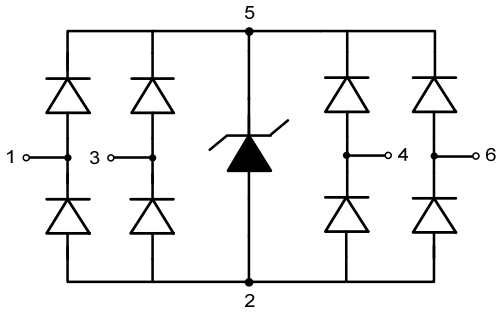
ESDA6V8UW

4-Lines, Uni-directional, Low Capacitance Transient Voltage Suppressors

http//:www.willsemi.com

SOT-363



Circuit diagram

Descriptions

The ESDA6V8UW is a low capacitance TVS (Transient Voltage Suppressor) array designed to protect high speed data interfaces. It has been specifically designed to protect sensitive electronic components which are connected to data and transmission lines from over-stress caused by ESD (Electrostatic Discharge).

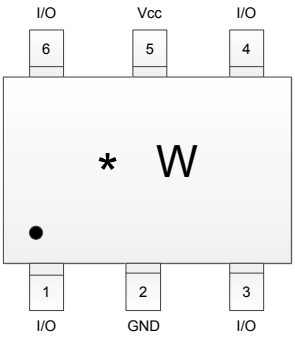
The ESDA6V8UW incorporates four pairs of low capacitance steering diodes plus a TVS diode.

The ESDA6V8UW may be used to provide ESD protection up to ±8kV (contact discharge) according to IEC61000-4-2, and withstand peak pulse current up to 3A (8/20μs) according to IEC61000-4-5.

The ESDA6V8UW is available in SOT-363 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): ±8kV (contact discharge)
  IEC61000-4-5 (surge): 3A (8/20μs)
- Low capacitance: $C_{I/O - GND}$ = 0.70pF typ.
  $C_{I/O - I/O}$ = 0.35pF typ.
- Low leakage current
- Low clamping voltage
- Solid-state silicon technology



* = Month code (A~Z)

W = Device code

Marking & Pin configuration (Top View)

Applications

- USB 2.0
- HDMI 1.3
- SATA and eSATA
- DVI
- IEEE 1394
- PCI Express
- Portable Electronics
- Notebooks

