

# ESDA6V8UB

## 2-Lines, Low Capacitance, Transient Voltage Suppressors

### Descriptions

The ESDA6V8UB is a transient voltage suppressors (TVS) which provide a very high level protection for sensitive electronic components that may be subjected to electrostatic discharge (ESD). It is particularly well-suited for cellular phones, PMP, MID, PAD, digital cameras and other electronic equipments.

The ESDA6V8UB is safely dissipating ESD strikes to meet the ESD immunity testing of IEC61000-4-2 level 4(±20kV, contact and air discharge). Using the MILSTD-883 (Method 3015) specification of Human Body Model (HBM), the device provides protection to greater than ±20kV.

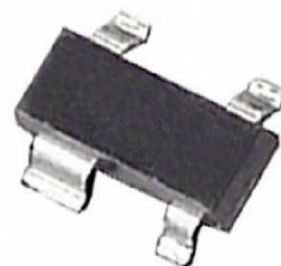
The ESDA6V8UB is available in SOT-143 package. Standard products are Pb-free and Halogen-free.

### Features

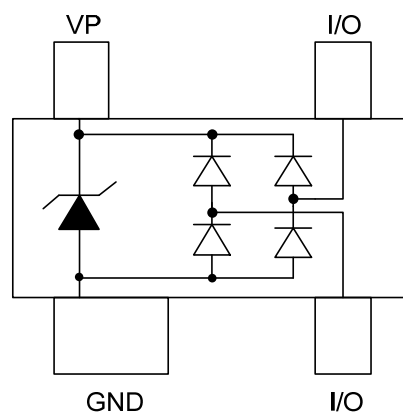
- Reverse stand-off voltage: 5V max.
- Transient protection for each line according to IEC61000-4-2 (ESD): ±20kV (contact discharge)  
±20kV (air discharge)  
IEC61000-4-5 (surge): 7A (8/20µs)
- Low capacitance:  $C_{I/O-GND} = 2.4\text{pF typ.}$
- Low leakage current:  $I_R < 1\mu\text{A}$
- Solid-state silicon technology

### Applications

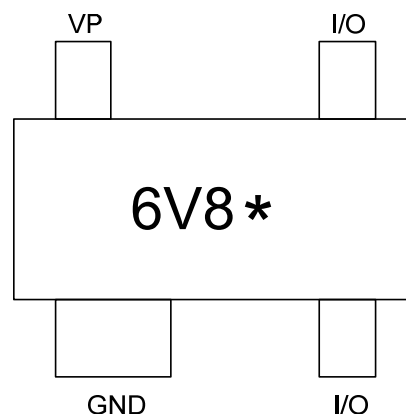
- Cellular phones
- PMP
- MID
- PDA
- Digital camera
- Other electronics equipments



SOT-143



Circuit diagram



6V8 = Device code  
\* = Month code (A~Z)

