



Features

- Bidirectional TVS 3.3 V
- ESD protection - 30 kV
- DFN-2 (0402) package
- I_{pp} (8/20 μ s) up to 42 A
- RoHS compliant* and halogen free**

Applications

- Computers and peripherals
- Communication systems
- Portable instrumentation
- Handheld portable devices
- Power rail protection

Sustainability

- Small size reduces material use
- Recyclable ESD-safe packaging
- ISO 14001, low-impact energy
- Meets EU 94/62/EC standards

Product Overview

The Bourns® Model CDDFN2-T3V3SC Transient Voltage Suppressor provides ESD, EFT and surge protection for external ports of electronic devices such as cellular phones, handheld electronics and other portable electronic devices.

This DFN-2 (0402) packaged device has nominal dimensions of 1.0 mm x 0.6 mm x 0.5mm and is intended to be mounted directly onto a printed circuit board.

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

Product Symbol



Maximum Ratings (@ $T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

Parameter	Symbol	Value	Units
Operating Temperature	T_{OPR}	-55 to +125	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 to +150	$^\circ\text{C}$
ESD Protection per IEC 61000-4-2			
Contact Discharge	ESD	± 30	kV
Air Discharge	ESD	± 30	kV
Peak Pulse Current per IEC 61000-4-5 (8/20 μ s, 2 ohm Source Impedance)	I_{pp}	42	A

Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

Parameter	Symbol	Min.	Typ.	Max.	Units
Working Peak Voltage (Pin1 to Pin2)	V_{RWM}	-3.3		3.3	V
Breakdown Voltage @ 1 mA (Pin1 to Pin2)	V_{BR}	4.5		6.8	V
Leakage Current @ ± 3.3 V (Pin1 to Pin2)	I_L			0.5	μA
Capacitance @ 0 V, 1 MHz (Pin1 to Pin2)	C_J		70	85	pF
Clamping Voltage @ $I_{pp} = 42$ A (8/20 μ s)	V_C		9		V

Contact Information

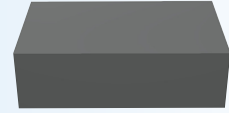
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*RoHS Directive 2015/863, Mar 31, 2015 and Annex.

**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.

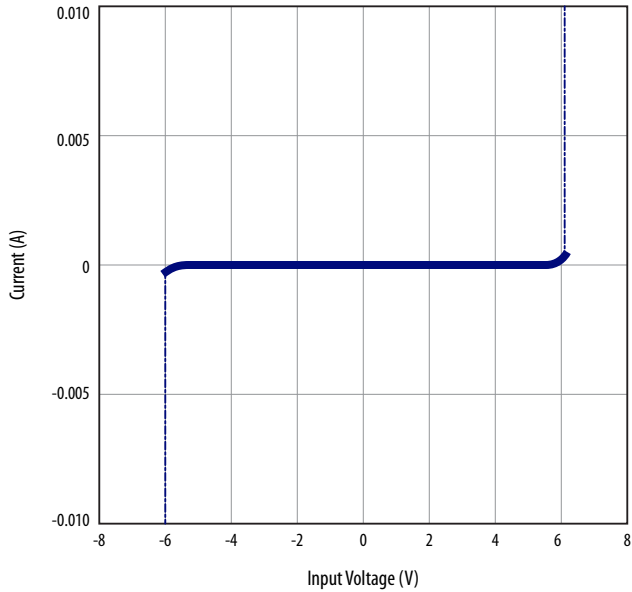
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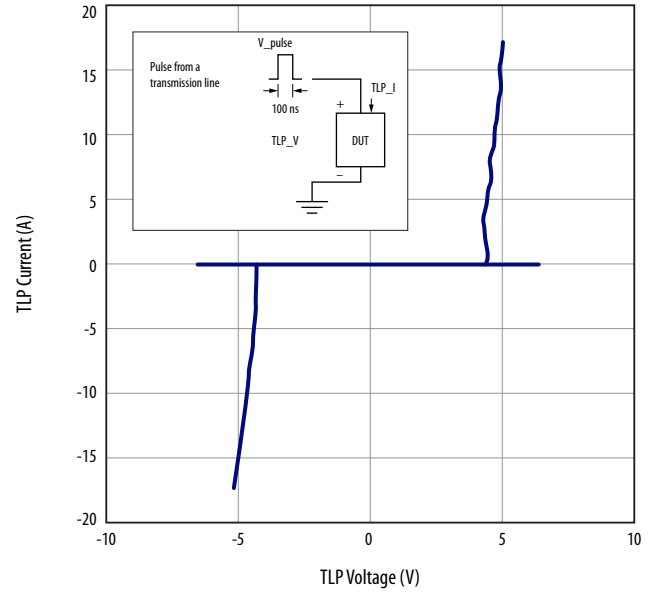


