1-Line, Bi-directional, Transient Voltage Suppressors

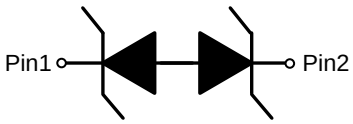
Descriptions

The ESD18D250TA 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 ESD18D250TA may be used to provide ESD protection up to 20KV Air, 20KV contact compliance to IEC61000 -4-2, and withstand peak pulse current up to 4.0 A (8/20μs) according to IEC61000-4-5.

The ESD18D250TA is available in DFN1006-2L package. Standard products are Pb-free and Halogen-free.

DFN1006-2L



Circuit diagram

Features

- Stand-off voltage: ±18V Max
- Transient protection for each line according to
  IEC61000-4-2 (ESD): 20KV Air, 20KV contact
  IEC61000-4-5 (surge): 4.0 A (8/20μs)

Order information

Device	Marking	Package	Shipping
ESD18D250TA	CG4	DFN1006-2L	10000/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}	180	W
Peak pulse current (t_p = 8/20μs)	I_{PP}	4.0	A
ESD according to IEC61000-4-2 air discharge	V_{ESD}	±20	kV
ESD according to IEC61000-4-2 contact discharge		±20	
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}				±18	V
Reverse leakage current	I_R	V_{RWM} = 18 V			0.5	uA
Reveres breakdown voltage	V_{BR}	I_T=1mA	20.0			V
Clamping voltage	V_C	Ipp=1A tp=8/20us		34.0	36.0	V
		IppMax=4.0 A tp=8/20us		44.0	46.0	V
Junction capacitance	C_J	V_R = 0V, f = 1MHz		20.0	45.0	pF

