

1-Line, Bi-directional, Transient Voltage Suppressors

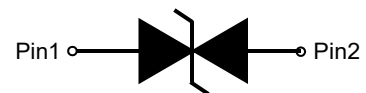
Descriptions

The ESD12D090TA 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 ESD12D090TA is available in SOD-882 package. Standard products are Pb-free and Halogen-free.



DFN1006-2L



Circuit diagram

Features

- Stand-off voltage: $\pm 12V$ Max
- Transient protection for each line according to
IEC61000-4-2 (ESD): IEC61000-4-2 level 4
IEC61000-4-4(EFT): 40 A (5/50 ns)
IEC61000-4-5 (Surge): 4 A (8/20 μ s)
- Solid-state silicon technology

Applications

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

Order information

Device	Marking	Package	Shipping
ESD12D090TA	AA	SOD-882	10000/Tape&Reel

Absolute maximum ratings

Parameter	Symbol	Rating	Unit
Peak pulse current ($t_p = 8/20\mu s$)	I_{PP}	4.0	A
ESD according to IEC61000-4-2 air discharge	V_{ESD}	level 4	kV
ESD according to IEC61000-4-2 contact discharge			
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 °C ,unless otherwise noted)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V_{RWM}				±12.0	V
Reverse leakage current	I_R	$V_{RWM} = 12V$			0.5	uA
Reveres breakdown voltage	V_{BR12}	$I_T=1mA$	13.0			V
Clamping voltage	V_C	$I_{pp}=1A$ $t_p=8/20us$			16.0	V
		$I_{pp}=4 A$ $t_p=8/20us$			25.0	V
Junction capacitance	C_J	$V_R = 0V, f = 1MHz$		10.0	25.0	pF