### Marking

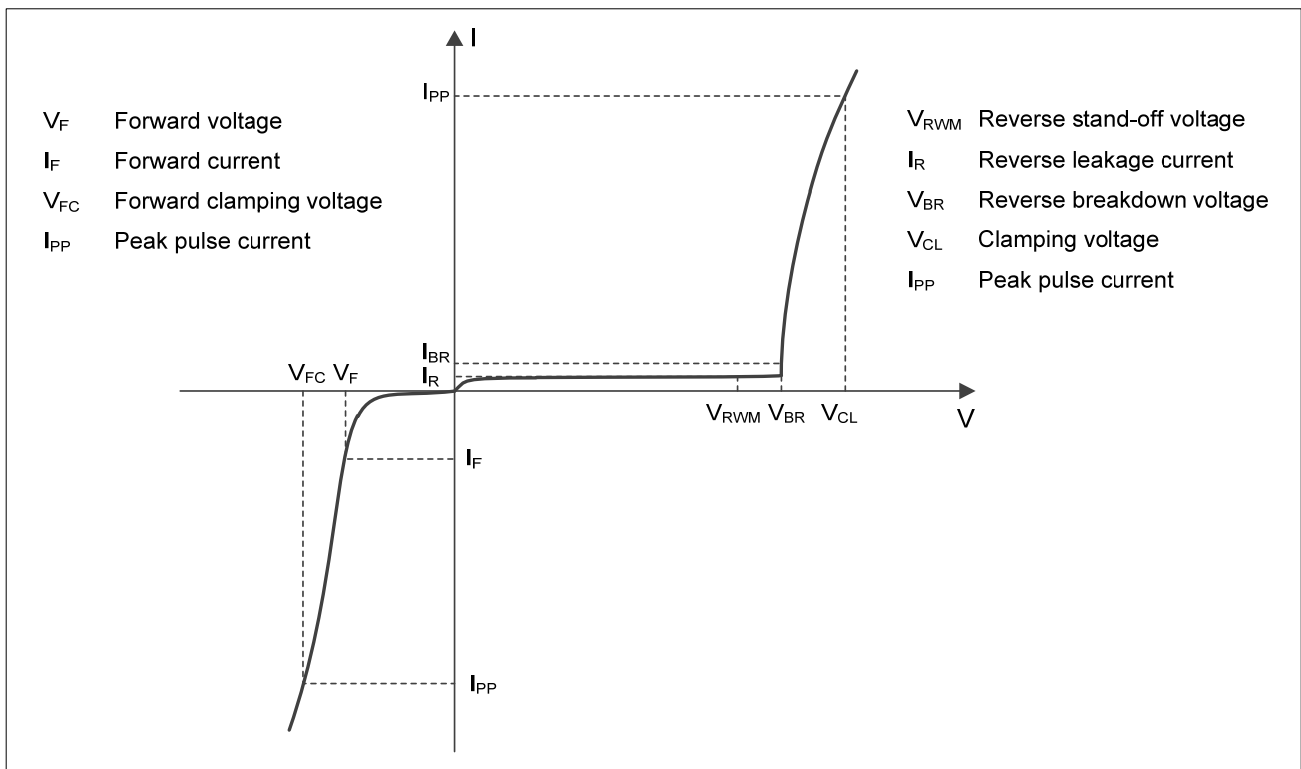
### Order information

Device	Package	Shipping
ESDA6V8UB-4/TR	SOT-143	3000/Tape&Reel

**Absolute maximum ratings**

Parameter	Symbol	Rating	Unit
Peak pulse power ( $t_p = 8/20\mu s$ )	$P_{pk}$	126	W
Peak pulse current ( $t_p = 8/20\mu s$ )	$I_{PP}$	7	A
ESD according to IEC61000-4-2 air discharge	$V_{ESD}$	$\pm 20$	kV
ESD according to IEC61000-4-2 contact discharge		$\pm 20$	
Operation junction temperature	$T_J$	125	$^{\circ}C$
Lead temperature	$T_L$	260	$^{\circ}C$
Storage temperature	$T_{STG}$	-55~150	$^{\circ}C$

**Electrical characteristics ( $T_A = 25^{\circ}C$ , unless otherwise noted)**



**Definitions of electrical characteristics**

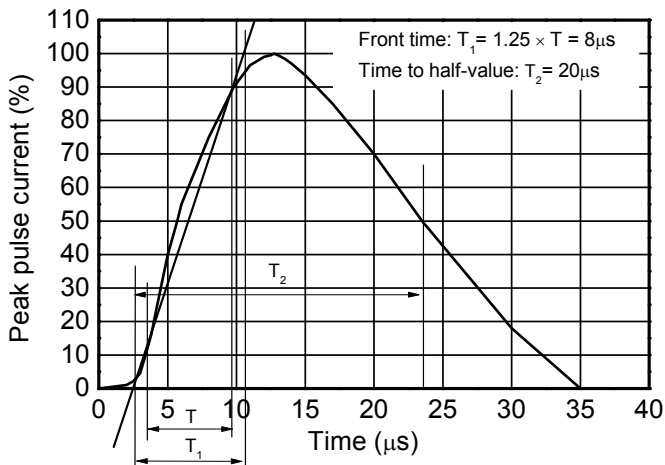
**Electrical characteristics (T<sub>A</sub> = 25 C, unless otherwise noted)**

