

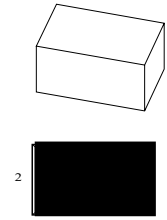
1-Line, Bi-directional, Transient Voltage Suppressors

Descriptions

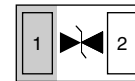
The ESD5E030TA is a bi-directional TVS (Transient Voltage Suppressor). It is specifically designed to protect sensitive electronic components that may be subjected to ESD (Electrostatic Discharge), EFT (Electrical Fast Transients) and Lightning. It is particularly well-suited for cellular phones, portable device, digital cameras, power supplies and many other portable applications because of its small package and low weight.

The ESD5E030TA may be used to provide ESD protection up to 20KV Air, 15KV contact compliance to IEC61000 -4-2

The ESD5E030TA is available in DFN0603-2L package. Standard products are Pb-free and Halogen-free.



DFN0603-2L



Circuit diagram

Features

- Stand-off voltage: $\pm 5V$ Max
- Transient protection for each line according to IEC61000-4-2 (ESD): 20KV Air, 15KV contact

Applications

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

Order information

Device	Marking	Package	Shipping
ESD5E030TA	C	DFN0603-2L	15000/Tape&Reel

Absolute maximum ratings

Parameter	Symbol	Rating	Unit
ESD according to IEC61000-4-2 air discharge	V_{ESD}	± 20	kV
ESD according to IEC61000-4-2 contact discharge		± 15	
Operation junction temperature	T_J	-50~125	$^{\circ}C$
Lead temperature	T_L	260	$^{\circ}C$
Storage temperature	T_{STG}	-65~150	$^{\circ}C$

Electrical characteristics (TA=25 oC, unless otherwise noted)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V_{RWM}				± 5	V
Reverse leakage current	I_R	$V_{RWM} = 5V$			0.5	μA
Reveres breakdown voltage	V_{BR}	$I_T = 1mA$	5.5	6.5	8.0	V
Clamping voltage	V_C	$I_{pp} = 16A, t_p = 100ns$		18.0		V
		$I_{pp} = 1A, t_p = 8/20us$			9.0	V
Junction capacitance	C_J	$V_R = 0V, f = 1MHz$		3.0	4.0	pF