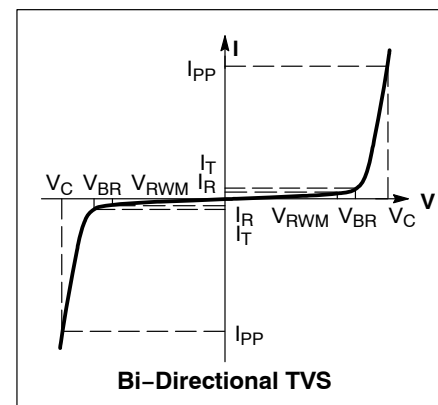
Electrical performance curve

V_C : Maximum clamping voltage

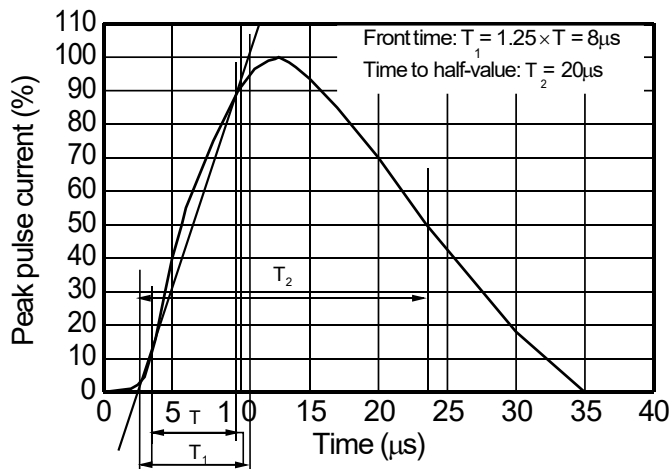
V_{br} : Reverse breakdown voltage

V_{RWM} : Working voltage

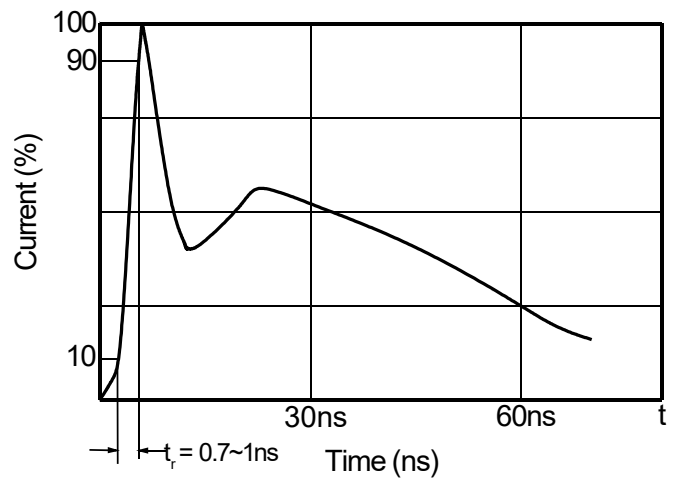
I_{PP} : Maximum peak current



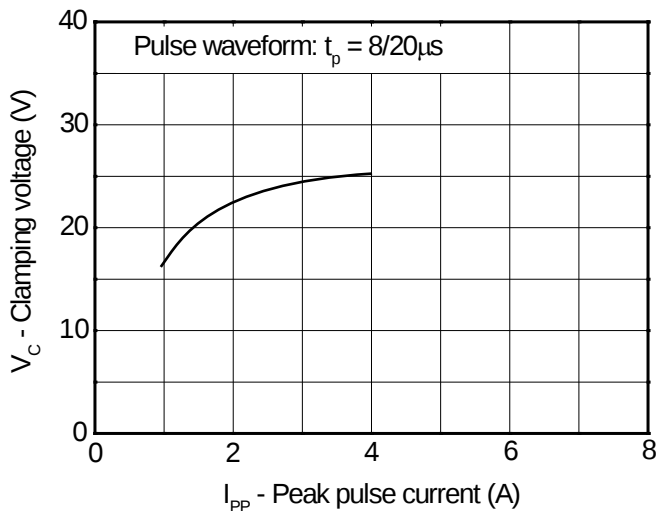
Typical characteristics ($T_A=25^\circ\text{C}$, unless otherwise noted)



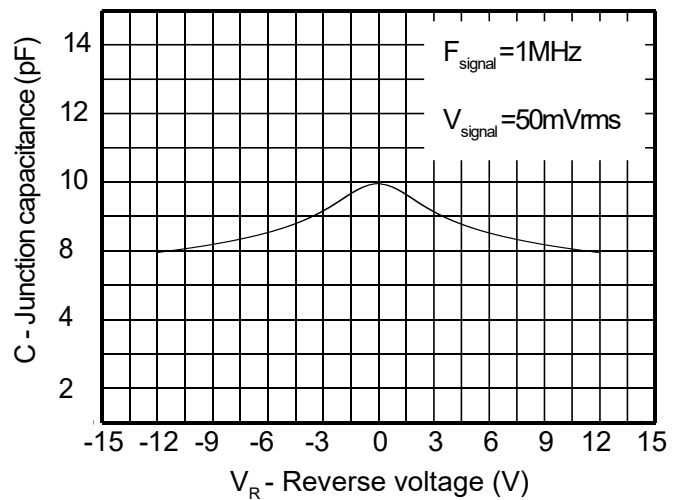
8/20 μs waveform per IEC61000-4-5



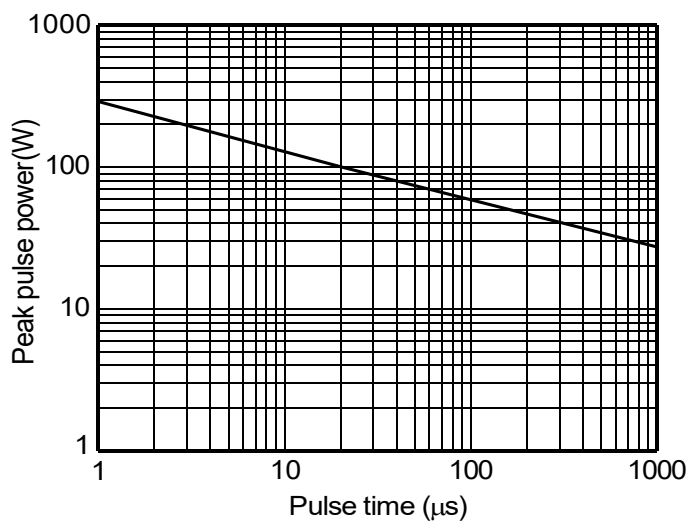
Contact discharge current waveform per IEC61000-4-2



