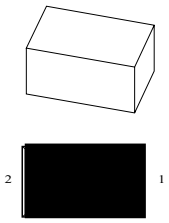
1-Line, Bi-directional, Transient Voltage Suppressors

Descriptions

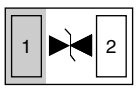
The ESD12E080TA is a bi-directional TVS (Transient Voltage Suppressor). It is specifically designed to protect sensitive electronic components that may be subjected to ESD (Electrostatic Discharge), EFT (Electrical Fast Transients) and Lightning. It is particularly well-suited for cellular phones, portable device, digital cameras, power supplies and many other portable applications because of its small package and low weight.

The ESD12E080TA may be used to provide ESD protection 30KV Air, 30KV contact compliance to IEC61000-4-2, and withstand peak pulse current up to 6.0A (8/20μs) according to IEC61000-4-5.

The ESD12E080TA is available in SOD-962 package. Standard products are Pb-free and Halogen-free.



DFN0603-2L



Circuit diagram

Features

- Stand-off voltage: ±12.0V Max
- Transient protection for each line according to
  IEC61000-4-2 (ESD): ±30KV Air, ±30KV contact
  IEC61000-4-5 (Surge): 6 A (8/20μs)
- Solid-state silicon technology
- Low leakage current

Order information

Device	Mark	Package	Shipping
ESD12E080TA	Dc	DFN0603-2L	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}	6.0	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

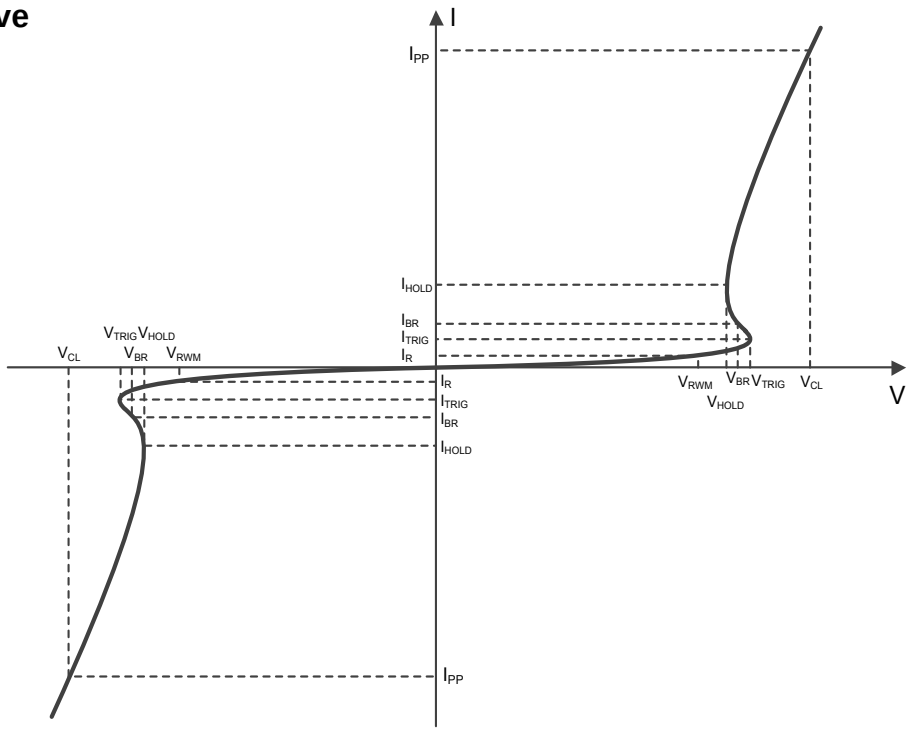
Electrical characteristics (TA=25 °C ,unless otherwise noted)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V_{RWM}				±12.0	V
Reverse leakage current	I_R	V_{RWM} = 12.0V			0.1	uA
Reveres breakdown voltage	V_{BR}	I_T=1mA	13.0			V
Clamping voltage	V_C	Ipp=1A tp=8/20us		14.0	16.0	V
		Ipp=6A tp=8/20us		18.5	20.0	V
Junction capacitance	C_J	V_R = 0V, f = 1MHz		8.0	15.0	pF

