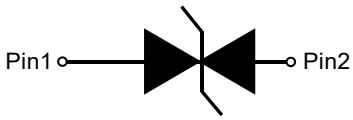
1-Line, Bi-directional, Transient Voltage Suppressors

Descriptions

The ESD5D500TA 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 is available in DFN1006-2L package. Standard products are Pb-free and Halogen-free.

DFN1006-2L



Circuit diagram

Features

- Stand-off voltage: ±5V Max
- Transient protection for each line according to
  IEC61000-4-2 (ESD): ±30KV Air, ±30 KV contact
  IEC61000-4-5 (Surge): 20 A (8/20μs)
- Solid-state silicon technology
- Low leakage current

Order information

Device	Marking	Package	Shipping
ESD5D500TA	B7	DFN1006-2L	10000/Tape&Reel

Applications

- Cell phone handsets and accessories
- Personal Digital Assistants (PDAs)
- Notebooks, Desktops, and Serves
- Portable Instrumentation
- Digital Cameras
- CAR/MID DVD/MP3/MP4/PMP Players

Absolute maximum ratings

Parameter	Symbol	Rating	Unit
Peak pulse current (t_p = 8/20μs)	I_{PP}	20.0	A
ESD according to IEC61000-4-2 air discharge	V_{ESD}	±30	kV
ESD according to IEC61000-4-2 contact discharge		±30	
Operating temperature	T_{OP}	-40~85	°C
Operation junction temperature	T_J	125	°C
Lead temperature	T_L	260	°C
Storage temperature	T_{STG}	-55~150	°C

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

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V_{RWM}				±5.0	V
Reverse leakage current	I_R	V_{RWM} = 5V			0.5	uA
Reveres breakdown voltage	V_{BR}	I_T=1mA	6.0	6.5	8.0	V
Clamping voltage	V_C	Ipp=1A tp=8/20us		8.5		V
		Ipp=20A tp=8/20us		9.0	10.0	V
Junction capacitance	C_J	V_R = 0V, f = 1MHz		60.0	80.0	pF