Performance Graphs

Typical I-V Characteristics



Typical TLP Measurement



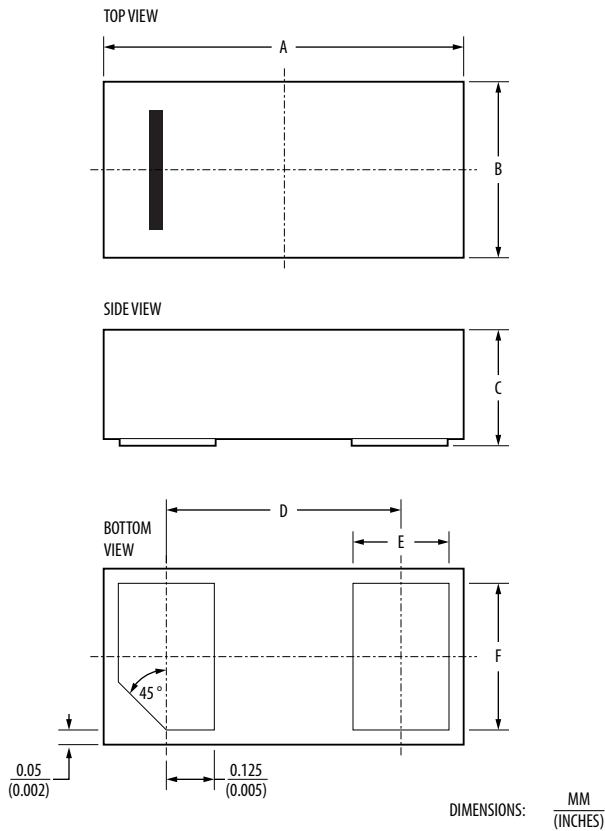
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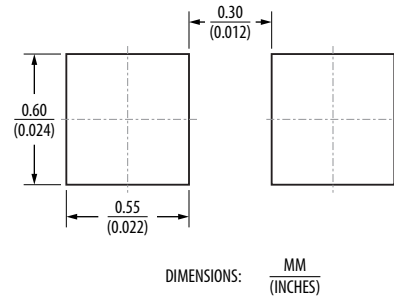
Product Dimensions

This is a molded DFN-2 (0402) package.



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	$\frac{0.45}{(0.018)}$	—	$\frac{0.60}{(0.024)}$
D	$\frac{0.65}{(0.026)}$		
E	$\frac{0.20}{(0.008)}$	$\frac{0.25}{(0.010)}$	$\frac{0.30}{(0.012)}$
F	$\frac{0.45}{(0.018)}$	$\frac{0.50}{(0.020)}$	$\frac{0.55}{(0.022)}$

