



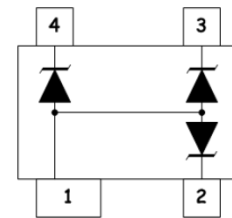
## Discription

The SP0503BAHTG-HXY is a 3-channel ultra low capacitance rail clamp ESD protection diodes array. Each channel consists of a pair of ESD diodes that steer positive or negative ESD current to either the positive or negative rail. A zener diode is integrated in to the array between the positive and negative supply rails. In the typical applications, the negative rail pin (assigned as GND) is connected with system ground. The Positive ESD current is steered to the ground through an ESD diode and Zener diode and the positive ESD voltage is clamped to the zener voltage.



Pin 1

SOT-143



Circuit Diagram

## FEATURES

- Ultra low leakage: nA level
- Operating voltage: 5V
- Low clamping voltage
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge:  $\pm 15\text{kV}$
    - Contact discharge:  $\pm 8\text{kV}$
  - IEC61000-4-4 (EFT) 40A (5/50ns)
  - IEC61000-4-5 (Lightning) 10A
- RoHS Compliant (8/20 $\mu\text{s}$ )

## Ordering information

Product ID	Pack	Qty(PCS)
SP0503BAHTG-HXY	SOT-143	3000

## Absolute Ratings ( $T_{\text{amb}}=25^{\circ}\text{C}$ )

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 $\mu\text{s}$ )	Ppp	150	W
ESD per IEC 61000-4-2 (Air)	V <sub>ESD</sub>	$\pm 15$	Kv
ESD per IEC 61000-4-2 (Contact)		$\pm 8$	
Operating Temperature Range	T <sub>J</sub>	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	T <sub>STJ</sub>	-55 to +150	$^{\circ}\text{C}$



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

P/N	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)		
SP0503BAHTG-HXY	503B	5	6	1	10	15	10	1	30

