

Product Summary

The GESDS7V0D31 is an uni-directional TVS diode, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive data and power line.

Feature

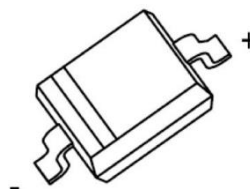
- Stand-off Voltage: +7V Max
- Solid-state silicon-avalanche technology
- Transient Protection for Each Line According to
IEC61000-4-2(ESD): $\pm 30\text{KV}$ Contact
IEC61000-4-5(Surge): 100A(8/20 μ)
- Low leakage current
- High surge capability
- RoHS compliant

Application

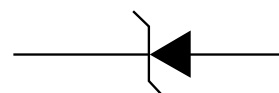
- Cell phone handsets and accessories
- Microprocessor based equipment
- Personal digital assistants (PDA's)
- Notebooks, desktops, and servers
- Portable instrumentation
- Power lines
- Peripherals

Marking: G

SOD-323



Schematic diagram



Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
IEC 61000-4-2 ESD Voltage Air Model	$V_{\text{ESD}}^{1)}$	± 30	kV
IEC 61000-4-2 ESD Voltage Contact Model		± 30	
Peak Pulse Power	$P_{\text{PP}}^{2)}$	2200	W
Peak Pulse Current	$I_{\text{PP}}^{2)}$	100	A
Lead Solder Temperature – Maximum (10 Second Duration)	T_L	260	$^{\circ}\text{C}$
Operating Temperature	T_{OP}	-40~ +125	$^{\circ}\text{C}$
Storage Temperature	T_{stg}	-55~ +150	$^{\circ}\text{C}$

- 1) Device stressed with ten non-repetitive ESD pulses.
- 2) Non-repetitive current pulse 8/20 μs exponential decay waveform according to IEC61000-4-5.

