

## Features

- ◆ Ultra low capacitance: 0.3pF typical
- ◆ Ultra low leakage: nA level
- ◆ Operating voltage: 5V
- ◆ Low clamping voltage
- ◆ 4-pin SOT-143 package
- ◆ Protects two data lines and one power line
- ◆ Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test  
Air discharge:  $\pm 30\text{kV}$   
Contact discharge:  $\pm 25\text{kV}$
  - IEC61000-4-4 (EFT) 40A (5/50ns)
  - IEC61000-4-5 (Lightning) 3A (8/20 $\mu\text{s}$ )
- ◆ RoHS Compliant

## Mechanical Characteristics

- ◆ Package: SOT-143
- ◆ Lead Finish: Matte Tin
- ◆ Case Material: “Green” Molding Compound.
- ◆ UL Flammability Classification Rating 94V-0
- ◆ Moisture Sensitivity: Level 3 per J-STD-020



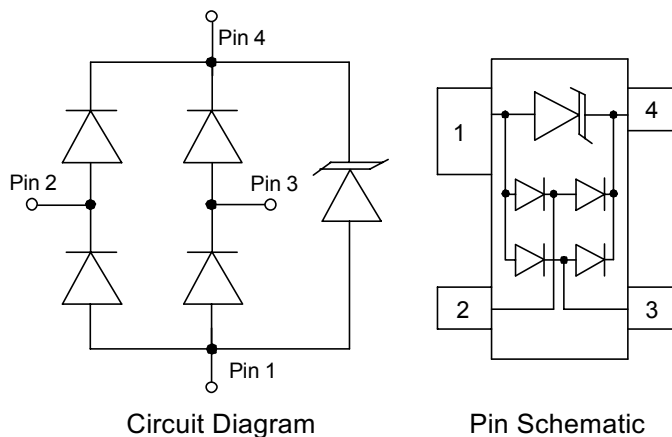
## Applications

- ◆ Cellular Handsets and Accessories
- ◆ Notebooks and Handhelds
- ◆ Personal Digital Assistants
- ◆ Portable Instrumentation
- ◆ Digital Cameras
- ◆ Peripherals
- ◆ Audio Players, Keypads, Side Keys, LCD
- ◆ USB 2.0

## Ordering Information

Part Number	Qty per Reel	Reel Size
TPESD0502S4	3000	7"

## Dimensions and Pin Configuration



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

Parameter	Symbol	Value	Unit
Peak Pulse Power(8/20μs)	Ppk	100	W
Peak Pulse Current(8/20μs)	I <sub>PP</sub>	3	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V <sub>ESD</sub>	±20 ±20	kV
Operating Temperature Range	T <sub>J</sub>	-55 to +125	°C
Storage Temperature Range	T <sub>stg</sub>	-55 to +150	°C

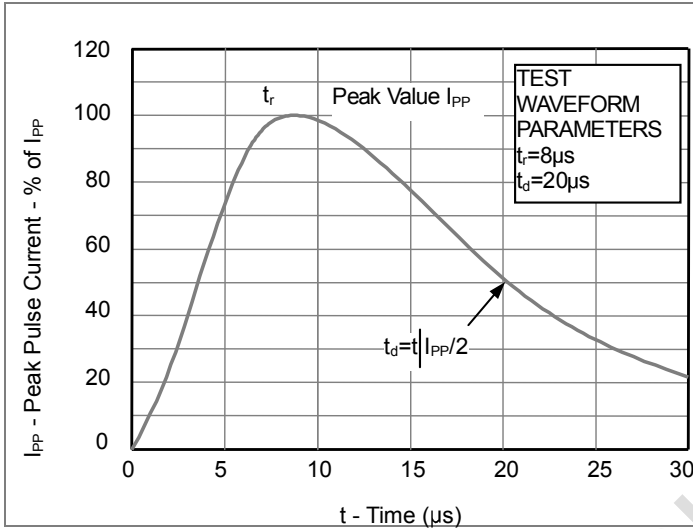
**Electrical Characteristics** (TA=25°C unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V <sub>RWM</sub>			5	V	Any I/O pin to ground
Punch-Through Voltage	V <sub>BR</sub>	6			V	I <sub>T</sub> = 1mA, any I/O pin to ground
Reverse Leakage Current	I <sub>R</sub>		0.01	0.5	μA	V <sub>RWM</sub> = 5V, any I/O pin to ground
Clamping Voltage	V <sub>C</sub>			15	V	I <sub>PP</sub> = 1A (8 x 20μs pulse), any I/O pin to ground
Clamping Voltage	V <sub>C</sub>			18	V	I <sub>PP</sub> = 3A (8 x 20μs pulse), any I/O pin to ground
Junction Capacitance	C <sub>J</sub>		0.3	0.4	pF	V <sub>R</sub> =0, f=1MHz, between I/O pins
Junction Capacitance	C <sub>J</sub>			0.8	pF	V <sub>R</sub> =0, f=1MHz, any I/O pin to ground

