

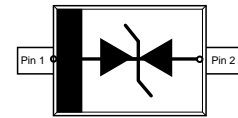
1-Line, Bi-directional, Transient Voltage Suppressors

Descriptions

The ESD3V3C250TA is a bi-directional TVS (Transient Voltage Suppressor). It is specifically designed to protect sensitive electronic components that may be subjected to ESD (Electrostatic Discharge), EFT (Electrical Fast Transients) and Lightning. It is particularly well-suited for cellular phones, portable device, digital cameras, power supplies and many other portable applications because of its small package and low weight.



The ESD3V3C250TA may be used to provide ESD protection up to 30KV Air, 30KV contact compliance to IEC61000-4-2, and withstand peak pulse current up to 5.8 A(8/20µs) according to IEC61000-4-5.



Circuit diagram

The ESD3V3C250TA is available in SOD-882 package. Standard products are Pb-free and Halogen-free.

Features

- Stand-off voltage: $\pm 3.3V$ Max
- Transient protection for each line according to IEC61000-4-2 (ESD): 30KV Air, 30KV contact IEC61000-4-5 (surge): 5.8 A (8/20µs)

Applications

- Cell phone handsets and accessories
- Personal Digital Assistants (PDAs)
- Notebooks, Desktops, and Servers
- Portable Instrumentation
- Digital Cameras
- Car entertainment systems, automotive instrumentation

Order information

Device	Marking	Package	Shipping
ESD3V3C250TA	B	SOD-923	8000/Tape&Reel

Absolute maximum ratings

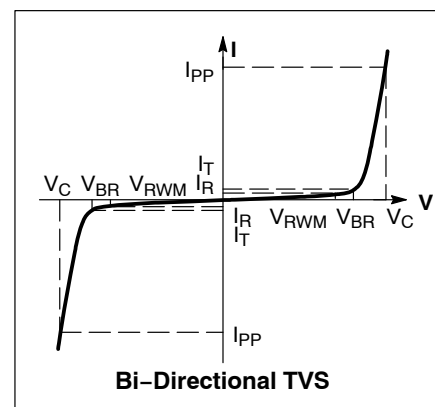
Parameter	Symbol	Rating	Unit
Peak pulse current ($t_p = 8/20\mu s$)	I_{PP}	5.8	A
ESD according to IEC61000-4-2 air discharge	V_{ESD}	± 30	kV
ESD according to IEC61000-4-2 contact discharge		± 30	
Operation junction temperature	T_J	-50~125	$^{\circ}C$
Lead temperature	T_L	260	$^{\circ}C$
Storage temperature	T_{STG}	-65~150	$^{\circ}C$

Electrical characteristics (TA=25 oC, unless otherwise noted)

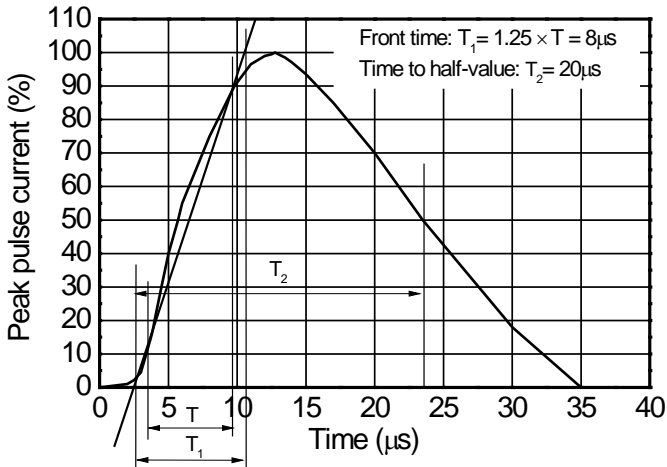
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V_{RWM}				± 3.3	V
Reverse leakage current	I_R	$V_{RWM} = 3.3V$			0.5	μA
Reveres breakdown voltage	V_{BR}	$I_T = 1mA$	4.0	5.0	6.5	V
Clamping voltage	V_C	$I_{pp} = 1A$ $t_p = 8/20\mu s$			7.5	V
		$I_{ppMax} = 5.8A$ $t_p = 8/20\mu s$			10.0	V
Junction capacitance	C_J	$V_R = 0V, f = 1MHz$	25 \pm 30%			pF

