

Features

- Working voltage 3.3 V
- SMT - DFN package
- Low capacitance - 4 pF
- IEC 61000-4-2 (ESD)
- IEC 61000-4-4 (EFT)
- IEC 61000-4-5 (Surge)

Applications

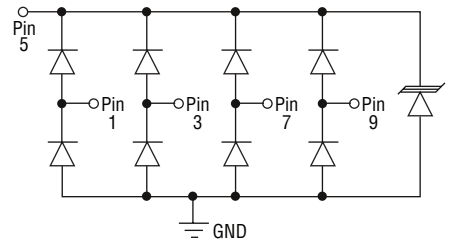
- FireWire, T1/E1, T3/E3 chip side protection
- Digital Visual Interface (DVI)
- Ethernet 10/100/1000 Base T
- High speed port protection
- Portable electronics

CDDFN10-3304NA - TVS/Steering Diode Array

General Information

The CDDFN10-3304NA device provides ESD, EFT and Surge protection for high speed data ports, assisting compliance with IEC 61000-4-2 (ESD), IEC 61000-4-4 (EFT) and IEC 61000-4-5 (Surge) requirements. The Transient Voltage Suppressor array, protecting up to 4 data lines, offers a Working Peak Voltage of 3.3 V.

The DFN-10 packaged device will mount directly onto the industry standard DFN-10 footprint. Bourns® Chip Diodes are easy to handle with standard pick and place equipment.



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

| Parameter | Symbol | CDDFN10-3304NA | Unit |
|------------------------------------------------------------------------|-----------|----------------|------------------|
| Peak Pulse Current ($t_p = 8/20\ \mu\text{s}$) per IEC 61000-4-5 | I_{PP} | 25 | A |
| ESD Protection per IEC 61000-4-2 Contact Discharge Air Discharge | | ± 30 | kV |
| | | ± 30 | kV |
| EFT Protection per IEC 61000-4-4 @ 5/50 ns | | 40 | A |
| Storage Temperature | T_{STG} | -55 to +150 | $^\circ\text{C}$ |
| Operating Temperature | T_{OPR} | -55 to +125 | $^\circ\text{C}$ |

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

| Parameter | Symbol | Min. | Typ. | Max. | Unit |
|-------------------------------------------------------------------------|-----------|------|------|------|---------------|
| Breakdown Voltage @ 1 mA | V_{BR} | 3.9 | | | V |
| Reverse Working Peak Voltage | V_{RWM} | | | 3.3 | V |
| Leakage Current ¹ @ V_{RWM} | I_D | | | 1 | μA |
| Clamping Voltage ² @ $I_P = 5\ \text{A}$ 8/20 μs | V_C | | | 12 | V |
| Clamping Voltage ² @ $I_P = 15\ \text{A}$ 8/20 μs | V_C | | | 15 | V |
| Clamping Voltage ² @ $I_P = 25\ \text{A}$ 8/20 μs | V_C | | | 18 | V |
| Junction Capacitance ² @ 0 V 1 MHz | C_D | | 4.0 | 4.6 | pF |
| Junction Capacitance ³ @ 0 V 1 MHz | C_{IO} | | 1.5 | 2.3 | pF |

Note 1: Pin 5 to ground.

Note 2: Pin 1,3,7 or 9 to ground.

Note 3: Between Pin 1,3,7 and 9.



WARNING Cancer and Reproductive Harm - www.P65Warnings.ca.gov

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

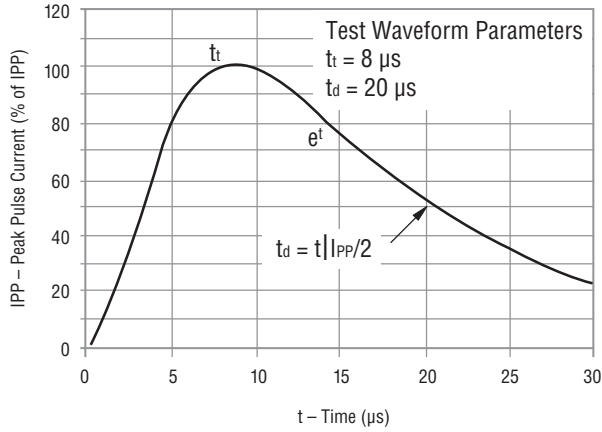
Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

