

### Features

- ◆ Supports USB 3.0 data rates (5 Gbps)
- ◆ Ultra low capacitance: 0.4pF typical I/O to GND
- ◆ Ultra low leakage: nA level
- ◆ Low operating voltage: 3.3V
- ◆ Uni-directional TVS Diode Array
- ◆ Low clamping voltage
- ◆ Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge: ±20kV
    - Contact discharge: ±18kV
  - IEC61000-4-5 (Lightning)3.3A (8/20μs)
  - IEC61000-4-4 (EFT) 40A (5/50ns)
- ◆ ROHS Compliant

### Ordering Information

Part Number	Qty per Reel	Reel Size
TPD2EUSB30ADRTR-TP	8000	7"

### Mechanical Characteristics

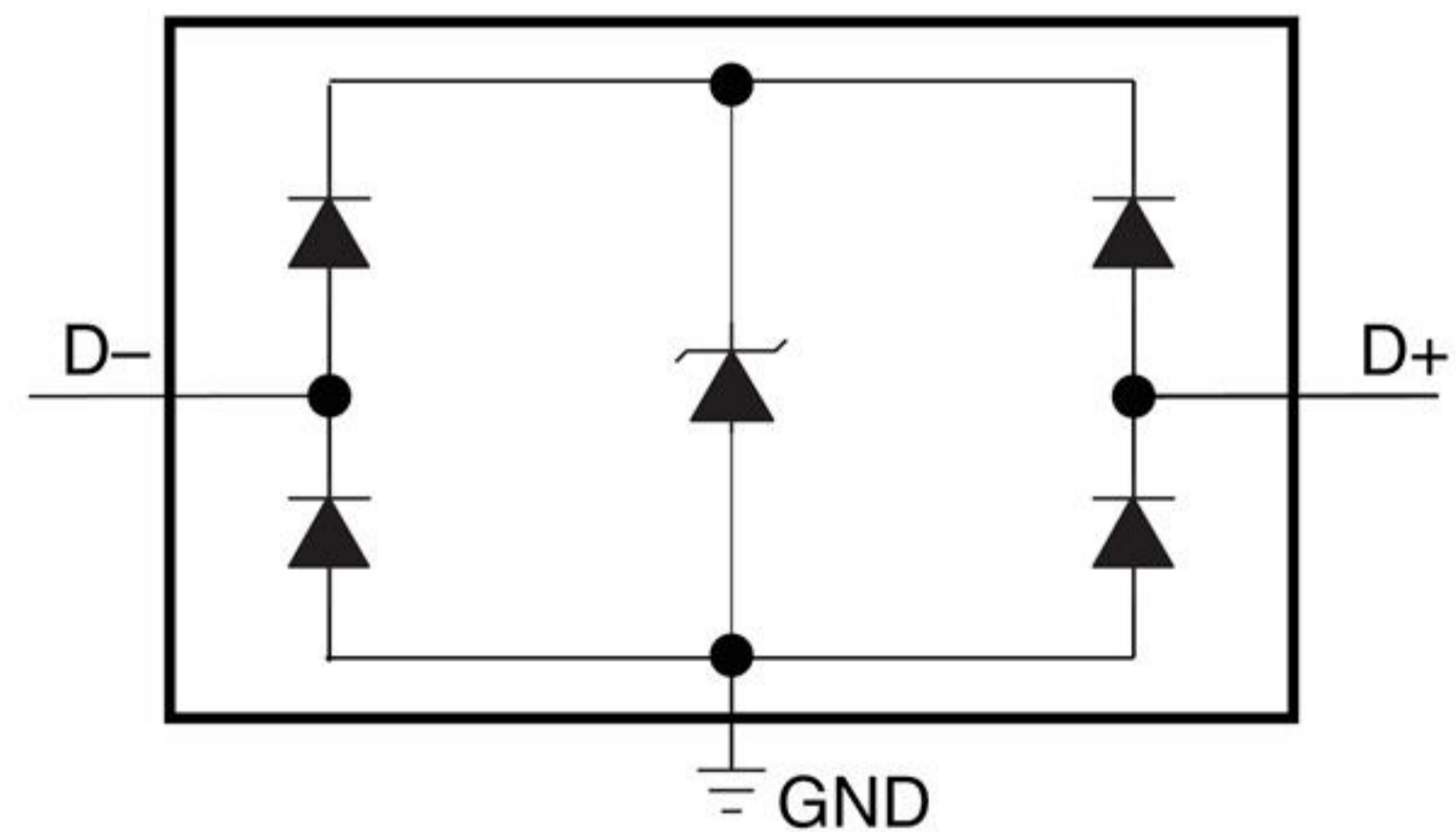
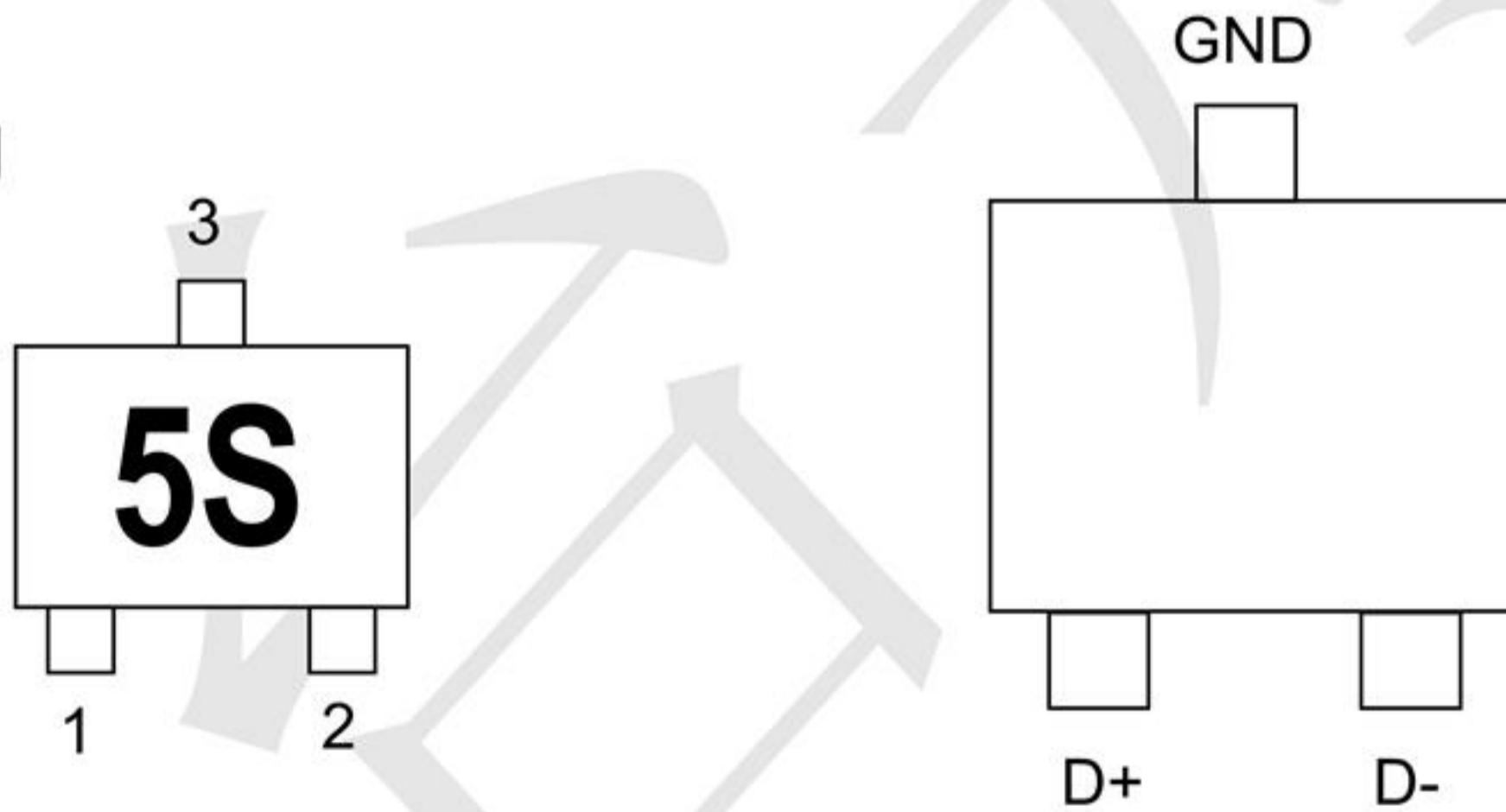
- Package: SOT-9X3
- Lead Finish: Matte Tin
- Case Material: “Green” Molding Compound.
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminal Connections: See Diagram Below
- Shipping Qty :8000pcs/7Inch Tape & Reel

