

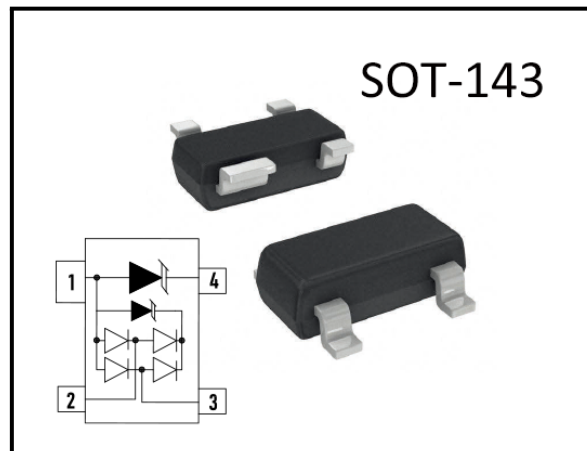
SP0503BAHTG-N

ESD Protection Diode

Features

- 70Watts peak pulse power ($t_p = 8/20\mu s$)
- Unidirectional configurations
- Solid-state silicon-avalanche technology
- Low clamping Voltage
- Low leakage current
- Low capacitance ($C_j = 0.35pF$ typ I/O to I/O.)
- IEC 61000-4-2 $\pm 15kV$ contact ; $\pm 20kV$ air
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 4.0A (8/20 μs)

Package



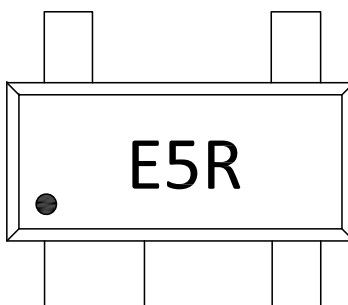
Applications

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

Mechanical Characteristics

- SOT-143 package
- Molding compound flammability rating: UL 94V-0
- Packaging: Tape and Reel
- RoHS/WEEE Compliant

Marking



Ordering information

Order code	Package	Base qty	Delivery mode
SP0503BAHTG-N	SOT-143	3k	Tape and reel

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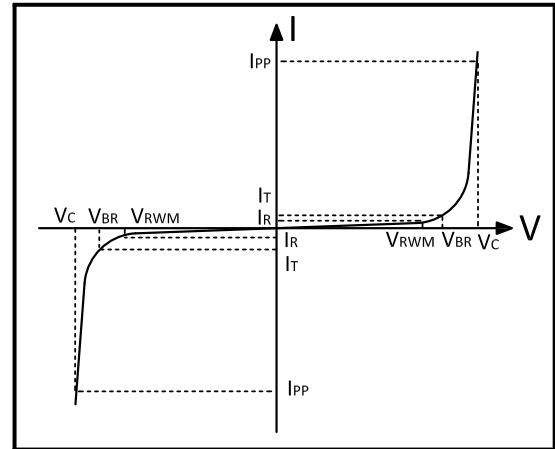


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ESD Protection Diode

Electrical Parameters ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Peak Reverse Working Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current



Note: 8/20us pulse Waveform.

Absolute Maximum Rating

Rating	Symler	Value	Units
Peak Pulse Power ($t_p = 8/20\mu\text{s}$)	P_{PP}	70	Watts
Peak Pulse Current ($t_p = 8/20\mu\text{s}$)	I_{PP}	4.0	A
ESD per IEC 61000-4-2 (Air)	V_{ESD}	20	KV
ESD per IEC 61000-4-2 (Contact)		15	
Lead Soldering Temperature	T_L	260(10seconds)	$^\circ\text{C}$
Junction Temperature	T_J	-55 to + 150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to + 150	$^\circ\text{C}$

Electrical Characteristics

Parameter	Symler	Conditions	Min.	Typical	Max.	Units
Reverse Stand-Off Voltage	V_{RWM}	—	—	—	5.0	V
Reverse Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	6.0	7.4	9.5	V
Reverse Leakage Current	I_R	$V_{RWM} = 5\text{V}, T = 25^\circ\text{C}$	—	0.05	0.2	μA
Peak Pulse Current	I_{PP}	$t_p = 8/20\mu\text{s}$	—	—	4.0	A
Clamping Voltage	V_C	$I_{PP} = 4.0\text{A}, t_p = 8/20\mu\text{s}$	—	14	17	V
Junction Capacitance	C_j	$V_R = 0\text{V}, f = 1\text{MHz (IO-IO)}$	—	0.35	0.45	pF
		$V_R = 0\text{V}, f = 1\text{MHz (IO-GND)}$	—	0.65	0.75	