### Characteristic Curves

Fig1. 8/20μs Pulse Waveform

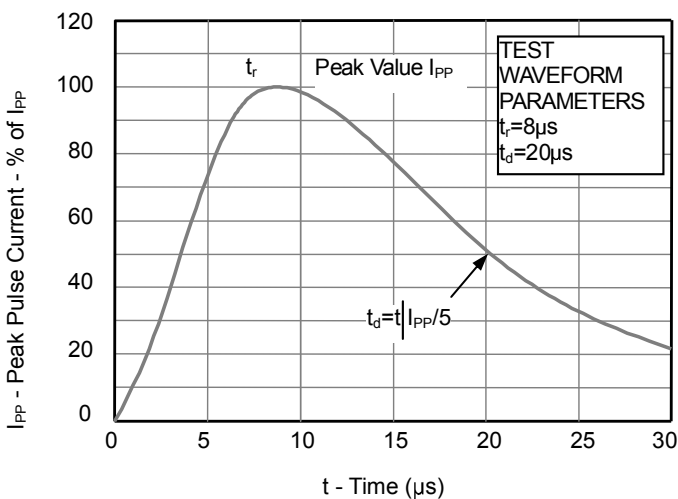


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

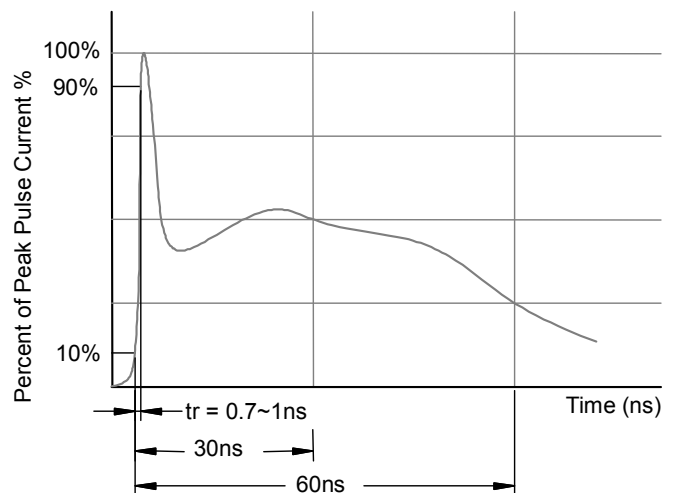
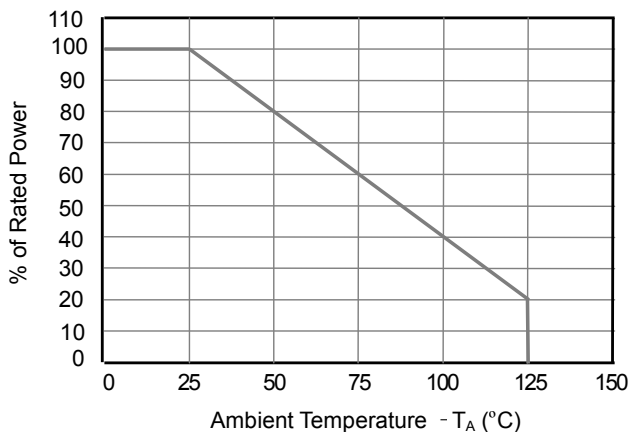
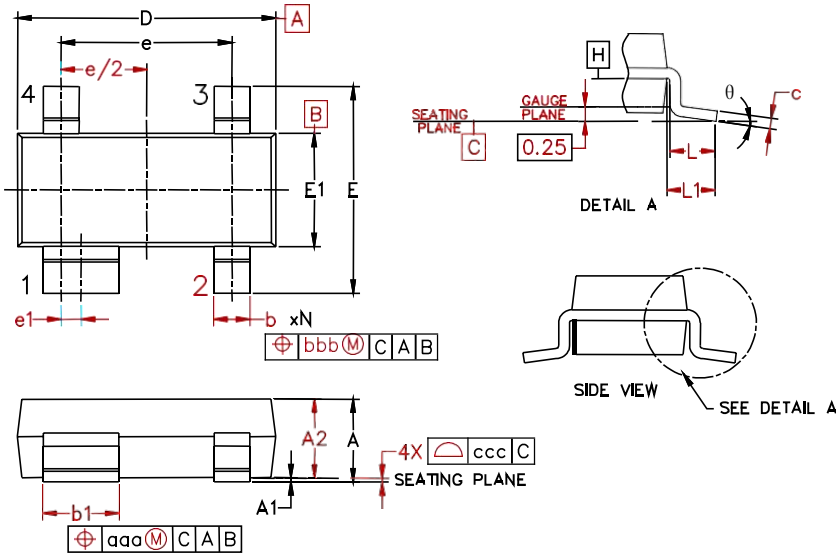


Fig3. Power Derating Curve





PACKAGE MECHANICAL DATA



Symbol	Inches			Millimeters		
	Min.	Nom.	Max.	Min.	Nom.	Max.
<b>A</b>	0.031	-	0.048	0.80	-	1.22
<b>A1</b>	0.000	-	0.008	0.013	-	0.15
<b>A2</b>	0.020	0.035	0.042	0.75	0.90	1.07
<b>b</b>	0.011	-	0.020	0.30	-	0.51
<b>b1</b>	0.029	-	0.037	0.76	-	0.94
<b>c</b>	0.003	-	0.008	0.08	-	0.20
<b>D</b>	0.110	0.114	0.120	2.80	2.90	3.04
<b>E</b>	0.082	0.093	0.104	2.10	2.37	2.64
<b>E1</b>	0.047	0.051	0.055	1.20	1.30	1.40
<b>e</b>	0.075		1.92 BSC			
<b>e1</b>	0.008		0.20 BSC			
<b>L</b>	0.015	0.020	0.024	0.40	0.50	0.60
<b>L1</b>	(0.021)		(0.54)			
<b>N</b>	4		4			
<b><math>\theta</math></b>	0°	-	8°	0°	-	8°
<b>aaa</b>	0.006		0.15			
<b>bbb</b>	0.008		0.20			
<b>ccc</b>	0.004		0.10			



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