

ESD5Z3V3

1-Line Uni-directional Transient Voltage Suppressors

[Http://www.willsemi.com](http://www.willsemi.com)

Descriptions

The ESD5Z3V3 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 designed to replace multilayer varistors (MLV) in consumer equipments applications such as mobile phone, notebook, PAD, STB, LCD TV etc.

The ESD5Z3V3 was past ESD transient voltage up to $\pm 30\text{kV}$ (contact) according to IEC61000-4-2 and withstand peak current up to 9A for 8/20us pulse according to IEC61000-4-5.

The ESD5Z3V3 is available in SOD-523 package. Standard products are Pb-free and Halogen-free.



SOD-523



Pin configuration (Top view)



SOD-523

Features

- Working voltage : 3.3V
- Peak power ($t_p=8/20\mu\text{s}$) : 108W
- ESD protection
 - IEC61000-4-2 (Contact) : $\pm 30\text{kV}$
 - IEC61000-4-2 (Air) : $\pm 30\text{kV}$
- Low leakage current
- Small package

5 = Device code
 * = Month code (A~Z)
Marking

Applications

- Mobile phone
- PAD
- Notebook
- STB
- LCD TV
- Digital camera
- Other electronics equipments

Order information

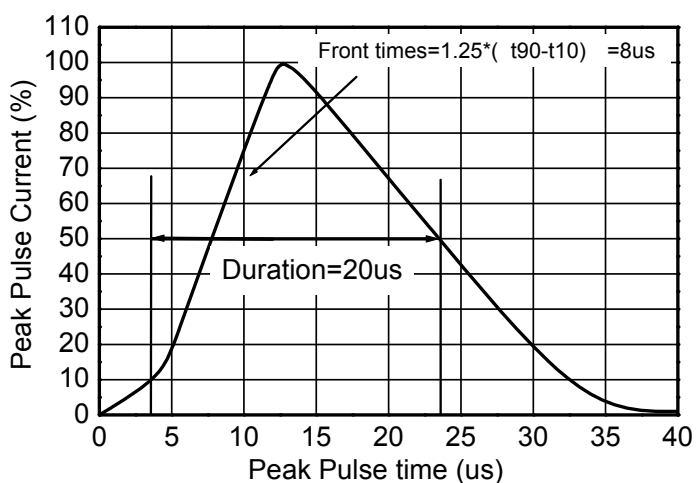
Device	Package	Shipping
ESD5Z3V3-2/TR	SOD-523	3000/Tape&Reel

Absolute maximum ratings

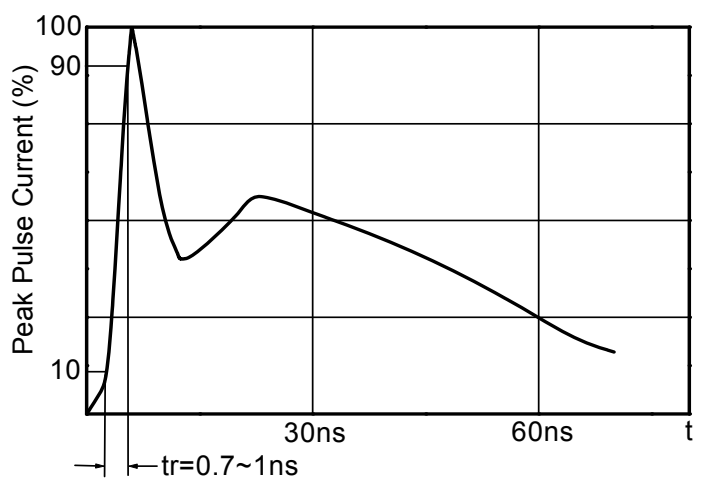
Parameter	Symbol	Rating	Unit
Peak pulse power (tp=8/20us)	Ppk	108	W
Peak pulse current (tp=8/20us)	Ipp	9	A
ESD voltage IEC61000-4-2 air	V _{ESD}	±30	kV
ESD voltage IEC61000-4-2 contact		±30	
Junction temperature	T _J	125	°C
Operating temperature	T _{OP}	-40~85	°C
Lead temperature	T _L	260	°C
Storage temperature	T _{STG}	-55~150	°C

Electronics characteristics (Ta=25 °C, unless otherwise noted)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse maximum working voltage	V _{RWM}				3.3	V
Reverse leakage current	I _R	V _{RWM} =1V			0.1	uA
		V _{RWM} =4.2V			10	uA
Reverse breakdown voltage	V _{BR}	I _T =1mA	4.8	5.2	5.4	V
Forward voltage	V _F	I _F =-10mA	0.55	0.8	1.25	V
Clamping voltage	V _C	Ipp=1A tp=8/20us			6.5	V
		Ipp=9A tp=8/20us			12	V
Junction capacitance	C	F=1MHz, V _R =0V		70	90	pF

