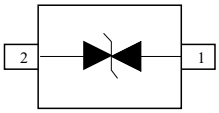
1-Line , Bi-directional, Transient Voltage Suppressors

Descriptions

The ESD5B005TA 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 ESD5B005TA is available in SOD-523 package. Standard products are Pb-free and Halogen-free.

SOD-523



Circuit diagram

Features

- Stand-off voltage: ±5V Max
- Transient protection for each line according to
  IEC61000-4-2 (ESD): ±15kV air discharge ±8kV contact discharge
  IEC61000-4-5 (Surge): 1 A (8/20μs)
- Solid-state silicon technology
- Low leakage current

Applications

- Cell phone handsets and accessories
- Personal Digital Assistants (PDAs)
- Notebooks, Desktops, and Serves
- Portable Instrumentation
- Digital Cameras
- Car entertainment systems, car dashboard

Order information

Device	Package	Shipping	Mark
ESD5B005TA	SOD-523	5000/Tape&Reel	5B

Absolute maximum ratings

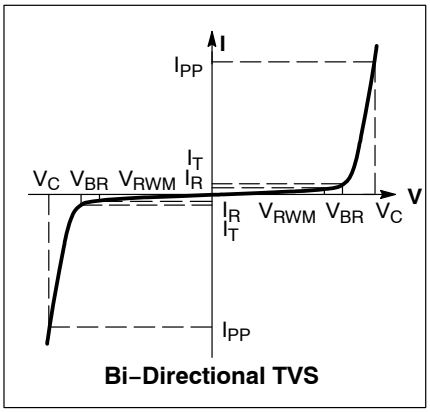
Parameter	Symbol	Rating	Unit
Peak pulse current (t_p = 8/20μs)	I_{PP}	1	A
ESD according to IEC61000-4-2 air discharge	V_{ESD}	±15	kV
ESD according to IEC61000-4-2 contact discharge		±8	
Operating temperature	T_{OP}	-40~85	°C
Operation junction temperature	T_J	125	°C
Lead temperature	T_L	260	°C
Storage temperature	T_{STG}	-55~150	°C

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

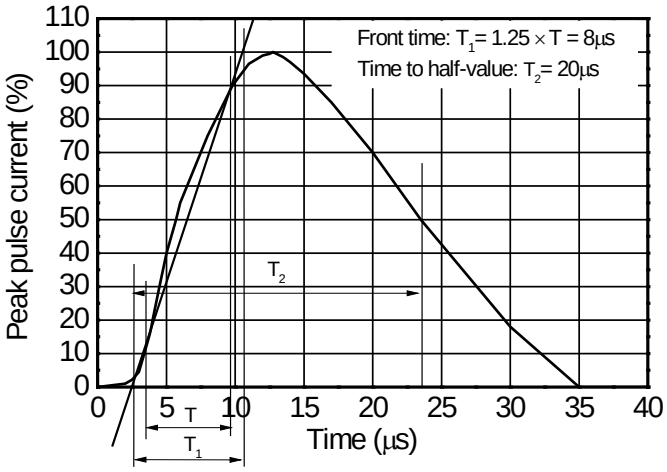
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V_{RWM}				5	V
Reverse leakage current	I_R	V_{RWM} = 5 V			100	nA
Reveres breakdown voltage	V_{BR}	I_T=1mA	7		10	V
Clamping voltage	V_C	I_{PP}=1A t=8/20 us	17	18	19	V
Junction capacitance	C_J	V_R = 0V, f = 1MHz		0.5		pF

Electrical performance curve

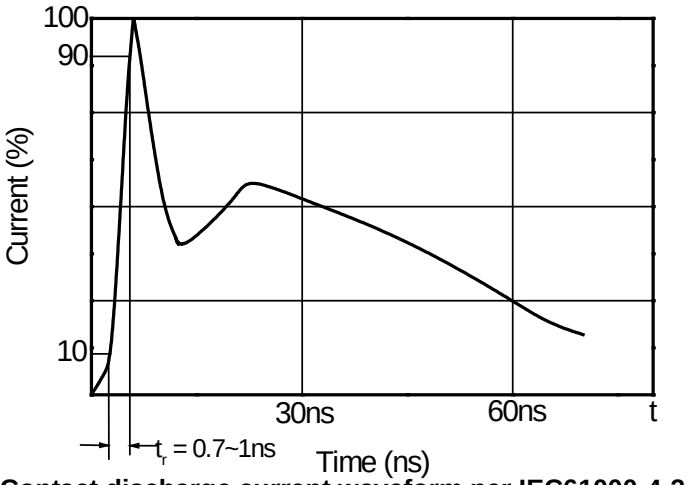
Symbol	Parameter
V_{RWM}	Peak Reverse Working Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
P_{PP}	Peak Pulse Power
C_J	Junction Capacitance
I_F	Forward Current
V_F	Forward Voltage @ I_F