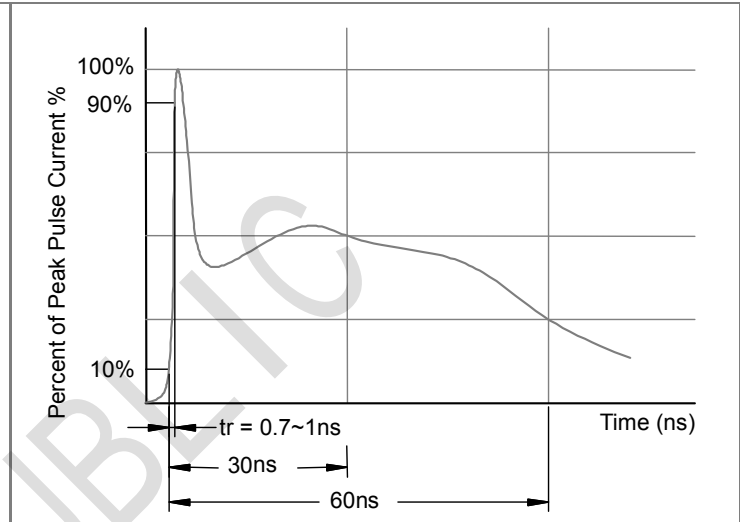
Note 1: I/O pins are pin 2&3

**PROTECTION PRODUCTS**  
Typical characteristics

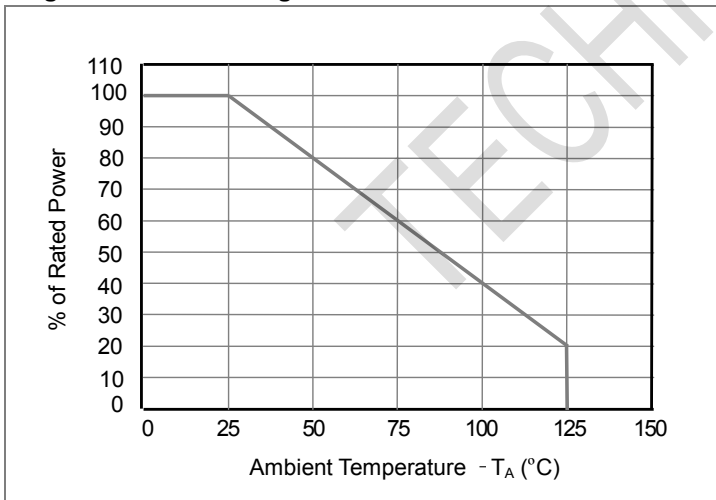
**Fig1. 8/20 $\mu$ s Pulse Waveform**



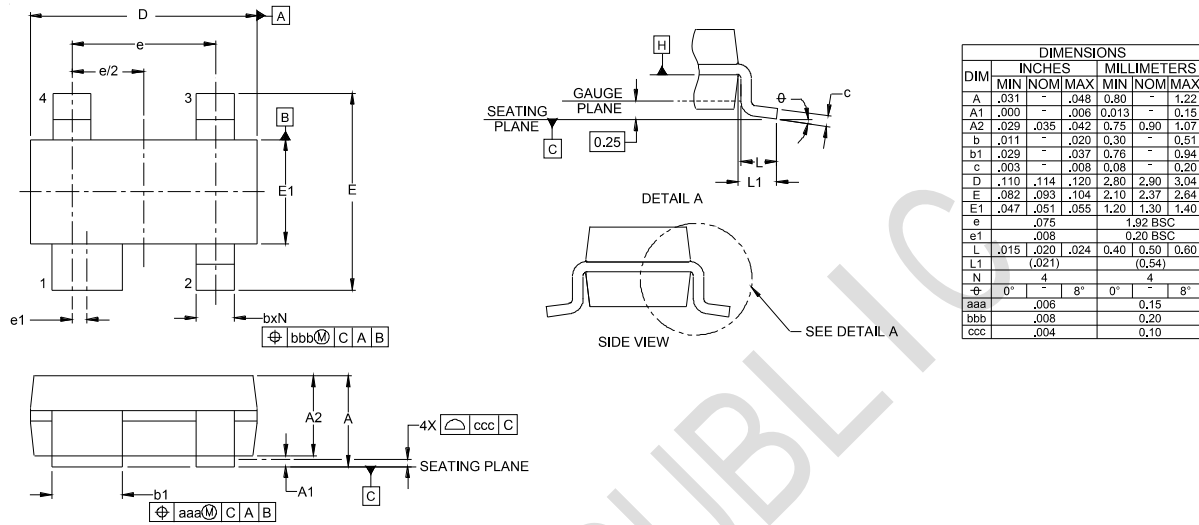
**Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)**



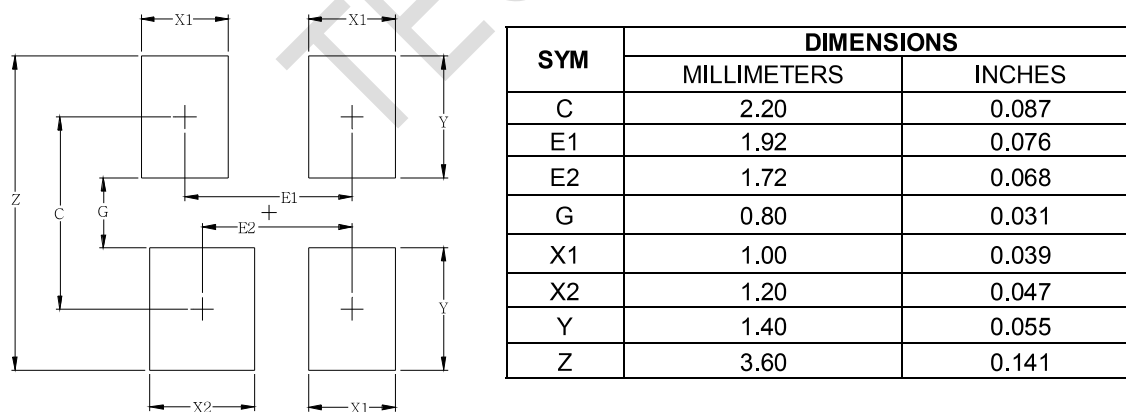
**Fig3. Power Derating Curve**



**Outline Drawing - SOT-143**



**Land Pattern -SOT-143**



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