Electrical performance curve

V_{RWM} Reverse stand-off voltage

I_R Reverse leakage current

V_{CL} Clamping voltage

I_{PP} Peak pulse current

V_{TRIG} Reverse trigger voltage

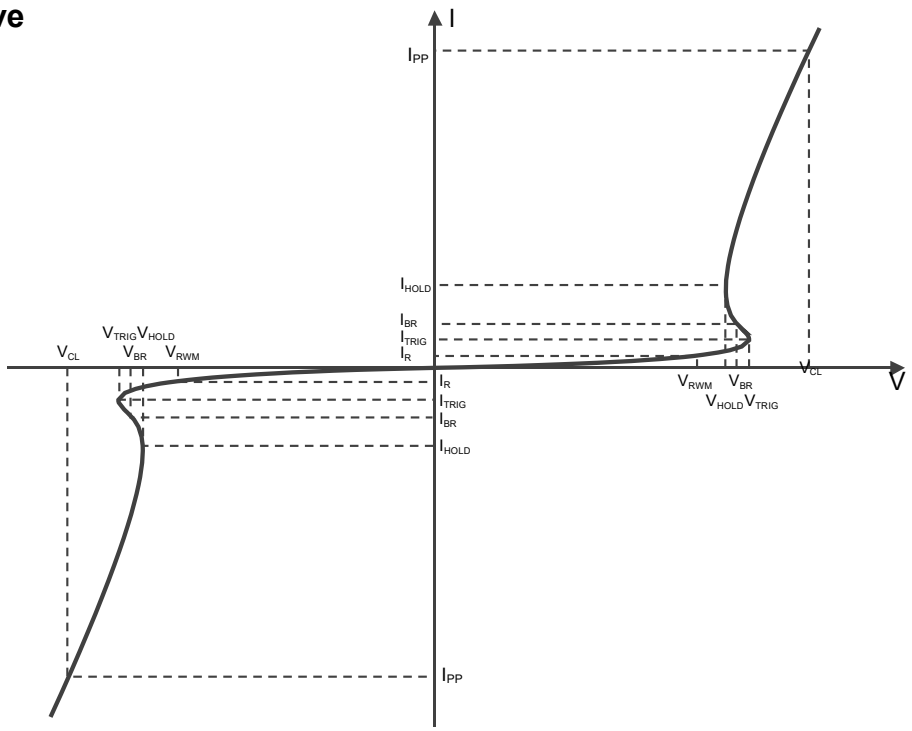
I_{TRIG} Reverse trigger current

V_{BR} Reverse breakdown voltage

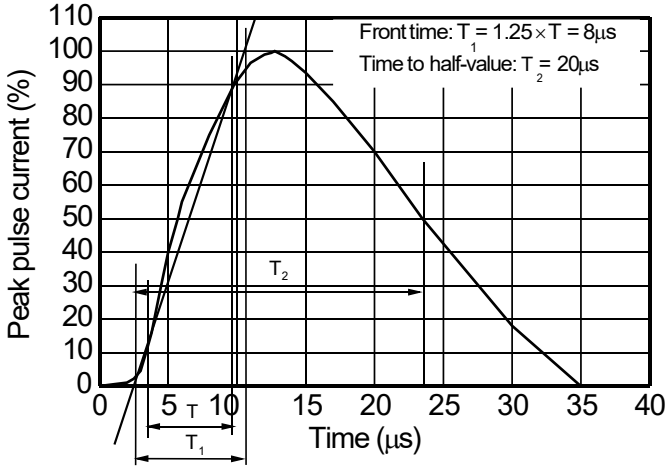
I_{BR} Reverse breakdown current

V_{HOLD} Reverse holding voltage

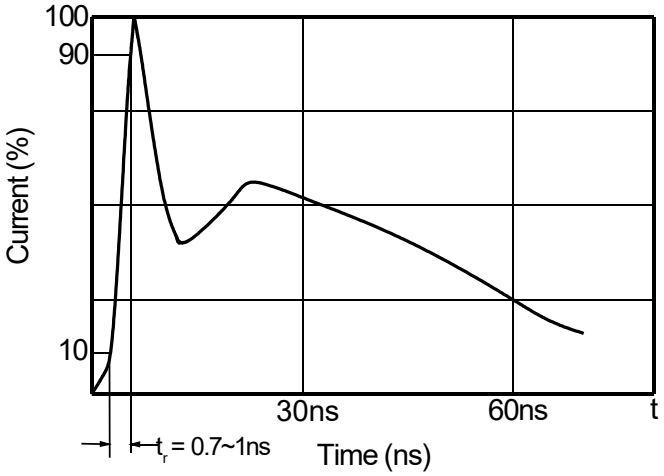
I_{HOLD} Reverse holding current



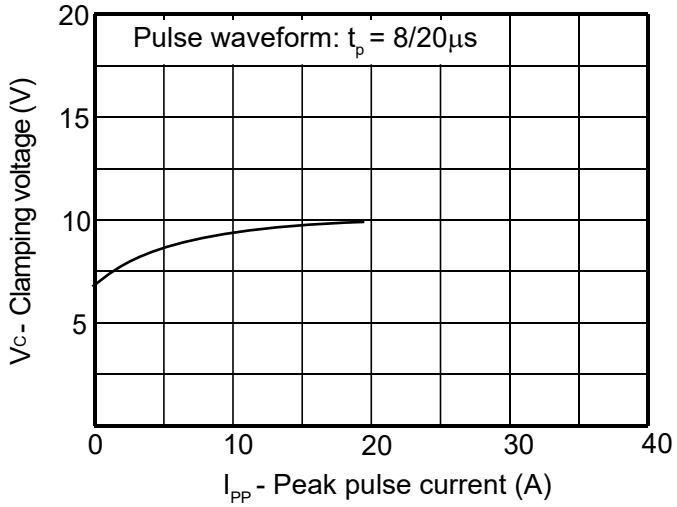
Typical characteristics (T_A=25°C, unless otherwise noted)



