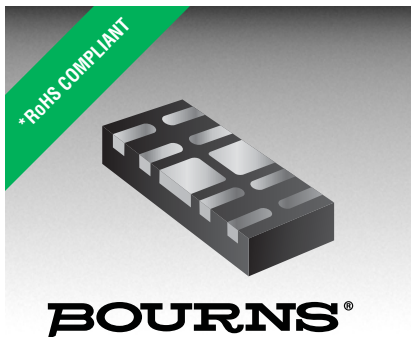




## Features

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

## Applications

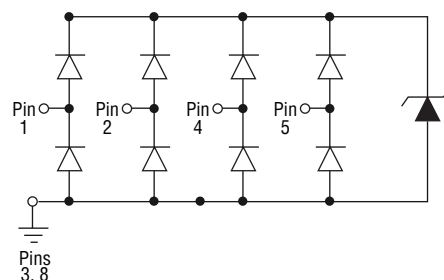
- HDMI 1.4
- Digital Visual Interface (DVI)
- USB 3.0 / USB OTG
- Memory protection
- SIM card ports

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

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

## Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ 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 $I_f = 15 \text{ mA}$<br>(Gnd to I/O Pin)                                                                           | $V_F$         |      | 0.9  | 1.1  | V             |
| Channel Leakage Current<br>$V_{RWM} = 5 \text{ V}$ , (I/O Pin to Gnd)                                                               | $I_D$         |      |      | 1.5  | $\mu\text{A}$ |
| Clamping Voltage<br>IEC 61000-4-2 +6 kV,<br>Contact mode (I/O Pin to Gnd)                                                           | $V_C$         |      | 12   |      | V             |
| Channel Input Capacitance<br>$V_{pin3,8}=0 \text{ V}$ , $V_{in}=2.5 \text{ V}$ , $f=1 \text{ MHz}$<br>(I/O Pin to Gnd)              | $C_{IN}$      |      | 0.5  | 0.65 | pF            |
| Channel to Channel Input Capacitance<br>$V_{pin3,8}=0 \text{ V}$ , $V_{in}=2.5 \text{ V}$ , $f=1 \text{ MHz}$<br>(Between I/O pins) | $C_{CROSS}$   |      | 0.04 | 0.08 | pF            |
| ESD Protection per IEC 6-1000-4-2<br>Contact Discharge                                                                              |               | 8    |      | 10   | kV            |
| Air Discharge                                                                                                                       |               | 15   |      | 15   | kV            |
| ESD Dynamic Turn-on Resistance<br>(any I/O Pin to Gnd)                                                                              | $R_{dynamic}$ |      | 0.3  |      | $\Omega$      |
| EFT Protection per IEC 61000-4-4<br>@ 5/50 ns                                                                                       |               | 40   |      |      | A             |
| Surge Protection per IEC 61000-4-5<br>@ 8/20 $\mu\text{s}$                                                                          |               |      |      | 3.8  | A             |

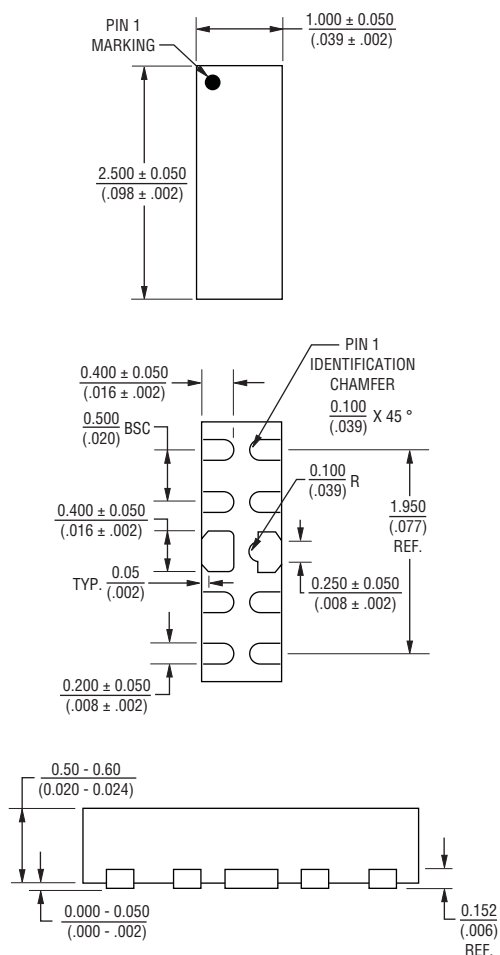
\*RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011.  
Specifications are subject to change without notice.  
Customers should verify actual device performance in their specific applications.