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V <sub>RWM</sub>				5	V
Reverse leakage current	I <sub>R</sub>	V <sub>RWM</sub> = 5V			1	μA
Reverse breakdown voltage	V <sub>BR</sub>	I <sub>BR</sub> = 1mA	6.5	8	9	V
Forward voltage	V <sub>F</sub>	I <sub>F</sub> = 10mA	0.4	0.9	1.4	V
Clamping voltage <sup>1)</sup>	V <sub>CL</sub>	I <sub>PP</sub> = 1A, t <sub>p</sub> = 8/20μs			11	V
		I <sub>PP</sub> = 7A, t <sub>p</sub> = 8/20μs			18	V
Junction capacitance	C <sub>I/O - GND</sub>	V <sub>R</sub> = 0V, f = 1MHz, Any I/O to GND		2.4	3	pF
	C <sub>I/O - IO</sub>	V <sub>R</sub> = 0V, f = 1MHz, Between I/O pins		1.2	1.5	pF

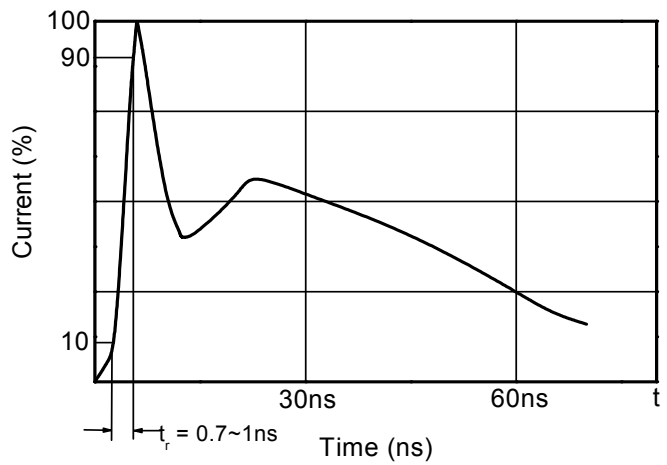
*Notes:*

1) Non-repetitive current pulse, according to IEC61000-4-5.

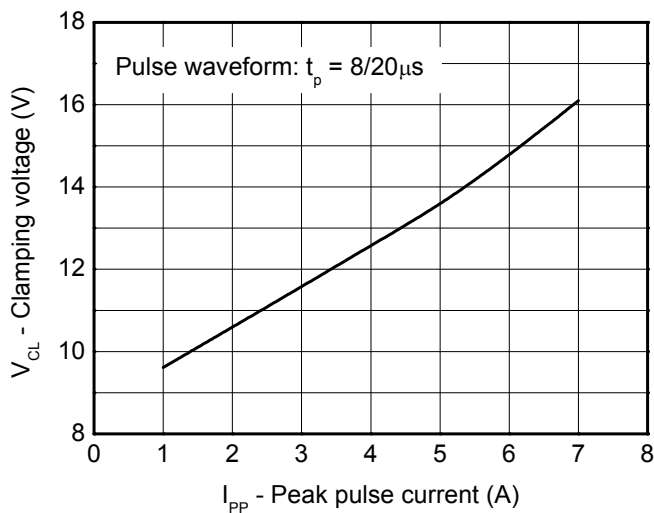
Typical characteristics ( $T_A = 25^\circ\text{C}$ , unless otherwise noted)



