GESDBP5V0D31

Bi-direction Transient Voltage Suppressors

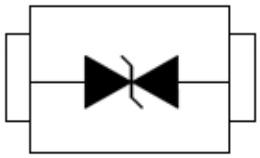
Product Summary

The GESDBP5V0D31 is designed to protect voltage sensitive electronic components from ESD and other transients. Excellent clamping capability, low leakage, low capacitance, and fast response time provide best in class protection on designs that are exposed to ESD.

The combination of small size, low capacitance, and high level of ESD protection makes them a flexible solution for applications such as HDMI, Display Port TM, and MDDI interfaces. It is designed to replace multiplayer varistors (MLV) in consumer

SOD-323

Schematic diagram



Feature

- Low reverse stand−off voltage: 5.0V
- Low reverse clamping voltage
- Low leakage current
- Fast response time
- 400 watts peak pulse power per line (t_P=8/20μs)

Application

- USB interface
- Notebooks, desktops, and servers
- Portable instrumentation
- Microprocessor based equipment
- Personal digital assistants (PDA's)

Marking:

Front Side
05M=Device Code

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

Parameter	Symbol	Value	Unit
IEC 61000-4-2 ESD Voltage — Air Model	V_{ESD} [1]	±30	kV
IEC 61000-4-2 ESD Voltage — Contact Model		±30	
Peak Pulse Power	P_{PP} [2]	400	W
Peak Pulse Current	I_{PP} [2]	35	A
Lead Solder Temperature − Maximum (10 Second Duration)	T_L	260	℃
Junction Temperature	T_J	-55~ +125	℃
Storage Temperature	T_{STG}	-55~ +150	℃

1) Device stressed with ten non-repetitive ESD pulses.

2) Non-repetitive current pulse 8/20μs exponential decay waveform according to IEC61000-4-5.

