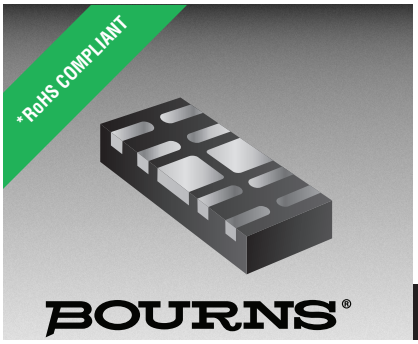


Features

- RoHS compliant*
- Low capacitance - 0.5 pF
- ESD protection >15 kV

Applications

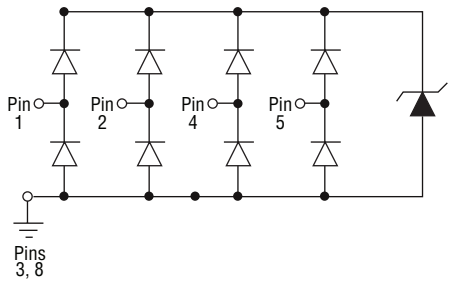
- HDMI 1.4
- Digital Visual Interface (DVI)
- USB 3.0 / USB OTG
- Memory protection
- SIM card ports

CDDFN10-0524P - Surface Mount TVS Diode Array

General Information

The CDDFN10-0524P device provides ESD, EFT and Surge protection for high-speed data ports meeting IEC 61000-4-2 (ESD) requirements. The Transient Voltage Suppressor array, protecting up to 4 data lines, offers a Working Peak Reverse Voltage of 5 V and Minimum Breakdown Voltage of 6 V.

The DFN10 packaged device will mount directly onto the industry standard DFN10 footprint. Bourns® Chip Diodes conform to JEDEC standards, are easy to handle with standard pick and place equipment and their flat configuration minimizes roll away.



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

Parameter	Symbol	CDDFN10-0524P	Unit
Peak Pulse Power (t_p = 8/20 μS)	P_{pp}	30	W
Peak Pulse Current (t_p = 8/20 μS)	I_{pp}	3.8	A
Operating Voltage (I/O pin - GND)	V_{DC}	6	V
Storage Temperature	T_{STG}	-55 to +150	ºC
Operating Temperature	T_{OPR}	-55 to +85	ºC

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

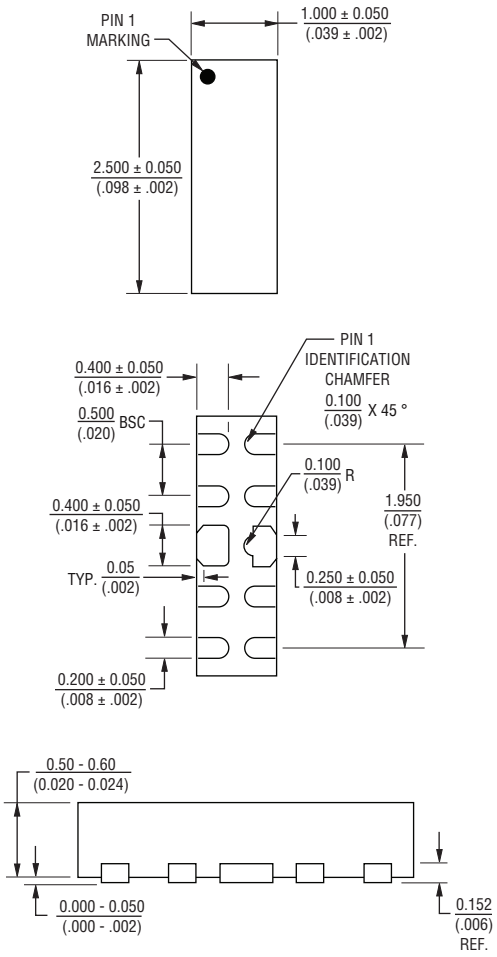
Parameter	Symbol	Min.	Typ.	Max.	Unit
Breakdown Voltage @ 1 mA	V_{BR}	6			V
Reverse Standoff Voltage	V_{RWM}			5	V
Forward Voltage If =15 mA (Gnd to I/O Pin)	V_F		0.9	1.1	V
Channel Leakage Current V_{RWM} = 5 V, (I/O Pin to Gnd)	I_D			1.5	μA
Clamping Voltage IEC 61000-4-2 +6 kV, Contact mode (I/O Pin to Gnd)	V_C		12		V
Channel Input Capacitance Vpin3,8=0 V, Vin=2.5 V, f=1 MHZ (I/O Pin to Gnd)	C_{IN}		0.5	0.65	pF
Channel to Channel Input Capacitance Vpin3,8=0 V, Vin=2.5 V, f=1 MHZ (Between I/O pins)	C_{CROSS}		0.04	0.08	pF
ESD Protection per IEC 6-1000-4-2 Contact Discharge Air Discharge		 8 15		 10 15	kV
ESD Dynamic Turn-on Resistance (any I/O Pin to Gnd)	$R_{dynamic}$		0.3		Ω
EFT Protection per IEC 61000-4-4 @ 5/50 ns		40			A
Surge Protection per IEC 61000-4-5 @ 8/20 μs				3.8	A

*RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011.
Specifications are subject to change without notice.
Users should verify actual device performance in their specific applications.

CDDFN10-0524P - Surface Mount TVS Diode Array

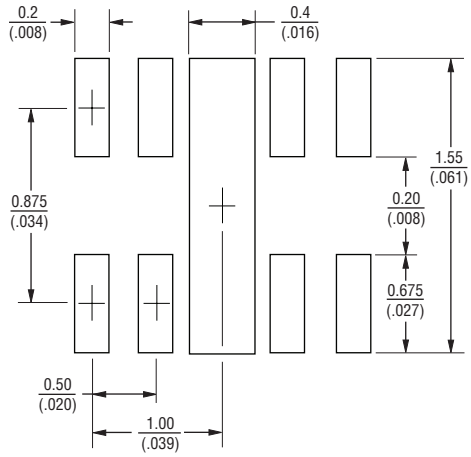
BOURNS®

Product Dimensions



DIMENSIONS: MM / (INCHES)

Recommended Footprint



Typical Part Marking

CDDFN10-0524P 524

Environmental Specifications

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

How to Order

CD DFN10 - 05 24 P

Common Diode
Chip Diode

Package
DFN10 = DFN-10 Package

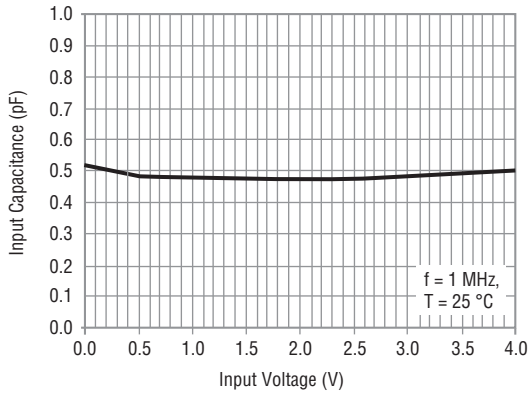
Working Peak Reverse Voltage
05 = 5 V_{RWM} (Volts)

