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TPESDX051-2BU3

Ultra-Low Capacitance ESD Protection Diodes

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Features

- Low operating voltage: 5V
- Low clamping voltage
- Ultra low capacitance: 0.2 pF typical (I/O to I/O)
- Ultra low leakage: nA level
- Complies with following standards:
- - IEC 61000-4-2 (ESD) immunity test
  Air discharge: ±30kV
  Contact discharge: ±30kV
  – IEC61000-4-5 (Lightning) 4.5A (8/20μs)
- These are Pb–Free Devices
- Response Time is Typically < 1 ns

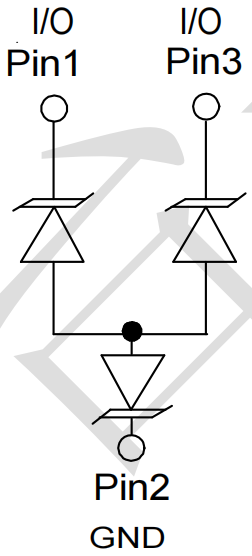
Mechanical Characteristics

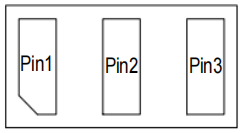
- Package: DFN0603-3
- Lead Finish: Matte Tin
- Case Material: “Green” Molding Compound.
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminal Connections: See Diagram Below
- Shipping Qty :15000pcs /7Inch Tape & Reel

Applications

- High Speed Data Line Protection
- USB 2.0, USB 3.0, USB 3.1

Dimensions and Pin Configuration





DFN0603-3

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

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	50	W
Peak Pulse Current (8/20μs)	Ipp	4.5	A
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	V_{ESD}	±30 ±30	kV
Operating Temperature Range	T_J	−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	V_{RWM}			5	V	
Breakdown Voltage	V_{BR}	6	7.4	9.0	V	I_T = 1mA
Reverse Leakage Current	I_R			0.2	uA	V_{RWM} = 5V
Clamping Voltage	V_C		6	7.5	V	Ipp=1A(8x 20us pulse)
Clamping Voltage	V_C		8	10	V	Ipp=4.5A(8x 20us pulse)
Junction Capacitance	C_J		0.2		pF	VR = 0V, f = 1MHz Between I/O pins