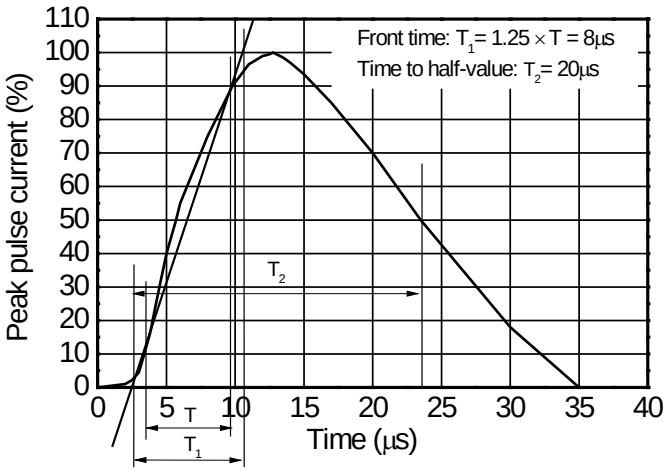
Electrical performance curve

V_{RWM} Reverse stand-off voltage
I_R Reverse leakage current
V_{CL} Clamping voltage
I_{PP} Peak pulse current

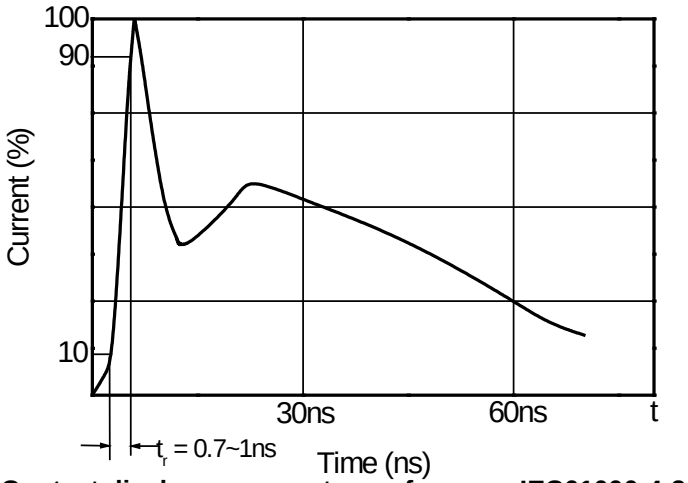
V_{TRIG} Reverse trigger voltage
I_{TRIG} Reverse trigger current
V_{BR} Reverse breakdown voltage
I_{BR} Reverse breakdown current
V_{HOLD} Reverse holding voltage
I_{HOLD} Reverse holding current



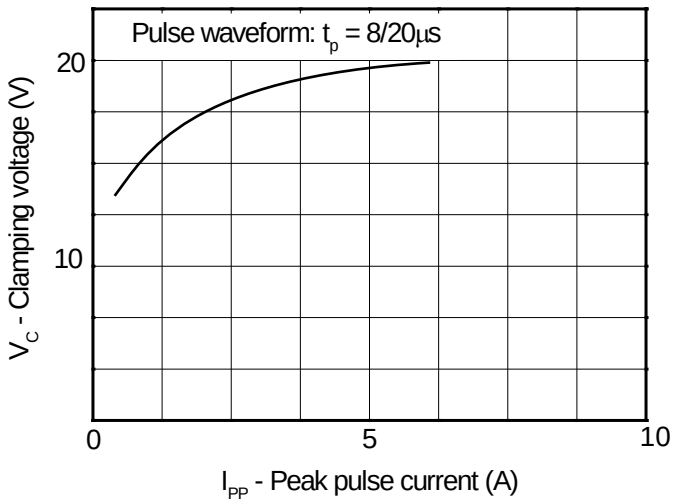
Typical characteristics (T_A=25°C, unless otherwise noted)