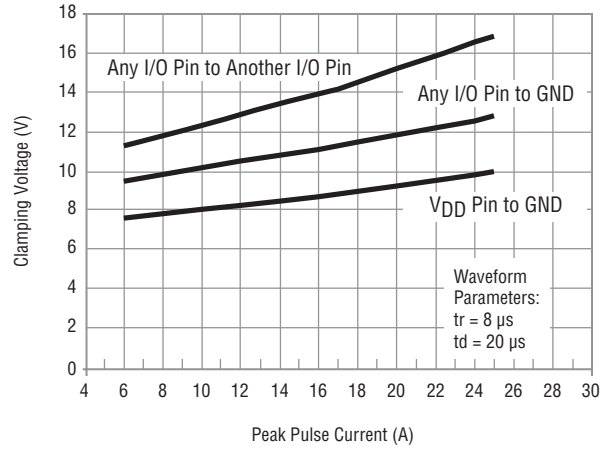
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Rating & Characteristic Curves

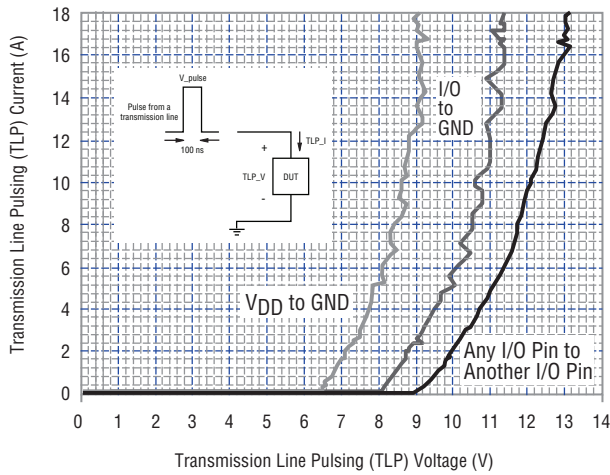
Pulse Waveform



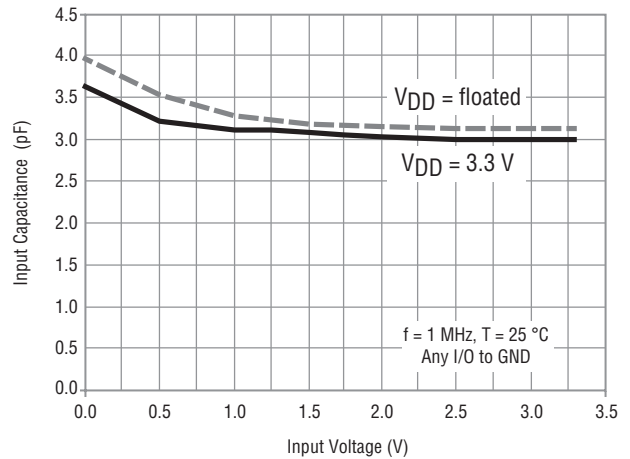
Typical Clamping Voltage vs Peak Pulse Current



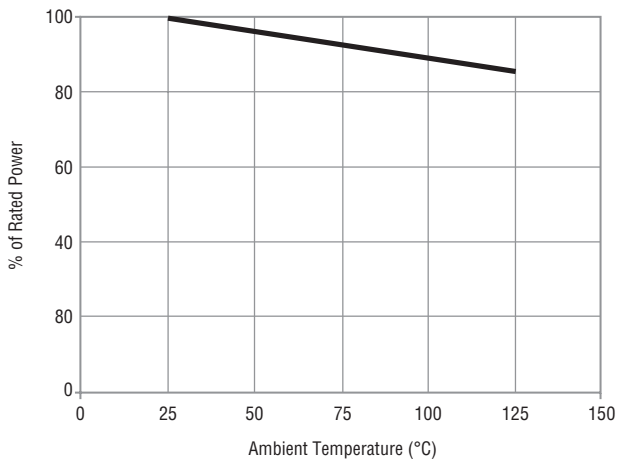
Typical Transmission Line Pulsing (TLP) Measurement