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

Fig1. 8/20μs Pulse Waveform

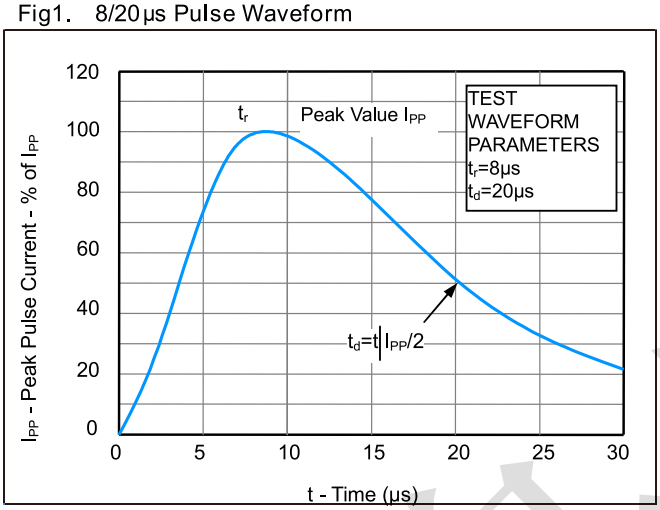


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

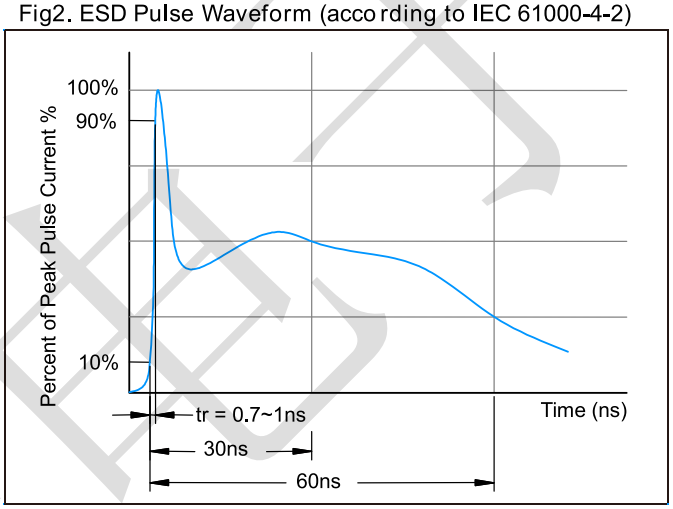
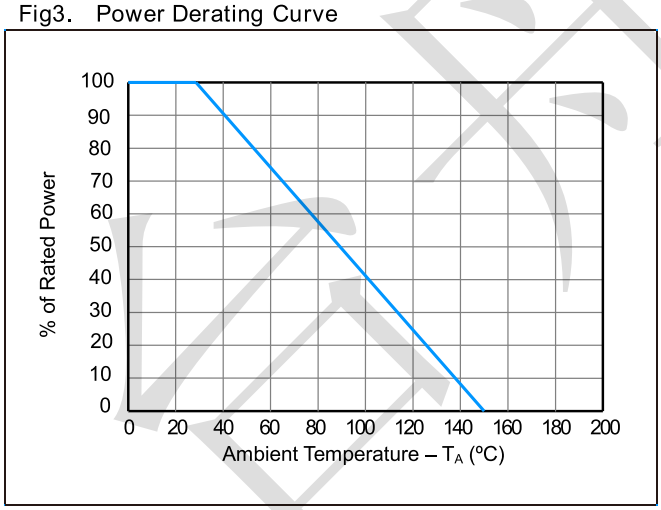
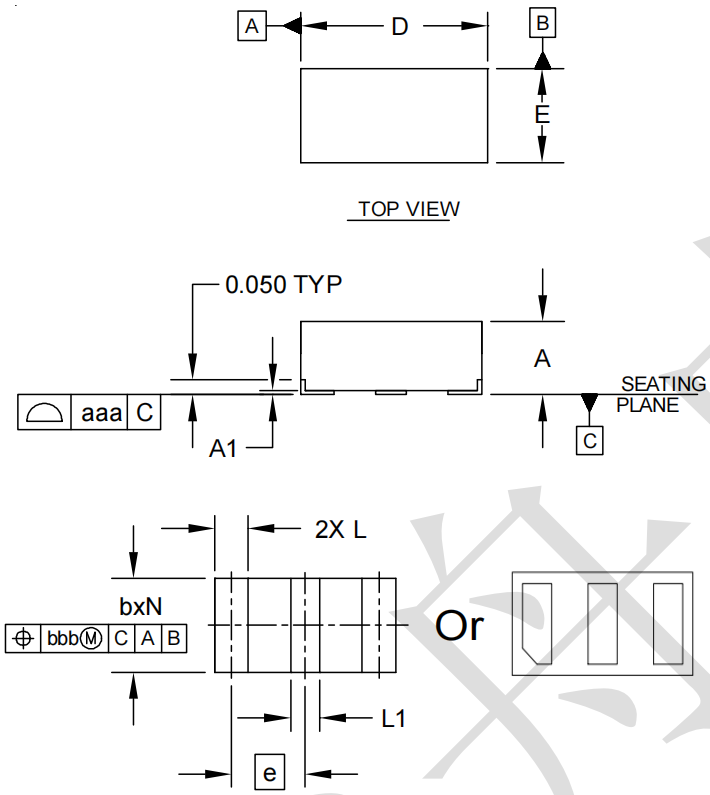


Fig3. Power Derating Curve



DFN0603-3 Package Outline Drawing



DIM	DIMENSIONS MILLIMETERS		
	MIN	NOM	MAX
A	0.360	0.400	0.430
A1	0.005	0.015	0.050
b	0.290	0.32	0.350
D	0.590	0.62	0.650
E	0.290	0.32	0.350
e	0.253 BSC		
L	0.090	0.115	0.140
L1	0.090	0.100	0.125
N	3		
aaa	0.08		
bbb	0.10		

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ESD5B5.0ST1G-P FDMS7670AS-TP TPAPX809S-31SA TPD1213A-02SM TPESD0402G08V QM3003J-TP DMP6350S IRFR2405TRPBF-TP LTH7 TPB1A30-123 TPFMMT493 TPZVN3320FTA TPS3809L30DBVR-TP TPWSB5557Z TPSPX3819M5-L-3-3 TPADM809LAKSZ TPB05A40-323 TPESD0504S6-A DDTA143ZCA TPADM809SAKSZ TPGC12C-1 SN7002W BV15C FDC6301N-TP SI3932DV TPDMG6602SVT TPESD5311N BSN20W TPS7B6950DBVR-TP TPZXMP3A13FTA