ESD standards compliance

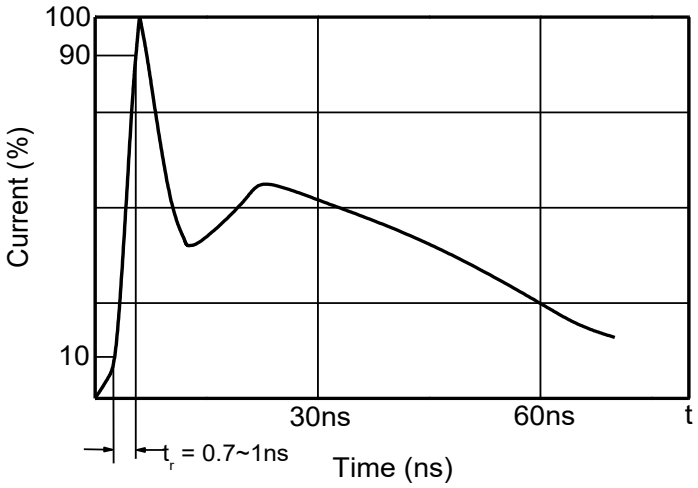
IEC61000-4-2 Standard

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

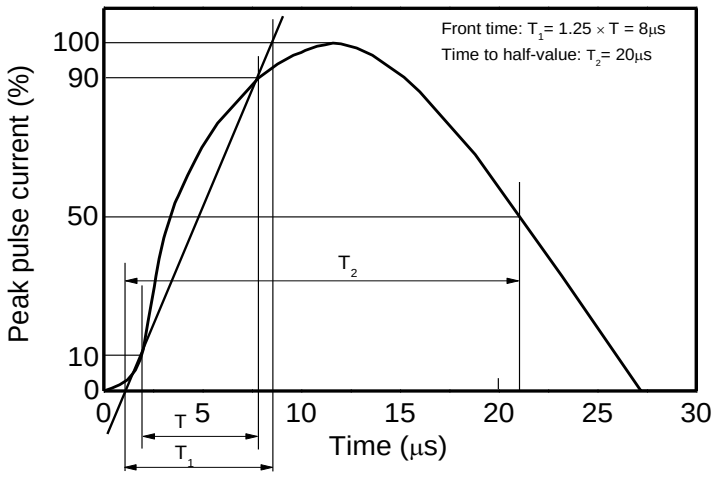
JESD22-A114-B Standard

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

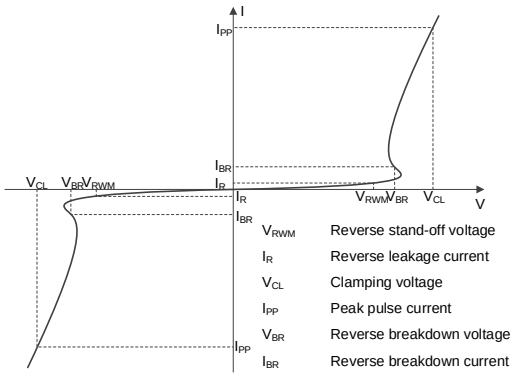


8/20μs waveform per IEC61000-4-5



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)

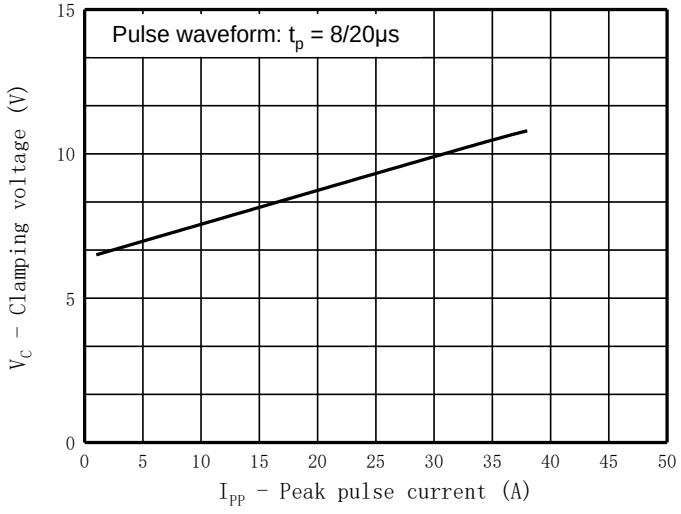
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Reverse stand-off voltage	V_{RWM}[1)]				5.0	V
Reverse leakage current	I_R	V_{RWM}=5V			1	μA
Breakdown voltage	V_{BR}	I_T=1mA	5.5			V
Clamping voltage	V_C[2)]	I_{PP}=1A		6.5	9	V
		I_{PP}=35A		10.5	14	V
Junction capacitance	C_J	V_R=0V,f=1MHz			80	pF

1) Other voltages available upon request.

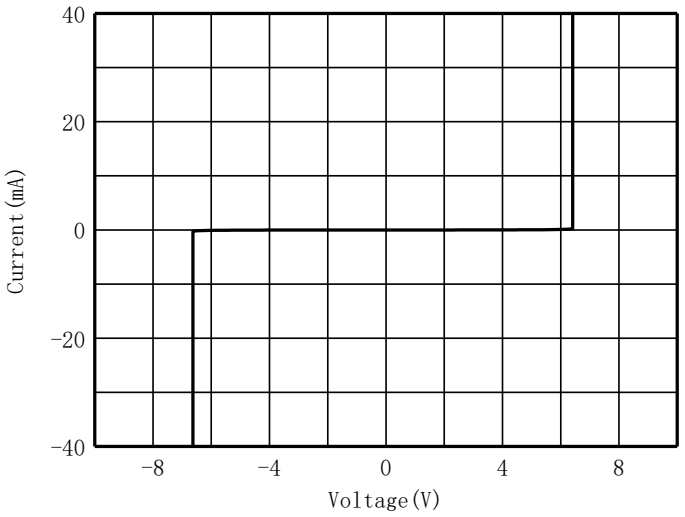
2) Non-repetitive current pulse 8/20μs exponential decay waveform according to IEC61000-4-5

