GESDBT5V0D31

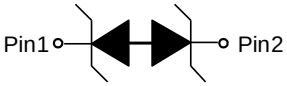
Bi-direction Transient Voltage Suppressors

Product Summary

The GESDBT5V0D31 is designed to protect voltage sensitive electronic components from ESD and other transients. Excellent clamping capability, low leakage, low capacitance, and fast response time, make these parts ideal for ESD protection on designs where board space is at a premium. Because of its small size, it is suited for use in digital cameras, cellular phones, MP3 players and many other portable applications where board space is at a premium.

SOD-323

Schematic diagram



Feature

- Low reverse stand−off voltage: 5V Max.
- Low reverse clamping voltage
- Ultra-low leakage current
- Fast response time
- IEC 61000-4-2 Level 4 ESD protection

Application

- Digital cameras
- Portable applications
- Audio and video equipment
- MP3 players
- Mobile phone

Marking:

Front Side

2B=Device Code

Absolute Maximum Ratings (Ta=25℃ unless otherwise noted)

Parameter		Symbol	Value	Unit
IEC 61000-4-2 ESD Voltage	Air Model	V_{ESD}	±15	kV
IEC 61000-4-2 ESD Voltage	Contact Model		±8	
JESD22-A114-B ESD Voltage	Per Human Body Model		±16	
ESD Voltage	Machine Model		±0.4	
Peak Pulse Power (8/20μs)		P_{pk}	500	W
Peak Pulse Current (8/20μs)		I_{PP}	25	A
Junction Temperature		T_J	-55~ +125	℃
Storage Temperature		T_{stg}	-55~ +150	℃

ESD standards compliance

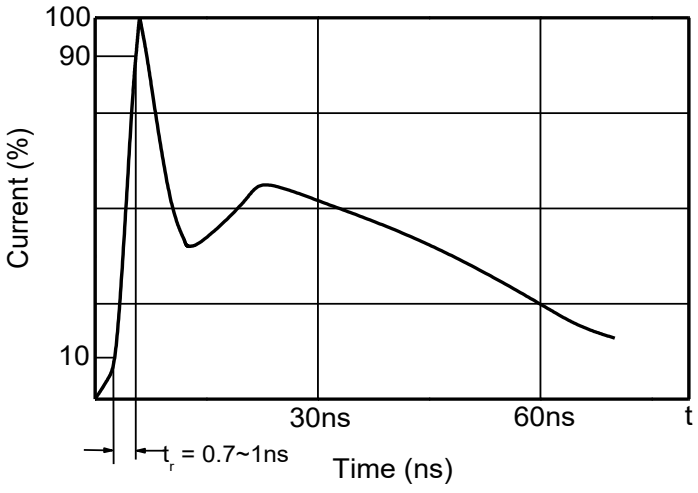
IEC61000-4-2 Standard

Contact Discharge		Air Discharge	
Level	Test Voltage kV	Level	Test Voltage kV
1	2	1	2
2	4	2	4
3	6	3	8
4	8	4	15

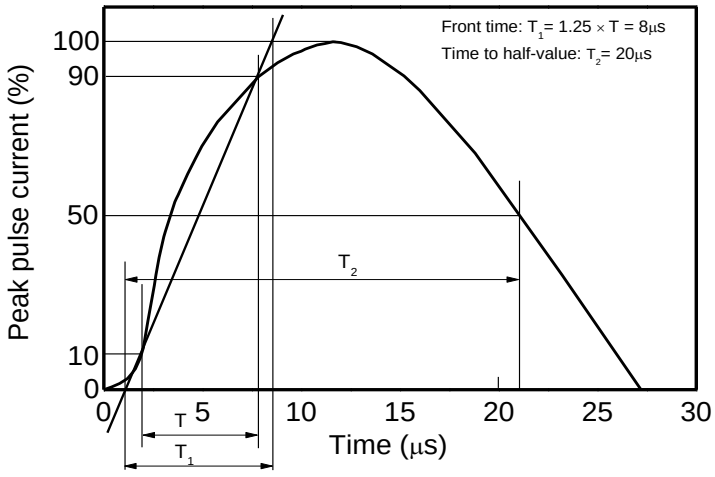
JESD22-A114-B Standard

ESD Class	Human Body Discharge V
0	0～249
1A	250～499
1B	500～999
1C	1000～1999
2	2000～3999
3A	4000～7999
3B	8000～15999

