



Features

- Bidirectional TVS 5 V
- ESD protection - 30 kV
- DFN-2 (0402) package
- I_{pp} (8/20 μ s) up to 18 A
- RoHS compliant* and halogen free**

Applications

- Computers and peripherals
- Communication systems
- Portable instrumentation
- Handheld portable devices

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-T5V0SC 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
Operating Supply Voltage (Pin1 to Pin2)	V_{DC}	5.5	V
Peak Pulse Current per IEC 61000-4-5 (8/20 μ s)	I_{pp}	18	A

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.

Specifications are subject to change without notice. Users should verify actual device performance in their specific applications.

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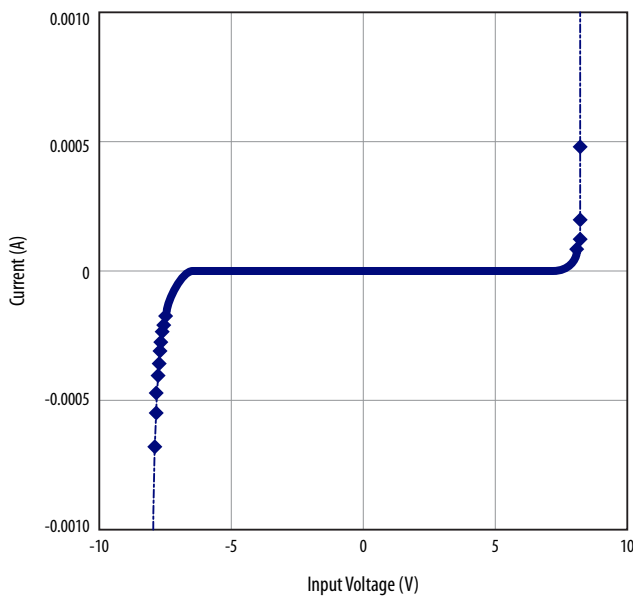


Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

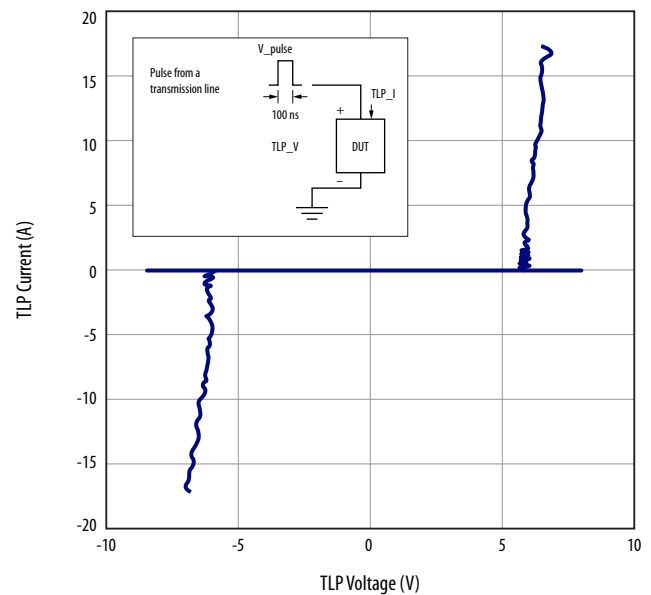
Parameter	Symbol	Min.	Typ.	Max.	Units
Working Peak Voltage (Pin1 to Pin2)	V_{RWM}	-5.0		5.0	V
Breakdown Voltage @ 1 mA (Pin1 to Pin2)	V_{BR}	6		9	V
Leakage Current @ $\pm 5\text{ V}$ (Pin1 to Pin2)	I_L			0.5	μA
Dynamic Resistance (TLP, $t_p = 100\text{ ns}$)	R_{DYN}		0.06		Ω
Capacitance @ 0 V, 1 MHz (Pin1 to Pin2)	C_J		27	40	pF
Capacitance @ 2.5 V, 1 MHz (Pin1 to Pin2)	C_J		21		pF
Clamping Voltage @ $I_{pp} = 18\text{ A}$ (8/20 μs)	V_C		8.7	9.5	V