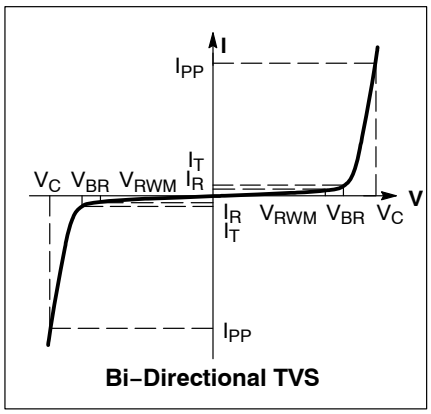
Electrical performance curve

V_C: Maximum clamping voltage

V_{br}: Reverse breakdown voltage

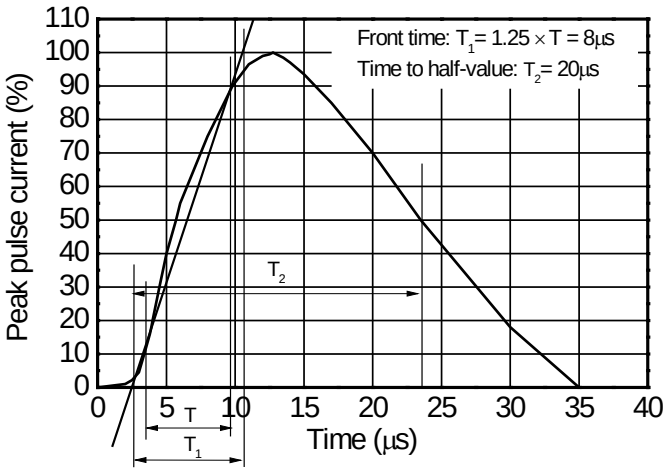
V_{RWM}: Working voltage

I_{PP}: Maximum peak current

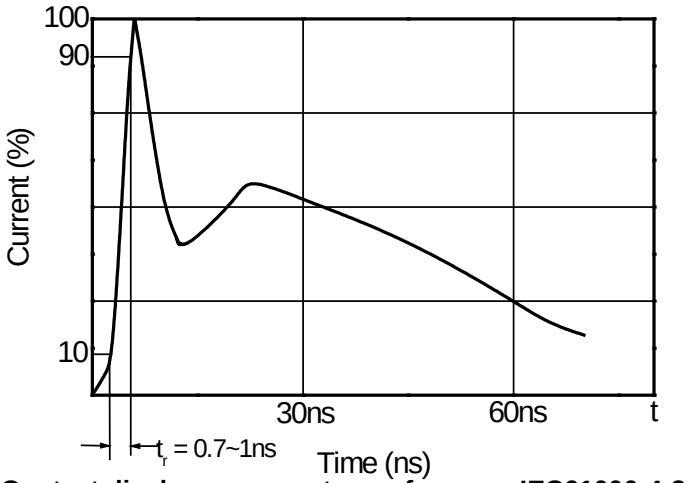


Bi–Directional TVS

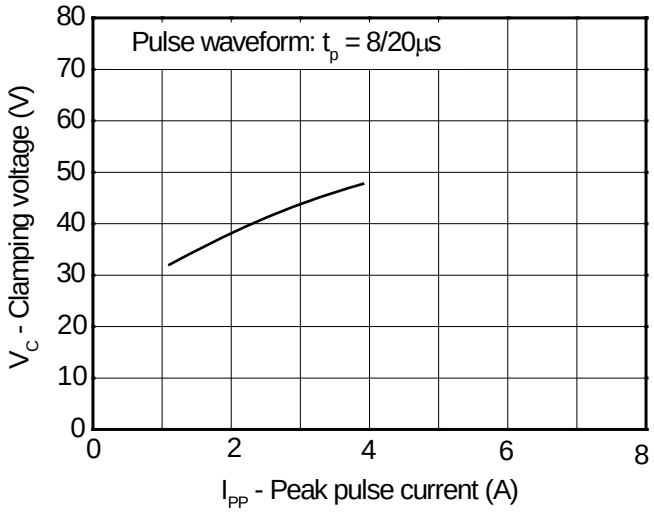
Typical characteristics (T_A=25°C, unless otherwise noted)



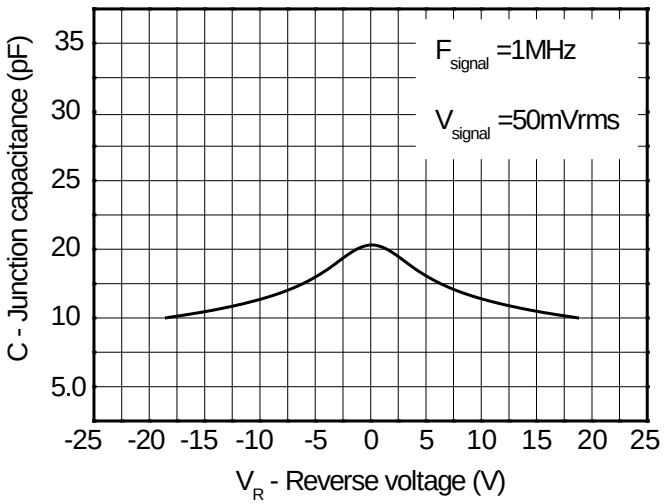
8/20μs waveform per IEC61000-4-5



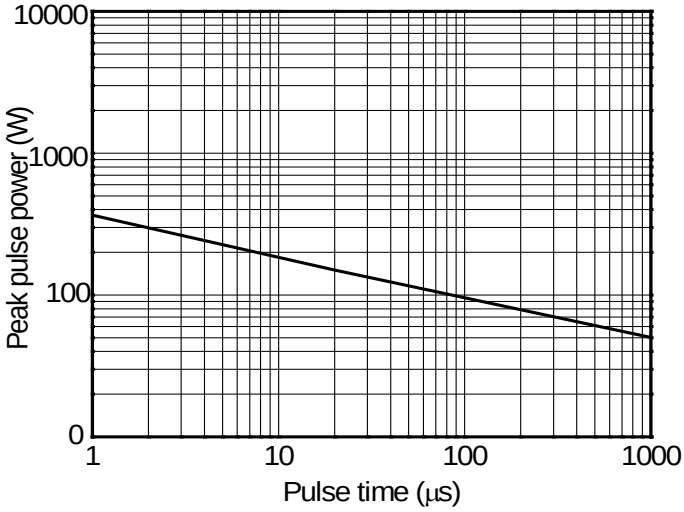
Contact discharge current waveform per IEC61000-4-2