### Applications

- Notebooks
- Set-top boxes
- DVD players
- Media players
- Portable computers

### Dimensions and Pin Configuration

#### Marking



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

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	50	W
ESD per IEC61000-4-2 (Air)	V <sub>ESD</sub>	±20	kV
ESD per IEC61000-4-2 (Contact)		±18	
Operating Temperature Range	T <sub>J</sub>	-55 to +125	°C
Storage Temperature Range	T <sub>stg</sub>	-55 to +150	°C

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

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V <sub>RWM</sub>			3.3	V	
Breakdown Voltage	V <sub>BR</sub>	4.5			V	I <sub>T</sub> =1mA
Leakage Current	I <sub>Leak</sub>			100	nA	V <sub>RWM</sub> =2.5V
Dynamic resistance	R <sub>DYN</sub>		0.6		Ω	any I/O pin to GND
Clamping Voltage (I/O-GND)	V <sub>C</sub>			13	V	I <sub>PP</sub> =1A, T <sub>p</sub> =8/20 μs
Clamping Voltage (I/O-GND)	V <sub>C</sub>			18	V	I <sub>PP</sub> =3A, T <sub>p</sub> =8/20 μs
Junction Capacitance (I/O to GND)	C <sub>J</sub>		0.4		pF	V <sub>R</sub> =0V, f=1MHz,
Junction Capacitance (I/O to I/O)	C <sub>J</sub>		0.2	0.35	pF	V <sub>R</sub> =0V, f=1MHz,