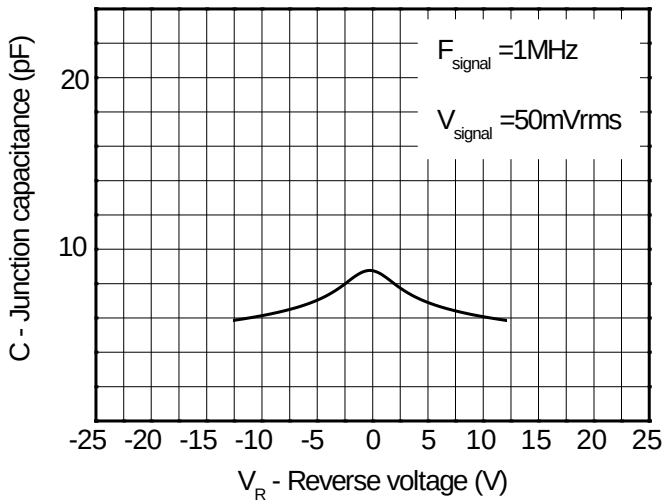
8/20μs waveform per IEC61000-4-5



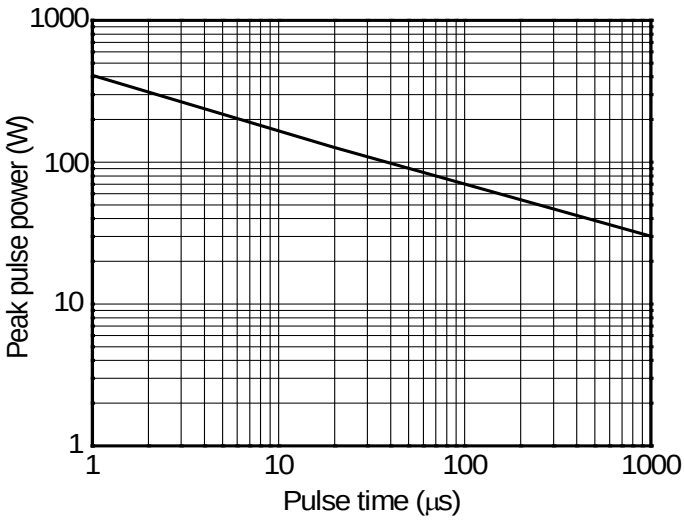
Contact discharge current waveform per IEC61000-4-2