Electrical performance curve

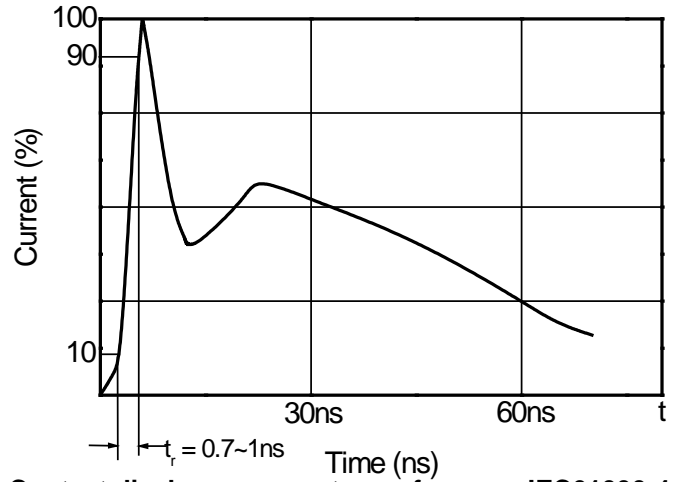
- V_C : Maximum clamping voltage
- V_{br} : Reverse breakdown voltage
- V_{RWM} : Working voltage
- I_{PP} : Maximum peak current



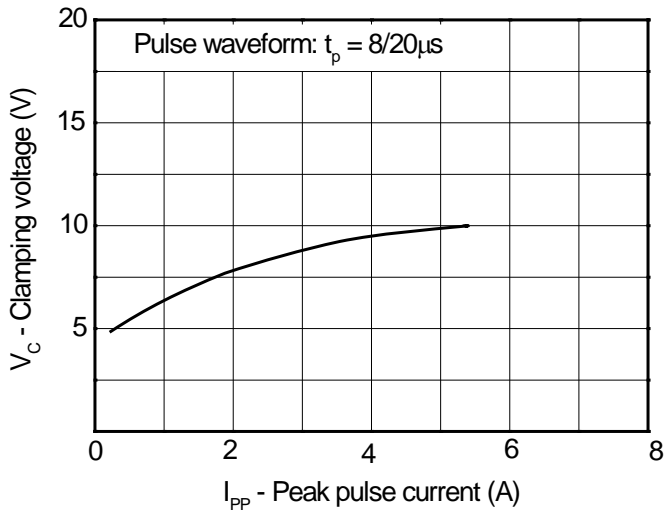
Typical characteristics ($T_A=25^\circ\text{C}$, unless otherwise noted)