Performance Graphs

Typical I-V Characteristics



Typical TLP Measurement



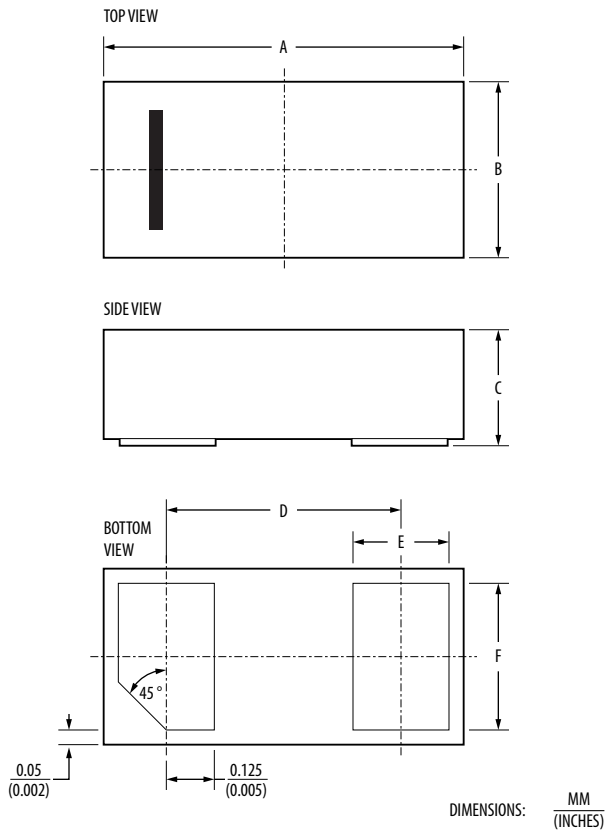
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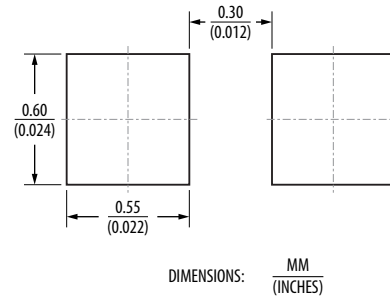
Product Dimensions

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-T5V0SC S

How to Order

CD DFN2 - T 5V0 SC

Common Code
Chip Diode

Package
DFN2 = 0402 Package

Model
T = Transient Voltage Suppressor

Working Peak Reverse Voltage
5V0 = 5.0 V_{RWM} (Volts)

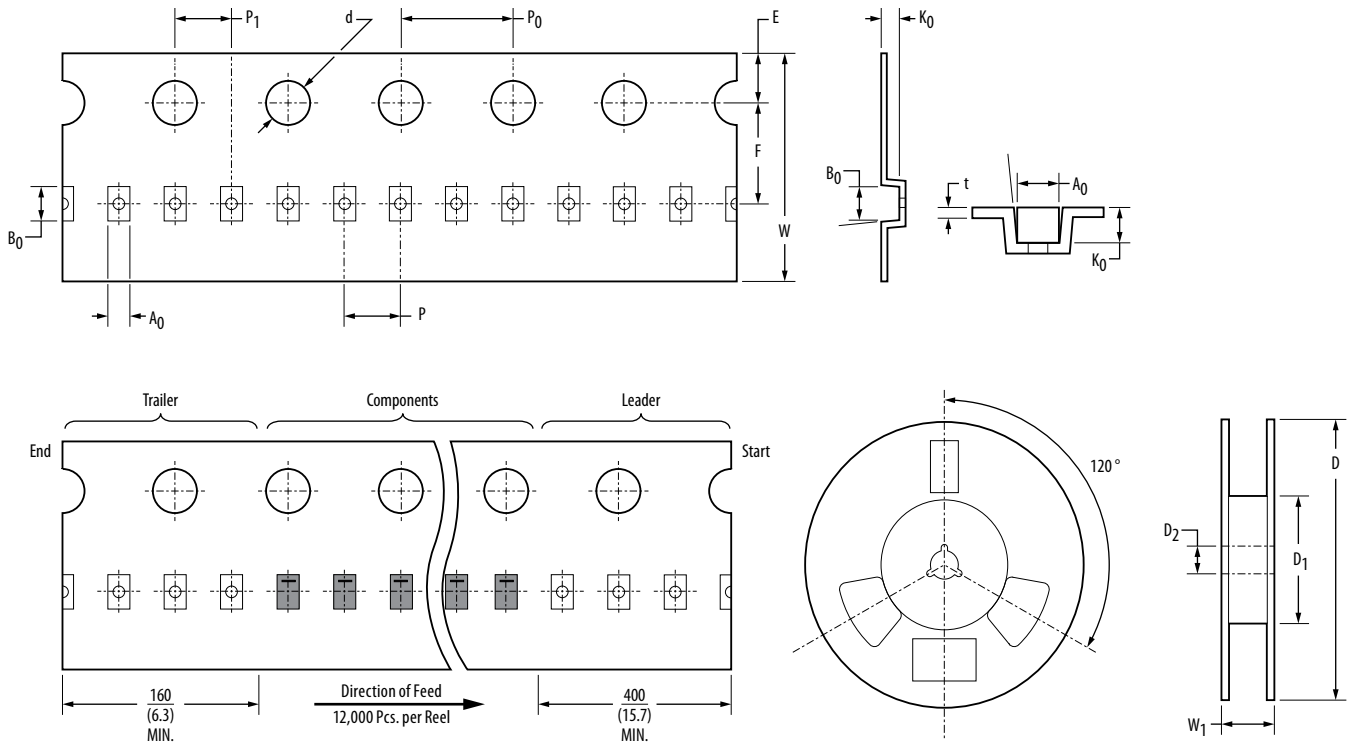
Suffix
S = Standard Capacitance
C = Bidirectional

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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