Number of Lines
24 = 2 Ground / 4 Data Lines

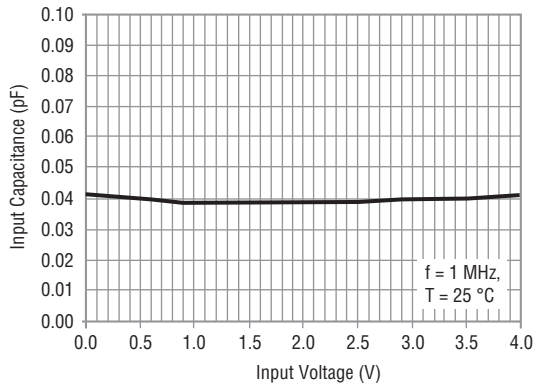
Suffix
P = Ultra-low Capacitance

Rating & Characteristic Curves

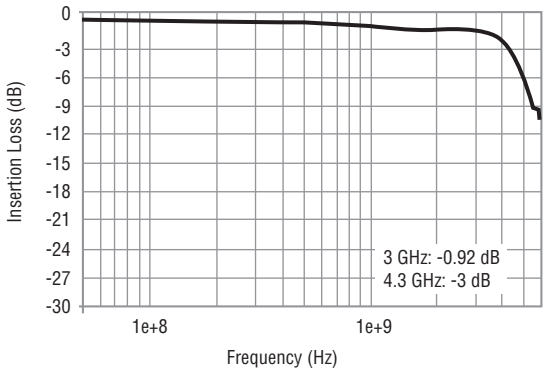
Typical Variation C_{IN} vs V_{IN}



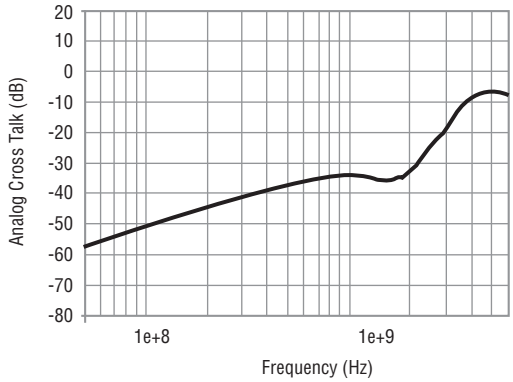
Typical Variation of C_{IO}-to-IO vs V_{IN}



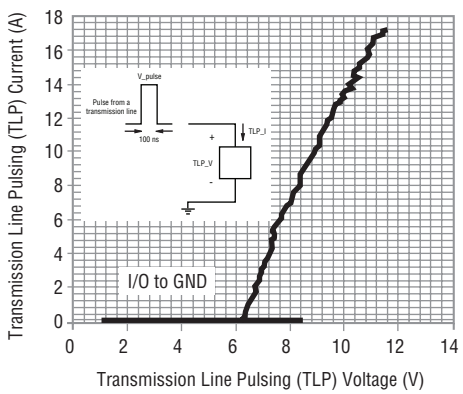
Insertion Loss S21 (I/O-to-GND)



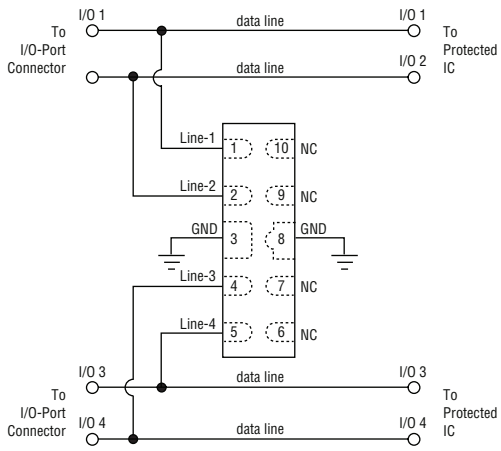
Analog Cross Talk



Transmission Line Pulsing (TLP)