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

Fig1. 8/20 $\mu\text{s}$  Pulse Waveform

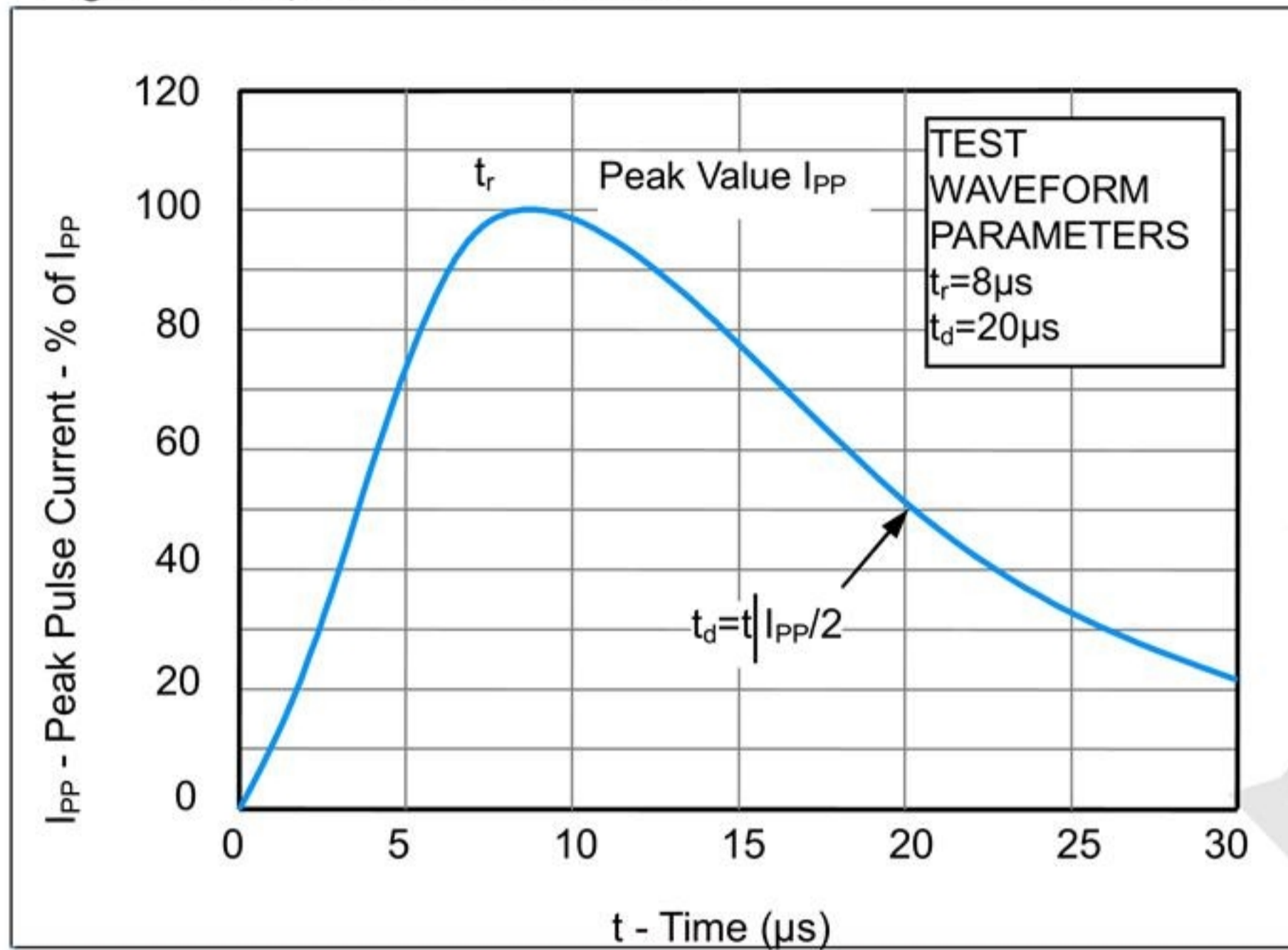


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