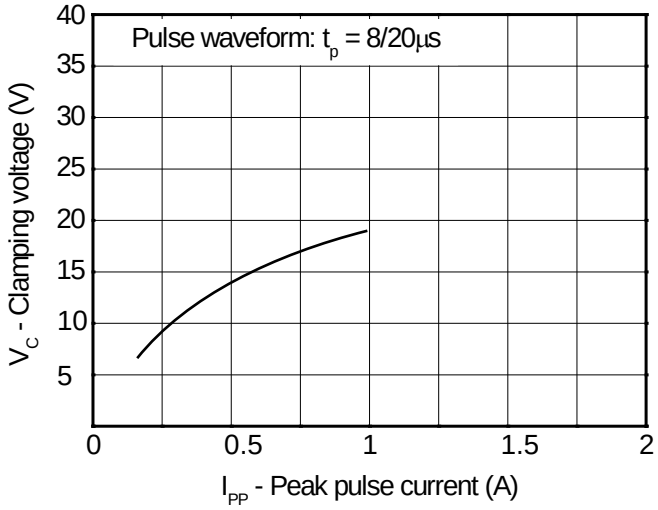
Bi–Directional TVS



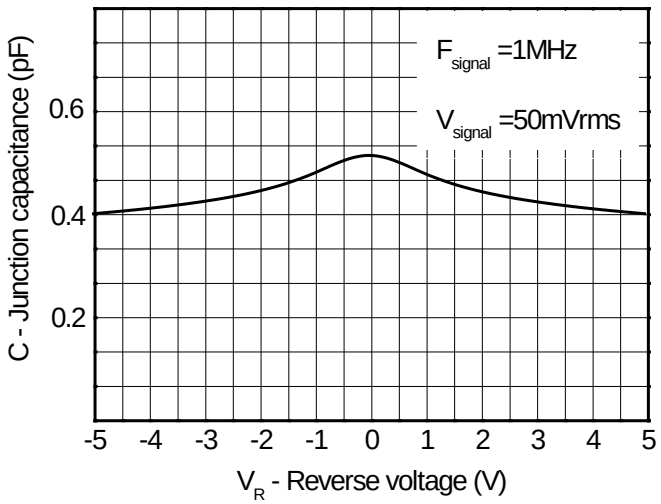
8/20μs waveform per IEC61000-4-5



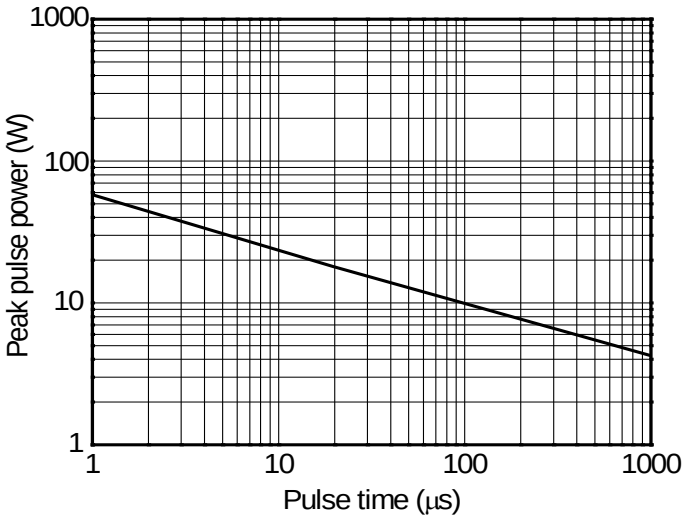
Contact discharge current waveform per IEC61000-4-2