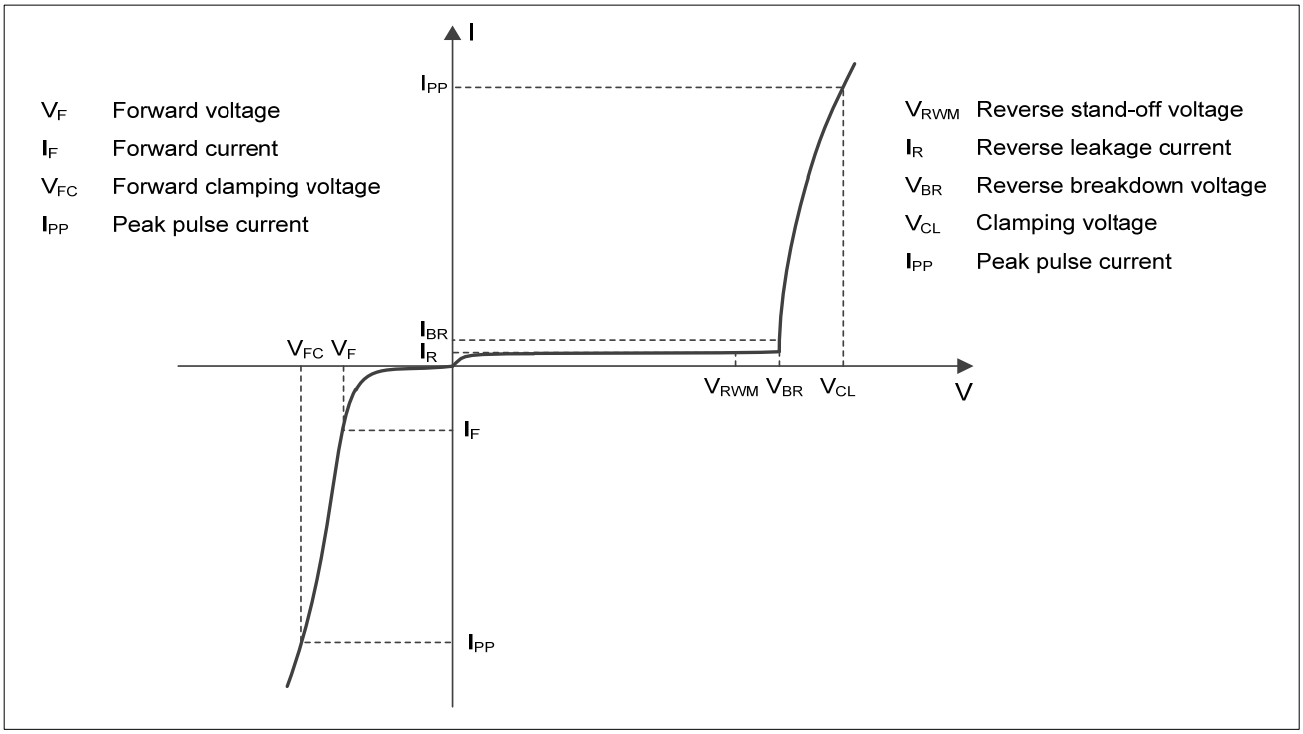
Order information

Device	Package	Shipping
ESDA6V8UW-6/TR	SOT-363	3000/Tape&Reel

Absolute maximum ratings

Parameter	Symbol	Rating	Unit
Peak pulse power (t_p = 8/20μs)	P_{pk}	45	W
Peak pulse current (t_p = 8/20μs)	I_{PP}	3	A
ESD according to IEC61000-4-2 air discharge	V_{ESD}	±15	kV
ESD according to IEC61000-4-2 contact discharge		±8	
Operation junction temperature	T_J	125	°C
Lead temperature	T_L	260	°C
Storage temperature	T_{STG}	-55~150	°C

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



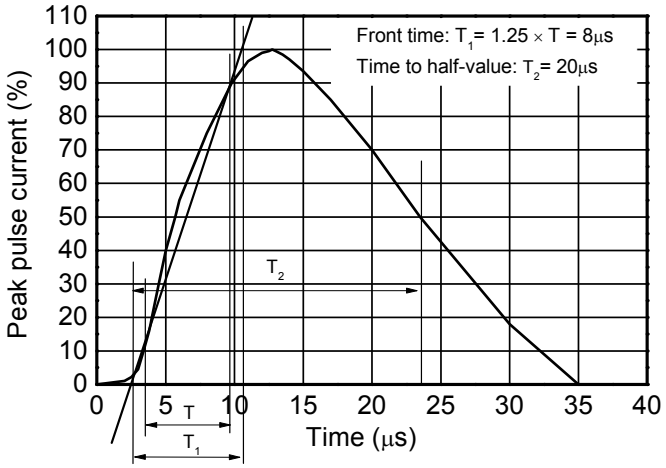
Definitions of electrical characteristics

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

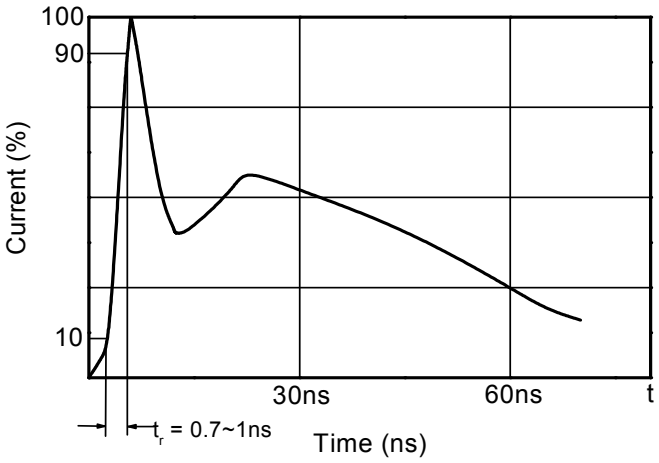
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V_{RWM}				5	V
Reverse leakage current	I_R	V_{RWM} = 5V			1	μA
Reverse breakdown voltage	V_{BR}	I_{BR} = 1mA	6.5	8.0	9.0	V
Forward voltage	V_F	I_F = 10mA	0.6	0.9	1.2	V
Clamping voltage [1)]	V_{CL}	I_{PP} = 1A, t_p = 8/20μs			11	V
		I_{PP} = 3A, t_p = 8/20μs			15	V
Junction capacitance	$C_{I/O - GND}$	V_R = 0V, f = 1MHz, Any I/O to GND		0.70	0.90	pF
	$C_{I/O – I/O}$	V_R = 0V, f = 1MHz, Any I/O to I/O		0.35	0.50	pF

1) According to IEC61000-4-5.