Typical Voltage vs. Capacitance



Typical Power Derating Curve



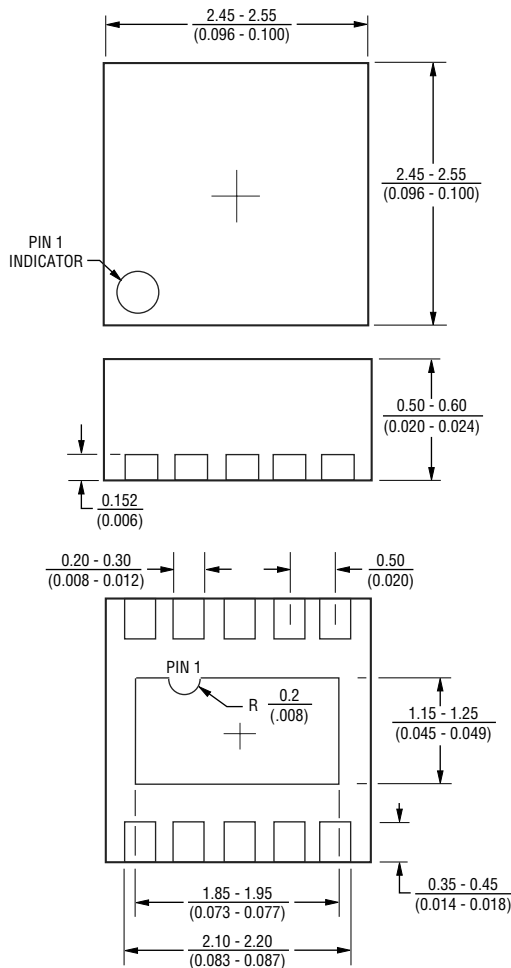
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CDDFN10-3304NA - TVS/Steering Diode Array



Product Dimensions

This is a molded DFN10 package with lead free Nickel-Paladium-Gold (Ni/Pd/Au) on the lead frame. It has a flammability rating of UL 94V-0.

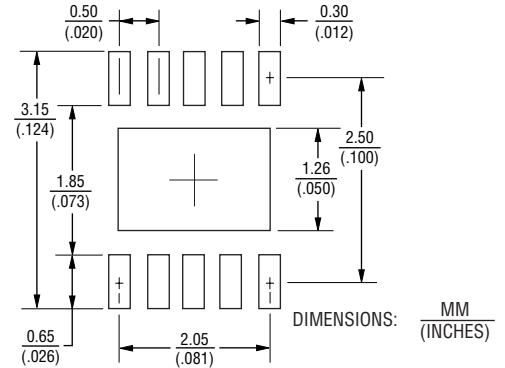


How to Order

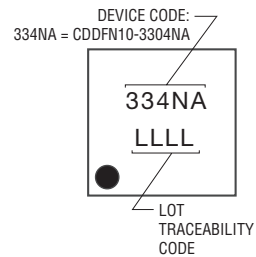
CD DFN10 - 33 04 NA

Common Diode _____
 Chip Diode _____
 Package _____
 DFN10 = DFN-10 Package _____
 Reverse Working Peak Voltage _____
 33 = 3.3 V_{RWM} (Volts) _____
 Number of Lines _____
 04 = 4 Data Lines _____
 Suffix _____
 NA = Low Capacitance _____