Typical Characteristics

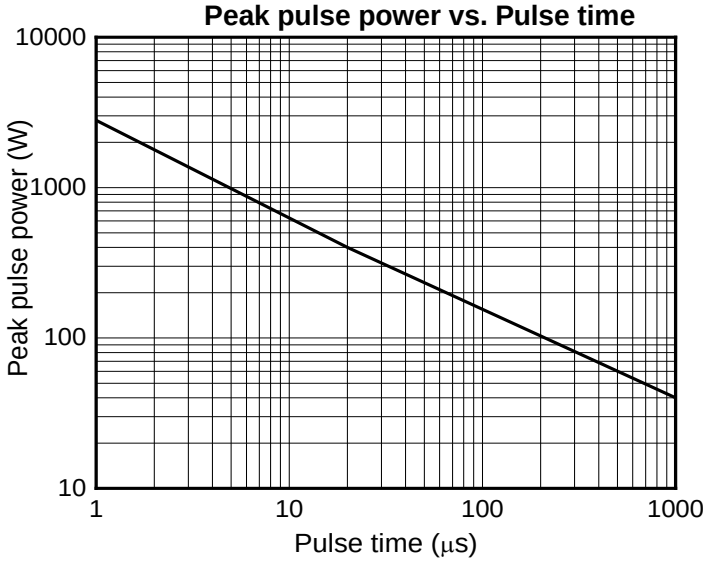
V_C vs. I_{PP}



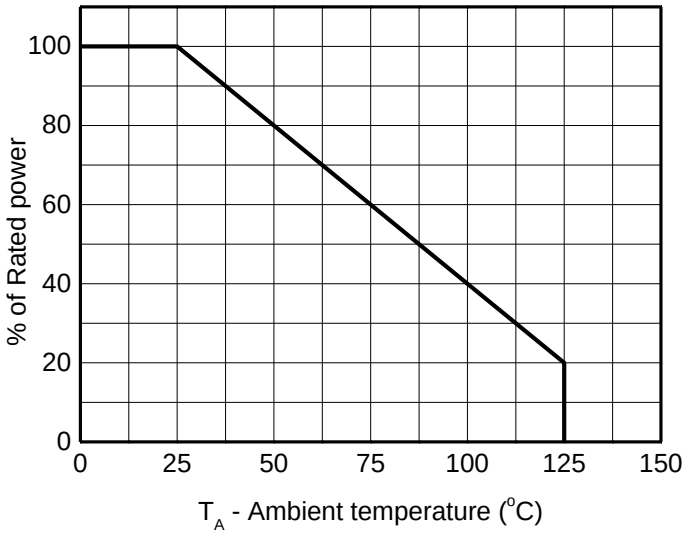
I-V Curve



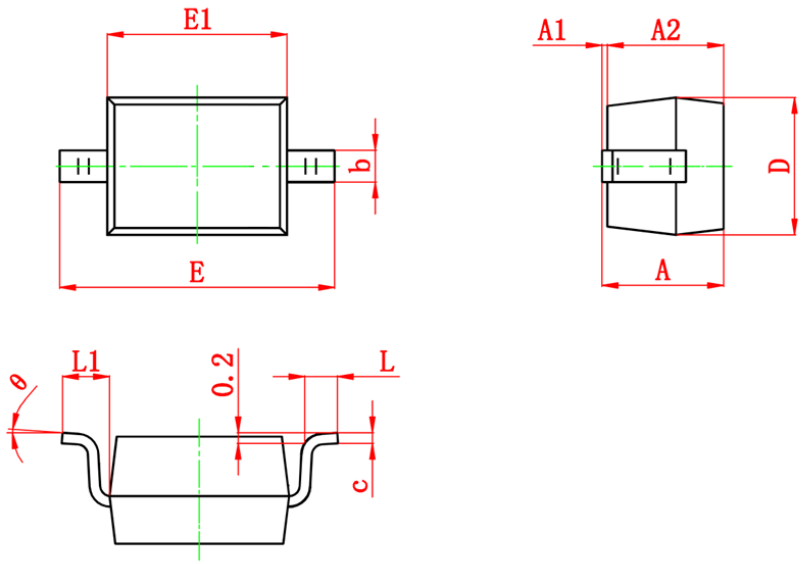
Peak pulse power vs. Pulse time



Power derating vs. Ambient temperature



SOD-323 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.150MAX		0.045MAX	
A1	0.000	0.100	0.000	0.004
A2	0.800	0.900	0.031	0.035
b	0.250	0.400	0.010	0.016
c	0.080	0.180	0.003	0.007
D	1.200	1.400	0.047	0.055
E	2.500	2.800	0.098	0.110
E1	1.600	1.800	0.063	0.071
L	0.200	0.450	0.008	0.018
L1	0.475REF		0.019REF	
θ	0°	8°	0°	8°