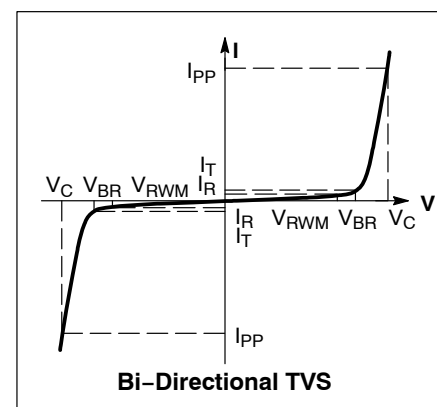
Electrical performance curve

V_C : Maximum clamping voltage

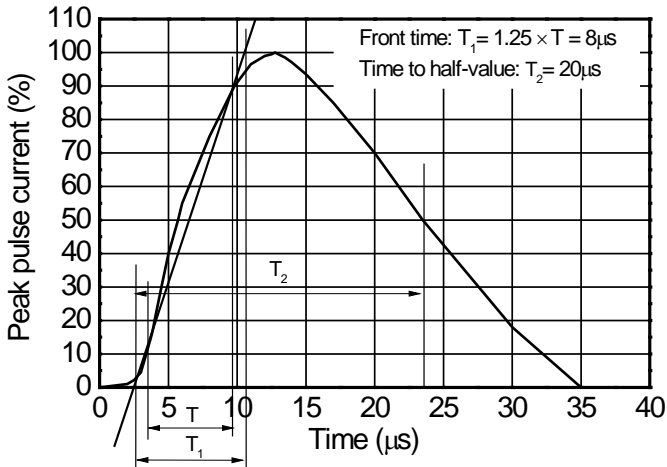
V_{br} : Reverse breakdown voltage

V_{RWM} : Working voltage

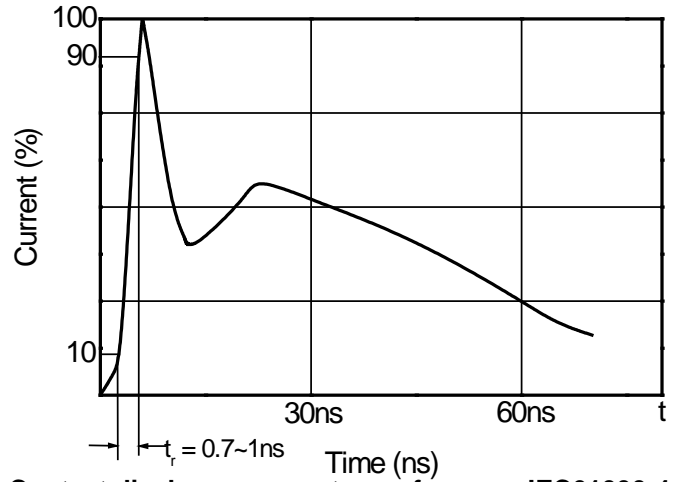
I_{PP} : Maximum peak current



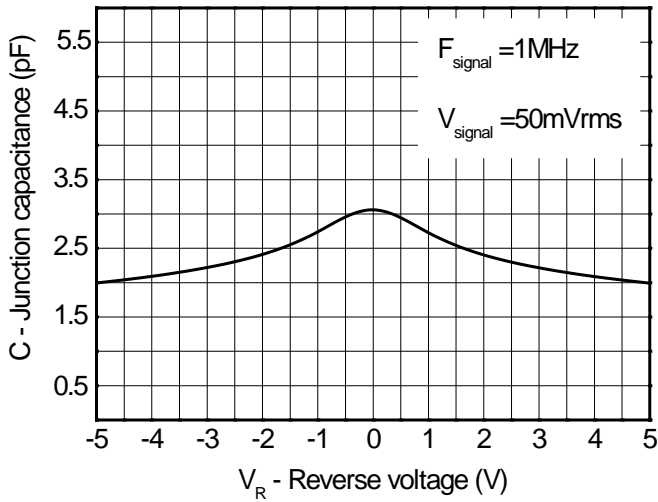
Typical characteristics ($T_A=25^\circ\text{C}$, unless otherwise noted)



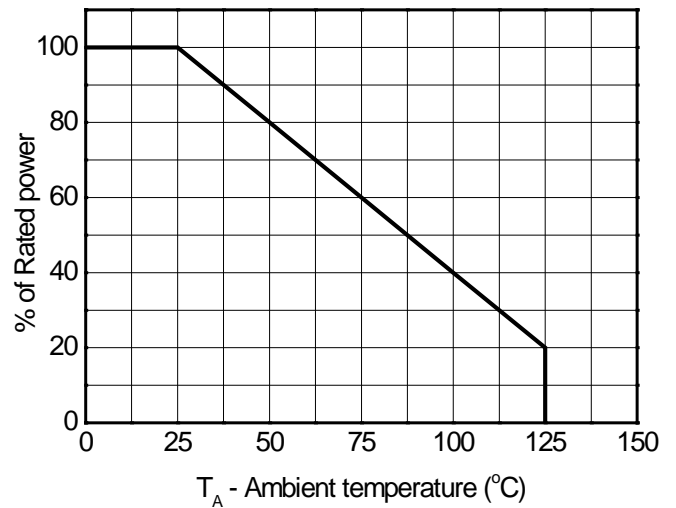
8/20 μs waveform per IEC61000-4-5



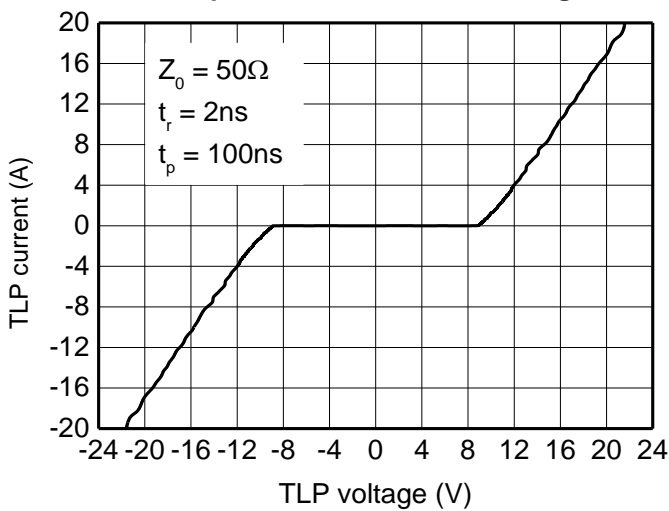
Contact discharge current waveform per IEC61000-4-2



