Description

The AR3302P2 is an Uni-directional TVS diode, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive high-speed data lines. The AR3302P2 has an ultra-low capacitance with a typical value at 0.15pF, and complies with the IEC 61000-4-2 (ESD) with ±20kV air and ±15kV contact discharge. The small size, ultra-low capacitance and high ESD surge protection make AR3302P2 an ideal choice to protect cell phone, digital visual interfaces and other high speed ports.

Features

- Ultra low leakage: nA level
- Low operating voltage: 3.3V
- Low clamping voltage
- 6-pin leadless package
- Up to 2-line protects
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge: ±20kV
    - Contact discharge: ±15kV
  - IEC61000-4-5 (Lightning) 3A (8/20μs)
- RoHS Compliant

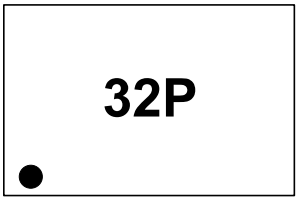
Mechanical Characteristics

- Package: DFN1109-6
- Case Material: “Green” Molding Compound.
- Terminal Connections: See Diagram Below
- Marking Information: See Below

Applications

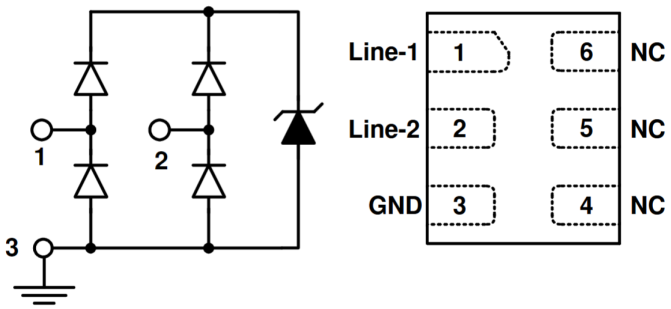
- Cellular Handsets and Accessories
- USB Ports
- Digital Visual Interface
- MMC/SD Ports

Marking Information



32P = Device Marking Code
Dot denotes Pin1

Dimensions and Pin Configuration



Ordering Information

Part Number	Packaging	Reel Size
AR3302P2	3000/Tape & Reel	7 inch

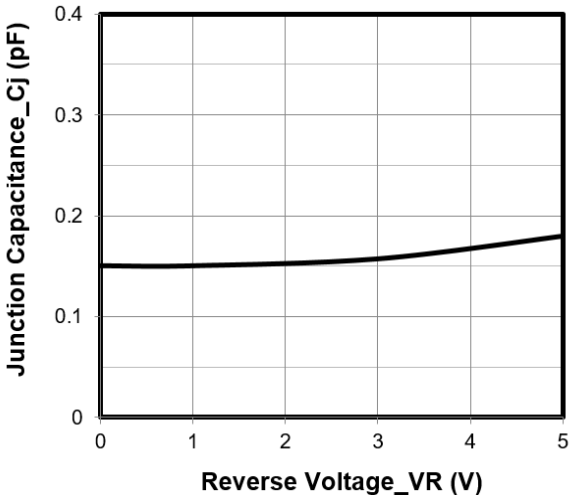
Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	50	W
Peak Pulse Current (8/20μs)	I_{PP}	3	A
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	V_{ESD}	±20 ±15	kV
Operating Temperature Range	T_J	−55 to +125	°C
Storage Temperature Range	Tstg	−55 to +150	°C

