ESDA6V8V5

4-Lines, Uni-directional, Transient Voltage Suppressor

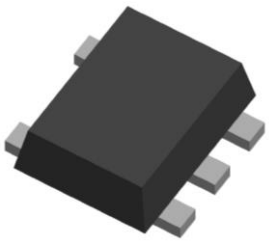
http//:www.sh-willsemi.com

Descriptions

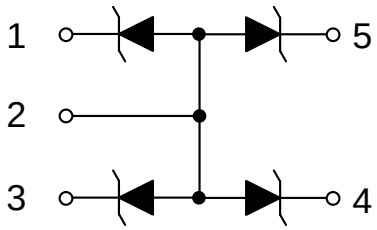
The ESDA6V8V5 array is 4-line ESD transient voltage suppressor which provides a very high level of protection for sensitive electronic components that may be subjected to electrostatic discharge (ESD). These devices clamp the voltage just above the logic level supply for positive transient and to a diode drop below ground for negative transient.

The ESDA6V8V5 may be used to provide ESD protection up to ±30kV (contact discharge) according to IEC61000-4-2, and withstand peak pulse current up to 8A (8/20μs) according to IEC61000-4-5.

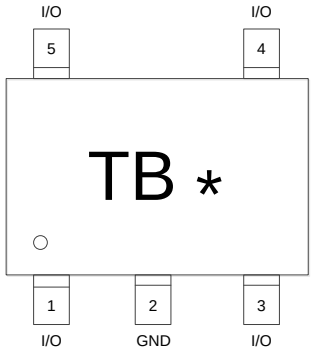
The ESDA6V8V5 is available in SOT-553 package. Standard products are Pb-free and Halogen-free.



SOT-553



Circuit diagram



TB = Device code

* = Date code

Marking & Pin configuration

Features

- Reverse stand-off voltage: 5V max.
- Transient pr6otection for each line according to
  IEC61000-4-2 (ESD): ±30kV (contact discharge)
  IEC61000-4-5 (surge): 8A (8/20μs)
- Capacitance: C_J = 55pF typ.
- Low leakage current
- Low clamping voltage
- Solid-state silicon technology

Applications

- Cell Phone Handsets and Accessories
- Personal Digital Assistants
- Notebooks, Desktops, and Servers
- Portable Instrument

