

Description

The XR3321P0SC is a bi-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 XR3321P0SC has a low capacitance with a typical value at 0.3pF, and complies with the IEC 61000-4-2 (ESD) with $\pm 15\text{kV}$ air and $\pm 15\text{kV}$ contact discharge. The small size, low capacitance and high ESD surge protection make XR3321P0SC an ideal choice to protect cell phone, digital visual interfaces, HDMI, DVI, USB2.0, USB3.0, and other high speed ports.

Features

- low capacitance: 0.3pF typical
- Ultra low leakage: nA level
- Operating voltage: 3.3V
- Low clamping voltage
- 2-pin leadless package
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 15\text{kV}$
 - Contact discharge: $\pm 15\text{kV}$
 - IEC61000-4-5 (Lightning) 5A (8/20 μs)
- RoHS Compliant

Mechanical Characteristics

- Package: DFN0603-2
- Lead Finish: Matte Tin
- Case Material: “Green” Molding Compound.
- Terminal Connections: See Diagram Below
- Marking Information: See Below

Applications

- Cellular Handsets and Accessories
- Display Ports
- MDDI Ports
- USB Ports
- Digital Visual Interface (DVI)
- PCI Express and Serial SATA Ports

Caution:

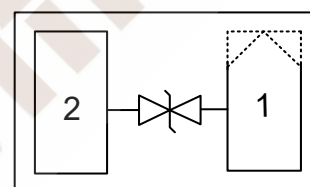


This Device is designed for signal line protection only.

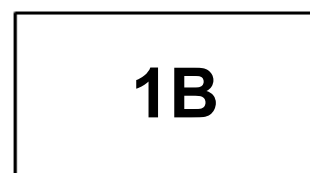
Not intended to be used under bias, not for application with a power line.



DFN0603-2



Circuit diagram



1B = Device code

Marking (Top View)