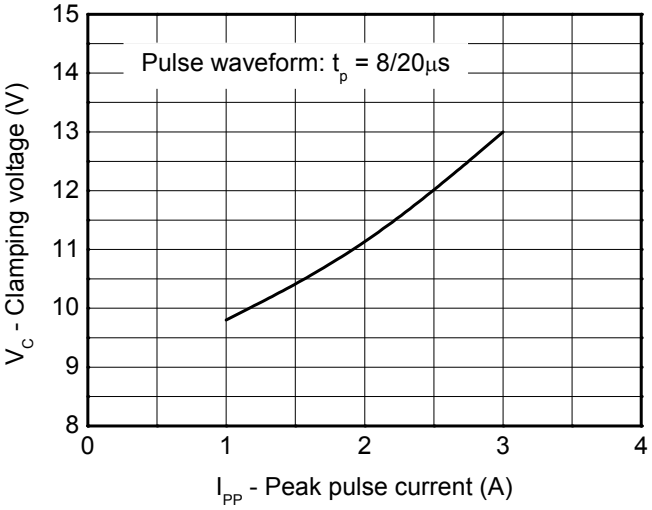
Typical characteristics (T_A = 25°C, unless otherwise noted)



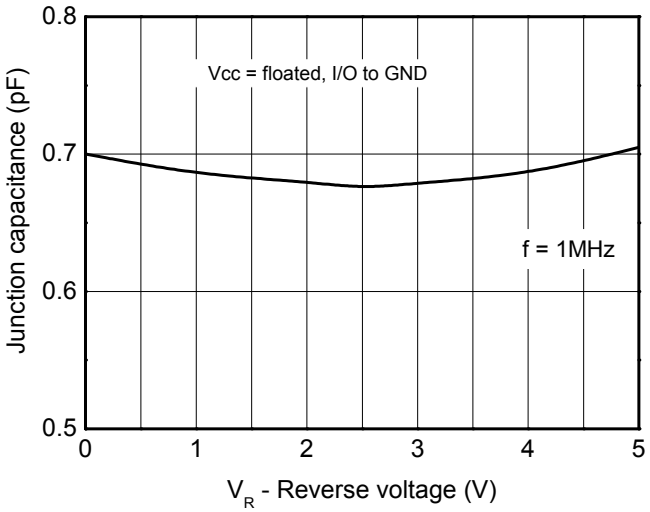
8/20μs waveform per IEC61000-4-5



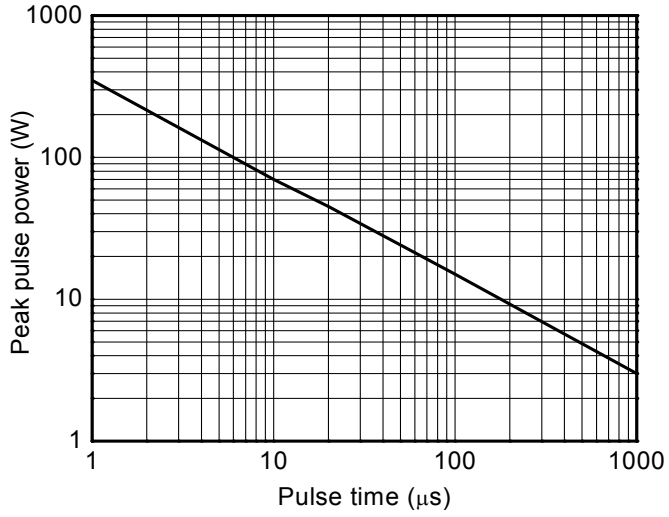
Contact discharge current waveform per IEC61000-4-2