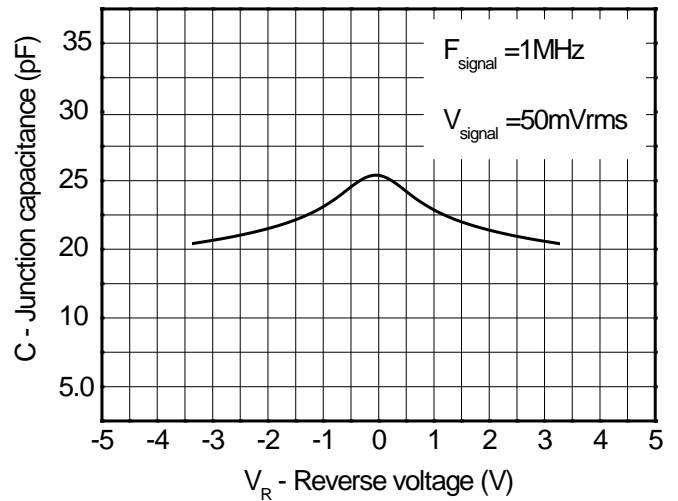
8/20 μs waveform per IEC61000-4-5



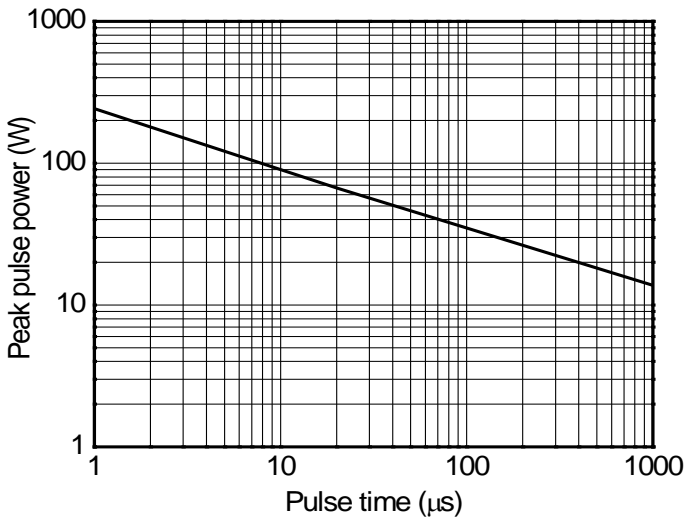
Contact discharge current waveform per IEC61000-4-2



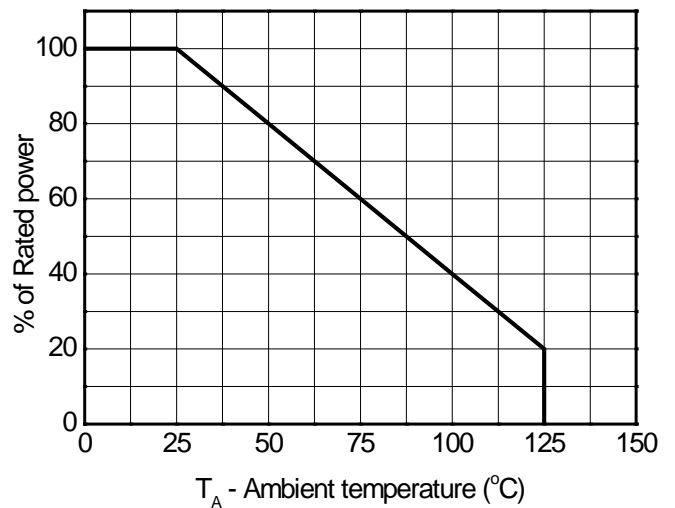
Clamping voltage vs. Peak pulse current



Capacitance vs. Reverse voltage

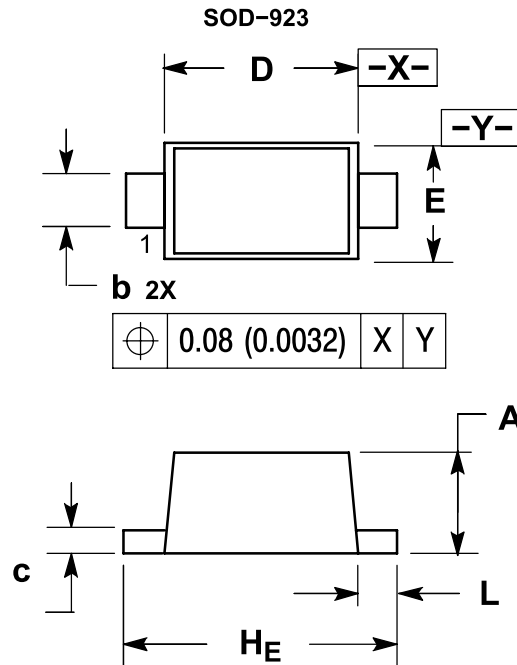


Non-repetitive peak pulse power vs. Pulse time

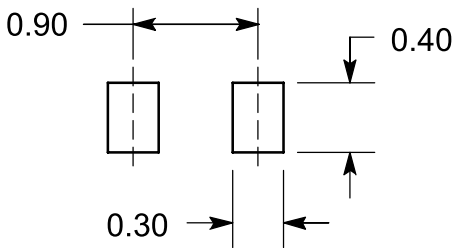


Power derating vs. Ambient temperature

Package outline dimensions



SOLDERING FOOTPRINT*



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 198 .
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.34	0.37	0.40	0.013	0.015	0.016
b	0.15	0.20	0.25	0.006	0.008	0.010
c	0.07	0.12	0.17	0.003	0.005	0.007
D	0.75	0.80	0.85	0.030	0.031	0.033
E	0.55	0.60	0.65	0.022	0.024	0.026
HE	0.95	1.00	1.05	0.037	0.039	0.041
L	0.05	0.10	0.15	0.002	0.004	0.006