

Features

- IEC 61000-4-2 (ESD) ± 30 kV (Air/Contact)
IEC 61000-4-5 (Lightning) 45 A (8/20 μ s)
- ESD protection to IEC 61000-4-2 (Level 4)
- RoHS compliant*

Applications

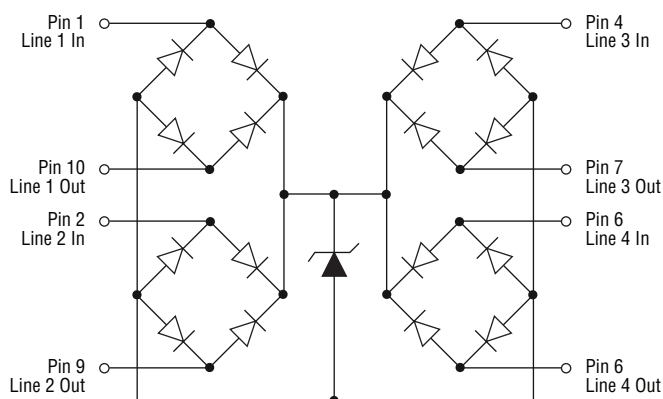
- WAN/LAN devices
- 10/100/1000 Ethernet

CDDFN10-2574N - Surface Mount TVS Diode Array

General Information

The Model CDDFN10-2574N device provides Electrostatic Discharge (ESD), Electrical Fast Transients (EFT), Lightning, and Cable Discharge Event (CDE) protection for high-speed data ports, meeting IEC 61000-4-2 (ESD) requirements. The Transient Voltage Suppressor array, protecting up to four data lines, offers a Working Peak Reverse Voltage of 2.5 V and a Minimum Breakdown Voltage of 3 V.

The DFN10 packaged device has a low typical capacitance of only 1.7 pF between I/O lines. This allows it to be used for protecting sensitive components used on high-speed interfaces. The small footprint of the device allows for flow-through routing on the PCB, helping to maintain matched impedances of the high-speed data lines.



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

Parameter	Symbol	CDDFN10-2574N	Unit
Peak Pulse Current ($t_p = 8/20 \mu\text{s}$)	I_{pp}	45	A
Operating Temperature	T_{OP}	-55 to +85	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 to +150	$^\circ\text{C}$

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

Parameter	Symbol	Min.	Typ.	Max.	Unit
Working Peak Reverse Voltage	V_{WM}			2.5	V
Breakdown Voltage @ 1 mA	V_{BR}	3		7	V
Leakage Current @ V_{WM}	I_R			1	μA
Capacitance @ 1.25 V, $f = 1$ MHz (Between I/O Pins)	C_{IN}		1.7	2.5	pF
Clamping Voltage @ $8/20 \mu\text{s}$ @ I_{pp}	V_C			11	V
ESD Protection per IEC 6-1000-4-2 Contact Discharge Air Discharge				± 30 ± 30	kV

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

Specifications are subject to change without notice.

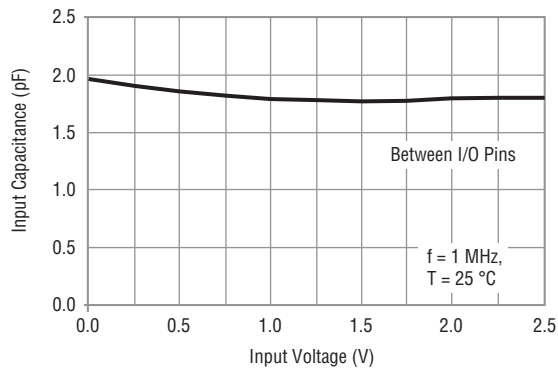
The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time. Users should verify actual device performance in their specific applications.

