

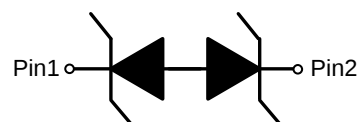
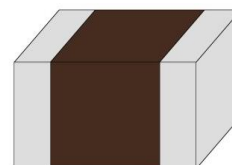
1-Line, Bi-directional, Transient Voltage Suppressors

Descriptions

The ESD5G030SA 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 ESD5G030SA may be used to provide ESD protection up to $\pm 15\text{kV}$ air discharge $\pm 15\text{kV}$ contact discharge according to IEC61000-4-2, and withstand peak pulse current up to 3 A (8/20 μs) according to IEC61000-4-5.

The ESD5G030SA is available in SGD1006-2L package. Standard products are Pb-free and Halogen-free.



Circuit diagram

Features

- Stand-off voltage: $\pm 5\text{V}$ Max
- Transient protection for each line according to IEC61000-4-2 (ESD): $\pm 15\text{kV}$ air discharge $\pm 15\text{kV}$ contact discharge IEC61000-4-5 (surge): 3 A (8/20 μs)
- Solid-state silicon technology
- Low leakage current

Applications

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

Order information

Device	Package	Shipping
ESD5G030SA	SGD1006-2L	10000/Tape&Reel

Absolute maximum ratings

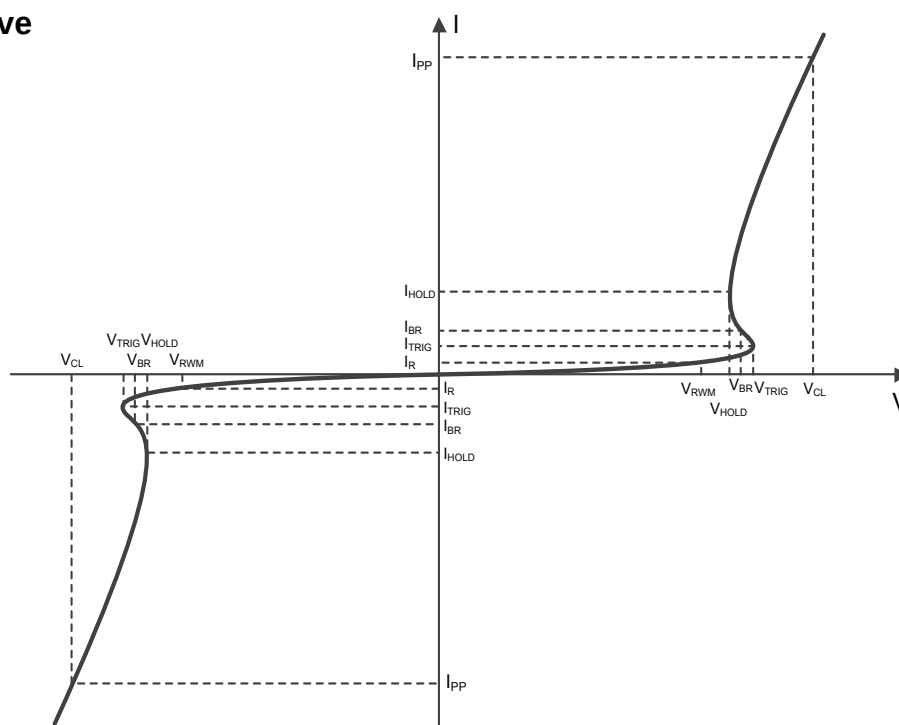
Parameter	Symbol	Rating	Unit
Peak pulse current ($t_p = 8/20\mu s$)	I_{PP}	3.0	A
ESD according to IEC61000-4-2 air discharge	V_{ESD}	± 15	kV
ESD according to IEC61000-4-2 contact discharge		± 15	
Operation junction temperature	T_J	-55~150	$^{\circ}C$
Lead temperature	T_L	260	$^{\circ}C$
Storage temperature	T_{STG}	-55~150	$^{\circ}C$