Typical Characteristics

Figure 1: Peak Pulse Power vs. Pulse Time

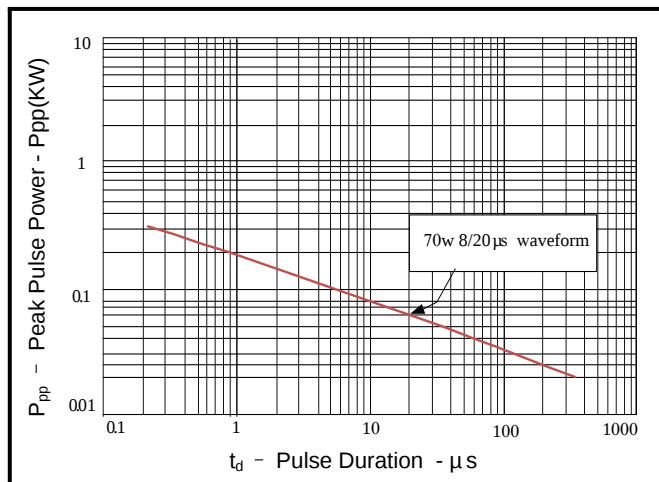


Figure 2: Power Derating Curve

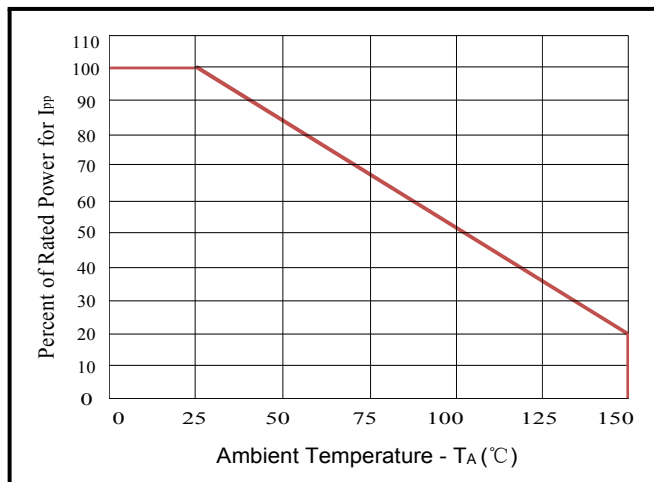


Figure 3: Pulse Waveform

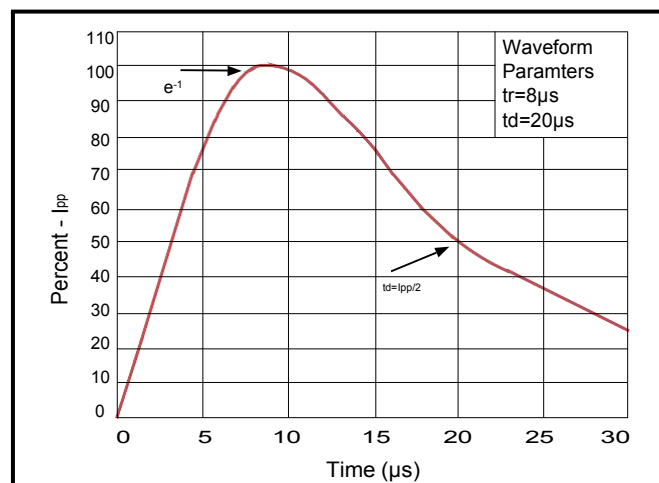
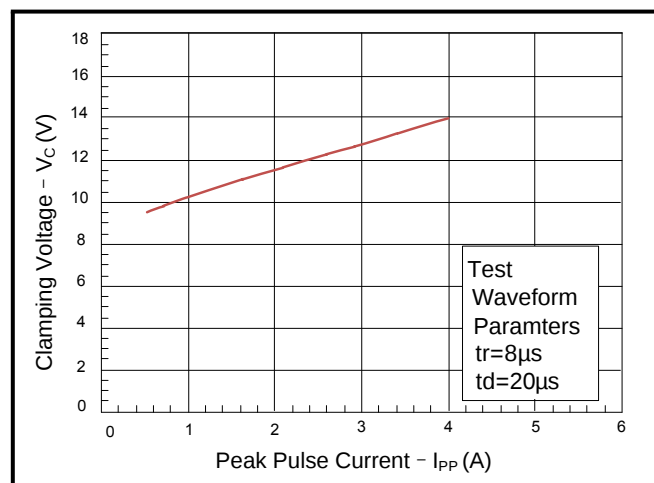


