TPESD3V3X1BCSF

1-CHANNEL ULTRA LOW CAPACITANCE ESD DIODE

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Features

- Low operating voltage: 3.3V
- Ultra low capacitance: 0.4pF (Typ)
- Ultra low leakage: nA level
- Low clamping voltage
- –IEC 61000-4-2 (ESD) immunity test
  - Air discharge: ±30kV
  - Contact discharge: ±30kV
  - –IEC61000-4-4 (EFT) 40A (5/50ns)
  - –IEC61000-4-5 (Lightning) 8A (8/20μs)
- 2-pin leadless package
- These are Pb−Free Devices
- Response Time is Typically < 1 ns

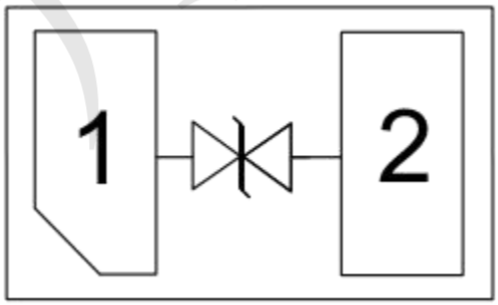
Mechanical Characteristics

- Package: DFN0603-2(0201)
- Lead Finish: Matte Tin
- Case Material: “Green” Molding Compound
- Terminal Connections: See Diagram Below
- -IEC 61000-4-2 (ESD) immunity test

Applications

- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation
- USB 2.0 power and data line

Dimensions and Pin Configuration



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

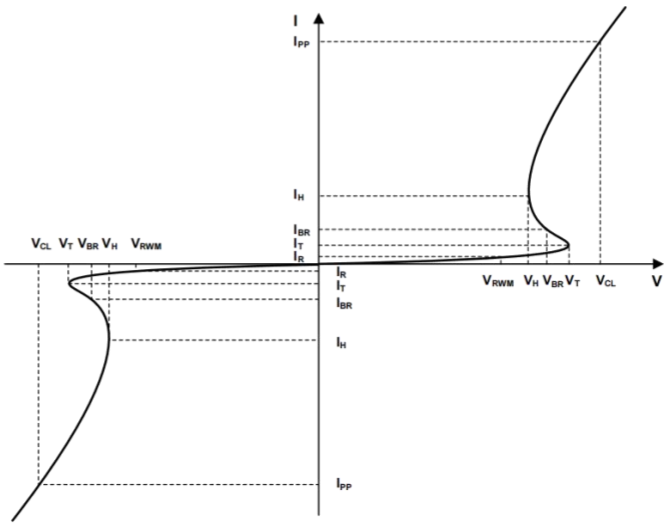
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	72	W
Peak Pulse Current (8/20μs)	Ipp	8	A
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	VESD	±30 ±30	KV
Operating Temperature Range	TJ	−55 to +125	°C
Storage Temperature Range	Tstg	−55 to +150	°C

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

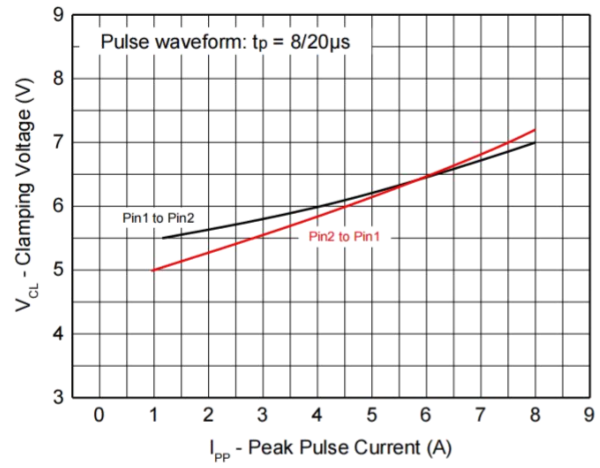
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM	--	--	3.3	V	
Breakdown Voltage	VBR	4.0	5.0	--	V	IT= 1mA
Reverse Leakage Current	IR	--	--	500	nA	VRWM=3.3V
Clamping Voltage	VC	--	5.5	7.0	V	Ipp=1A(8x 20us pulse)
Clamping Voltage	VC	--	7.5	10	V	Ipp=8A(8x 20us pulse)
Junction Capacitance	CJ	--	0.4	0.6	pF	VR = 0V, f = 1MHz

Electrical Characteristics

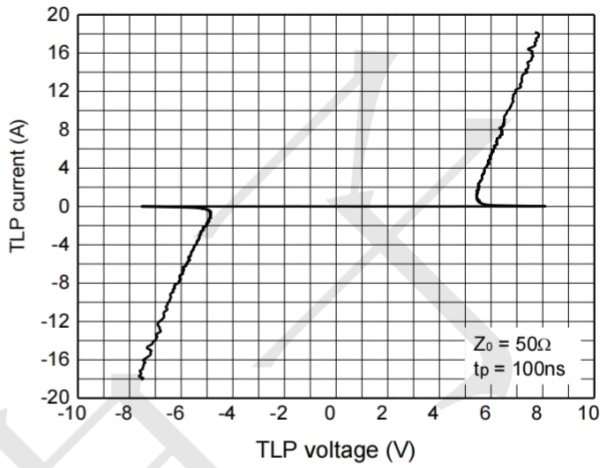
Symbol	Parameter
V_{BR}	Reverse Breakdown Voltage
I_{BR}	Reverse Breakdown Current
V_{RWM}	Reverse Stand-off Voltage
I_R	Reverse Leakage Current
V_H	Holding Voltage
I_H	Holding Current
V_T	Trigger Voltage
I_T	Trigger Current
I_{PP}	Peak Pulse Current
V_{CL}	Clamping Voltage



