

### Features

- 150Watts peak pulse power ( $t_p = 8/20\mu s$ )
- Tiny SOT143 package
- Bidirectional configurations
- Solid-state silicon-avalanche technology
- Low clamping voltage
- Low leakage current
- Low capacitance ( $C_j=30pF$  typ I/O to I/O.)
- Protection one data/power line to:
- IEC 61000-4-2  $\pm 8kV$  contact  $\pm 15kV$  air
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 10A (8/20 $\mu s$ )

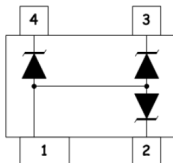
### Applications

- USB2.0,
- Ethernet
- Notebooks, Desktops, and Servers
- Video Line Protection

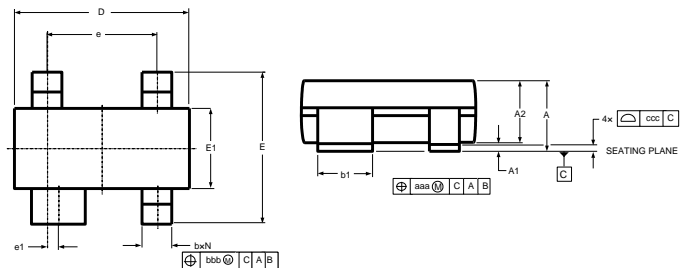
### Mechanical Data

- SOT143 package
- Molding compound flammability rating: UL 94V-0
- Packaging: Tape and Reel
- RoHS/WEEE Compliant

### Schematic & PIN Configuration



### SOT-143



DIMENSIONS				
SYMBOL	MILLIMETER		INCHES	
	MIN	MAX	MIN	MAX
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
b1	0.750	0.900	0.030	0.035
D	2.800	3.000	0.110	0.118
e	1.800	2.000	0.071	0.079
e1	0.200TYP		0.008TYP	
E	2.250	2.550	0.089	0.100
E1	1.200	1.400	0.047	0.055
$\theta$	0°	8°	0°	8°
aaa	.006		0.15	
bbb	.008		0.20	
ccc	.004		0.10	

Dimensions in inches and (millimeters)

### Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power ( $t_p = 8/20\mu s$ )	$P_{PP}$	150	Watts
Peak Pulse Current ( $t_p = 8/20\mu s$ ) (note1)	$I_{pp}$	10	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	$V_{ESD}$	15 8	kV
Lead Soldering Temperature	$T_L$	260(10seconds)	°C
Junction Temperature	$T_J$	-55 to + 125	°C
Storage Temperature	$T_{stg}$	-55 to + 125	°C

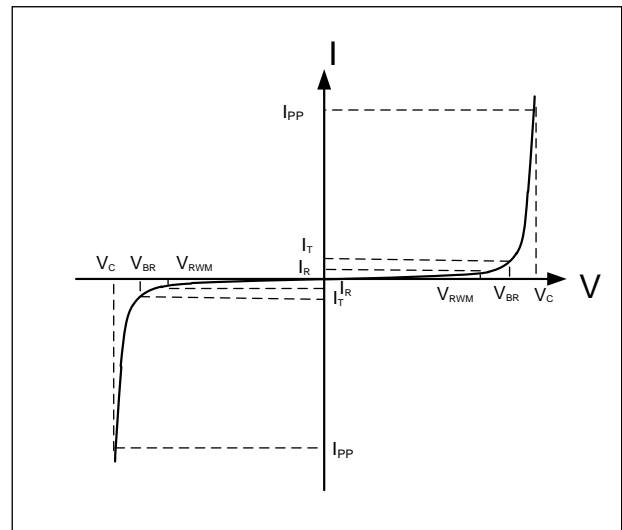
# SP0503B

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

Part Number	Device Marking	V <sub>RWM</sub> (V)	V <sub>BR</sub> (V)	I <sub>T</sub> (mA)	V <sub>C</sub> @1A	V <sub>C</sub>		I <sub>R</sub> μA (Max)	C (Pf) (Typ.)
						(Max)	(@A)		
SP0503B	503B	5	6	1	10	15	10	1	30

## Electrical Parameters (TA = 25°C unless otherwise noted)

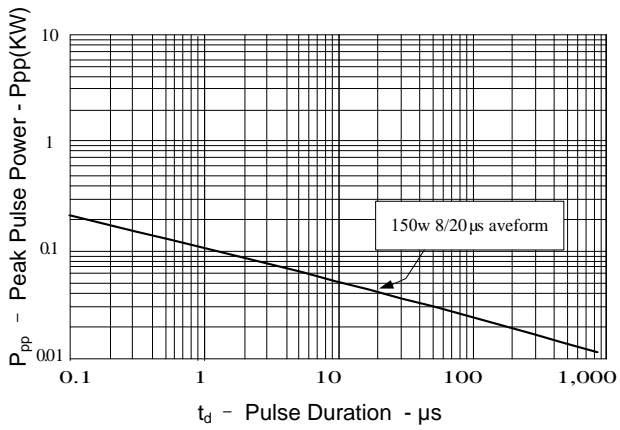
Symbol	Parameter
I <sub>PP</sub>	Maximum Reverse Peak Pulse Current
V <sub>C</sub>	Clamping Voltage @ I <sub>PP</sub>
V <sub>RWM</sub>	Working Peak Reverse Voltage
I <sub>R</sub>	Maximum Reverse Leakage Current @ V <sub>RWM</sub>
V <sub>BR</sub>	Breakdown Voltage @ I <sub>T</sub>
I <sub>T</sub>	Test Current



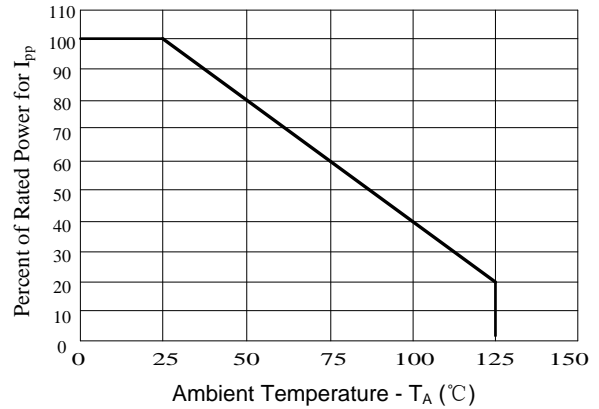
Note: 8/20μs pulse waveform.

## RATING AND CHARACTERISTIC CURVES (SP0503B)

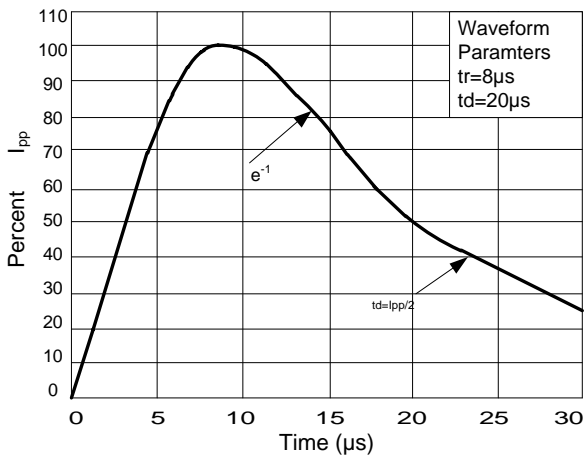
**Figure 1: Peak Pulse Power vs. Pulse Time**



**Figure 2: Power Derating Curve**



**Figure3: Pulse Waveform**



**Figure 4: Clamping Voltage vs. I\_pp**