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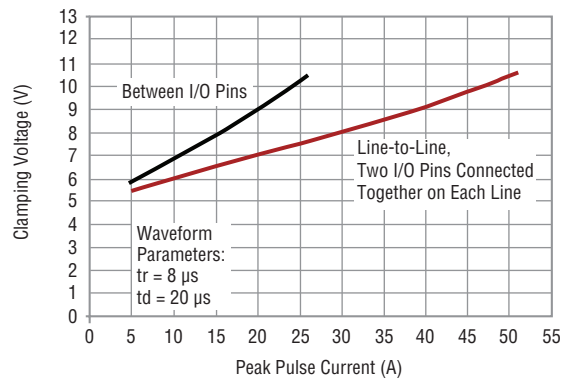
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Rating & Characteristic Curves

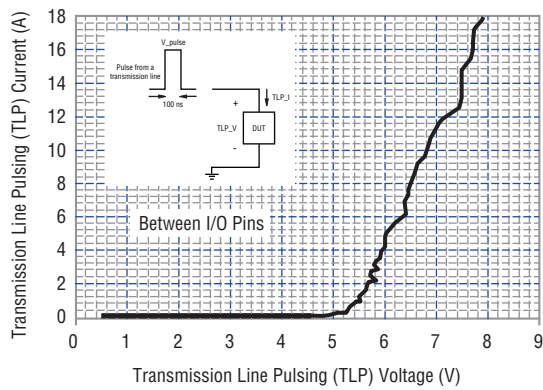
Typical Voltage vs. Capacitance C_{IN}



Typical Clamping Voltage vs. Peak Pulse Current



Typical Transmission Line Pulsing (TLP)



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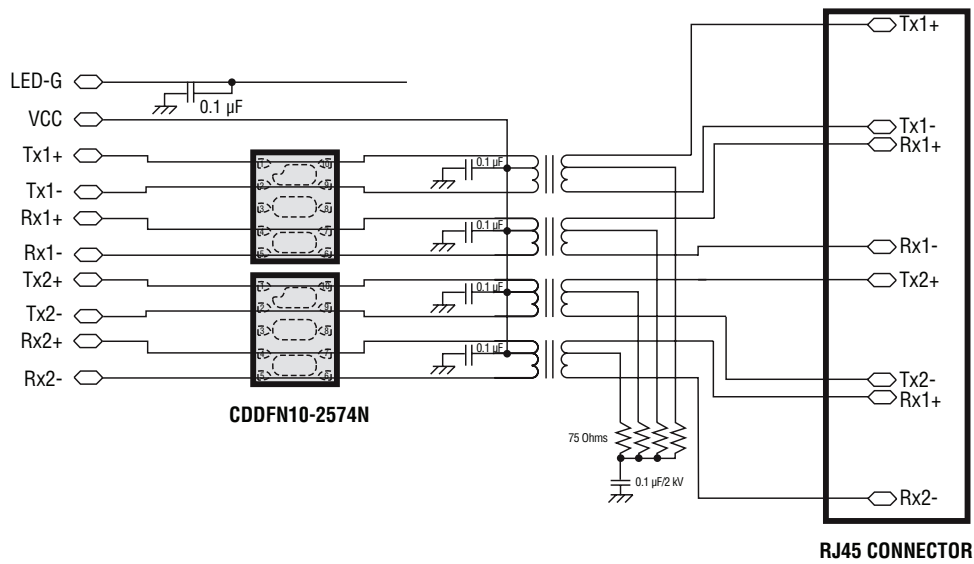
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Reference Application

The Bourns® Model CDDFN10-2574N is designed to protect four high-speed data lines operating at 2.5 volts from system ESD/EFT/Lightning pulses. The use of a DFN10 package using a “feed-through” layout provides minimal impedance change on the high-speed data line, while the low capacitance performance of the device limits signal degradation on each channel.