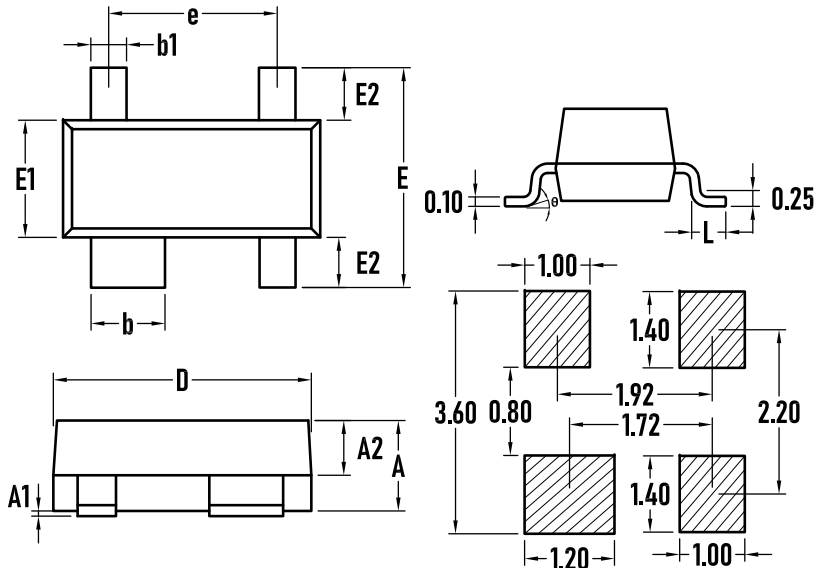
Figure 4: Clamping Voltage vs. Ipp



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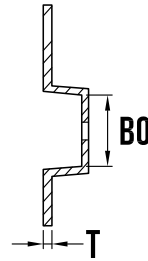
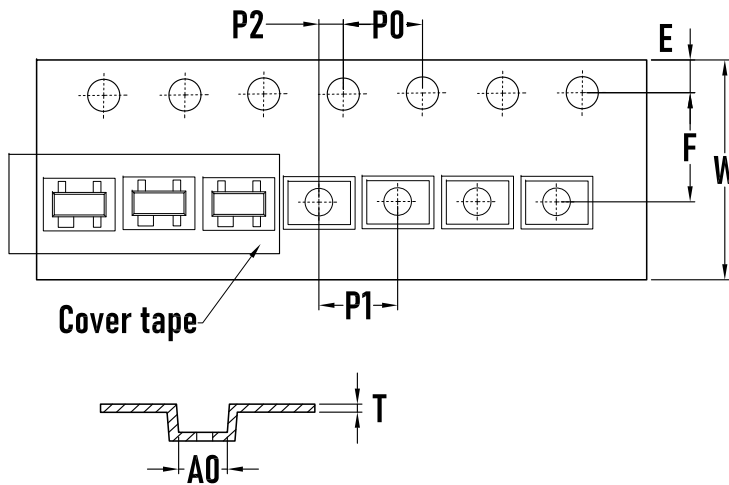
ESD Protection Diode

Outline Drawing – SOT-143



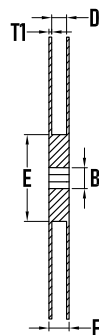
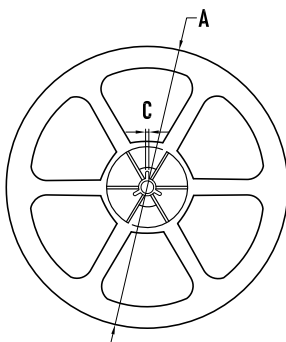
SYMBOL	MILLIMETER		
	MIN.	Typ.	MAX.
A	0.95	1.00	1.02
A1	0.02	0.06	0.10
A2	0.55	0.60	0.55
D	2.85	2.90	2.95
b	0.80	0.83	0.86
b1	0.37	0.40	0.43
E	2.35	2.40	2.45
E1	1.25	1.30	1.35
E2	0.50	0.55	0.60
e	1.85	1.90	1.95
L	0.35	0.40	0.48
θ	0	—	6°

Packaging Tape – SOT-143



SYMBOL	MILLIMETER
A0	3.15±0.10
B0	2.75±0.10
d0	1.55±0.10
d1	1.10±0.05
E	1.75±0.10
F	3.50±0.10
K0	1.20±0.10
P2	2.00±0.10
P0	4.00±0.10
P1	4.00±0.10
W	8.00±0.10
T	0.20 ±0.02

Packaging Reel



SYMBOL	MILLIMETER
A	177.8±0.2
B	3.1
C	13.50
D	9.6±0.3
E	75±0.2
F	12.3±0.3
T1	1.0±0.2
Quantity	3000PCS

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