Recommended Footprint



Typical Part Marking

CDDFN2-T3V3SC E

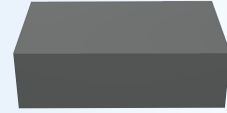
How to Order

CD DFN2 - T 3V3 SC

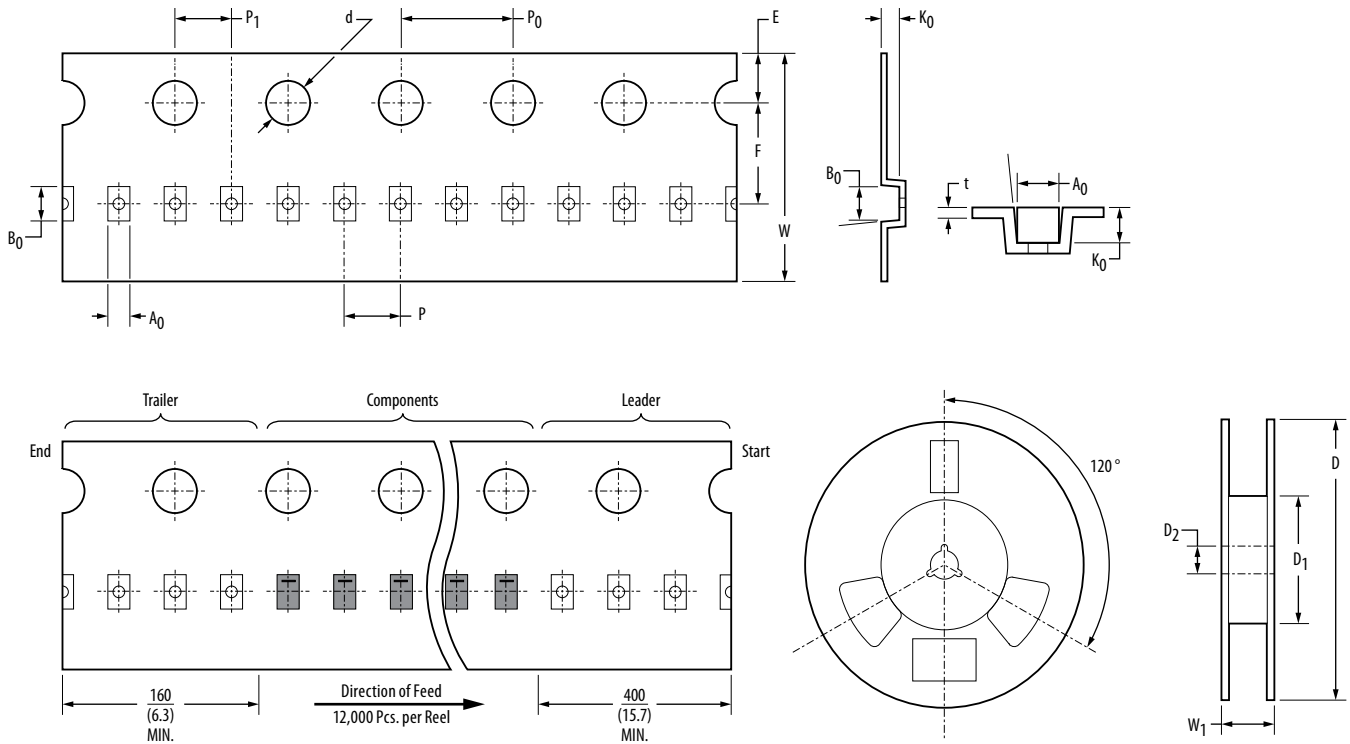
Common Code
Chip Diode
Package
DFN2 = 0402 Package
Model
T = Transient Voltage Suppressor
Working Peak Reverse Voltage
3V3 = 3.3 V_{RWM} (Volts)
Suffix
S = Standard Capacitance
C = Bidirectional

Environmental Specifications

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



Packaging Information



Item	Symbol	DFN-2
Carrier Width	A(A ₀)	$\frac{0.70 \pm 0.05}{(0.028 \pm 0.002)}$
Carrier Length	B(B ₀)	$\frac{1.15 + 0.08/-0.05}{(0.045 + 0.003/-0.002)}$
Carrier Depth	C(K ₀)	$\frac{0.6 + 0.07/-0.06}{(0.024 + 0.003/-0.002)}$
Sprocket Hole	d	$\frac{1.55 + 0.1/-0.05}{(0.061 + 0.004/-0.002)}$
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	$\frac{2.00 \pm 0.10}{(0.079 \pm 0.004)}$
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(t)	$\frac{0.20 \pm 0.05}{(0.008 \pm 0.002)}$
Tape Width	W	$\frac{8.00 + 0.3/-0.1}{(0.315 + 0.012/-0.004)}$

Item	Symbol	DFN-2
Reel Outside Diameter	D	$\frac{180 \pm 2.00}{(7.087 \pm 0.079)}$
Reel Inner Diameter	D ₁	$\frac{50}{(1.969)} \text{ MIN.}$
Feed Hole Diameter	D ₂	$\frac{13 + 0.5/-0.2}{(0.516 + 0.020/-0.008)}$
Reel Width	W ₁	$\frac{14.4}{(0.567)} \text{ MAX.}$
Quantity per Reel	—	12,000

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

REV. 04/26

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