Contact discharge current waveform per IEC61000-4-2

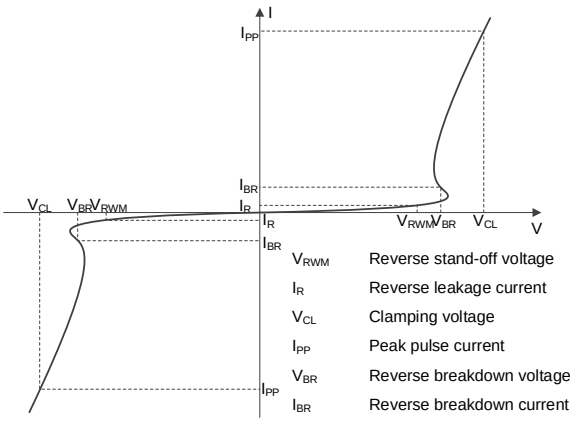


8/20μs waveform per IEC61000-4-5



Electrical Parameter

Symbol	Parameter
V_C	Clamping Voltage @ I_{PP}
I_{PP}	Peak Pulse Current
V_{BR}	Breakdown Voltage @ I_{BR}
I_{BR}	Test Current
I_R	Reverse Leakage Current @ V_{RWM}
V_{RWM}	Reverse Standoff Voltage



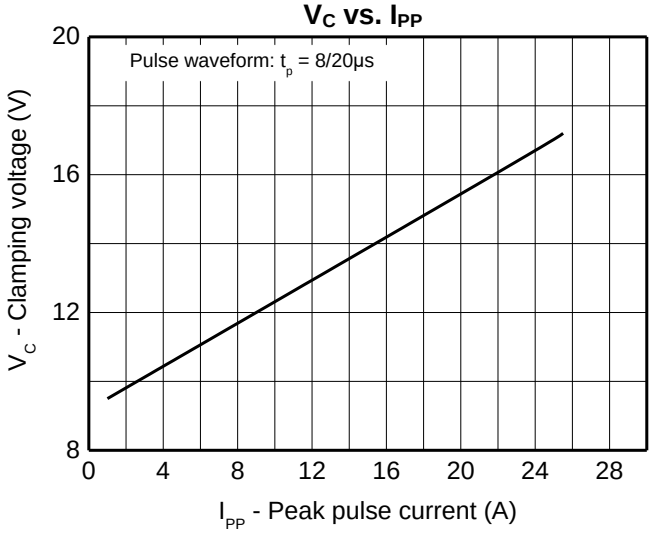
V-I characteristics for a Bi-directional TVS

Electrical Characteristics (T_a=25℃ unless otherwise specified)

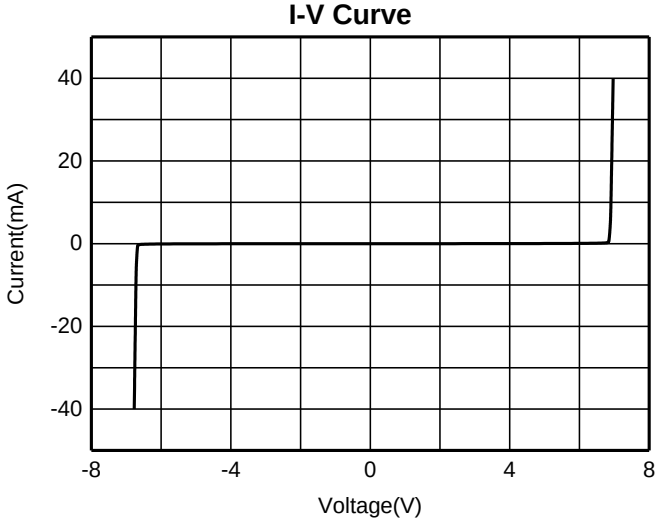
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Reverse stand-off voltage	V_{RWM}				5	V
Reverse leakage current	I_R	V_{RWM}=5V			5	μA
Breakdown voltage	$V_{(BR)}$	I_T=1mA	6.3			V
Clamping voltage	V_{C1}	I_{PP} = 1A (8 x 20μs pulse)		9.8		V
	V_{C2}	I_{PP} = 25A (8 x 20μs pulse)		17		V
Junction capacitance	C_J	V_R=0V,f=1MHz		175		pF