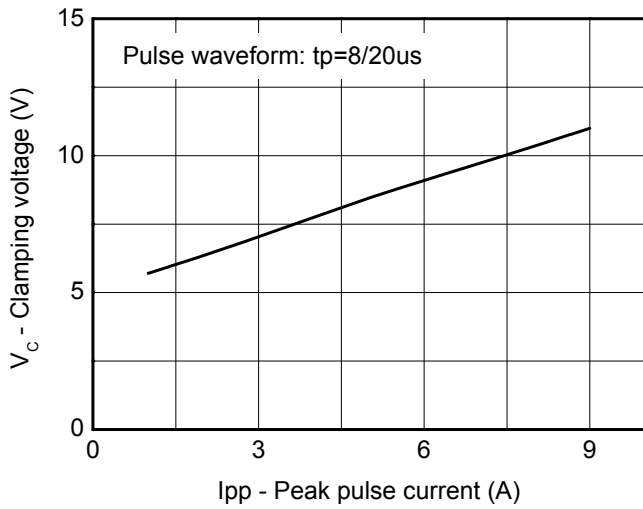


8/20us waveform

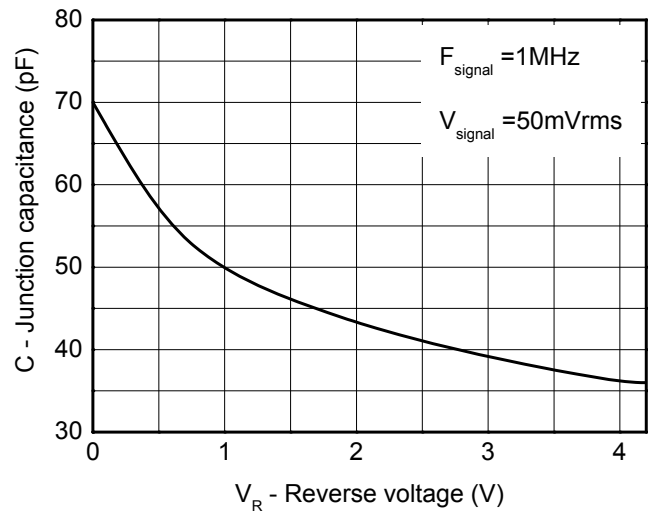


IEC61000-4-2 waveform

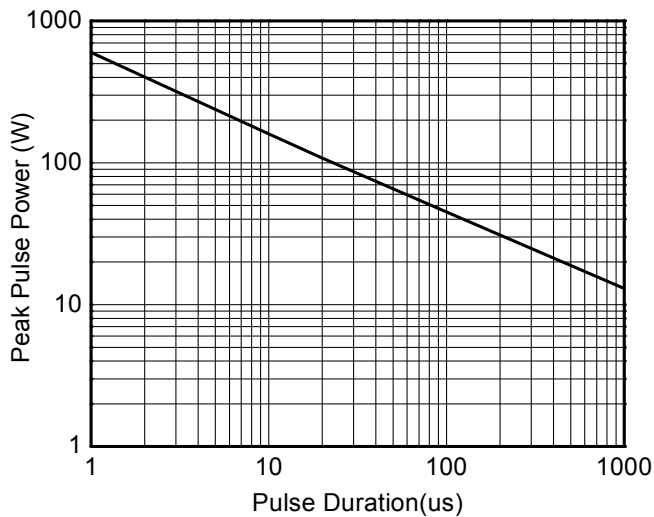
Typical characteristics ($T_a=25^\circ\text{C}$, unless otherwise noted)