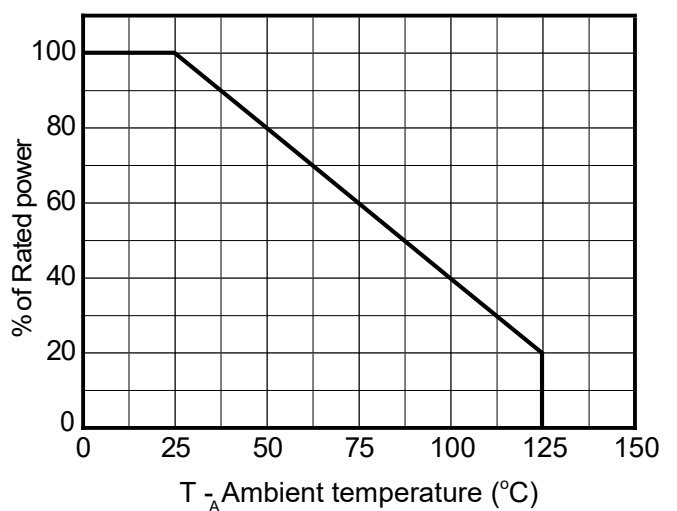
Clamping voltage vs. Peak pulse current



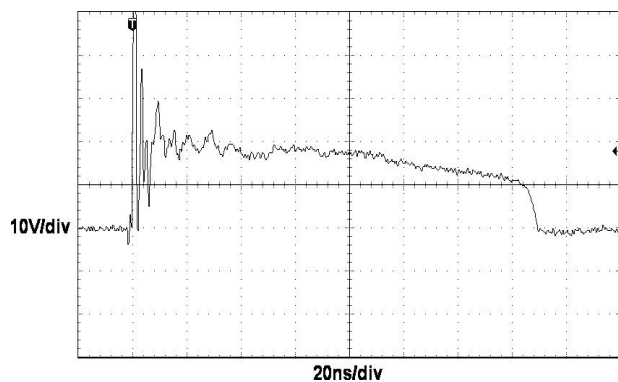
Capacitance vs. Reverse voltage



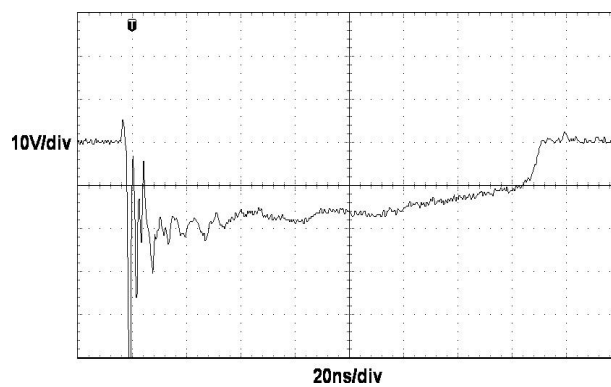
Non-repetitive peak pulse power vs. Pulse time



Power derating vs. Ambient temperature



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



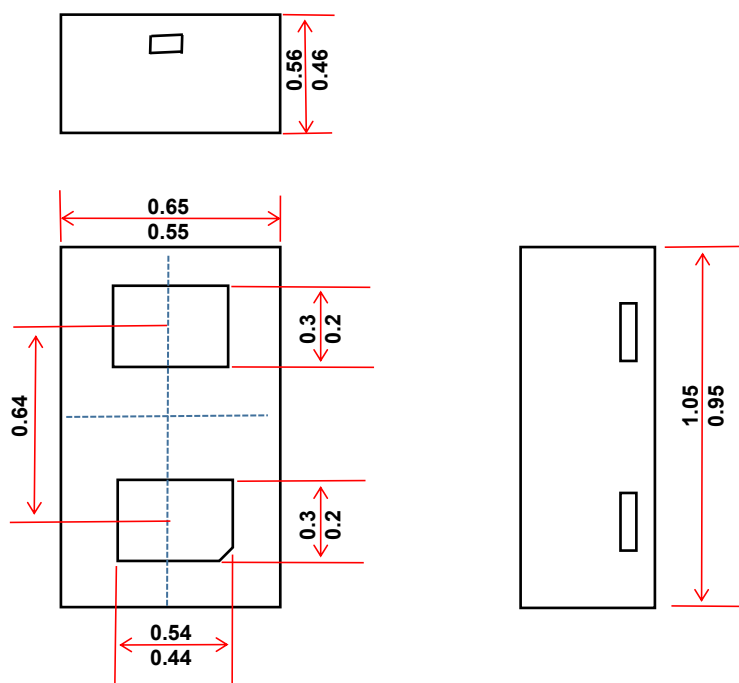
ESD clamping
 (-8kV contact discharge per IEC61000-4-2)

Package outline dimensions

SOD882

DIMENSION OUTLINE:

Unit:mm



Recommended Mounting Pad Layout Unit:mm