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

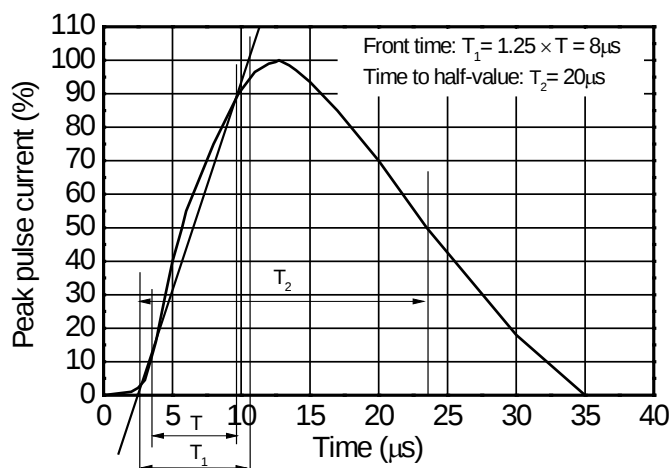
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V_{RWM}				± 5.0	V
Reverse leakage current	I_R	$V_{RWM} = 5.0V$			0.1	μA
Reveres breakdown voltage	V_{BR}	$I_T=1mA$	5.5	6.5	9.0	V
Clamping voltage	V_C	$I_{pp}=1A$ $t_p=8/20\mu s$		10.0		V
		$I_{pp}=3A$ $t_p=8/20\mu s$			12.0	V
Junction capacitance	C_J	$V_R = 0V, f = 1MHz$		3.0		pF

Electrical performance curve

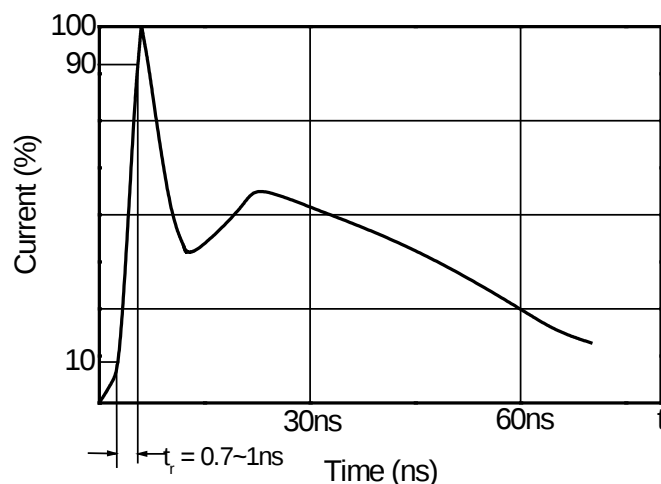
- V_{RWM} Reverse stand-off voltage
- I_R Reverse leakage current
- V_{CL} Clamping voltage
- I_{PP} Peak pulse current
- V_{TRIG} Reverse trigger voltage
- I_{TRIG} Reverse trigger current
- V_{BR} Reverse breakdown voltage
- I_{BR} Reverse breakdown current
- V_{HOLD} Reverse holding voltage
- I_{HOLD} Reverse holding current



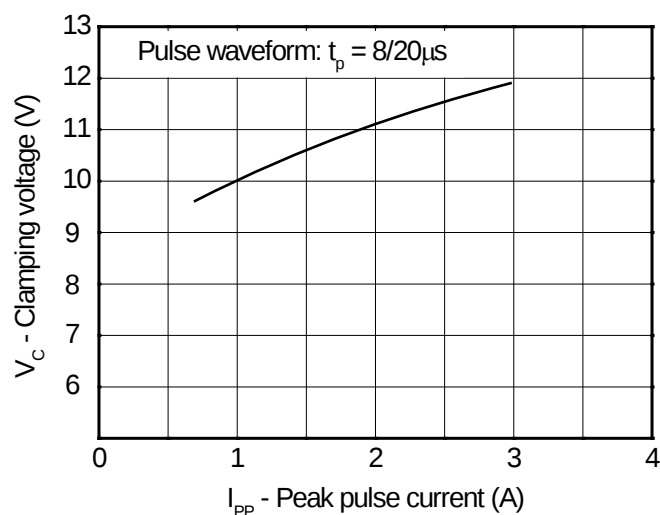
Typical characteristics ($T_A=25^\circ\text{C}$, unless otherwise noted)