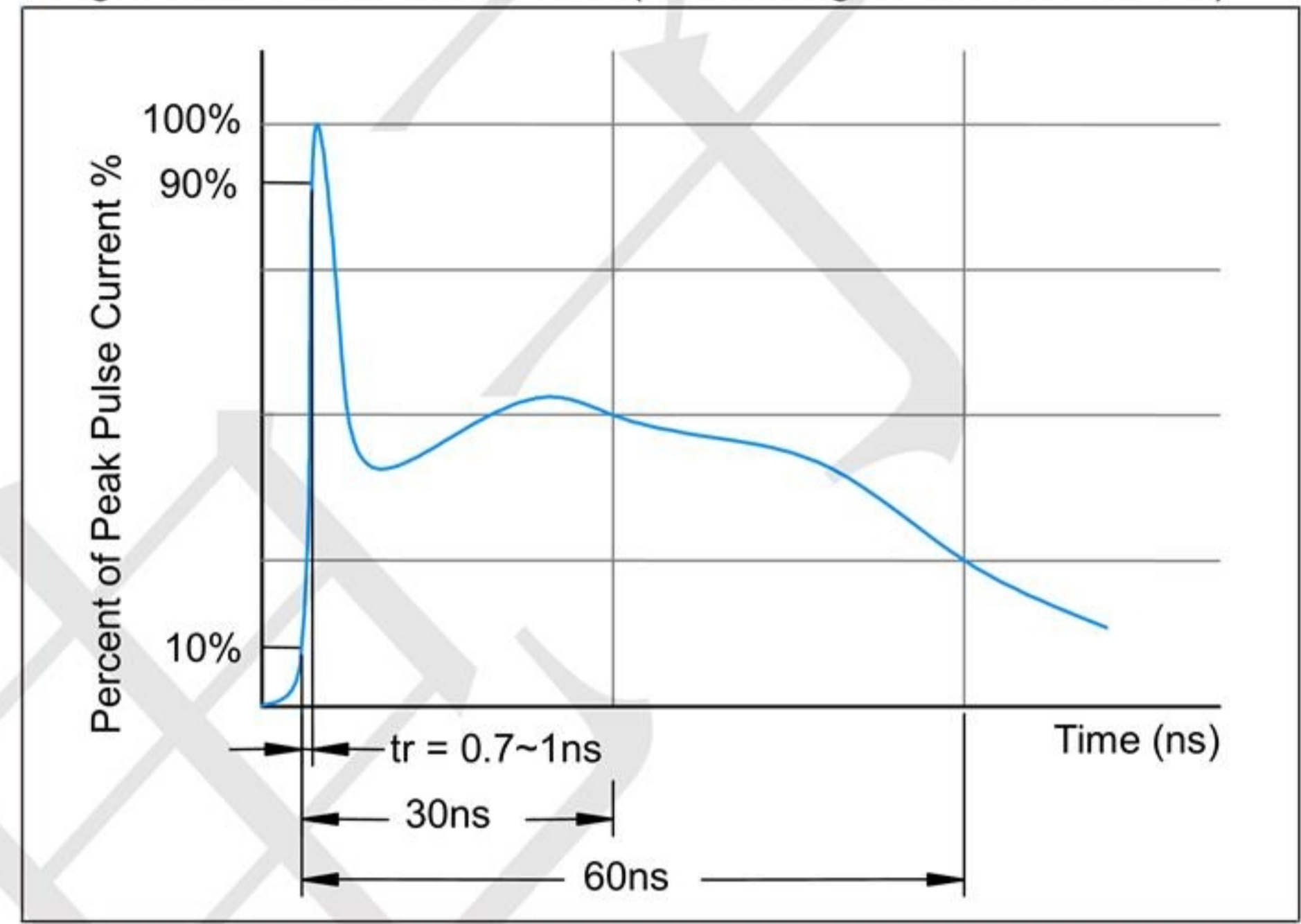
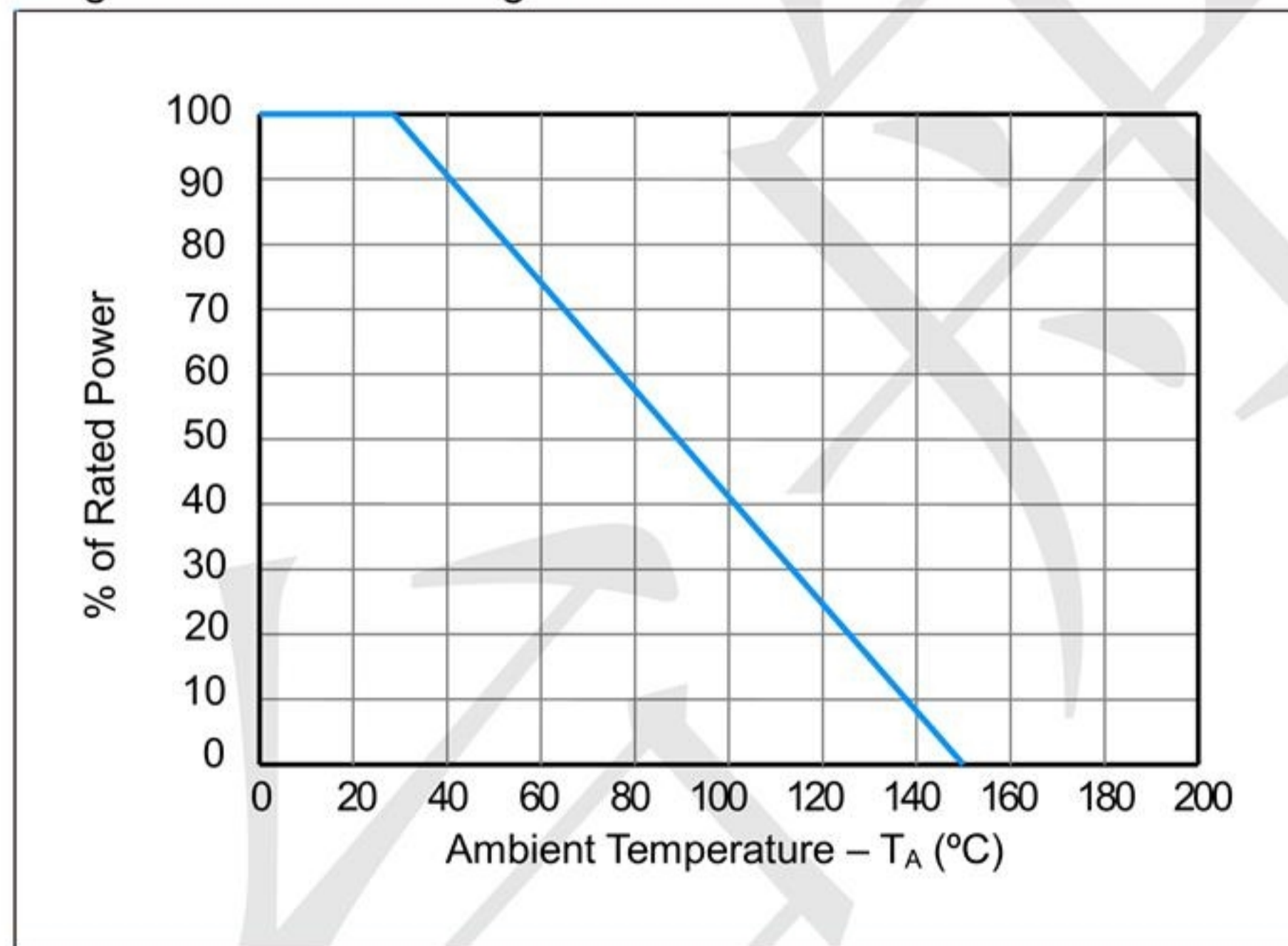


