ESDA6V8V3

Dual Transil Voltage Suppressors for ESD Protection

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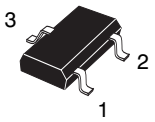


SOT-523

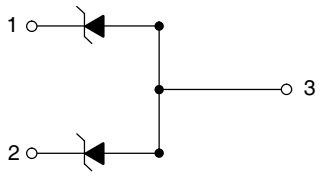
Description:

The ESDA6V8V3 array is 2-Line ESD transient voltage suppressor which provides a very high level of protection for sensitive electronic components that may be subjected to electrostatic discharge (ESD). These devices clamp the voltage just above the logic level supply for positive transient, and to a diode drop below ground for negative transients.

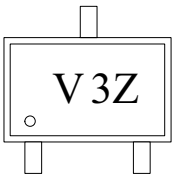
The ESDA6V8V3 safely dissipates ESD strikes of ±15kV, exceeding the maximum requirement of the IEC 61000-4-2 international standard. Using the MILSTD-883 (Method 3015) specification for Human Body Model (HBM) ESD, the device provides protection for contact discharges to greater than ±15kV.

The ESDA6V8V3 is available in a SOT-523 SMT package with working voltages of 5 volt.

PIN CONFIGURATION



MARKING DIAGRAM



Z =Date Code

V3 = Specific Device Code

Specification Features:

- Working Peak Reverse Voltage: 5 V
- Low Leakage current: <1uA@3V
- High ESD protection Level: >15kV per HBM
- IEC61000- 4- 2 Level 4 ESD Protection
- IEC61000- 4- 4 Level 4 EFT Protection
- Four separate unidirectional configurations

Mechanical Characteristics

- Void Free, Transfer-Molded, Thermosetting Plastic Case
- Corrosion Resistant Finish, Easily Solderable
- Small Packaging

Applications

- Cell Phone Handsets and Accessories
- Personal Digital Assistants (PDA's)
- Notebooks, Desktops, and Servers
- Portable Instrumentation
- Digital Cameras
- Peripherals
- MP3 Players

Order Information

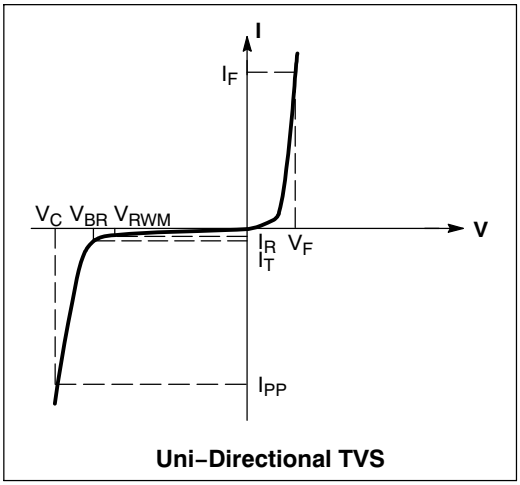
Part Number	Package	Shipping
ESDA6V8V3-3/TR	SOT-523	3000 Tape & Reel

Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power(tp=8/20us)	Ppp	150	W
Maximum Peak Pulse Current(tp=8/20us)	Ipp	10	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	Vpp	±15 ±15	KV
Maximum lead temperature for soldering during 10s	TL	260	°C
Storage Temperature Range	Tstg	-55~+150	°C
Operating Temperature Range	Top	-55~+125	°C

Electrical Parameter

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



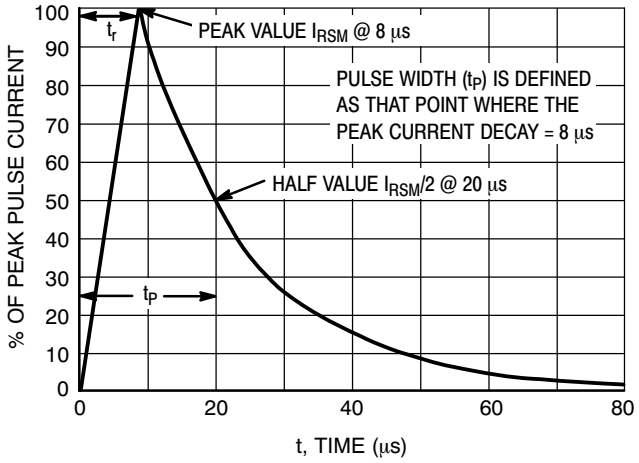


Figure 1. 8 x 20 μs Pulse Waveform

Electrical Characteristics
(T=25°C, Device for 5.0V Working Peak Reverse Voltage)