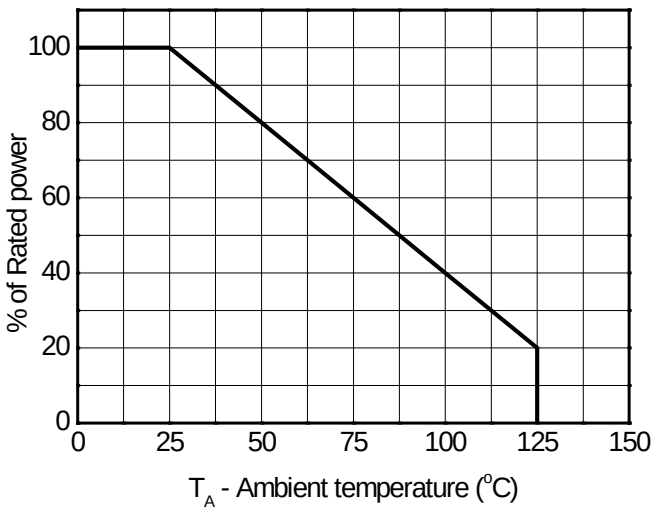
Clamping voltage vs. Peak pulse current



Capacitance vs. Reveres voltage

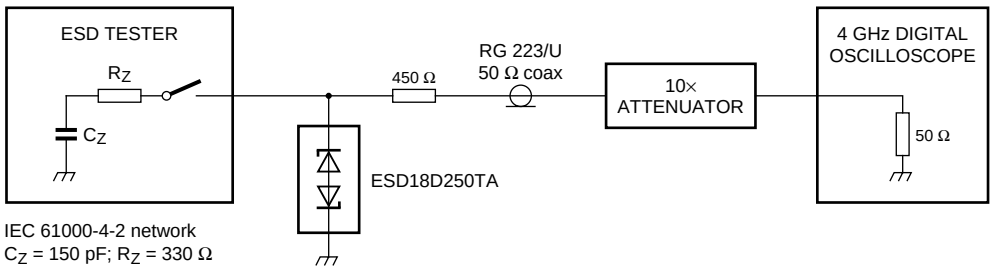


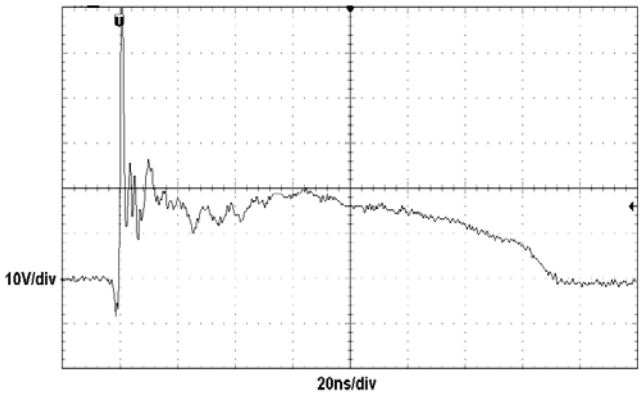
Non-repetitive peak pulse power vs. Pulse time



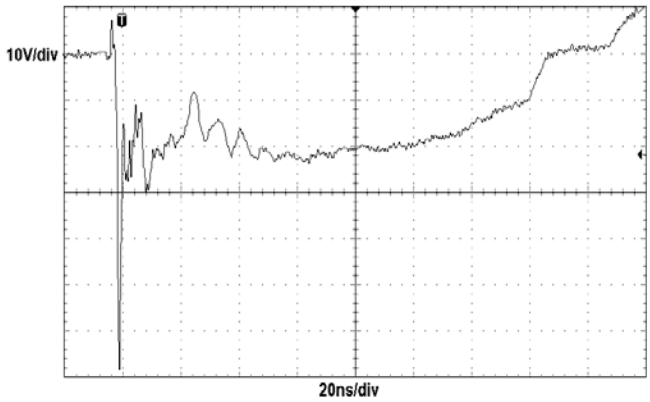
Power derating vs. Ambient temperature

ESD clamping test setup and waveforms





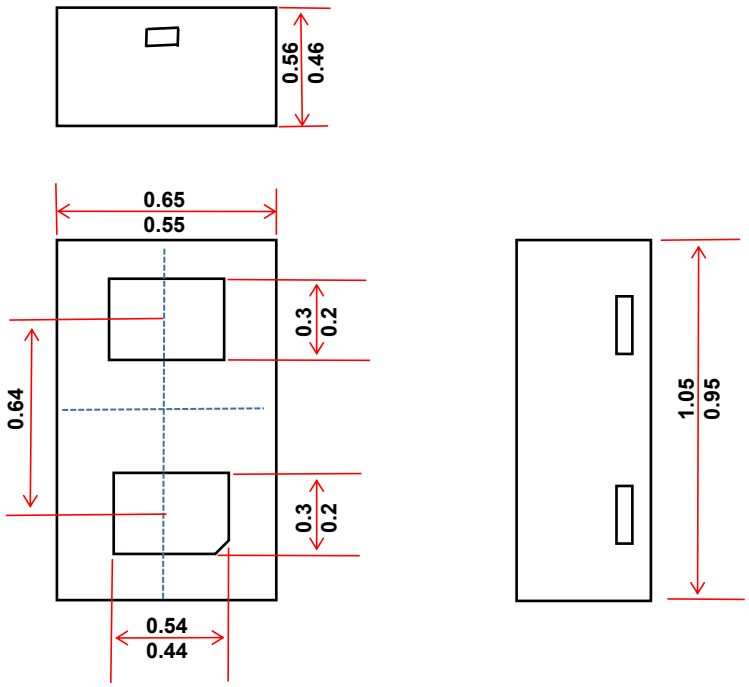
ESD clamping
(+8kV contact discharge per IEC61000-4-2)



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

Package outline dimensions

DFN1006-2L



Recommened Mounting Pad Layout Unit:mm