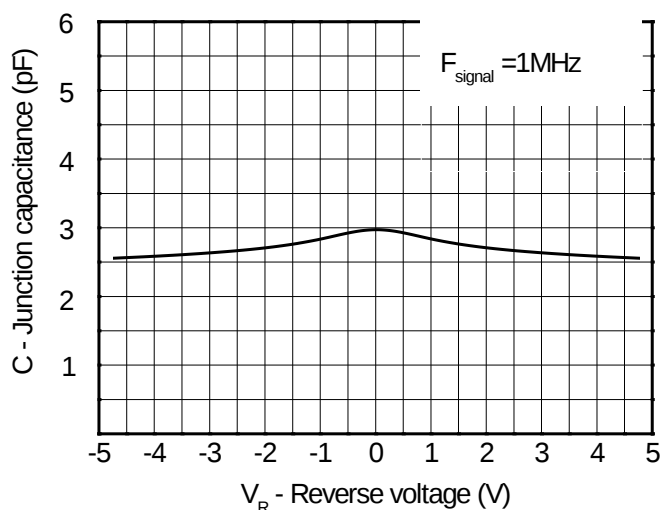
8/20 μs waveform per IEC61000-4-5



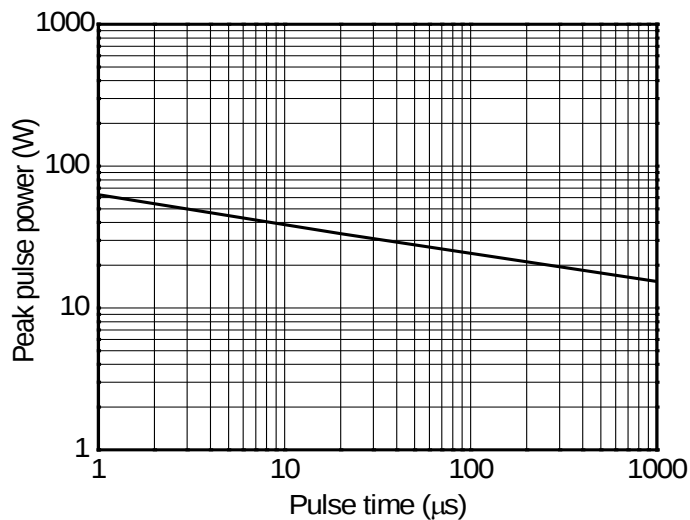
Contact discharge current waveform per IEC61000-4-2