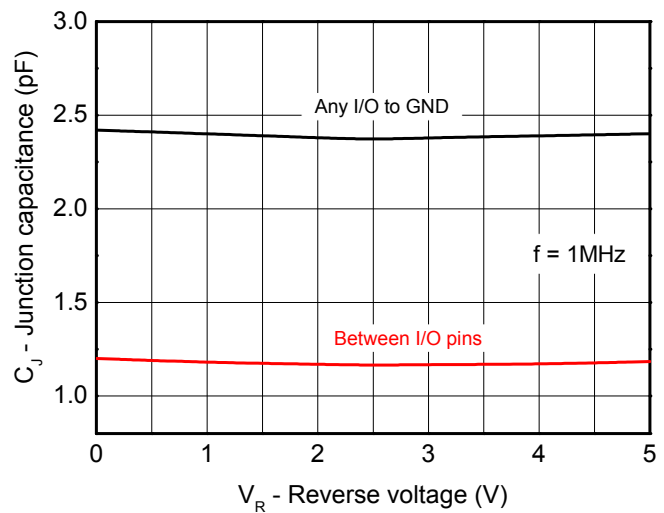
8/20μs waveform per IEC61000-4-5



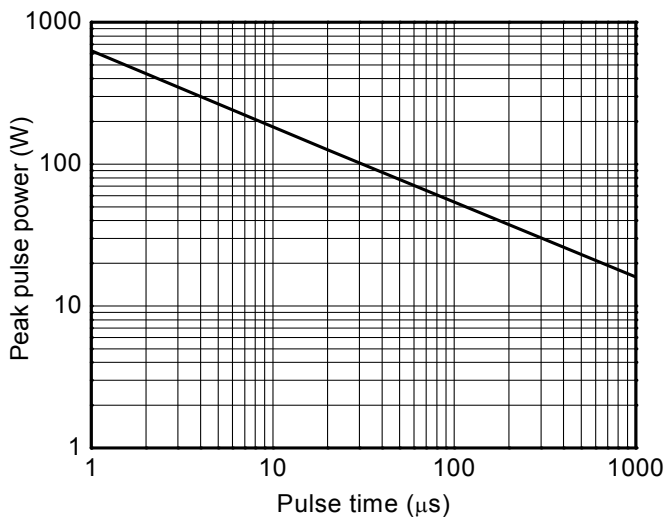
Contact discharge current waveform per IEC61000-4-2



