

2-Channel ESD Protection for Super-Speed USB 3.0 Interface

Features

- Supports USB 3.0 data rate(5Gbps)
- Ultra low Capacitance: 0.4pF typical I/O to GND
- Ultra low Leakage : nA level
- Low operating voltage: 5.5V
- Bi-directional TVS Diode Array
- Low clamping voltage
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
Air discharge: $\pm 20\text{kV}$
Contact discharge: $\pm 15\text{kV}$
 - IEC 61000-4-5 Surge 3.3 A (8/20 μs)
 - IEC61000-4-4 (EFT) 40A (5/50ns)
- ROHS Compliant

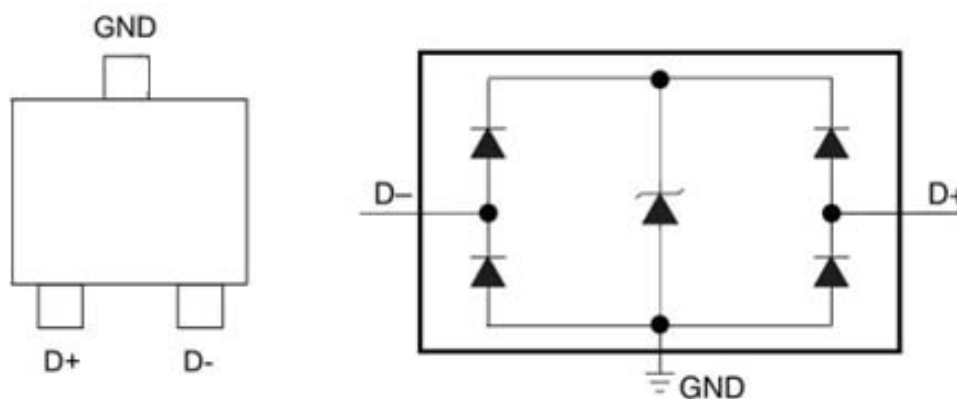
Mechanical Characteristics

- Package: SOT-9x3
- Lead Finish: Matte Tin
- Case Material: “Green” Molding Compound.
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminal Connection: See Diagram Below
- Shipping Qty : 8000pcs/7Inch Tape & Reel

Applications

- Notebooks
- Set-top boxes
- DVD Player
- Media Player
- Portable Computer

Dimensions and Pin Configuration





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

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	50	W
ESD per IEC61000-4-2 (Air) ESD per IEC61000-4-2 (Contact)	V _{ESD}	±20 ±18	kV
Operating Temperature Range	T _J	-55 to +125	°C
Storage Temperature Range	T _{stg}	-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}			5.5	V	
Breakdown Voltage	V _{BR}	7			V	I _T =1mA
Leakage Current	I _{Leak}		0	100	nA	V _{IO} =5V
Dynamic resistance	R _{DYN}		0.6		Ω	any I/O pin to GND
Clamping Voltage (I/O-GND)	V _C			13	V	I _{PP} =1A, T _p =8/20μs
Clamping Voltage(V _{CC} -GND)	V _C			18	V	I _{PP} =2.8A, T _p =8/20μs
Junction Capacitance (I/O to GND)	C _J		0.4		pF	V _R =0V, f=1MHz,
Junction Capacitance (I/O to I/O)	C _J		0.2	0.35	pF	V _R =0V, f=1MHz,