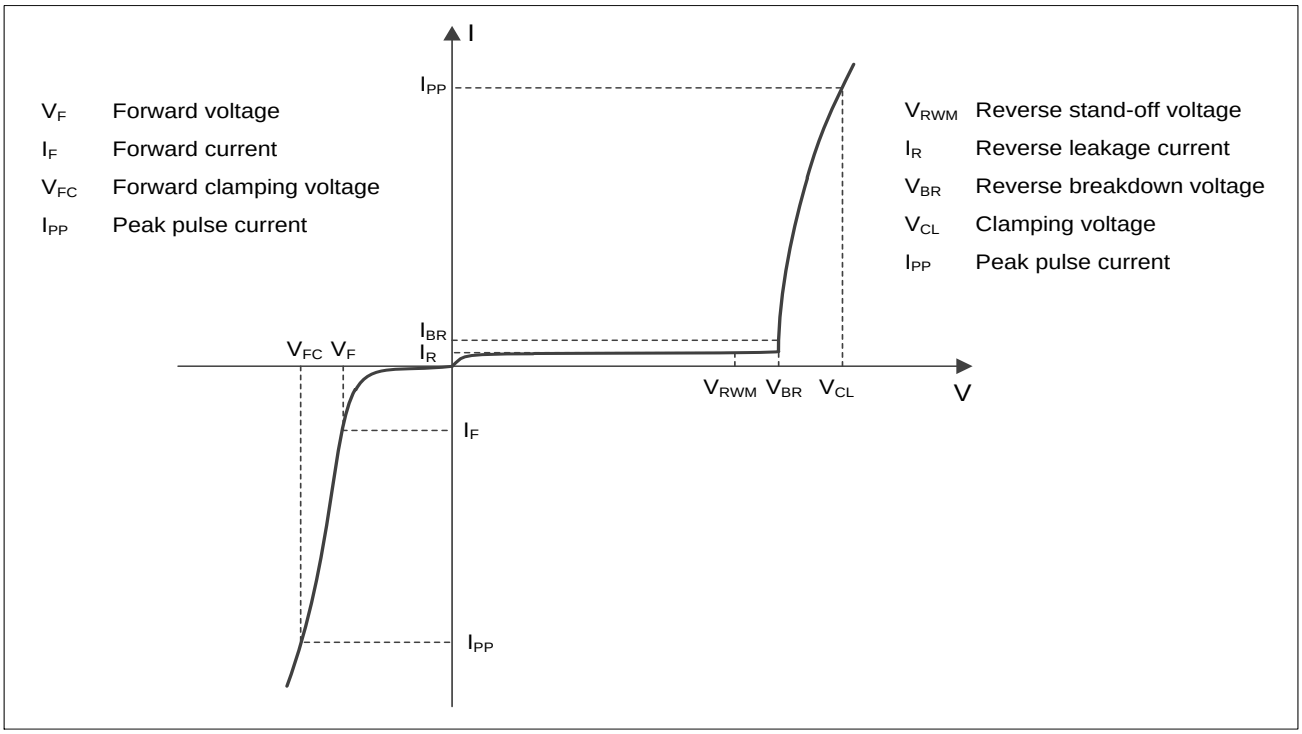
Order information

Device	Package	Shipping
ESDA6V8V5-5/TR	SOT-553	3000/Tape&Reel

Absolute maximum ratings

Parameter	Symbol	Rating	Unit
Peak pulse power (t_p = 8/20μs)	P_{pk}	96	W
Peak pulse current (t_p = 8/20μs)	I_{PP}	8	A
ESD according to IEC61000-4-2 air discharge	V_{ESD}	±30	kV
ESD according to IEC61000-4-2 contact discharge		±30	
Junction temperature	T_J	125	°C
Operation temperature	T_{OP}	-40~85	°C
Lead temperature	T_L	260	°C
Storage temperature	T_{STG}	-55~150	°C

Electrical characteristics (T_A = 25°C, unless otherwise noted)



Definitions of electrical characteristics

Electrical characteristics (T_A = 25°C, unless otherwise noted)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V_{RWM}				5.0	V
Reverse leakage current	I_R	V_{RWM} = 5V			1	μA
Reverse breakdown voltage	V_{BR}	I_{BR} = 1mA	6.2		8.2	V
Forward voltage	V_F	I_F = 10mA	0.4	0.8	1.25	V
Clamping voltage 1)	V_{CL}	I_{PP} = 16A, t_p = 100ns		11		V
Clamping voltage 2)	V_{CL}	V_{ESD} = +8kV		11		V
Dynamic resistance 1)	R_{DYN}			0.25		Ω
Clamping voltage 3)	V_{CL}	I_{PP} = 1A, t_p = 8/20μs			9	V
		I_{PP} = 8A, t_p = 8/20μs			12	V
Junction capacitance	C_J	V_R = 0V, f = 1MHz		55	65	pF

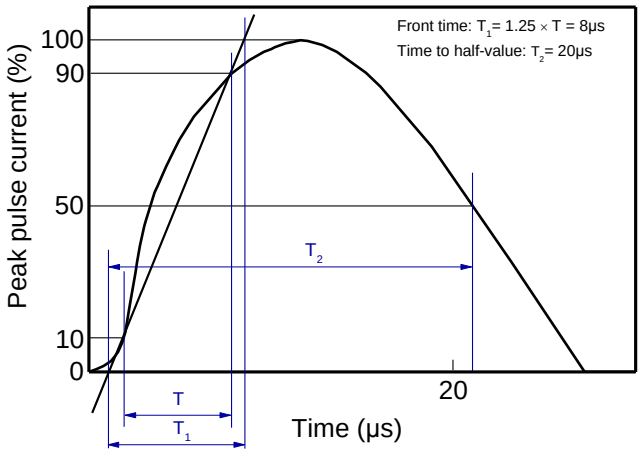
Notes:

1) *TLP parameter: Z_0 = 50 Ω, t_p = 100ns, t_r = 2ns, averaging window from 60ns to 80ns. R_{DYN} is calculated from 4A to 16A.*

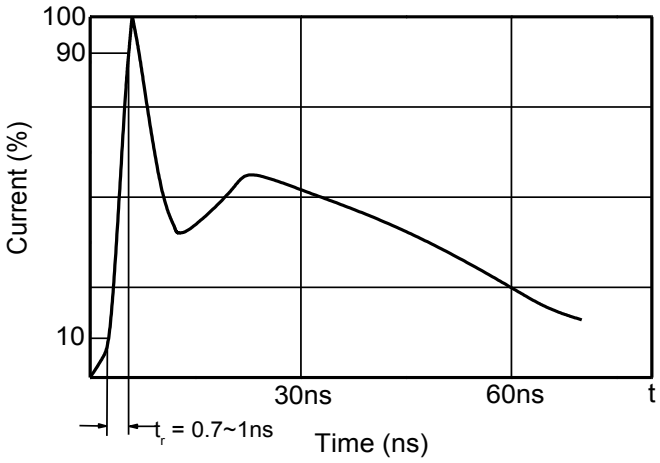
2) *Contact discharge mode, according to IEC61000-4-2*