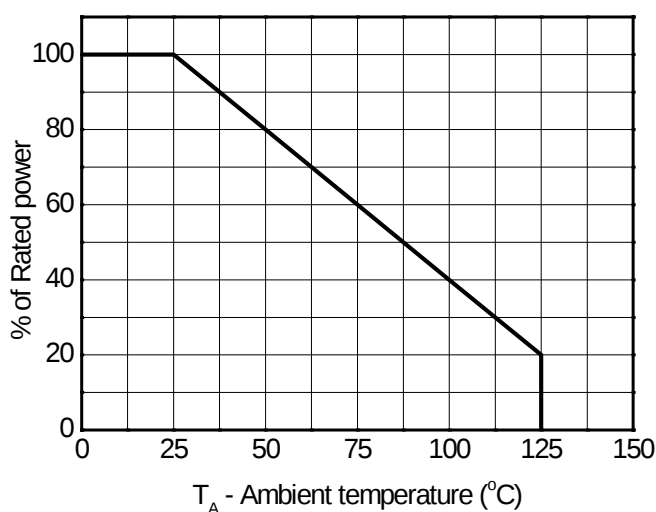
Clamping voltage vs. Peak pulse current



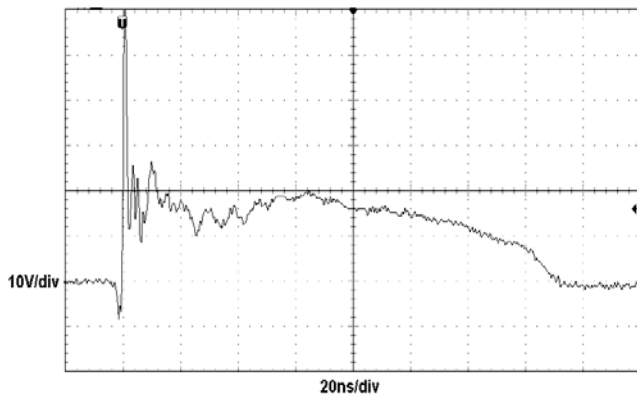
Capacitance vs. Reverses voltage



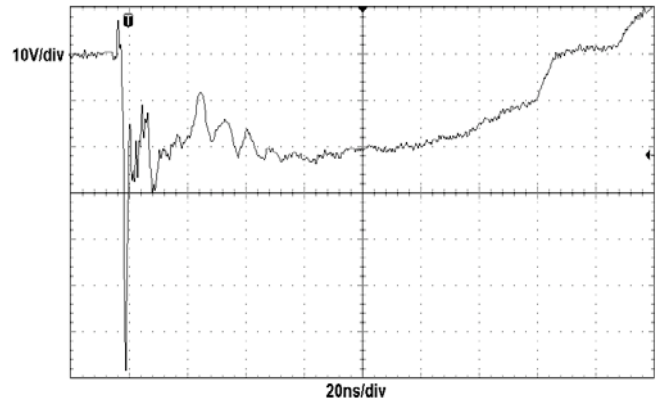
Non-repetitive peak pulse power vs. Pulse time



Power derating vs. Ambient temperature



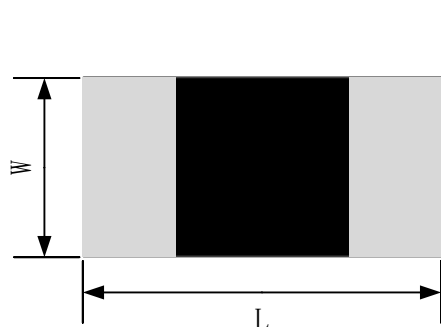
ESD clamping
(+8kV contact discharge per IEC61000-4-2)



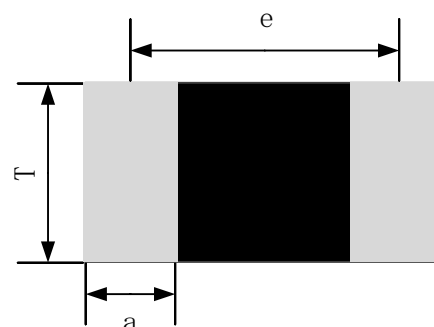
ESD clamping
(-8kV contact discharge per IEC61000-4-2)

Package outline dimensions

SGD1006-2L



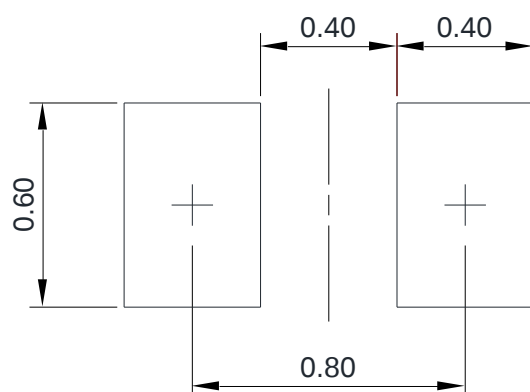
Top View (Bottom View)



Side View

Symbol	Dimensions in millimeter		
	Min.	Typ.	Max.
W	0.45	0.60	0.55
L	0.95	1.00	1.05
T	0.45	0.50	0.55
a	0.15	0.25	0.35
e	0.75 Typ.		

◆ Recommend land pattern (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.