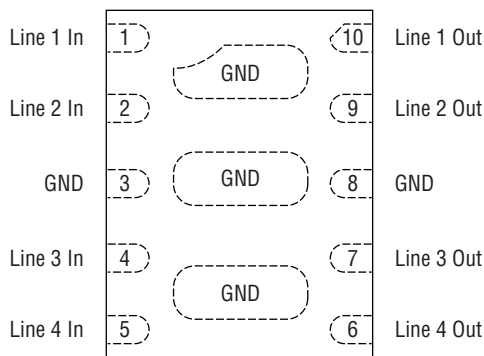
Gigabit Ethernet LAN Port



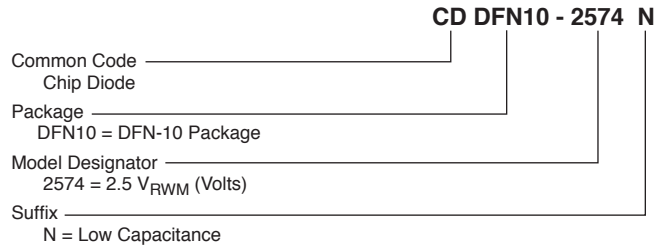
Typical Part Marking

CDDFN10-2574N2574

Device Pinout



How to Order

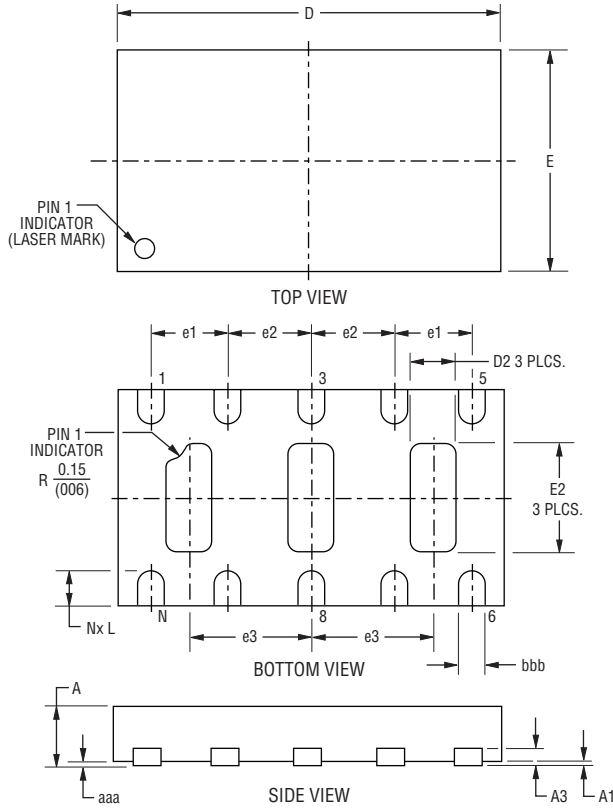


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Product Dimensions

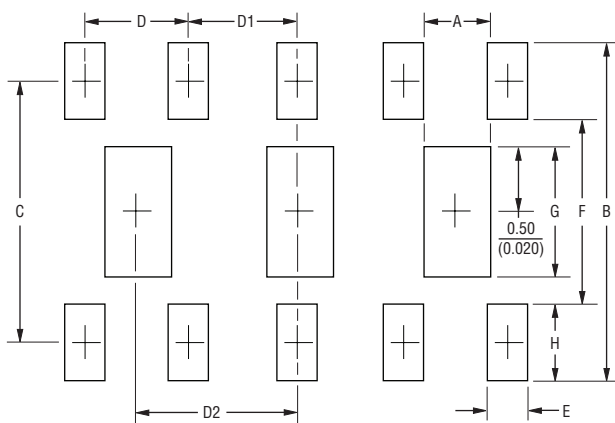


Symbol	Dimension		
	Min.	Nom.	Max.
A	0.51 (0.020)	0.55 (0.022)	0.60 (0.024)
A1	0.00 (0.000)	0.02 (0.001)	0.05 (0.002)
A3		0.153 REF. (0.006)	
b	0.15 (0.006)	0.20 (0.008)	0.25 (0.010)
D	2.90 (0.114)	3.00 (0.118)	3.10 (0.122)
E	1.90 (0.075)	2.00 (0.079)	2.10 (0.083)
e1		0.6 BSC (0.024)	
e2		0.65 BSC (0.026)	
e3		0.95 BSC (0.037)	
D2	0.25 (0.010)	0.35 (0.014)	0.45 (0.018)
E2	0.95 (0.037)	1.00 (0.039)	1.05 (0.041)
L	0.25 (0.010)	0.30 (0.012)	0.35 (0.014)
aaa		0.08 (0.003)	
bbb		0.10 (0.004)	

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

Moisture Sensitivity Level (MSL) 3
ESD Classification (HBM) 3B

Recommended Footprint



Symbol	Dimension
A	0.40 (0.016)
B	2.56 (0.101)
C	1.98 (0.078)
D	0.60 (0.024)
D1	0.65 (0.026)
D2	0.95 (0.037)
E	0.25 (0.010)
F	1.40 (0.055)
G	1.00 (0.039)
H	0.58 (0.023)