# CDDFN10-0524P - Surface Mount TVS Diode Array

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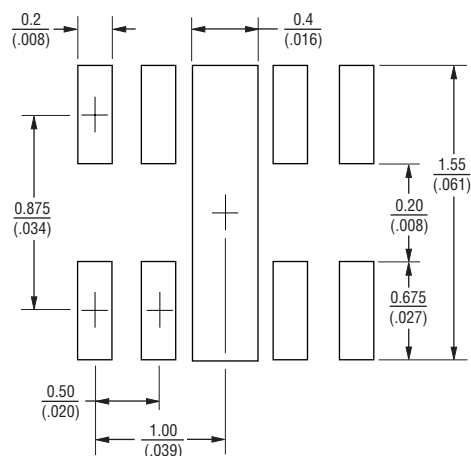
## Product Dimensions

This is a molded DFN10 package with lead free 100 % Matte Sn on the lead frame. It weighs approximately 7 mg and has a flammability rating of UL 94V-0.



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

## Recommended Footprint



## Typical Part Marking

CDDFN10-0524P .....524

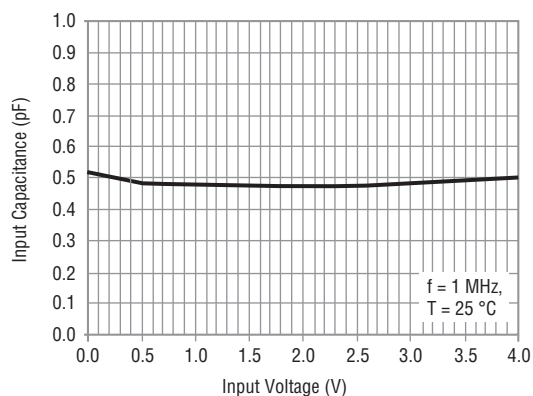
## How to Order

**CD DFN10 - 05 24 P**

Common Diode \_\_\_\_\_  
 Chip Diode \_\_\_\_\_  
 Package \_\_\_\_\_  
 DFN10 = DFN-10 Package  
 Working Peak Reverse Voltage \_\_\_\_\_  
 05 = 5 V<sub>RWM</sub> (Volts)  
 Number of Lines \_\_\_\_\_  
 24 = 2 Ground / 4 Data Lines  
 Suffix \_\_\_\_\_  
 P = Ultra-low Capacitance

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### Typical Variation $C_{IN}$ vs $V_{IN}$



Graph of Input Capacitance (pF) vs. Input Voltage (V) for the AD8656. The y-axis ranges from 0.00 to 0.10 pF, and the x-axis ranges from 0.0 to 4.0 V. The capacitance is approximately 0.04 pF across the entire voltage range. Test conditions:  $f = 1 \text{ MHz}$ ,  $T = 25^\circ \text{C}$ .

[illegible]

The graph plots Transmission Line Pulsing (TLP) Current (A) on the Y-axis against Transmission Line Pulsing (TLP) Voltage (V) on the X-axis. The Y-axis scale is from 0 to 18 A in increments of 2. The X-axis scale is from 0 to 14 V in increments of 2. The data curve is flat at 0 A until approximately 6.5 V, after which it rises steeply and non-linearly, passing through points such as (8 V, 5 A), (10 V, 12 A), and (12 V, 17 A). An inset diagram illustrates the test setup: a pulse source labeled  $V_{pulse}$  is connected to a transmission line with a 100 ns pulse width. This line is connected to a device labeled  $TLP_V$ , which is also connected to ground, labeled  $I/O \text{ to GND}$ .

The diagram shows the pin connections for the 68000 I/O connector. It features a central 16-pin connector with pins numbered 1 through 10 on the left and 10 through 1 on the right. The pins are arranged in two columns of five. The connections are as follows:

- Line-1:** Connects to I/O 1 (To I/O-Port Connector) and I/O 1 (To Protected IC).
- Line-2:** Connects to I/O 2 (To I/O-Port Connector) and I/O 2 (To Protected IC).
- GND:** Connects to GND (To I/O-Port Connector) and GND (To Protected IC).
- Line-3:** Connects to I/O 3 (To I/O-Port Connector) and I/O 3 (To Protected IC).
- Line-4:** Connects to I/O 4 (To I/O-Port Connector) and I/O 4 (To Protected IC).