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

Fig1. 8/20μs Pulse Waveform

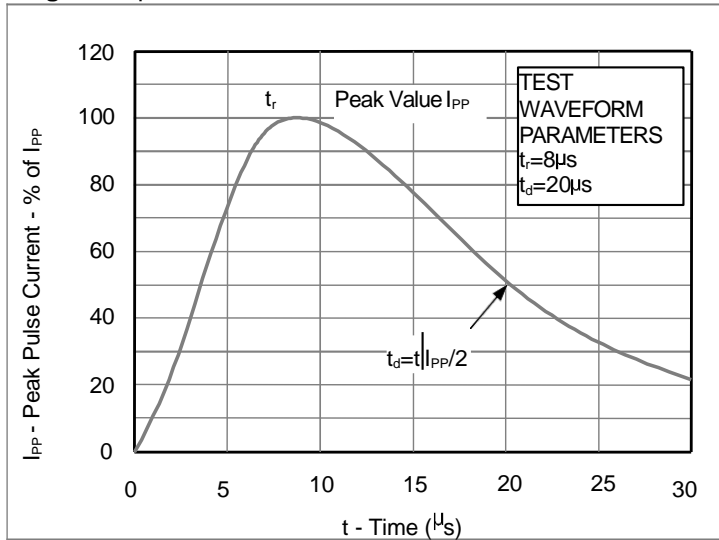


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

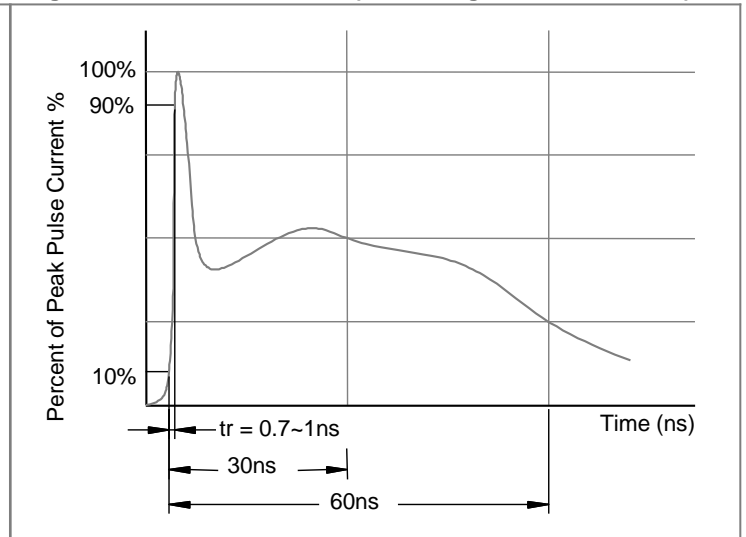
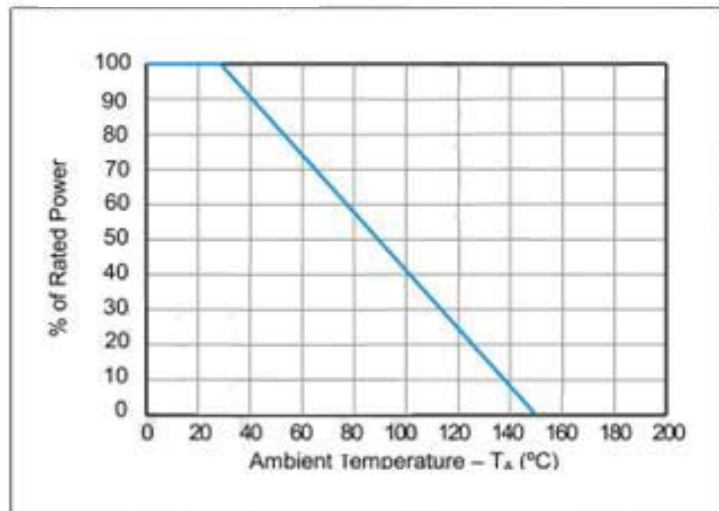
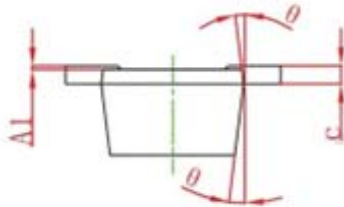
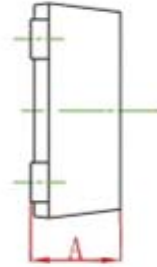
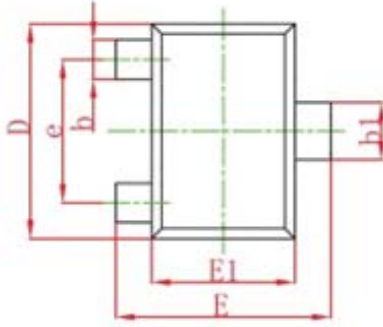


Fig3. Power Derating Curve



SOT-9x3 Package Outline Dimensions



Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min.	Max.	Min.	Max.
A	0.430	0.500	0.017	0.020
A1	0.000	0.050	0.000	0.002
b	0.170	0.270	0.007	0.011
b1	0.270	0.370	0.011	0.015
c	0.080	0.150	0.003	0.006
D	1.150	1.250	0.045	0.049
E	1.150	1.250	0.045	0.049
E1	0.750	0.850	0.030	0.033
e	0.800TYP.		0.031TYP.	
θ	7° REF.		7° REF.	