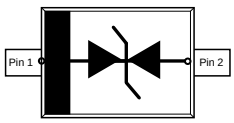
1-Line, Bi-directional, Transient Voltage Suppressors

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 protectionup 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.

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



Circuit diagram

Features

- Stand-off voltage: ±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)

Order information

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

Applications

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

Absolute maximum ratings

Parameter	Symbol	Rating	Unit
Peak pulse power (t_p = 8/20μs)	P_{pk}	47	W
Peak pulse current (t_p = 8/20μs)	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	°C
Lead temperature	T_L	260	°C
Storage temperature	T_{STG}	-65~150	°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	uA
Reveres breakdown voltage	V_{BR}	I_T=1mA	4.8	5	6	V
Clamping voltage	V_{CL}	V_{ESD} = 8kV		10		V
Clamping voltage	V_C	Ipp=1A tp=8/20us			6.3	V
		IppMax=5.8A tp=8/20us			8.1	V
Junction capacitance	C_J	V_R = 0V, f = 1MHz	25±30%			pF

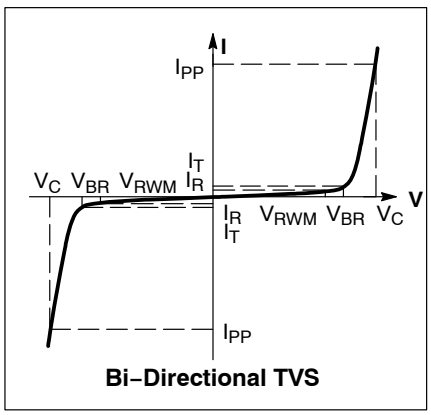
Electrical performance curve

V_C: Maximum clamping voltage

V_{br}: Reverse breakdown voltage

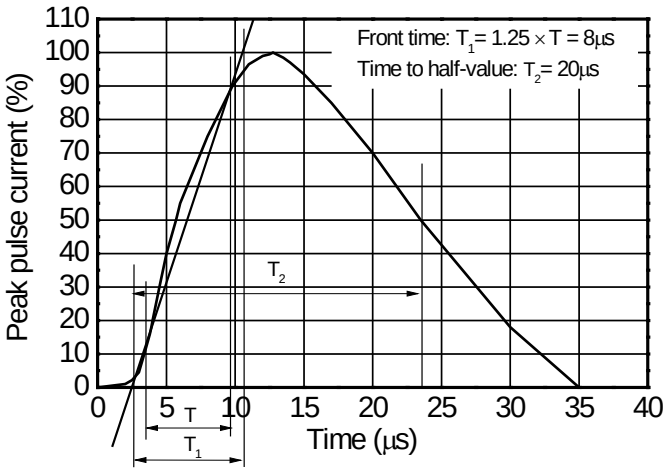
V_{RWM}: Working voltage

I_{PP}: Maximum peak current

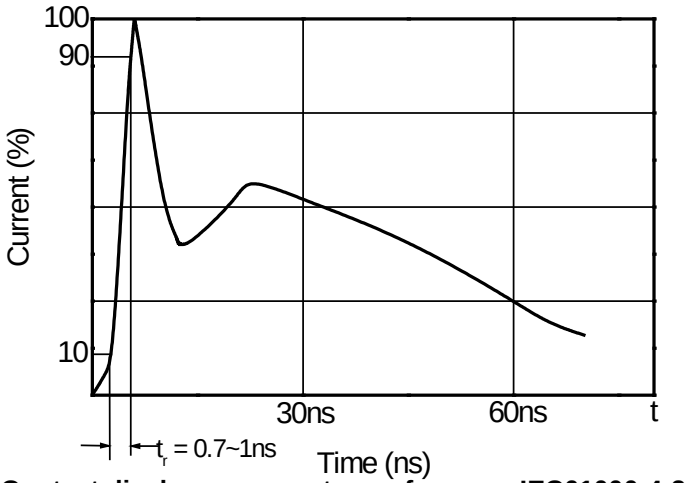


Bi–Directional TVS

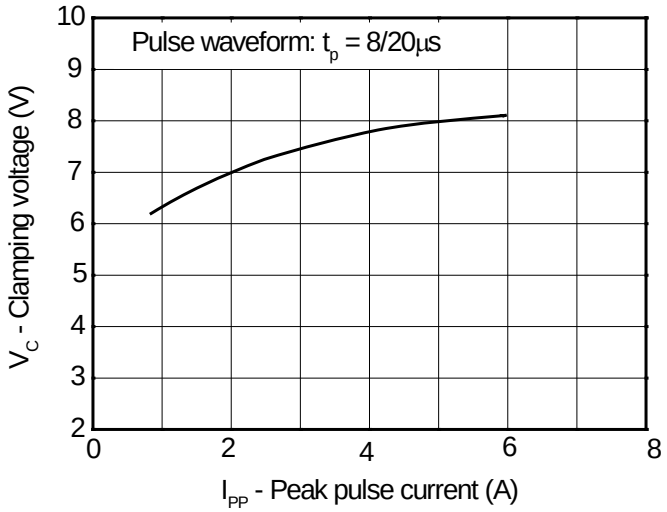
Typical characteristics (T_A=25°C, unless otherwise noted)



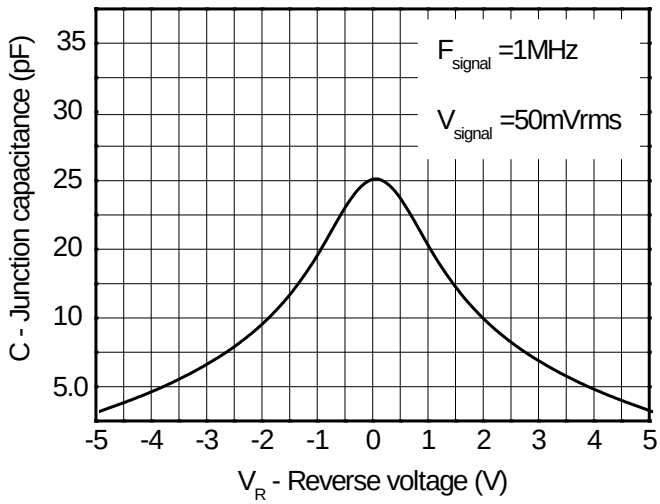
8/20μs waveform per IEC61000-4-5



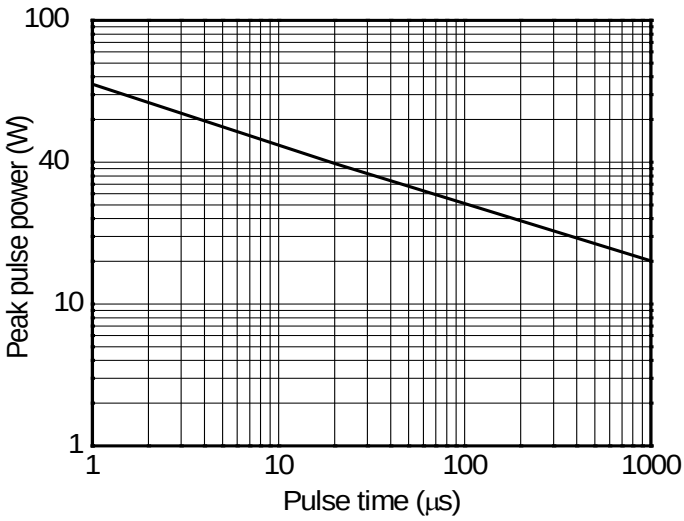
Contact discharge current waveform per IEC61000-4-2



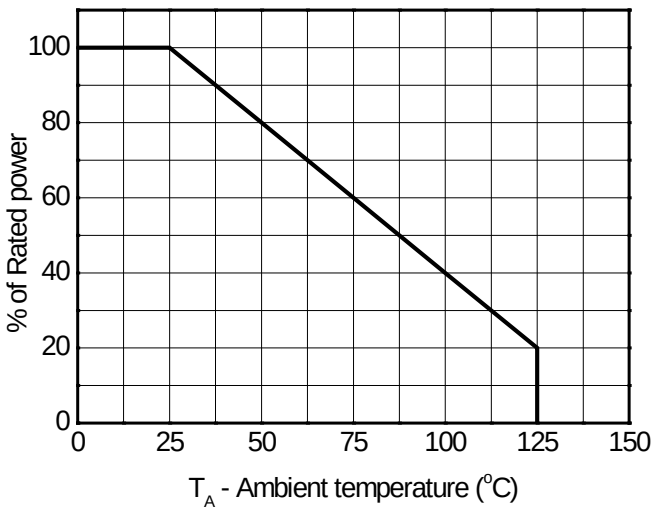
Clamping voltage vs. Peak pulse current



Capacitance vs. Reveres voltage



Non-repetitive peak pulse power vs. Pulse time



Power derating vs. Ambient temperature