	Conditions	Minimum	Typical	Maximum	Unit
I_R	V_{RWM}=5V			0.5	uA
V_F	I_F= -10mA	-0.4	-0.8	-1.25	V
V_{BR}	I_T=1mA	6.2	6.8	7.2	V
V_C	I_{PP}=5A, tp = 8/20us, note1			12	V
	I_{PP}=10A, tp = 8/20us, note1			15	V
C	Pin1 to 3, V_R = 0V, f = 1MHz		60		pF

Note1: Surge current waveform per Figure 1.

Typical Characteristics

Figure 1. Pulse Waveform

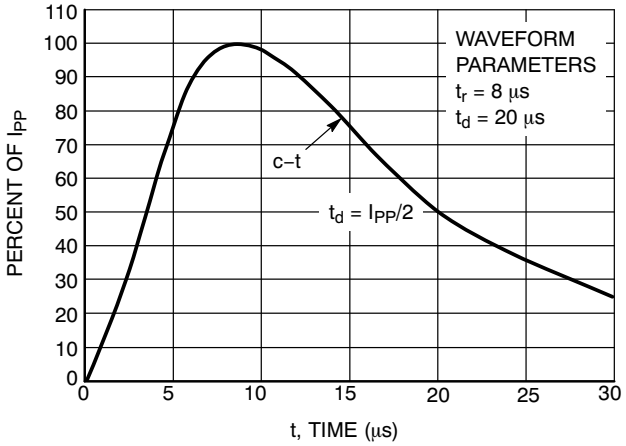


Figure 2. Power Derating Curve

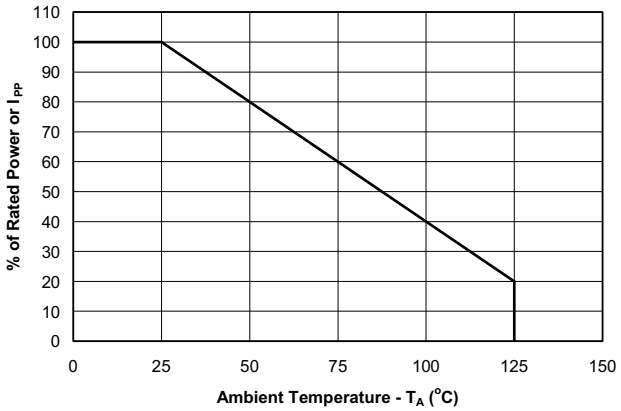


Figure 3. Non-Repetitive Peak Pulse Power vs. Pulse Time

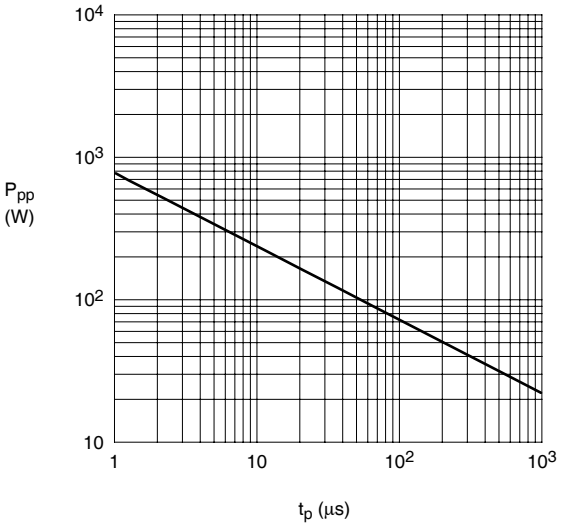
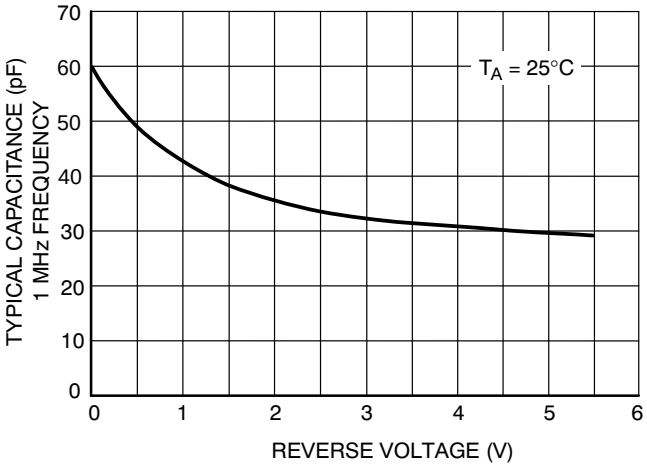


Figure 4. Junction Capacitance vs. Reverse Voltage



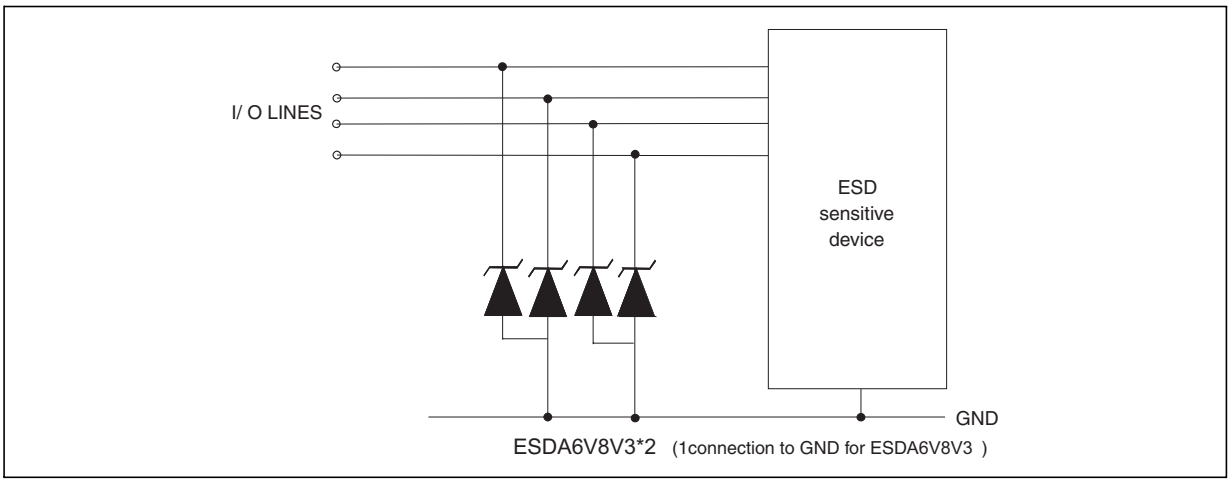
Application Note

Electrostatic discharge (ESD) is a major cause of failure in electronic systems. Transient Voltage Suppressors (TVS) are an ideal choice for ESD protection. They are capable of clamping the incoming transient to a low enough level such that damage to the protected semiconductor is prevented.

Surface mount TVS offers the best choice for minimal lead inductance. They serve as parallel protection elements, connected between the signal line and ground. As the transient rises above the operating voltage of the device, the TVS becomes a low impedance path diverting the transient current to ground. The ESDA6V8V3 is the ideal board level protection of ESD sensitive semiconductor components.