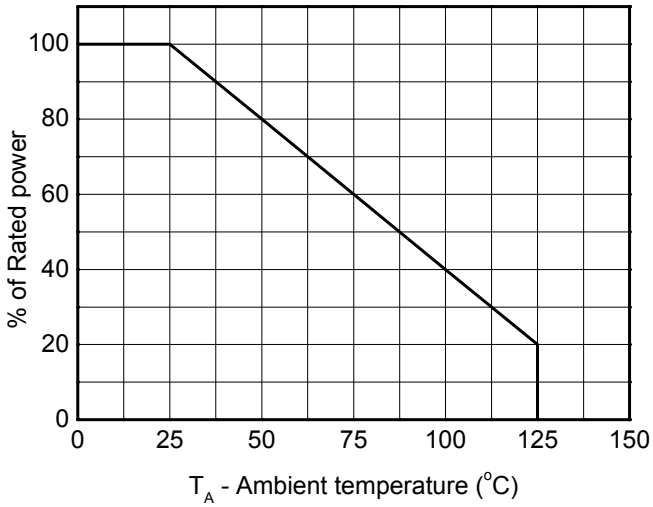
Clamping voltage vs. Peak pulse current



Capacitance vs. Reveres voltage

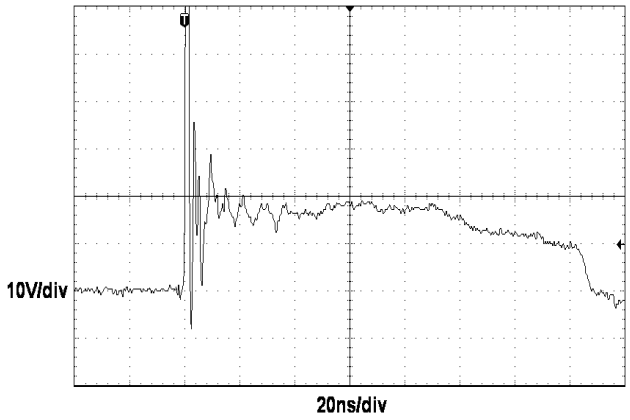


Non-repetitive peak pulse power vs. Pulse time

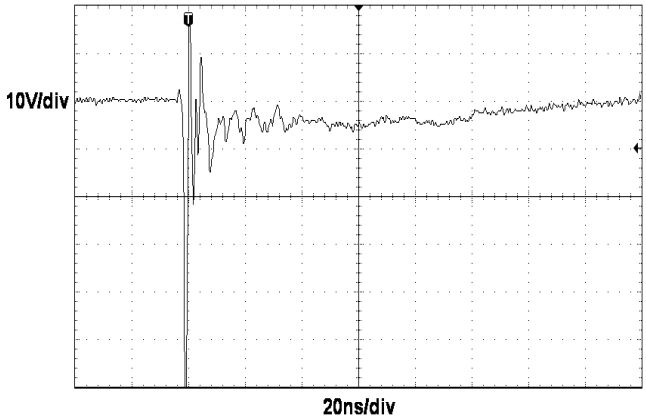


Power derating vs. Ambient temperature

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



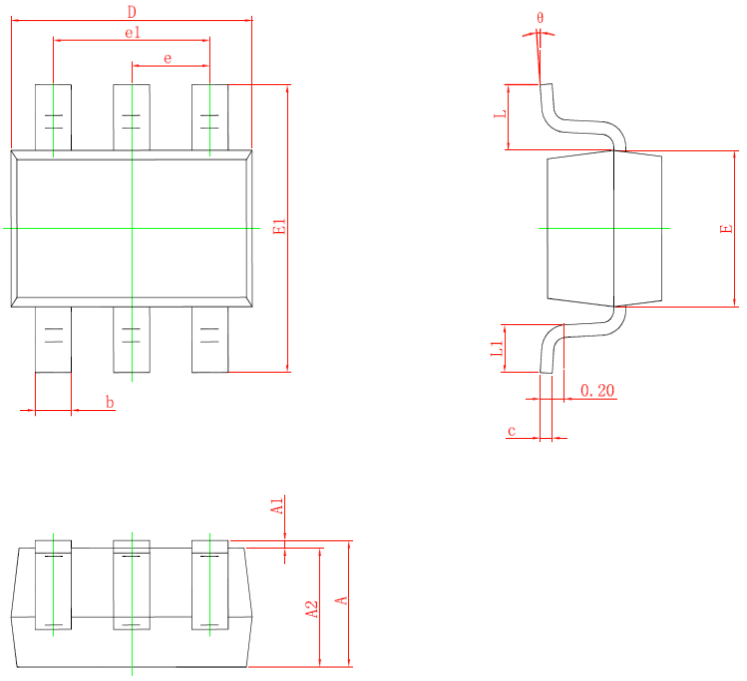
ESD clamping
(+8kV contact discharge per IEC61000-4-2)



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

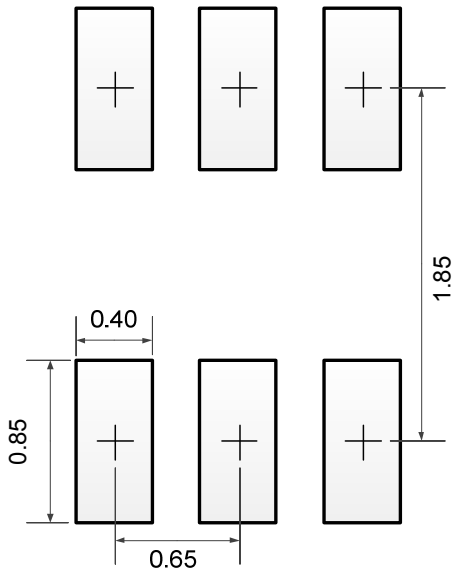
Package outline dimensions

SOT-363



Symbol	Dimensions In Millimeters		
	Min.	Typ.	Max.
A	0.850	--	1.050
A1	0.000	--	0.100
A2	0.800	0.900	1.000
b	0.220	--	0.290
c	0.115	--	0.150
D	2.020	2.070	2.120
E	1.250	1.300	1.350
E1	2.200	2.300	2.400
e	0.650 BSC		
e1	1.300 BSC		
L	0.500 REF		
L1	0.280	0.330	0.380
θ	0^o	--	8^o

Recommend land pattern (Unit: mm)



Note: This land pattern is for your reference only.