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

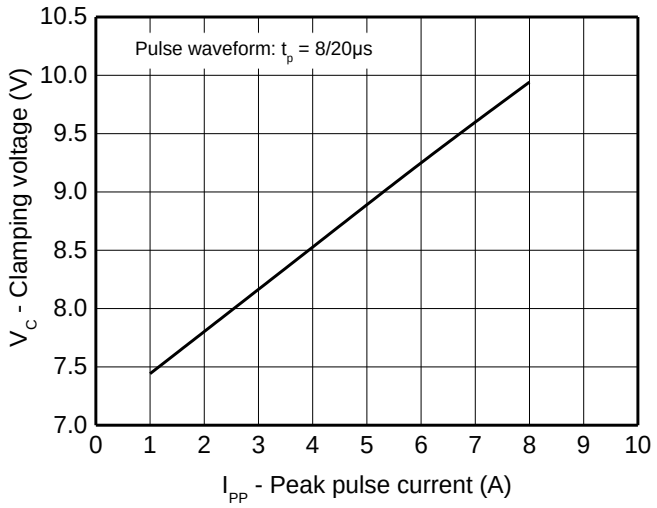
Typical characteristics (T_A = 25°C, unless otherwise noted)



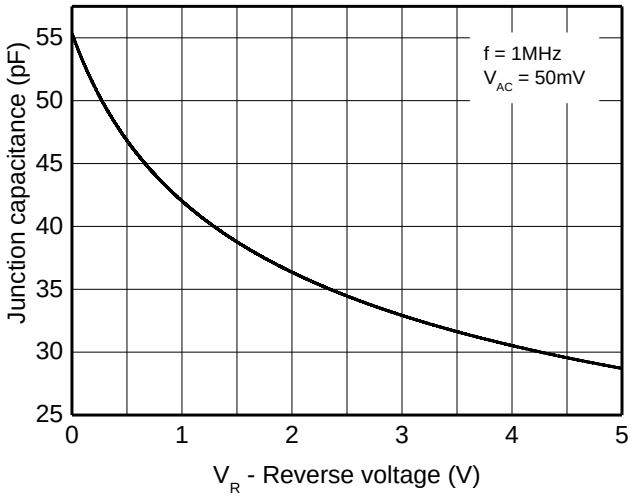
8/20μs waveform per IEC61000-4-5



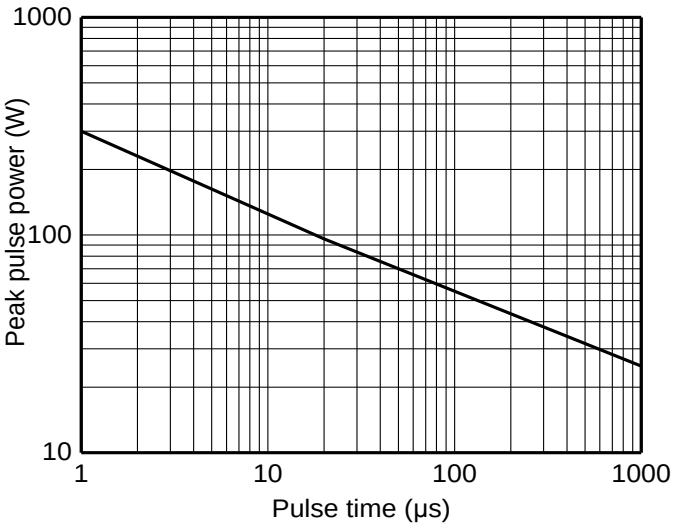
Contact discharge current waveform per IEC61000-4-2