Typical Characteristics

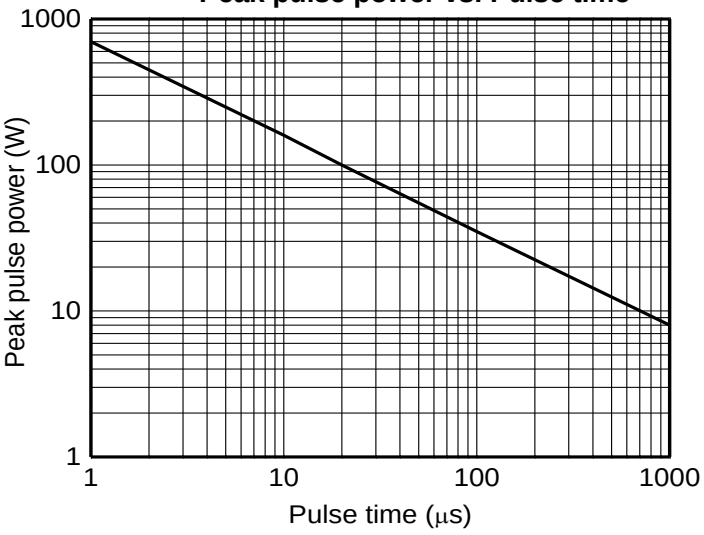
V_C vs. I_{PP}



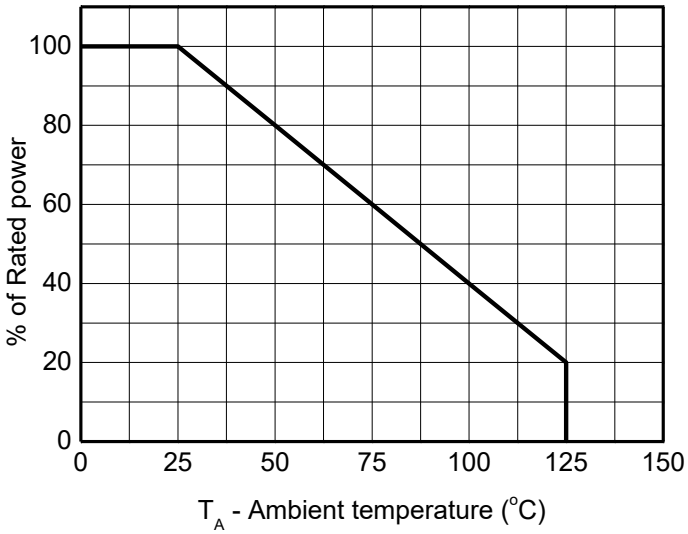
I-V Curve



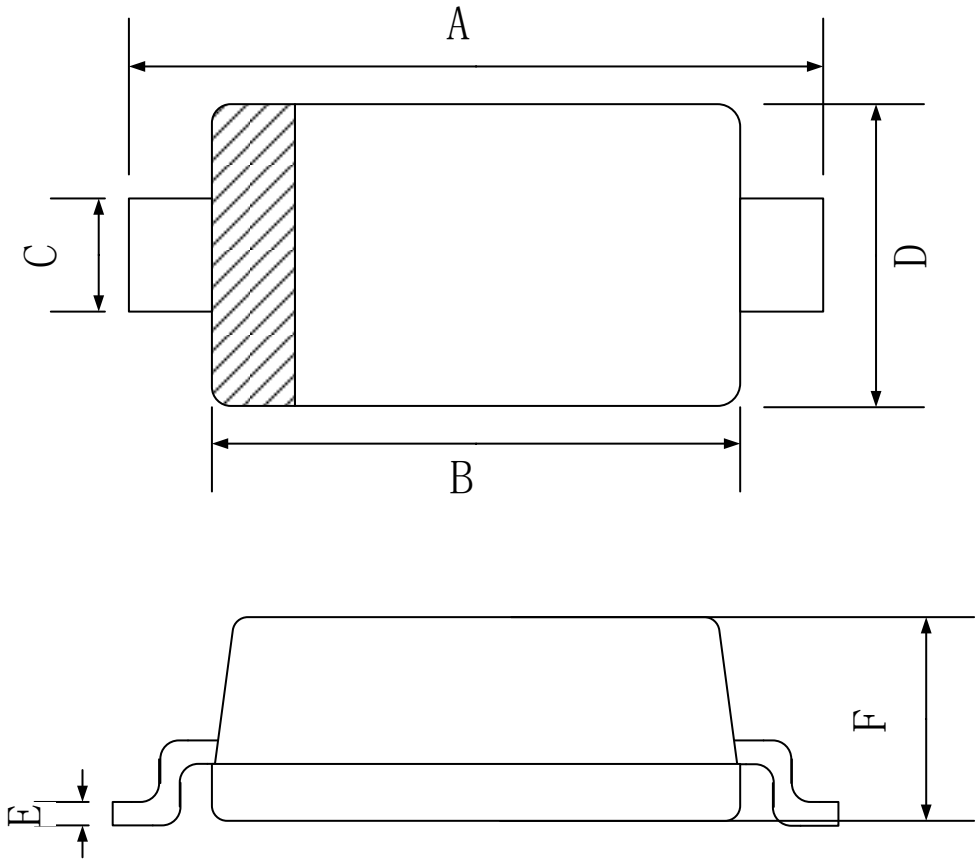
Peak pulse power vs. Pulse time



Power derating vs. Ambient temperature



SOD-323 Package Outline Dimensions



Symbol	Dimensions In Millimeters		
	Min.	Typ.	Max.
A	2.30	2.50	2.70
B	1.60	1.70	1.90
C	0.25	0.325	0.40
D	1.20	1.30	1.40
E	0.08	0.095	0.15
F	0.80	0.90	1.00