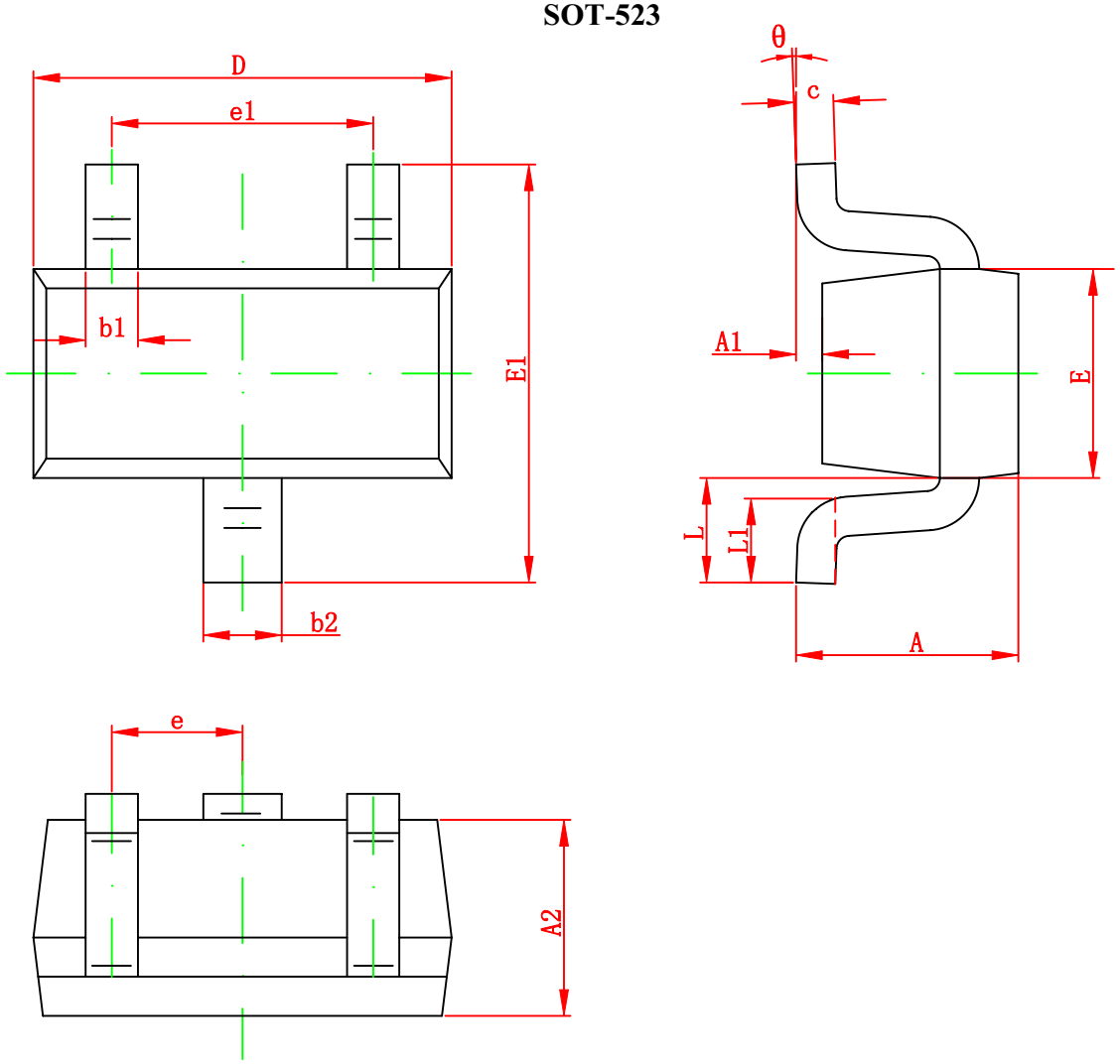
The tiny SOT523 package allows design flexibility in the design of high density boards where the space saving is at a premium. This enables to shorten the routing and contributes to hardening against ESD.

Figure4: ESDA6V8V3 protection against ESD



PACKAGE OUTLINE DIMENSIONS

SOT-523



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.325	0.010	0.013
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.750	0.850	0.030	0.033
E1	1.450	1.750	0.057	0.069
e	0.500 TYP		0.020 TYP	
e1	0.900	1.100	0.035	0.043
L	0.550 REF		0.022 REF	
L1	0.280	0.440	0.011	0.017
θ	0°	4°	0°	4°