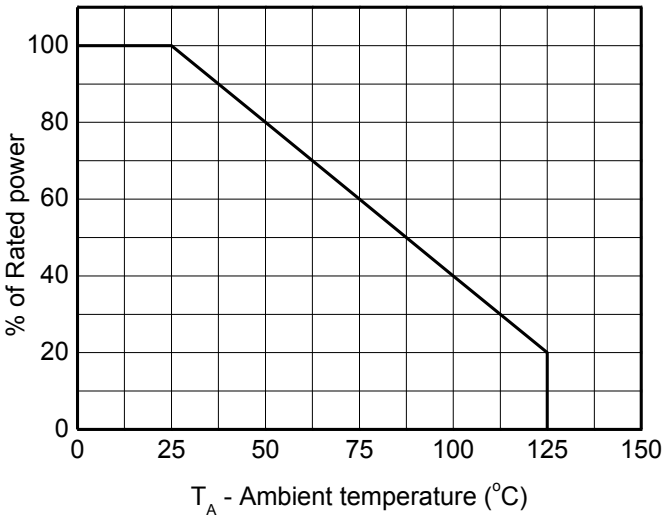
Clamping voltage vs. Peak pulse current



Capacitance vs. Reverse voltage

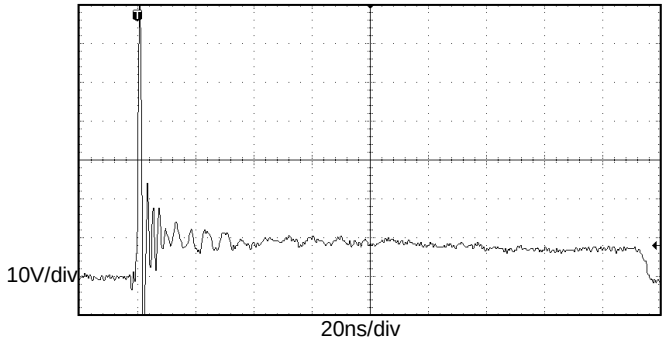


Non-repetitive peak pulse power vs. Pulse time

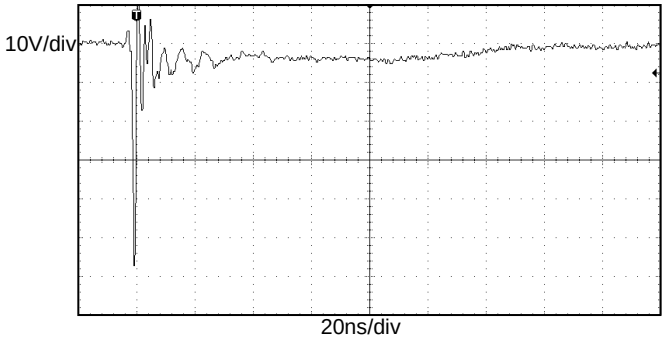


Power derating vs. Ambient temperature

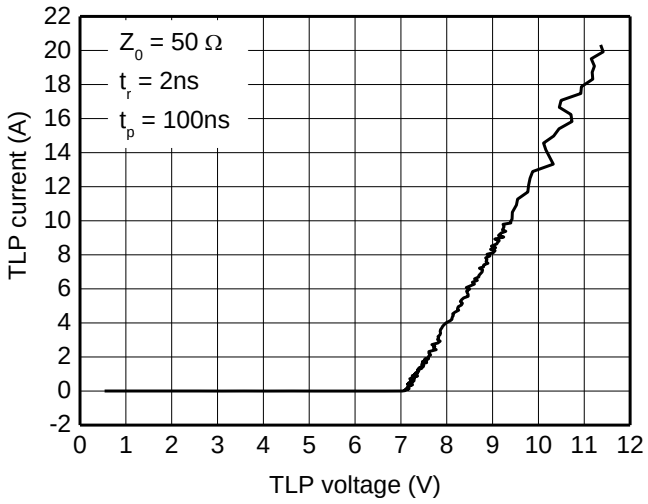
Typical characteristics (T_A = 25°C, unless otherwise noted)