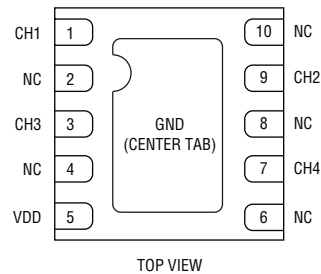
Recommended Footprint



Typical Part Marking



Pin Out



| Pin | Function |
|------------|-----------------|
| 1 | I/O |
| 2 | N.C. |
| 3 | I/O |
| 4 | N.C. |
| 5 | V _{DD} |
| 6 | N.C. |
| 7 | I/O |
| 8 | N.C. |
| 9 | I/O |
| 10 | N.C. |
| CENTER TAB | GROUND |

Environmental Specifications

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

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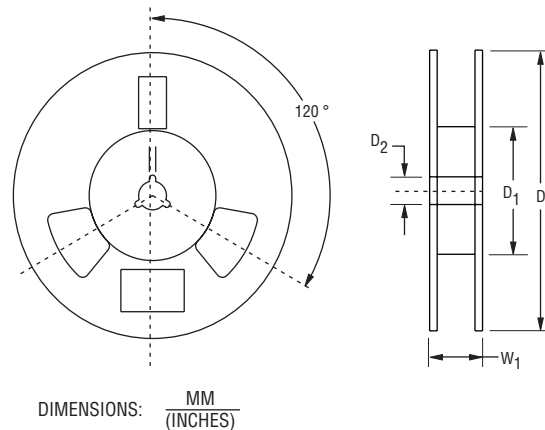
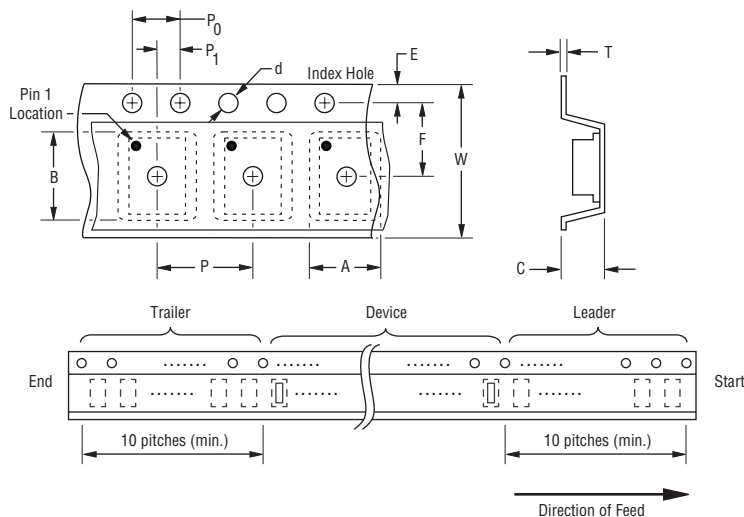
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CDDFN10-3304NA - TVS/Steering Diode Array

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Packaging Information

The product will be dispensed in tape and reel format (see diagram below).



Devices are packed in accordance with EIA standard RS-481-A.

| Item | Symbol | DFN-10 |
|------------------------|----------------|--------------------------------------------|
| Carrier Width | A | $\frac{1.2 \pm 0.05}{(0.047 \pm 0.002)}$ |
| Carrier Length | B | $\frac{2.7 \pm 0.05}{(0.106 \pm 0.002)}$ |
| Carrier Depth | C | $\frac{0.7 \pm 0.05}{(0.028 \pm 0.002)}$ |
| Sprocket Hole | d | $\frac{1.5 \pm 0.05}{(0.059 \pm 0.002)}$ |
| Reel Outside Diameter | D | $\frac{180 \pm 3}{(7.087 \pm 0.118)}$ |
| Reel Inner Diameter | D ₁ | $\frac{50.0}{(1.969)}$ MIN. |
| Feed Hole Diameter | D ₂ | $\frac{13.00 \pm 0.20}{(0.512 \pm 0.008)}$ |
| 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 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 | $\frac{0.60}{(0.024)}$ MAX. |
| Tape Width | W | $\frac{12.3}{(0.484)}$ MAX. |
| Reel Width | W ₁ | $\frac{18.4}{(0.724)}$ MAX. |
| Quantity per Reel | -- | 3000 |

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