The pins are labeled as follows:

- Pin 1: Line-1
- Pin 2: Line-2
- Pin 3: GND
- Pin 4: Line-3
- Pin 5: Line-4
- Pin 6: NC
- Pin 7: NC
- Pin 8: GND
- Pin 9: NC
- Pin 10: NC

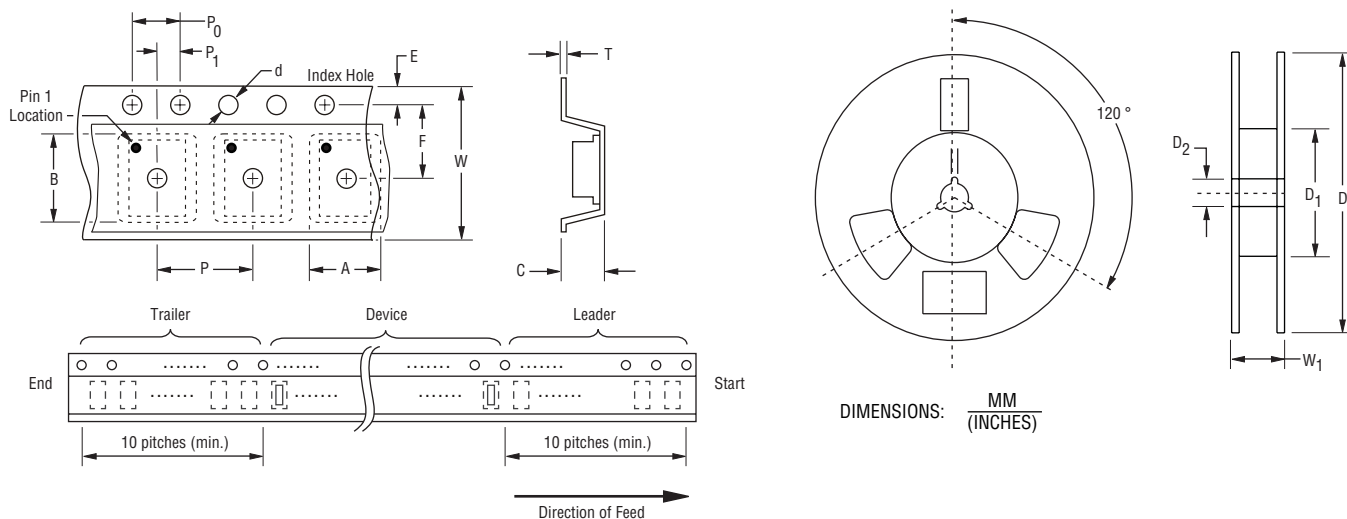
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# CDDFN10-0524P - Surface Mount TVS Diode Array

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## Packaging Information

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



| Item                   | Symbol         | DFN-10                                    |
|------------------------|----------------|-------------------------------------------|
| Carrier Width          | A              | $\frac{1.45 \pm 0.05}{(0.057 \pm 0.002)}$ |
| Carrier Length         | B              | $\frac{2.95 \pm 0.05}{(0.116 \pm 0.002)}$ |
| Carrier Depth          | C              | $\frac{0.90 \pm 0.05}{(0.035 \pm 0.002)}$ |
| Sprocket Hole          | d              | $\frac{1.55 \pm 0.05}{(0.061 \pm 0.002)}$ |
| Reel Outside Diameter  | D              | $\frac{178}{(7.008)}$                     |
| Reel Inner Diameter    | D <sub>1</sub> | $\frac{50.0}{(1.969)} \text{ MIN.}$       |
| Feed Hole Diameter     | D <sub>2</sub> | $\frac{13.0 \pm 0.20}{(0.512 \pm 0.008)}$ |
| 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              | $\frac{4.00 \pm 0.10}{(0.157 \pm 0.004)}$ |
| Sprocket Hole Pitch    | P <sub>0</sub> | $\frac{4.00 \pm 0.10}{(0.157 \pm 0.004)}$ |
| Embossment Center      | P <sub>1</sub> | $\frac{2.00 \pm 0.05}{(0.079 \pm 0.002)}$ |
| Overall Tape Thickness | T              | $\frac{0.20 \pm 0.10}{(0.008 \pm 0.004)}$ |
| Tape Width             | W              | $\frac{8.00 \pm 0.20}{(0.315 \pm 0.008)}$ |
| Reel Width             | W <sub>1</sub> | $\frac{14.4}{(0.567)} \text{ MAX.}$       |
| Quantity per Reel      | --             | 3000                                      |

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Fax: +41-41 768 5510

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[www.bourns.com](http://www.bourns.com)

REV. 08/17/12

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Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

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- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
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- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

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- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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