Ordering Information

Part Number	Packaging	Reel Size
XR3321P0SC	10000/Tape & Reel	7 inch

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

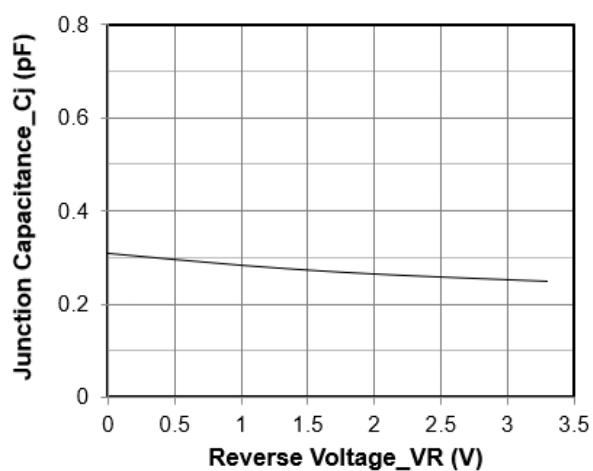
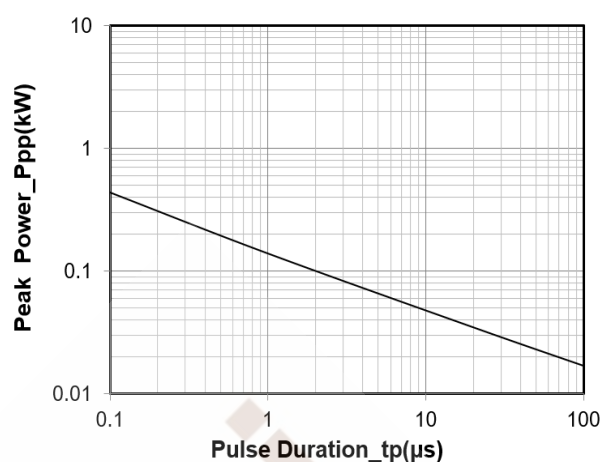
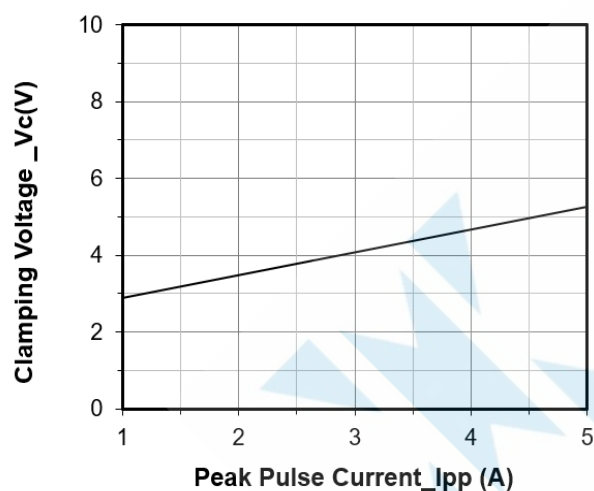
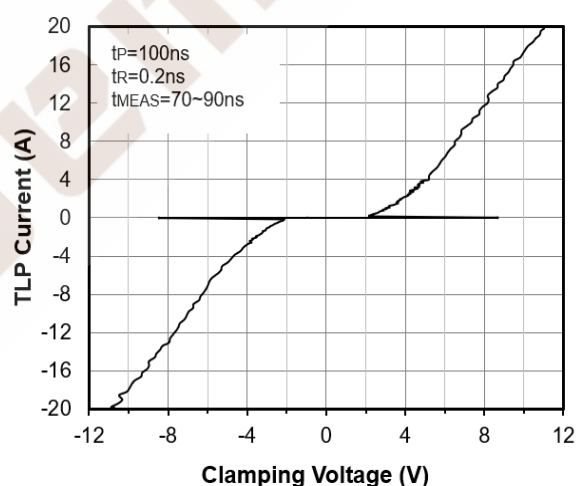
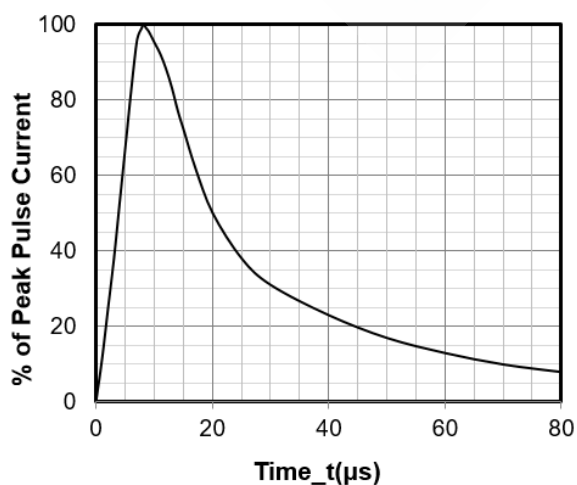
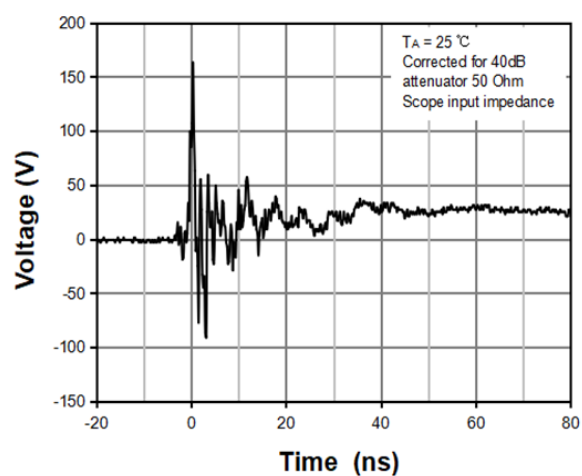
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	P _{pk}	35	W
Peak Pulse Current (8/20μs)	I _{PP}	5	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V _{ESD}	±15 ±15	kV
Operating Temperature Range	T _J	-55 to +125	°C
Storage Temperature Range	T _{stg}	-55 to +150	°C