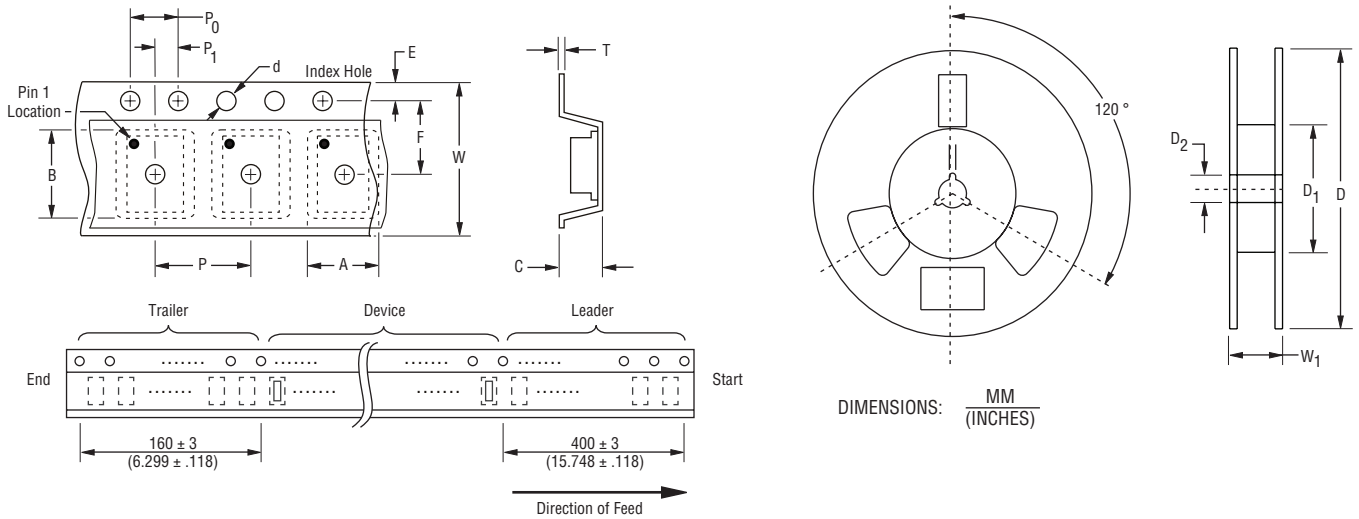
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Packaging Information

The product is packaged in a 12 mm x 4 mm tape and reel format per EIA-481-D standard.



Item	Symbol	Dimension
Carrier Width	A	$\frac{2.3 \pm 0.1}{(0.091 \pm 0.004)}$
Carrier Length	B	$\frac{3.3 \pm 0.1}{(0.13 \pm 0.004)}$
Carrier Depth	C	$\frac{0.7 \pm 0.1}{(0.028 \pm 0.004)}$
Sprocket Hole	d	$\frac{1.5 \pm 0.1}{(0.059 \pm 0.004)}$
Reel Outside Diameter	D	$\frac{178}{(7.008)}$
Reel Inner Diameter	D ₁	$\frac{50.0}{(1.969)}$ MIN.
Feed Hole Diameter	D ₂	$\frac{13.0 \pm 0.5}{(0.512 \pm 0.02)}$
Sprocket Hole Position	E	$\frac{1.75 \pm 0.1}{(0.069 \pm 0.004)}$
Punch Hole Position	F	$\frac{5.5 \pm 0.1}{(0.217 \pm 0.004)}$
Punch Hole Pitch	P	$\frac{4.0 \pm 0.1}{(0.157 \pm 0.004)}$
Sprocket Hole Pitch	P ₀	$\frac{4.0 \pm 0.1}{(0.157 \pm 0.004)}$
Embossment Center	P ₁	$\frac{2.0 \pm 0.05}{(0.079 \pm 0.002)}$
Overall Tape Thickness	T	$\frac{0.3 \pm 0.05}{(0.012 \pm 0.002)}$
Tape Width	W	$\frac{12.00 \pm 0.3}{(0.472 \pm 0.012)}$
Reel Width	W ₁	$\frac{15.8}{(0.622)}$ MAX.
Quantity per Reel	--	3000

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