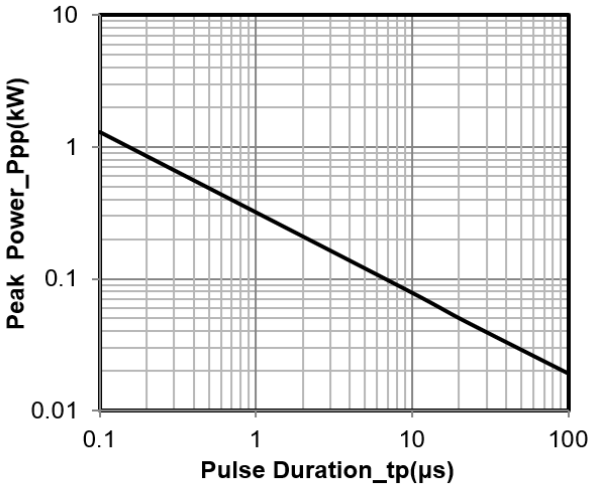
Electrical Characteristics (T_A=25°C unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			3.3	V	
Breakdown Voltage	V_{BR}	3.5			V	I_T = 1mA
Reverse Leakage Current	I_R			0.2	μA	V_{RWM} = 3.3V
Clamping Voltage	V_C			10	V	I_{PP} = 1A (8 x 20μs pulse), any I/O pin to ground
Clamping Voltage	V_C			17	V	I_{PP} = 3A (8 x 20μs pulse), any I/O pin to ground
Junction Capacitance	C_J		0.15	0.25	pF	VR = 0V, f = 1MHz, any I/O pin to ground

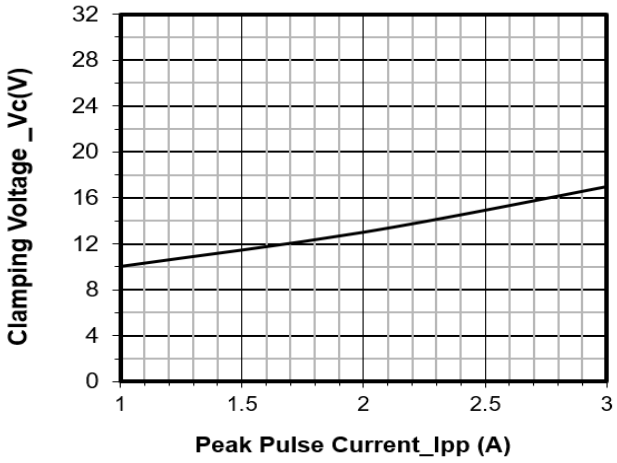
Typical Performance Characteristics (TA=25°C unless otherwise Specified)



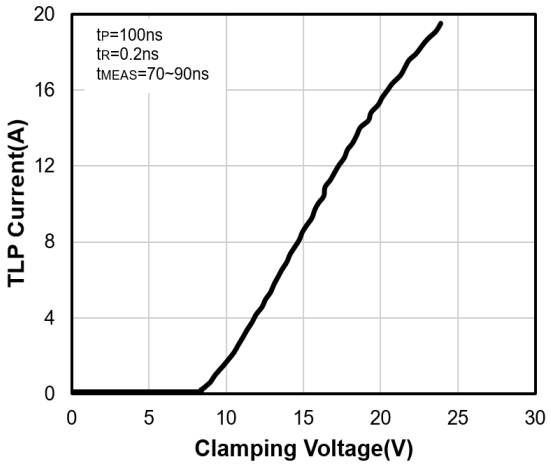
Junction Capacitance vs. Reverse Voltage