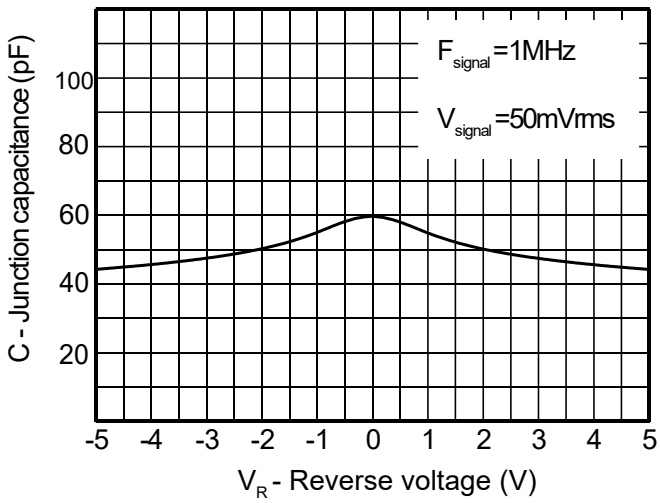
8/20μs waveform per IEC61000-4-5



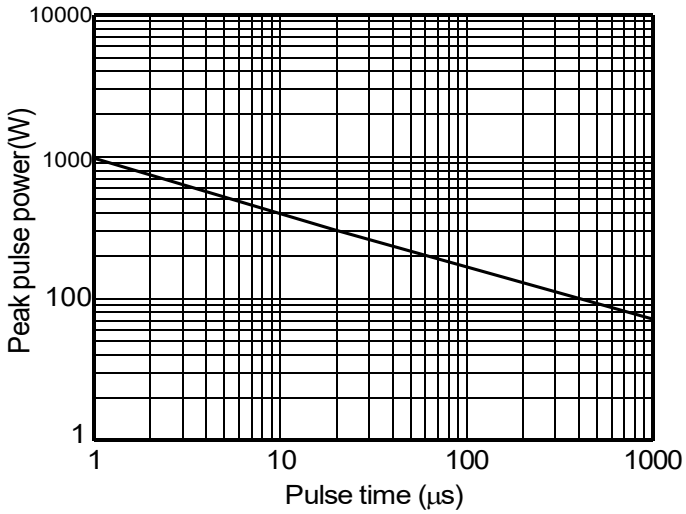
Contact discharge current waveform per IEC61000-4-2