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

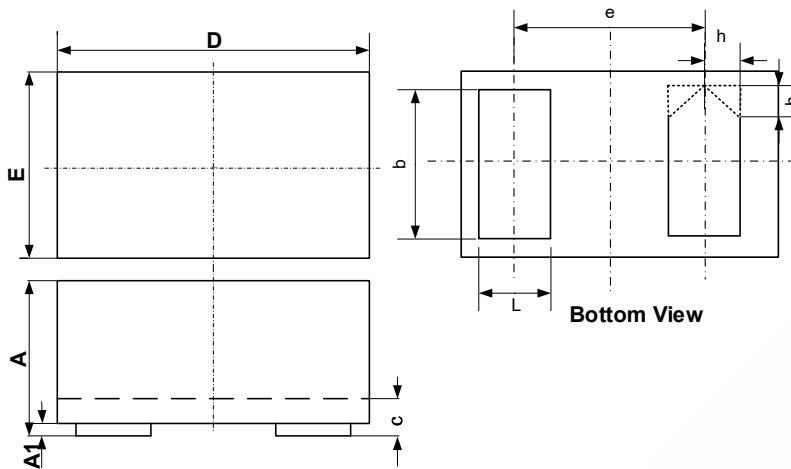
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V _{RWM}			3.3	V	
Breakdown Voltage	V _{BR}	3.5			V	I _T = 1mA
Reverse Leakage Current	I _R			0.2	μA	V _{RWM} = 3.3V
Clamping Voltage	V _C			7	V	I _{PP} = 5A (8 x 20μs pulse)
ESD Clamping Voltage ⁽¹⁾	V _C		5.1		V	I _{PP} = 4A, t _p = 0.2/100ns (TLP)
			9.1		V	I _{PP} = 16A, t _p = 0.2/100ns (TLP)
Dynamic Resistance ⁽²⁾	R _{DYN}		0.36		Ohm	t _p = 0.2/100ns (TLP)
Junction Capacitance	C _J		0.3		pF	V _R = 0V, f = 1MHz

(1) Transmission Line Pulse Test (TLP) Settings: t_p = 100ns, t_r = 0.2ns.

(2) Dynamic resistance calculated from I_{TLP} = 4A to I_{TLP} = 16A.

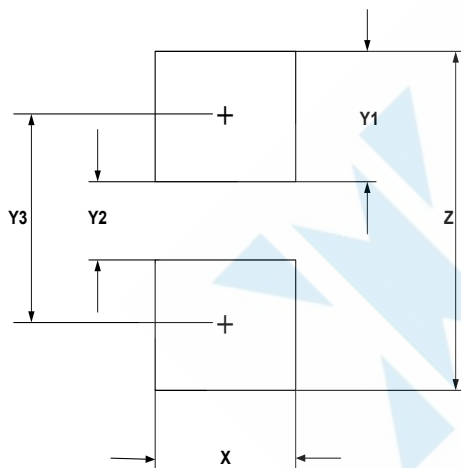
Typical Performance Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise Specified)

Junction Capacitance vs. Reverse Voltage

Peak Pulse Power vs. Pulse Time

Clamping Voltage vs. Peak Pulse Current ($t_p = 8/20\mu\text{s}$)

TLP Measurement

8 X 20 μs Pulse Waveform

ESD Clamping Voltage
8 kV Contact per IEC61000-4-2

DFN0603-2 Package Outline Drawing



SYM	DIMENSIONS		
	MILLIMETERS		
A	0.230	-	0.350
A1	0.000	0.020	0.050
b	0.200	0.245	0.300
c	0.050	0.150	0.180
D	0.550	0.600	0.650
e	0.355 BSC		
E	0.250	0.300	0.350
L	0.130	0.190	0.240
h	0.079 BSC		

Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
X	0.30	0.012
Y1	0.25	0.010
Y2	0.15	0.006
Y3	0.40	0.016
Z	0.65	0.026

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