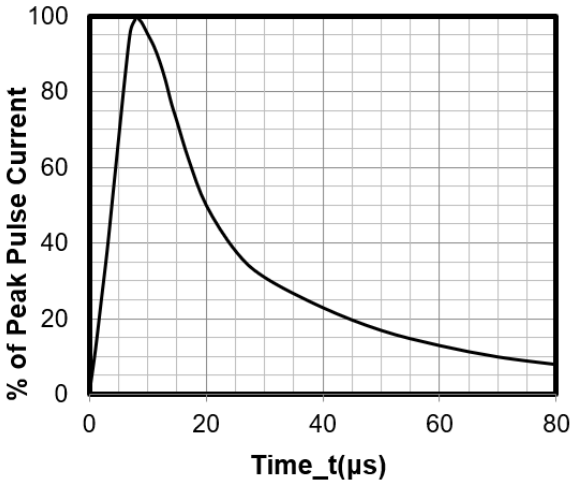
Peak Pulse Power vs. Pulse Time



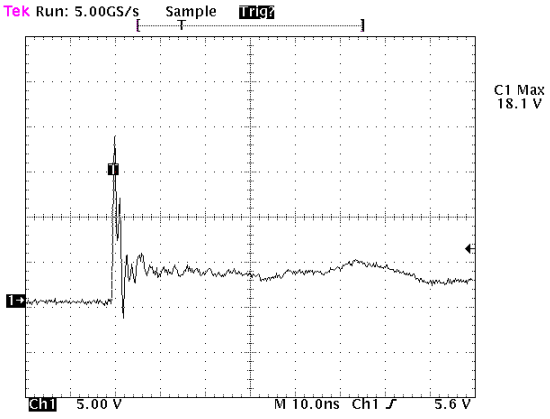
Clamping Voltage vs. Peak Pulse Current



TLP Curve



8 X 20μs Pulse Waveform



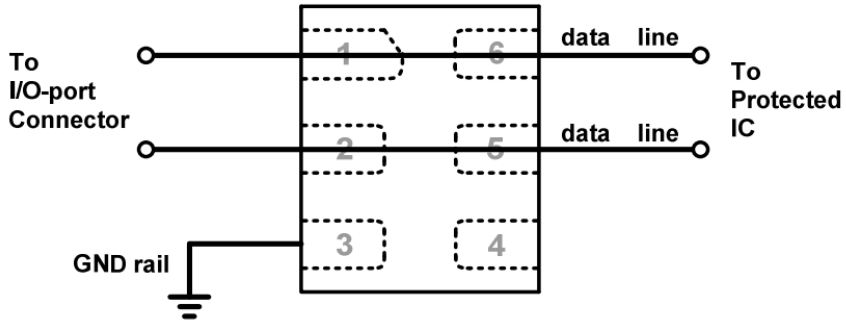
Note：Data is taken with a 10x attenuator

ESD Clamping Voltage

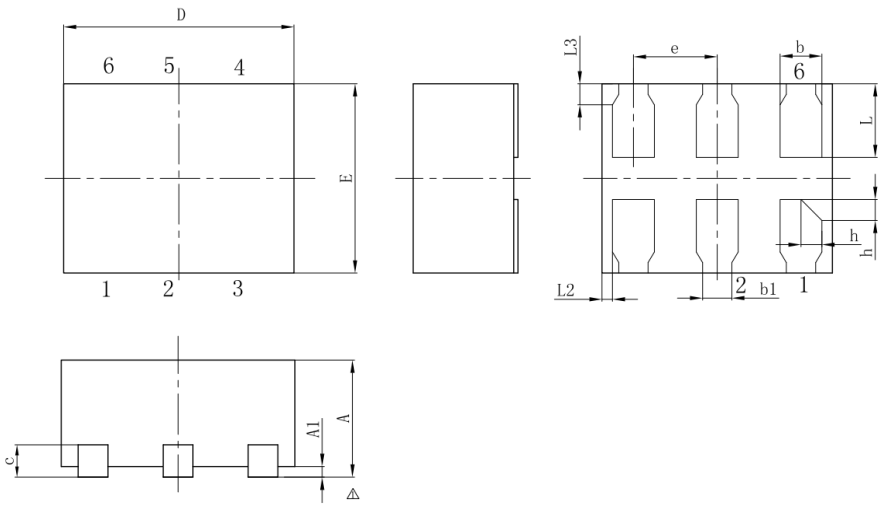
8 kV Contact per IEC61000−4−2

Typical Application

The AR3302P2 is designed to protect two data lines from transient over-voltage (such as ESD stress pulse). The device connection of AR3302P2 is shown in the picture, the two protected data lines are connected to the ESD protection pins (pin1, pin2) of AR3302P2. The ground pin (pin3) of AR3302P2 is a negative reference pin. This pin should be directly connected to the GND rail of PCB (Printed Circuit Board). To get minimum parasitic inductance, the path length should keep as short as possible. AR3302P2 can provide protection for 2 I/O signal lines simultaneously. If the number of I/O signal lines is less than 2, the unused I/O pins can be simply left as NC pins.



DFN1109-6 Package Outline Drawing



SYM	DIMENSIONS		
	MILLIMETERS		
	MIN	NOM	MAX
A	0.45	0.50	0.55
A1	0.00	0.02	0.05
b	0.15	0.20	0.25
b1		0.14 REF	
c	0.10	0.152	0.20
D	1.05	1.10	1.15
e		0.40 BSC	
E	0.85	0.90	0.95
L	0.30	0.35	0.40
L2		0.05 REF	
L3		0.10 REF	
h	0.05	0.10	0.15

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