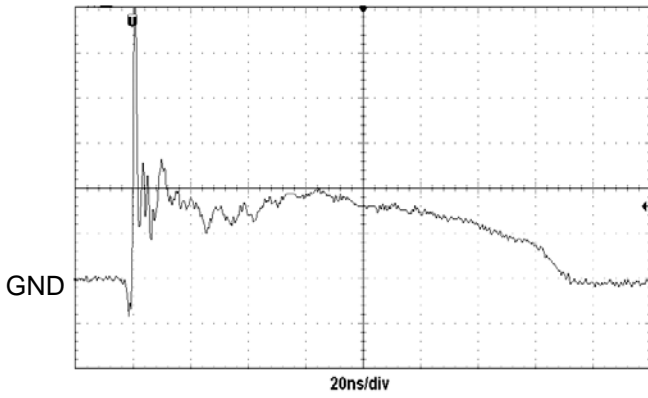
Capacitance vs. Reverse voltage



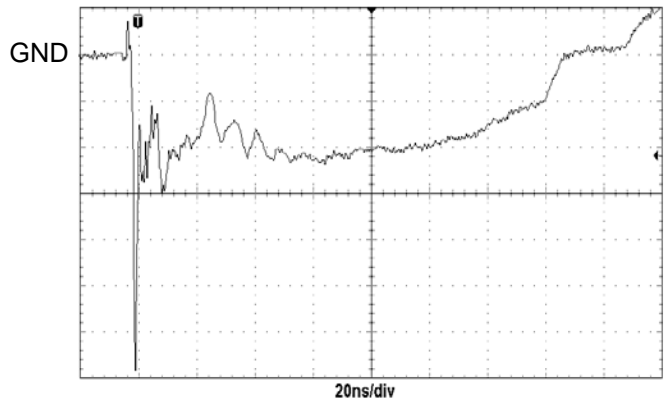
Power derating vs. Ambient temperature



TLP Measurement

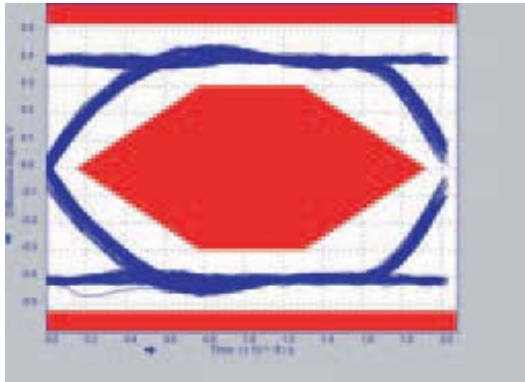


ESD clamping
(+8kV contact discharge per IEC61000-4-2)

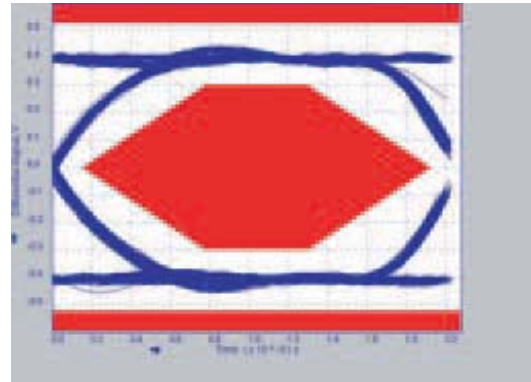


ESD clamping
(-8kV contact discharge per IEC61000-4-2)

USB 2.0 Eye Diagram

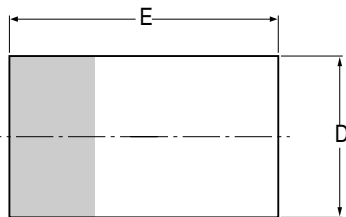
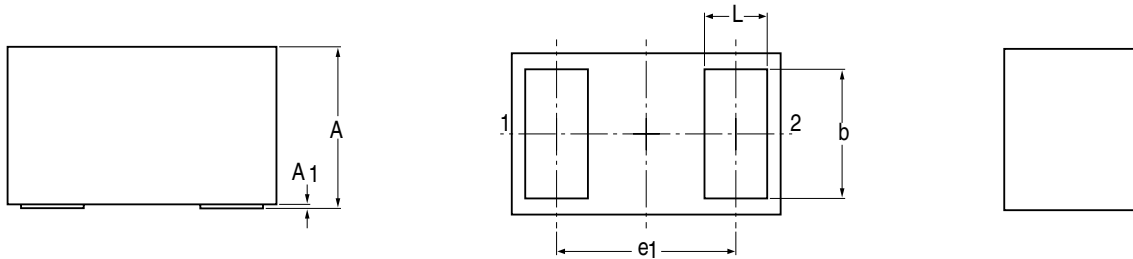


USB 2.0 Eye Diagram ESD5E030TA



Package outline dimensions

DFN0603-2L



Dimensions *atturn* (Unit: mm)

Unit	A ⁽¹⁾	A ₁	b	D	E	e ₁	L
mm	max	0.32	0.0076	0.25	0.325	0.625	0.15
	nom					0.4	
	min	0.28		0.23	0.275	0.575	0.13

Note

1. Dimension A is including coating foil thickness.
2. The marking bar indicates the cathode.

Recommended Mounting Pad Layout Unit:mm