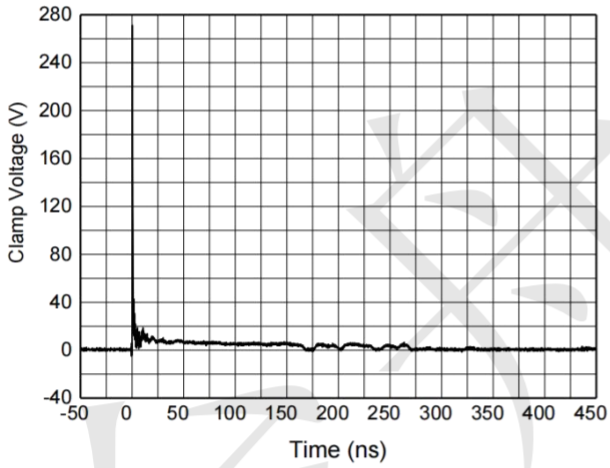
Characteristic Curves



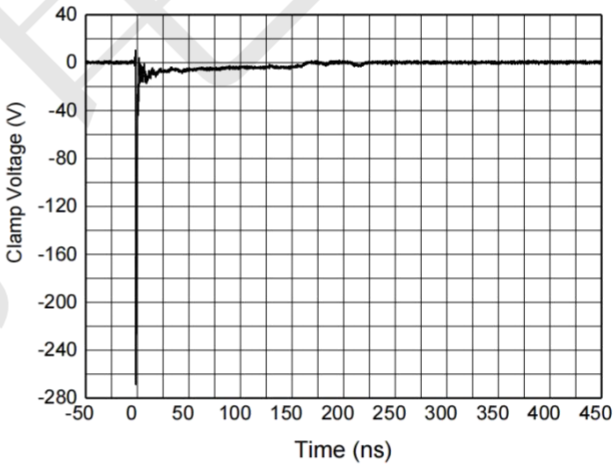
Clamping Voltage vs. Peak Pulse Current



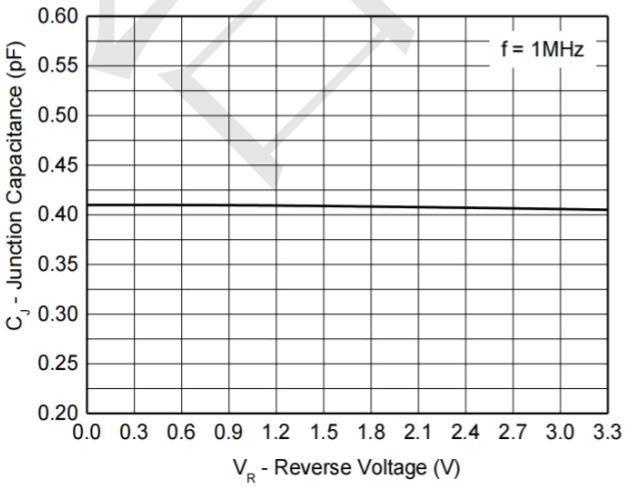
TLP IV Curve



+8kV contact discharge per IEC61000-4-2



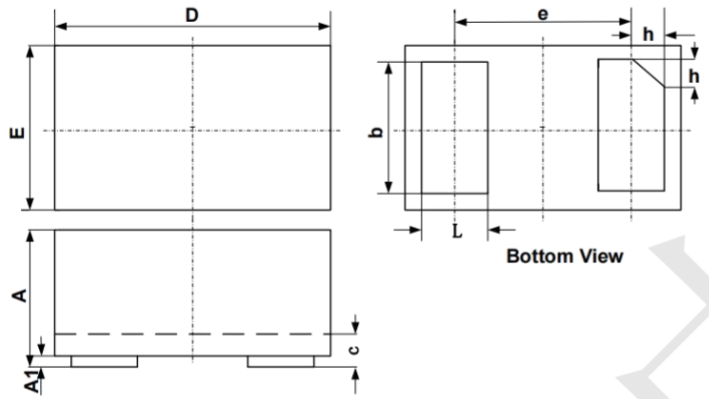
-8kV contact discharge per IEC61000-4-2



Capacitance vs. Reverse Voltage

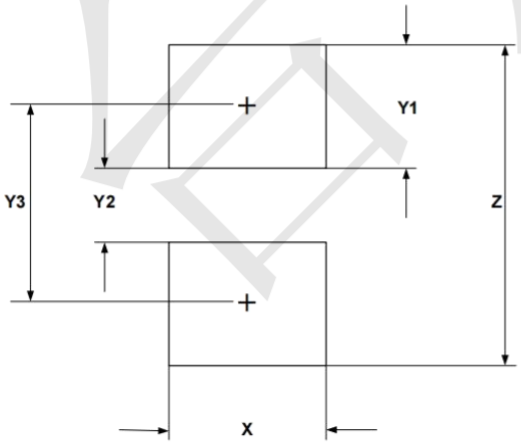
Package Outline & Dimensions

DFN0603-2 (0201)



SYM	DIMENSIONS		
	MILLIMETERS		
	MIN	NOM	MAX
A	0.230	0.300	0.330
A1	0.000	0.020	0.050
b	0.215	0.245	0.275
c	0.120	0.150	0.180
D	0.550	0.600	0.650
e	0.355 BSC		
E	0.250	0.300	0.350
L	0.160	0.190	0.220
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