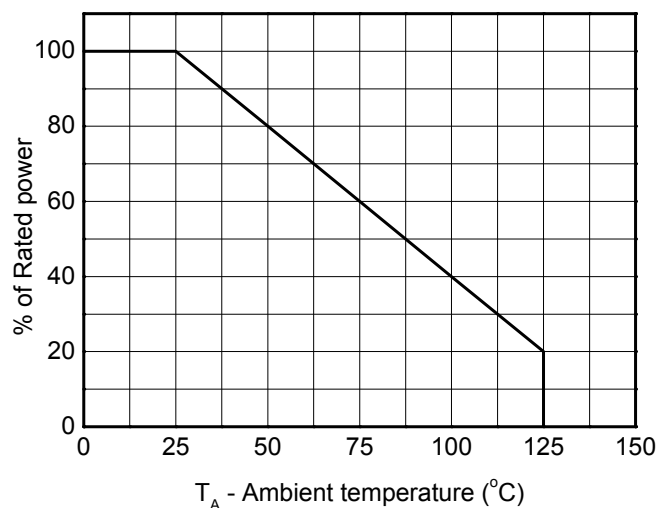
Clamping voltage vs. Peak pulse current



Capacitance vs. Reverse voltage

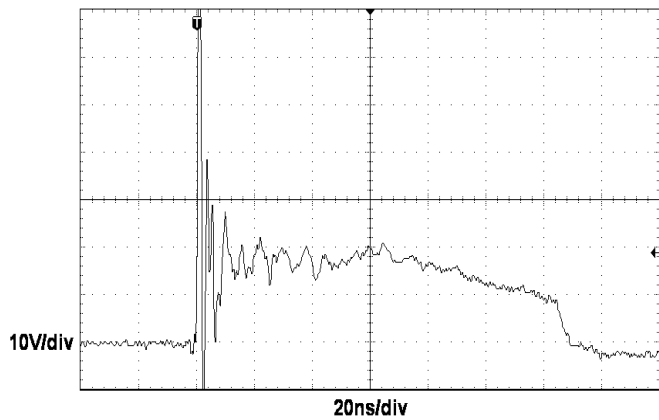


Non-repetitive peak pulse power vs. Pulse time

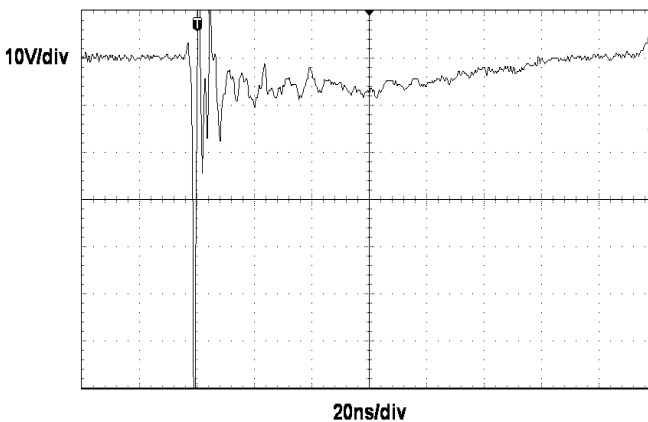


Power derating vs. Ambient temperature

Typical characteristics ( $T_A = 25^\circ\text{C}$ , unless otherwise noted)



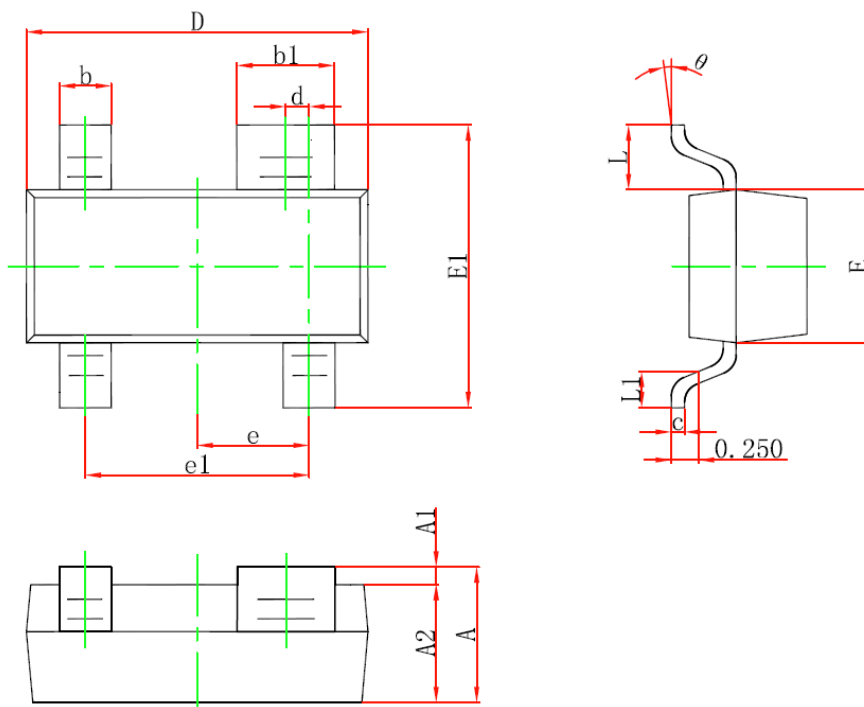
**ESD clamping**  
(+8kV contact discharge per IEC61000-4-2)



**ESD clamping**  
(-8kV contact discharge per IEC61000-4-2)

Package outline dimensions

SOT-143



Symbol	Dimensions In Millimeters		
	Min.	Typ.	Max.
A	0.900	1.025	1.150
A1	0.000	--	0.100
A2	0.900	0.975	1.050
b	0.300	0.400	0.500
b1	0.750	0.825	0.900
c	0.080	0.115	0.150
D	2.800	2.900	3.000
d	0.200 typ.		
E	1.200	1.300	1.400
E1	2.250	2.400	2.550
e	0.950 typ.		
e1	1.800	1.900	2.000
L	0.550 ref.		
L1	0.300	0.400	0.500
θ	0°	--	8°