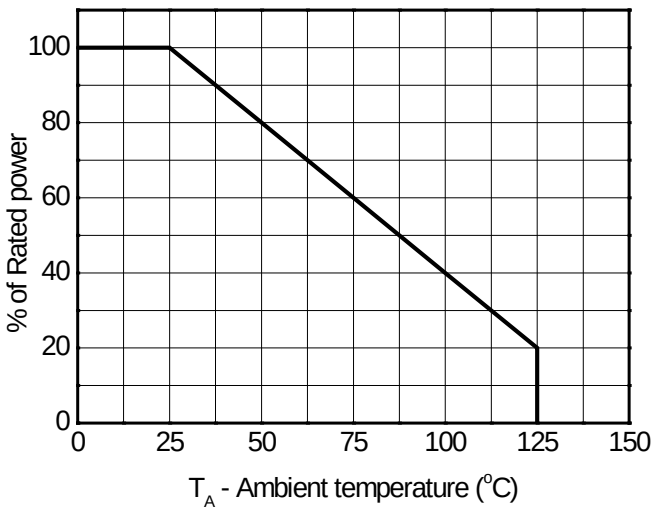
Clamping voltage vs. Peak pulse current



Capacitance vs. Reveres voltage

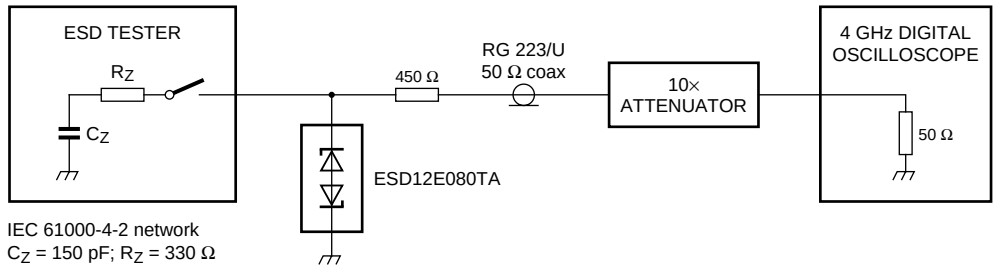


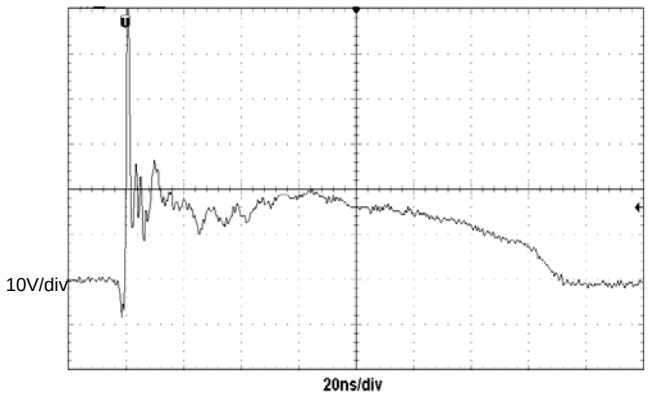
Non-repetitive peak pulse power vs. Pulse time



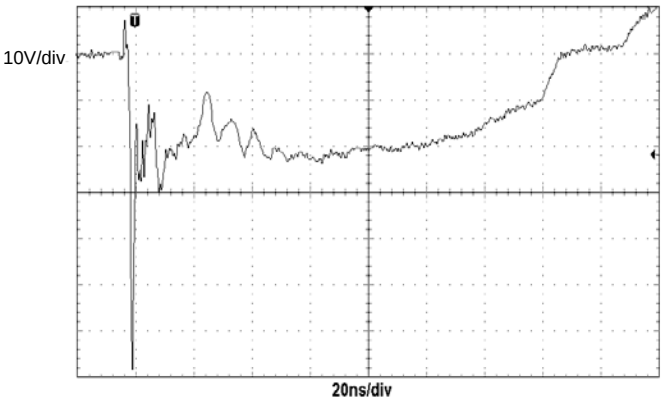
Power derating vs. Ambient temperature

ESD clamping test setup and waveforms





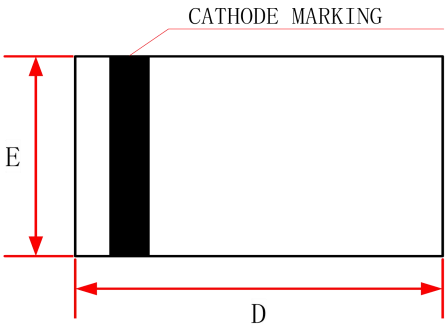
ESD clamping
(+8kV contact discharge per IEC61000-4-2)



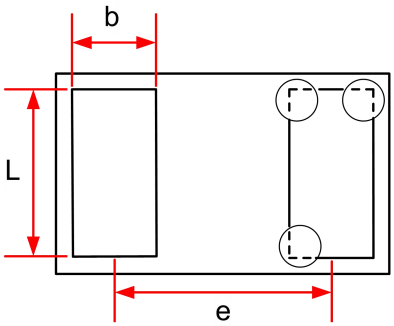
ESD clamping
(-8kV contact discharge per IEC61000-4-2)

Package outline dimensions

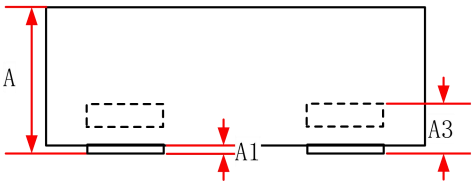
DFN0603-2L



Top View



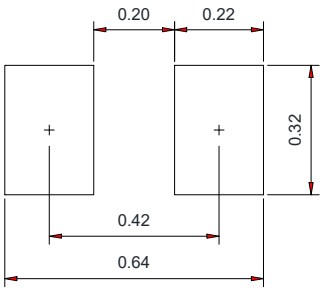
Bottom View



Side View

Symbol	Dimensions in Millimeters		
	Min.	Typ.	Max.
A	0.230	0.300	0.350
A1	0.000	-	0.050
A3	0.102REF.		
D	0.550	0.600	0.670
E	0.250	0.300	0.370
b	0.100	0.170	0.205
L	0.200	0.240	0.230
e	0.360 BSC		

Recommended PCB Layout (Unit: mm)



Notes:

This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met.