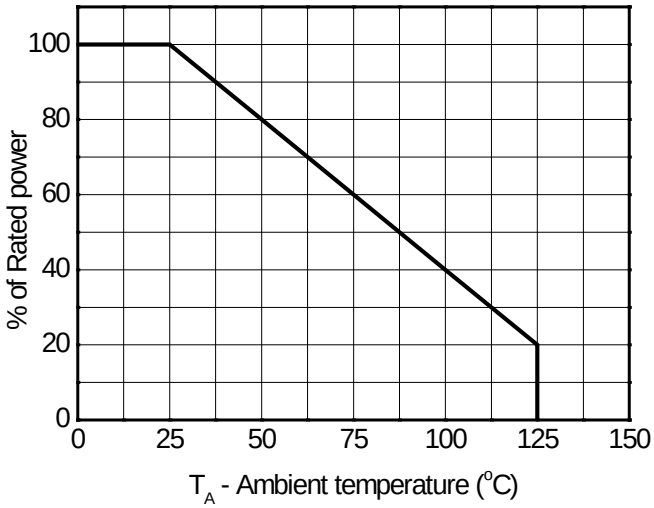
Clamping voltage vs. Peak pulse current



Capacitance vs. Reveres voltage



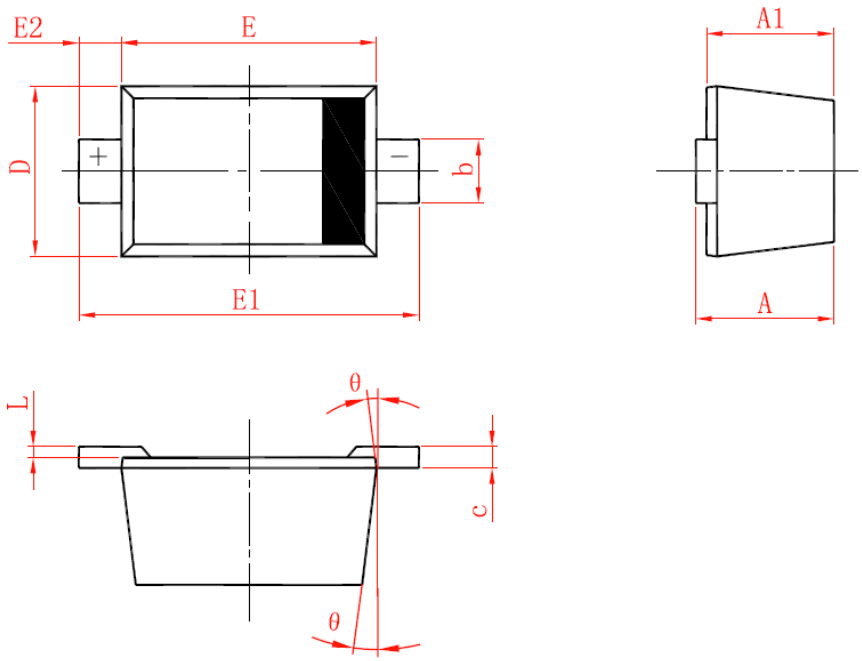
Non-repetitive peak pulse power vs. Pulse time



Power derating vs. Ambient temperature

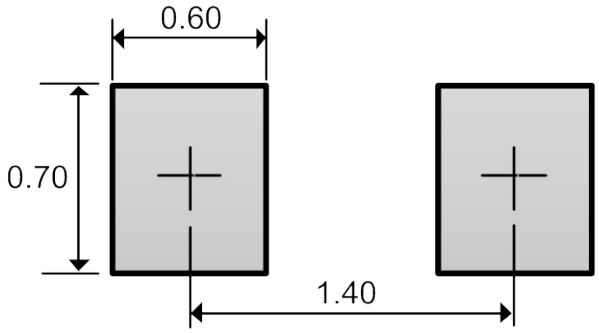
Package outline dimensions

SOD-523



Symbol	Dimensions in millimeter		
	Min.	Typ.	Max.
A	0.510	0.640	0.770
A1	0.500	0.600	0.700
b	0.250	0.300	0.350
c	0.080	0.115	0.150
D	0.750	0.800	0.850
E	1.100	1.200	1.300
E1	1.500	1.600	1.700
E2	0.200 Ref		
L	0.010	0.040	0.070
θ	7° Ref		

Recommend land pattern (Unit: mm)



Note: This land pattern is for your reference only. Actual pad layouts may vary depending on application.