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



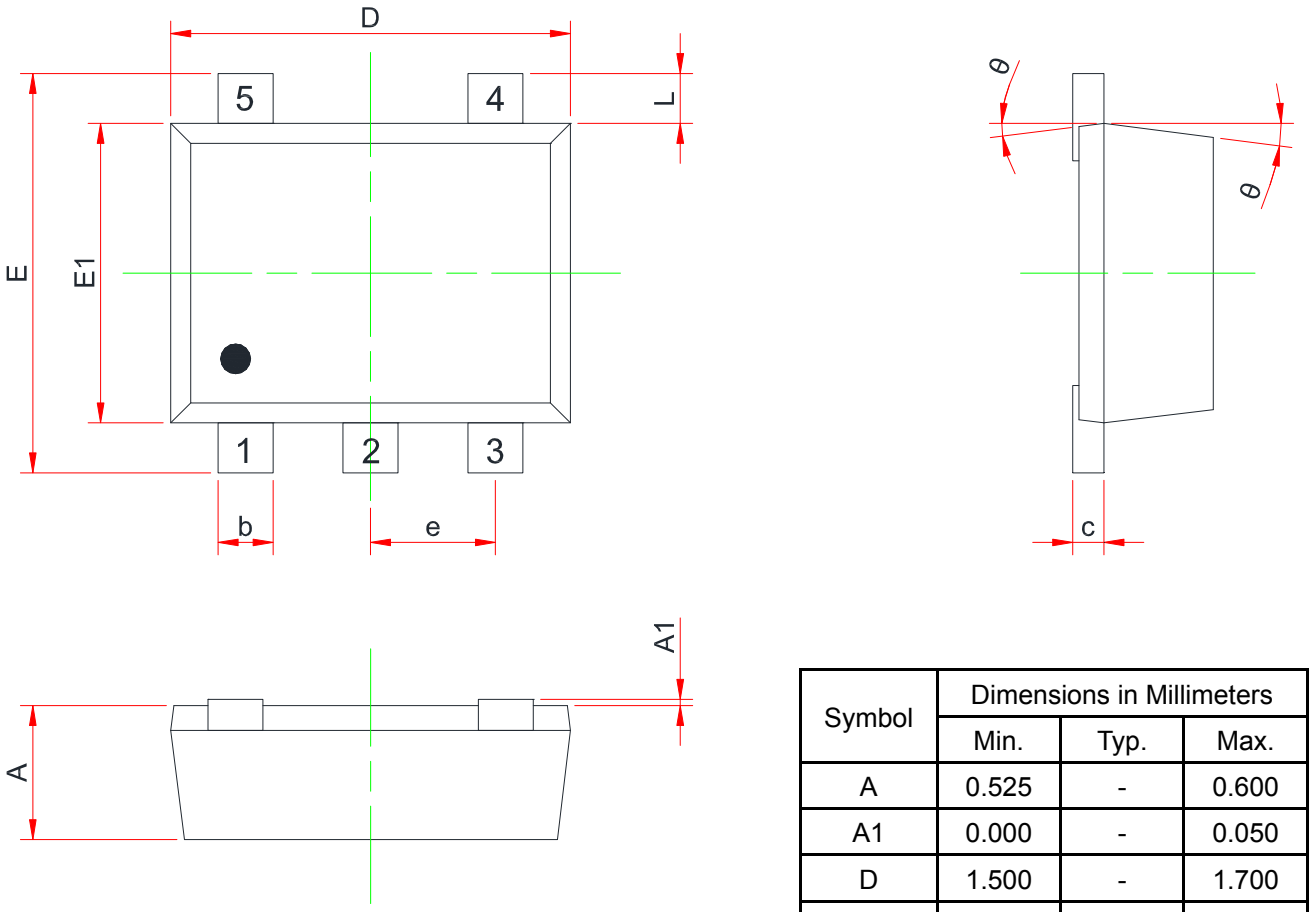
ESD clamping
(-8kV contact discharge per IEC61000-4-2)



TLP Measurement

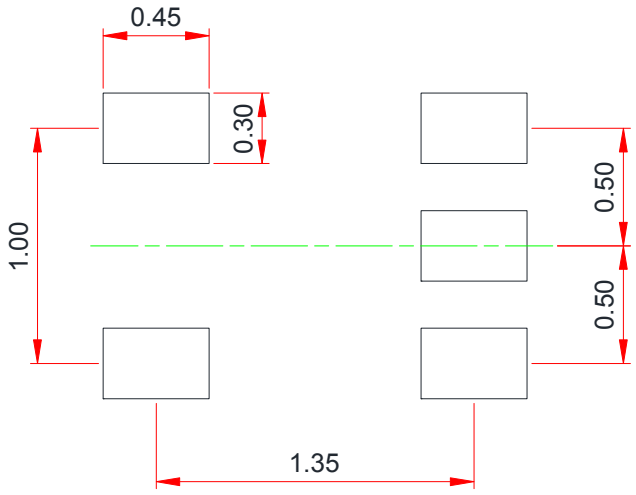
Package outline dimensions

SOT-553



Symbol	Dimensions in Millimeters		
	Min.	Typ.	Max.
A	0.525	-	0.600
A1	0.000	-	0.050
D	1.500	-	1.700
E	1.500	-	1.700
E1	1.100	-	1.300
b	0.170	-	0.270
c	0.090	-	0.160
e	0.450	-	0.550
L	0.100	-	0.300
θ	7^{o} REF.		

Recommend land pattern (Unit: mm)



Notes:

This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met.