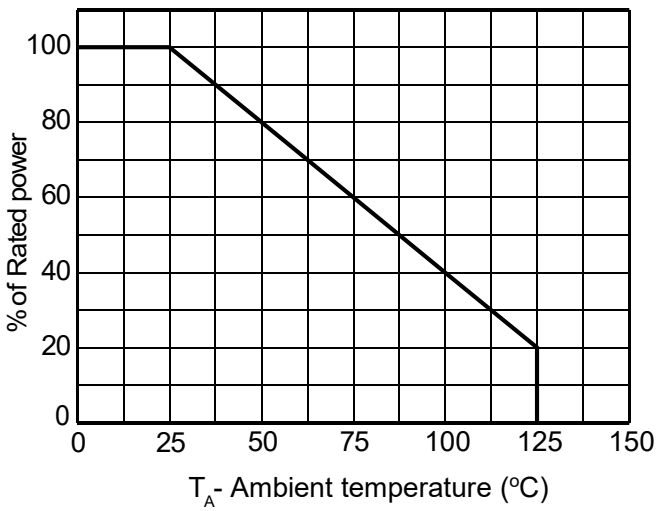
Clamping voltage vs. Peak pulse current



Capacitance vs. Reveres voltage

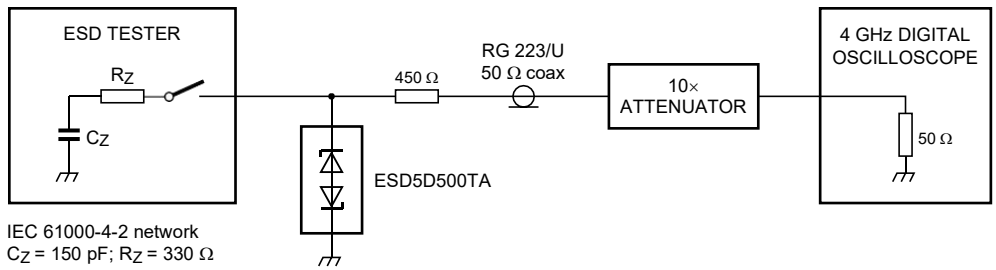


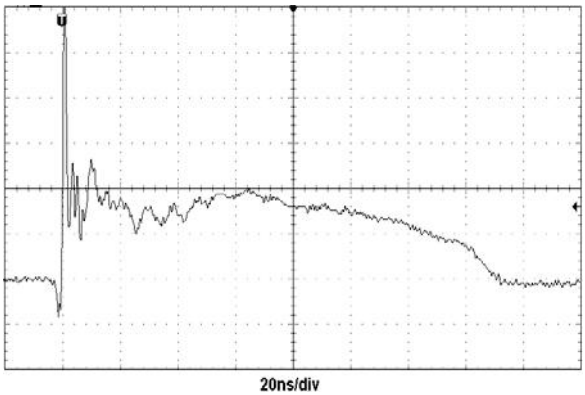
Non-repetitive peak pulse power vs. Pulse time



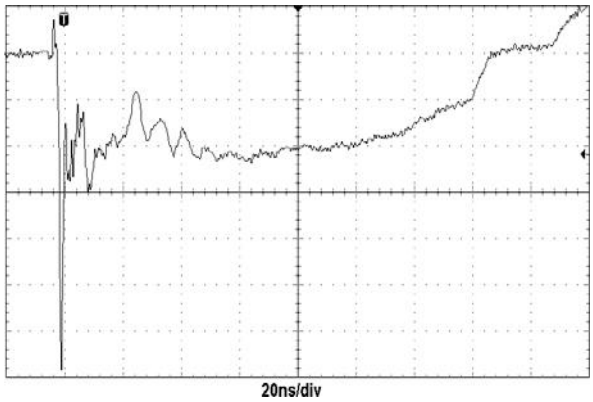
Power derating vs. Ambient temperature

ESD clamping test setup and waveforms





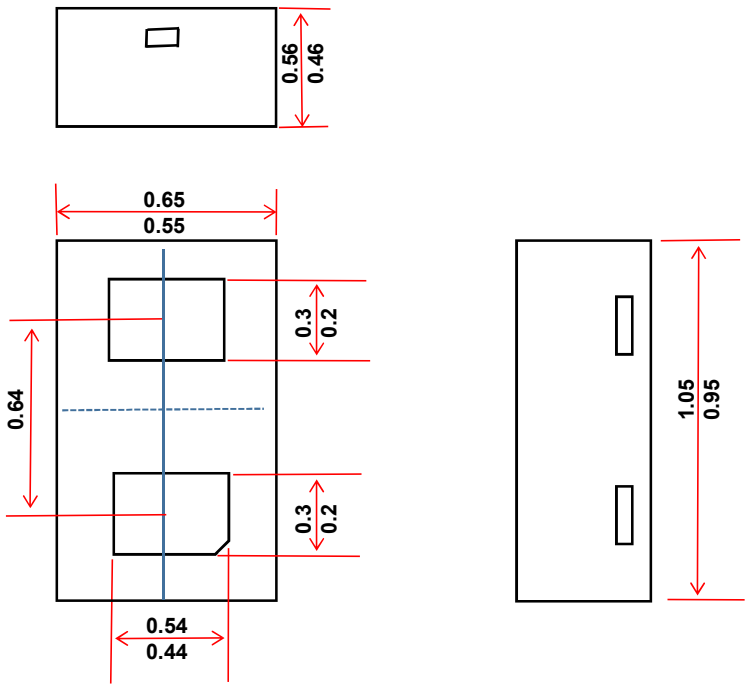
ESD clamping
(+8kV contact discharge per IEC61000-4-2)



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

Package outline dimensions

DFN1006-2L



Recommened Mounting Pad Layout Unit:mm