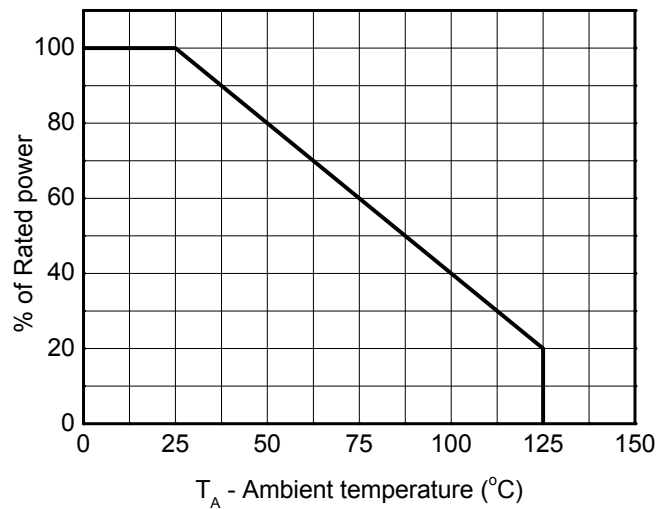
Clamping voltage vs. Peak pulse current



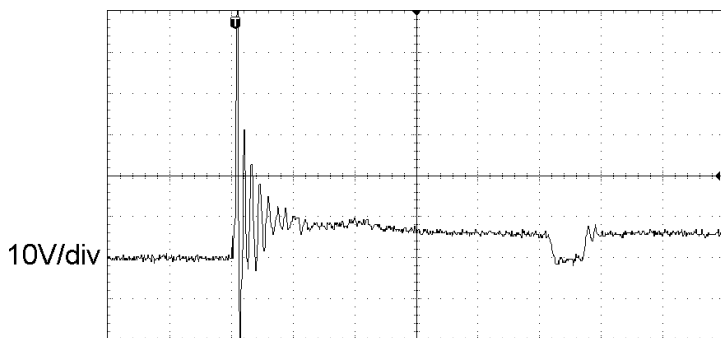
Capacitance vs. Reverse voltage



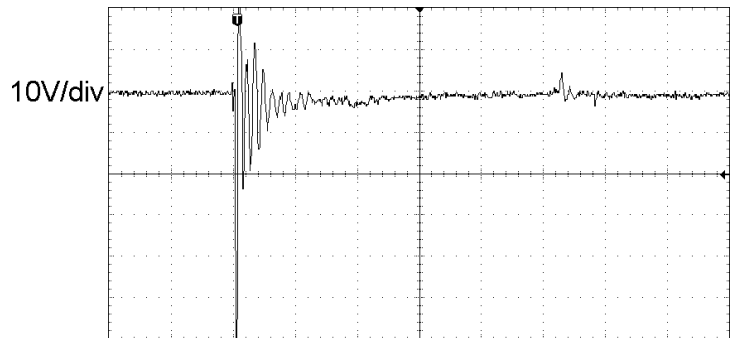
Non-Repetitive Peak Pulse Power vs. Pulse time



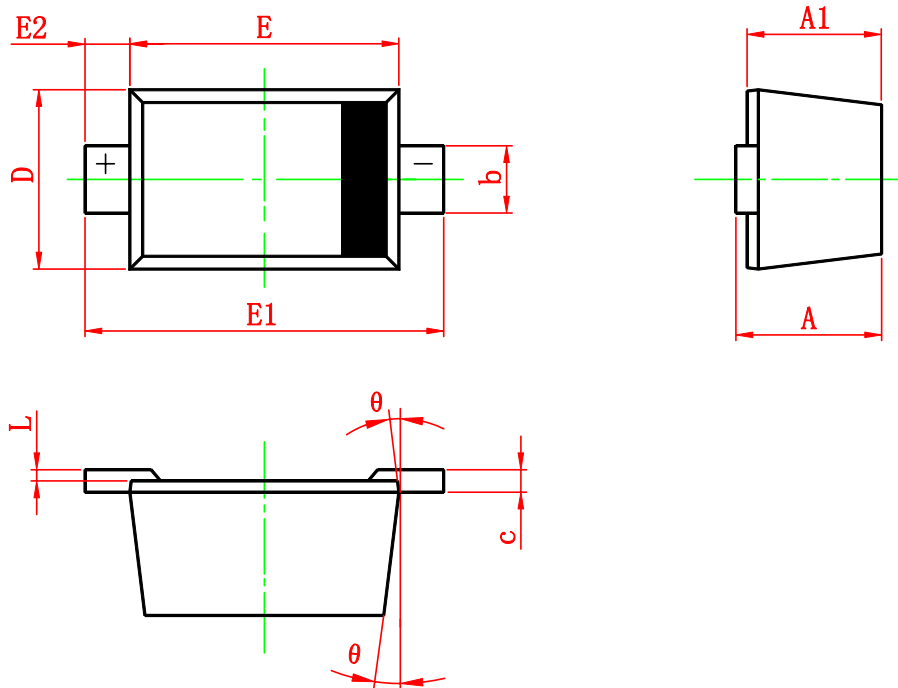
Power derating vs. Temperature



ESD Clamping
(IEC61000-4-2 +8kV contact)



ESD Clamping
(IEC61000-4-2 -8kV contact)

Package outline dimensions
SOD-523


Symbol	Dimensions in millimeter		
	Min.	Typ.	Max.
A	0.510		0.770
A1	0.500		0.700
b	0.250	0.300	0.350
c	0.080		0.150
D	0.750	0.800	0.850
E	1.100	1.200	1.300
E1	1.500	1.600	1.700
E2	0.200 Ref.		
L	0.010		0.070
θ	0°		8°

Recommend PCB Layout (Unit: mm)
