A

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

Parameter	Symbol	Min.	Typ.	Max.	Unit
Working Peak Voltage	V _{WM}	-3.3		3.3	V
Breakdown Voltage @ 1 mA	V _{BR}	4		6.5	V
Leakage Current @ 3.3 V	I _L		0.1	1.0	μA
Capacitance @ 0 V, 1 MHz	C _J		13.5	16.5	pF
Clamping Voltage @ I _{PP} = 5 A, 8/20 μs	V _C		6.5	8	V

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WARNING Cancer and Reproductive Harm - 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.

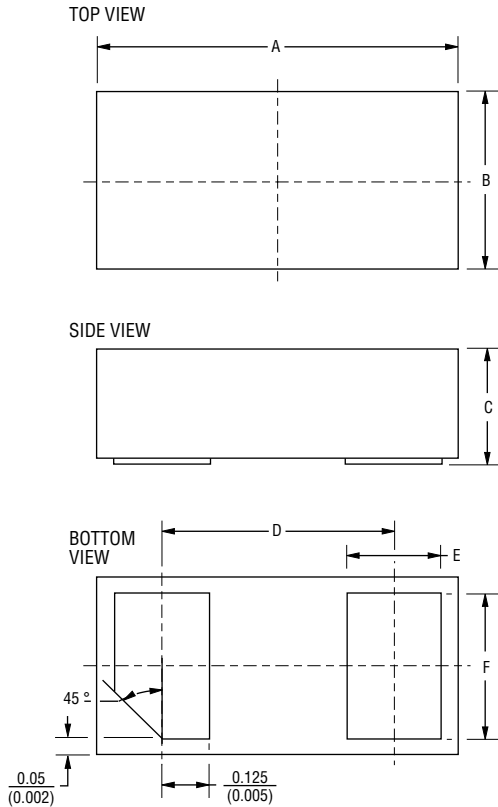
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Product Dimensions

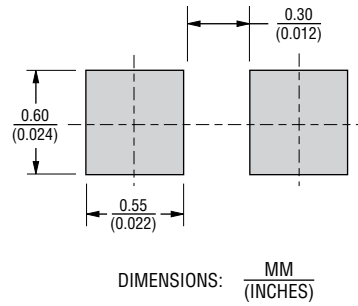
This is a molded DFN-2 package weighing approximately 0.9 mg.



Symbol	Dimensions		
	Min.	Nom.	Max.
A	$\frac{0.95}{(0.037)}$	$\frac{1.00}{(0.039)}$	$\frac{1.05}{(0.041)}$
B	$\frac{0.55}{(0.022)}$	$\frac{0.60}{(0.024)}$	$\frac{0.65}{(0.026)}$
C	$\frac{0.41}{(0.016)}$	$\frac{0.45}{(0.018)}$	$\frac{0.50}{(0.020)}$
D	$\frac{0.65}{(0.026)}$		
E	$\frac{0.20}{(0.008)}$	$\frac{0.25}{(0.010)}$	$\frac{0.30}{(0.012)}$
F	$\frac{0.45}{(0.018)}$	$\frac{0.50}{(0.020)}$	$\frac{0.55}{(0.022)}$

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

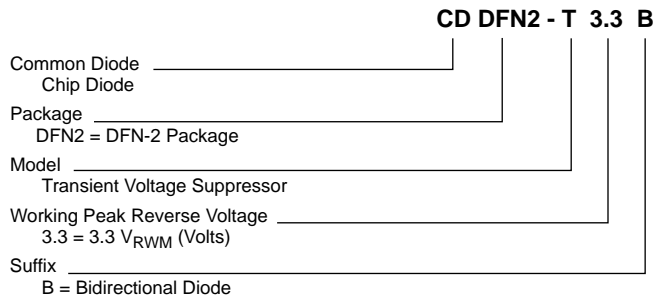
Recommended PCB Footprint



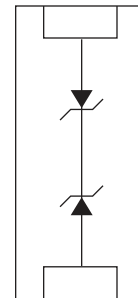
Typical Part Marking

CDDFN2-T3.3BY

How to Order



Block Diagram

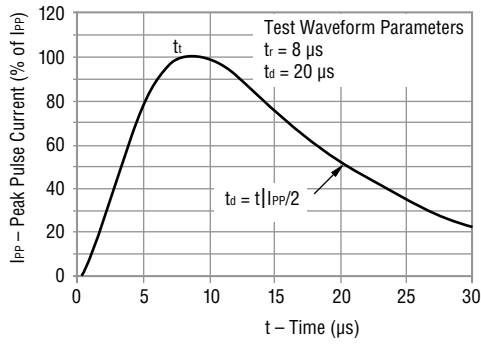


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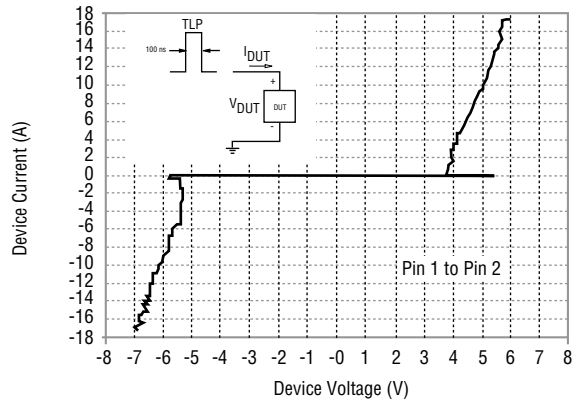