Fig3. Power Derating Curve





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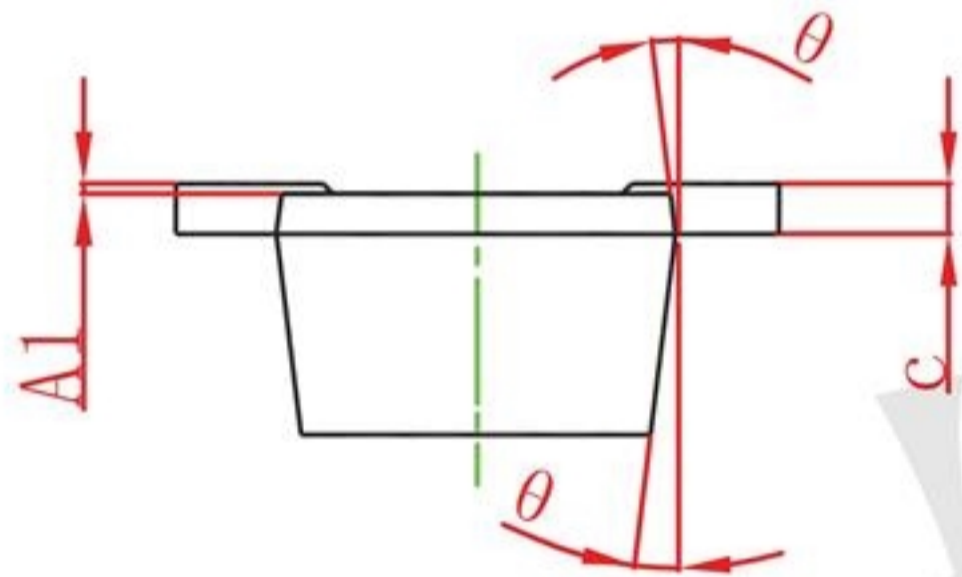
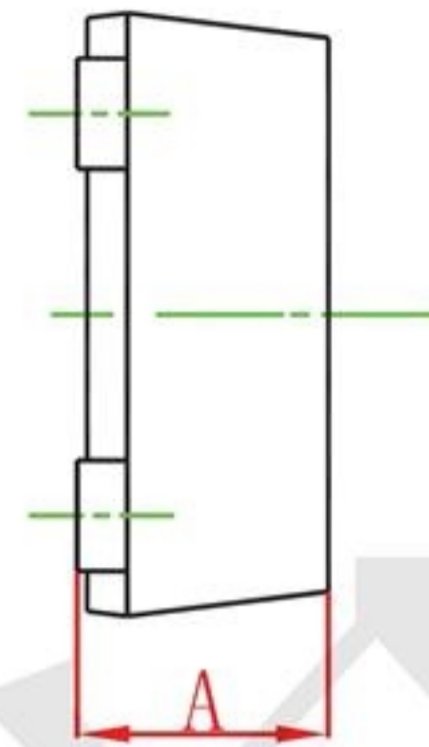
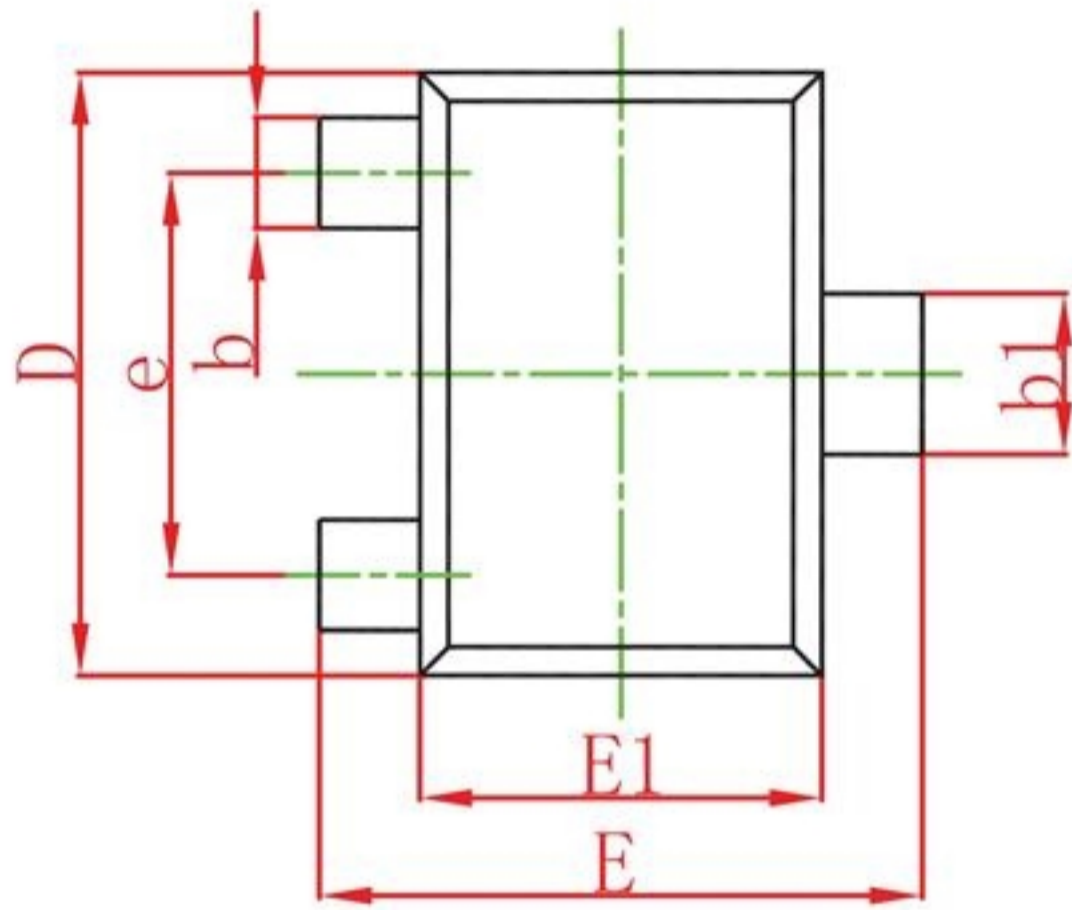
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# TPD2EUSB30ADRTR-TP

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

[www.sot23.com.tw](http://www.sot23.com.tw)

## 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.	

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