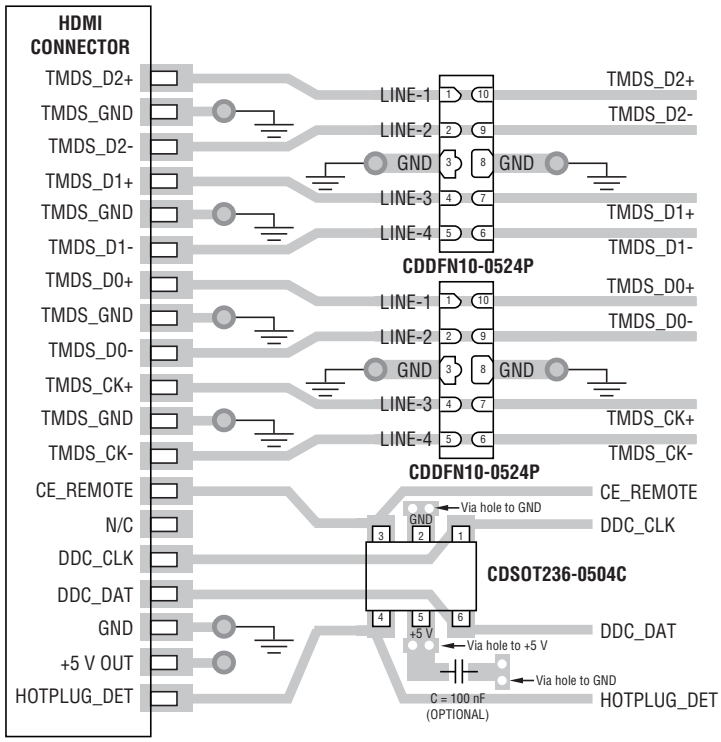


Data Lines Connection



Reference Application

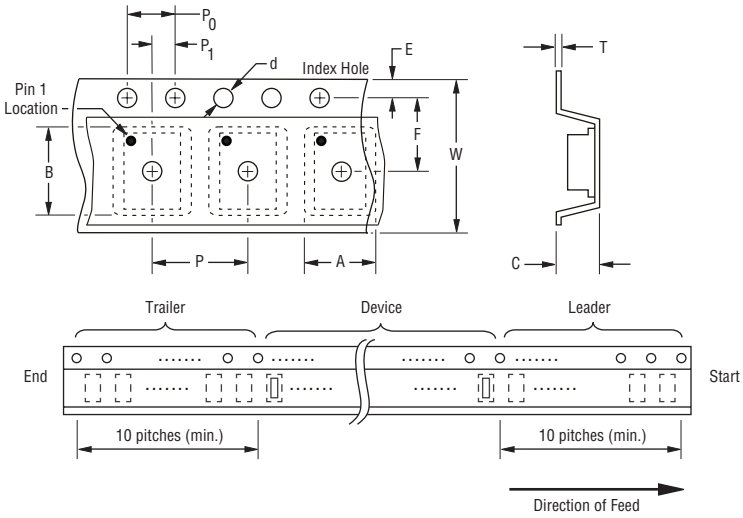
The Bourns® Model CDDFN10-0524P is designed to protect high-speed data ports from ESD transients. For high-speed ports such as HDMI 1.4 and USB 3.0, maintaining signal line impedance is a critical requirement. The use of a DFN10 package using a "feed-through" layout provides minimal impedance change on the high-speed data line, while the ultra-low capacitance performance of the device limits signal degradation on each channel.

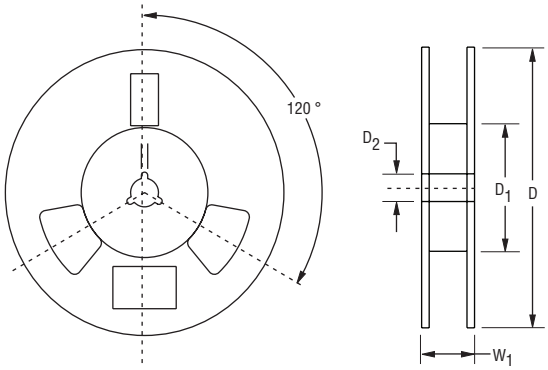


Feed-Through Layout -
Model CDDFN10-0524P in HDMI Application

Packaging Information

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





DIMENSIONS: MM / (INCHES)

Item	Symbol	DFN-10
Carrier Width	A	1.45 ± 0.05 (0.057 ± 0.002)
Carrier Length	B	2.95 ± 0.05 (0.116 ± 0.002)
Carrier Depth	C	0.90 ± 0.05 (0.035 ± 0.002)
Sprocket Hole	d	1.55 ± 0.05 (0.061 ± 0.002)
Reel Outside Diameter	D	178 (7.008)
Reel Inner Diameter	D_1	50.0 (1.969) MIN.
Feed Hole Diameter	D_2	13.0 ± 0.20 (0.512 ± 0.008)
Sprocket Hole Position	E	1.75 ± 0.10 (0.069 ± 0.004)
Punch Hole Position	F	3.50 ± 0.05 (0.138 ± 0.002)
Punch Hole Pitch	P	4.00 ± 0.10 (0.157 ± 0.004)
Sprocket Hole Pitch	P_0	4.00 ± 0.10 (0.157 ± 0.004)
Embossment Center	P_1	2.00 ± 0.05 (0.079 ± 0.002)
Overall Tape Thickness	T	0.20 ± 0.10 (0.008 ± 0.004)
Tape Width	W	8.00 ± 0.20 (0.315 ± 0.008)
Reel Width	W_1	14.4 (0.567) MAX.
Quantity per Reel	--	3000

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