Performance Graphs

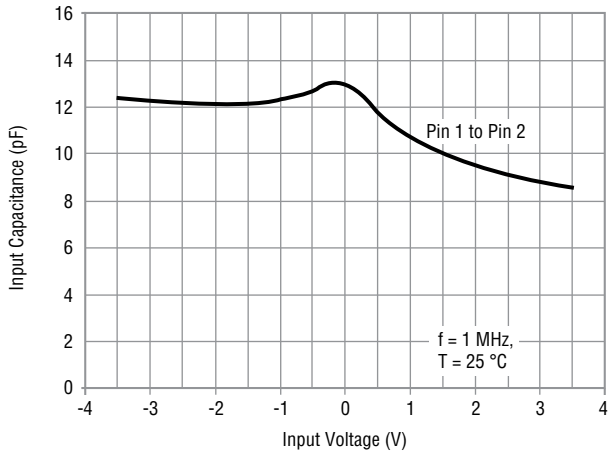
Pulse Waveform



TLP I-V Plot



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



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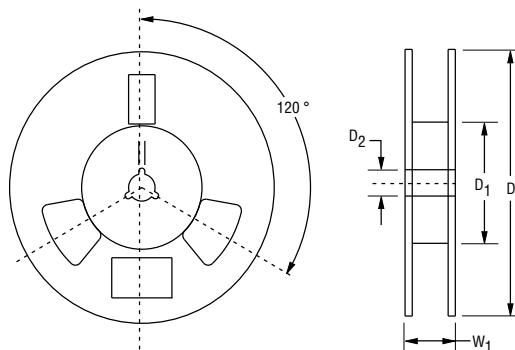
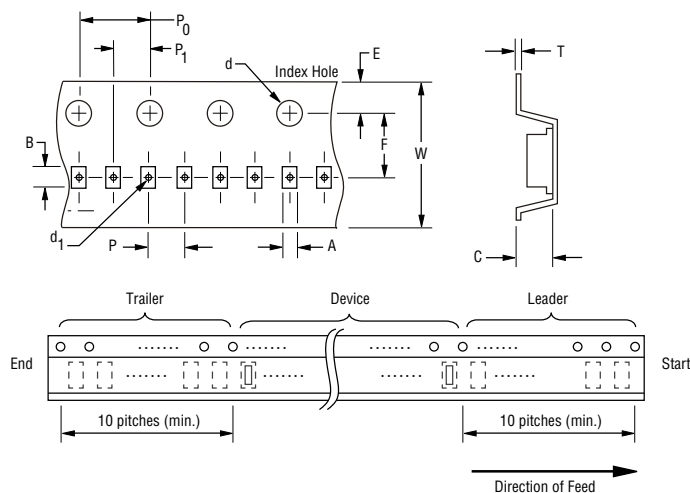
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Packaging Information

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



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

Item	Symbol	DFN-2
Carrier Width	A	$\frac{0.70 \pm 0.05}{(0.028 \pm 0.002)}$
Carrier Length	B	$\frac{1.15 \pm 0.05}{(0.045 \pm 0.002)}$
Carrier Depth	C	$\frac{0.47 \pm 0.05}{(0.019 \pm 0.002)}$
Sprocket Hole	d	$\frac{1.55 \pm 0.05}{(0.061 \pm 0.002)}$
Reel Outside Diameter	D	$\frac{179.0 \pm 1.00}{(7.05 \pm 0.04)}$
Punch Hole	d ₁	$\frac{0.4 \pm 0.05}{0.016 \pm 0.002}$
Reel Inner Diameter	D ₁	$\frac{60.0 \pm 0.50}{2.362 \pm 0.02}$
Feed Hole Diameter	D ₂	$\frac{13.0 \pm 0.20}{(0.512 \pm 0.008)}$
Sprocket Hole Position	E	$\frac{1.75 \pm 0.10}{(0.069 \pm 0.004)}$
Punch Hole Position	F	$\frac{3.50 \pm 0.05}{(0.138 \pm 0.002)}$
Punch Hole Pitch	P	$\frac{2.00 \pm 0.05}{(0.079 \pm 0.002)}$
Sprocket Hole Pitch	P ₀	$\frac{4.00 \pm 0.10}{(0.157 \pm 0.004)}$
Embossment Center	P ₁	$\frac{2.00 \pm 0.05}{(0.079 \pm 0.002)}$
Overall Tape Thickness	T	$\frac{0.20 \pm 0.05}{(0.008 \pm 0.002)}$
Tape Width	W	$\frac{8.00 \pm 0.10}{(0.315 \pm 0.004)}$
Reel Width	W ₁	$\frac{14.4}{(0.567)}$ MAX.
Quantity per Reel	--	12,000

REV. 09/19

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