ESD standards compliance

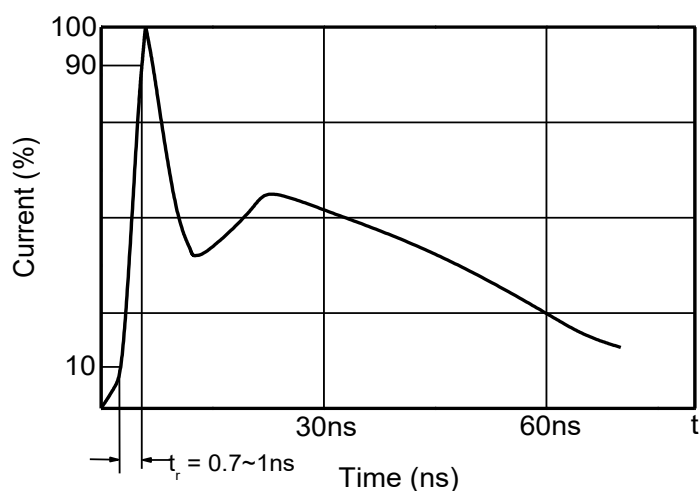
IEC61000-4-2 Standard

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

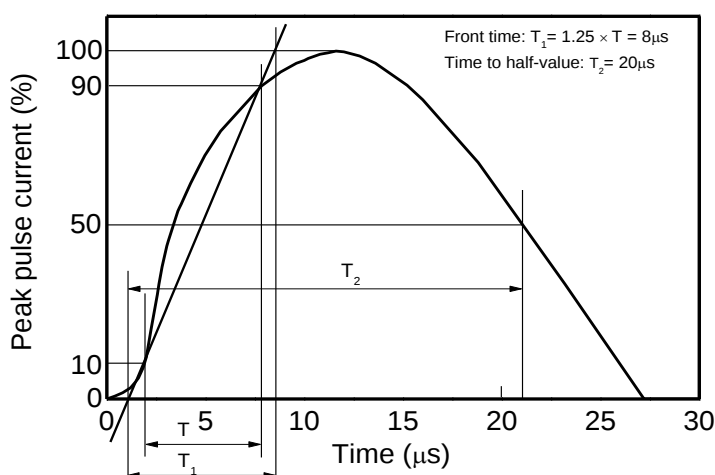
JESD22-A114-B Standard

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

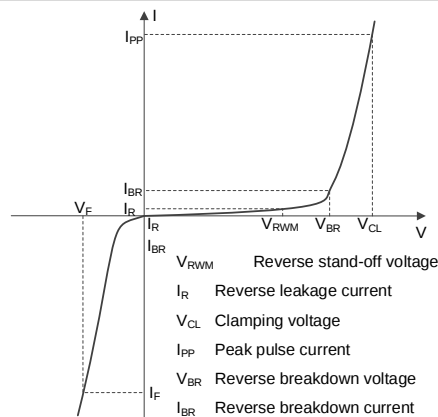


8/20 μs waveform per IEC61000-4-5



Electrical Parameter

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



V-I characteristics for a Uni-directional TVS

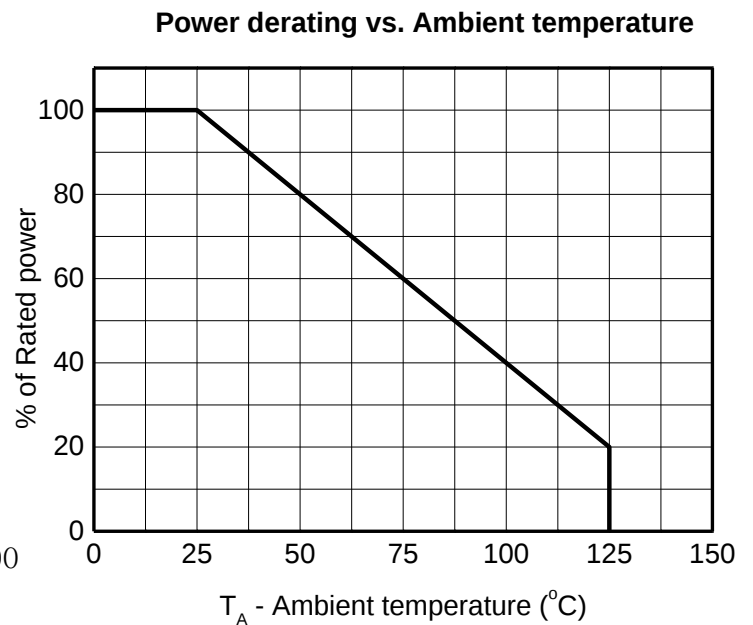
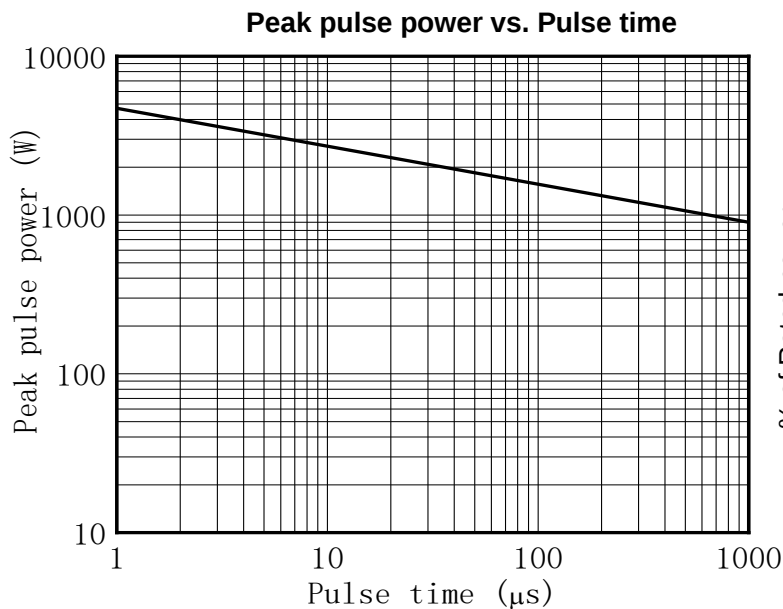
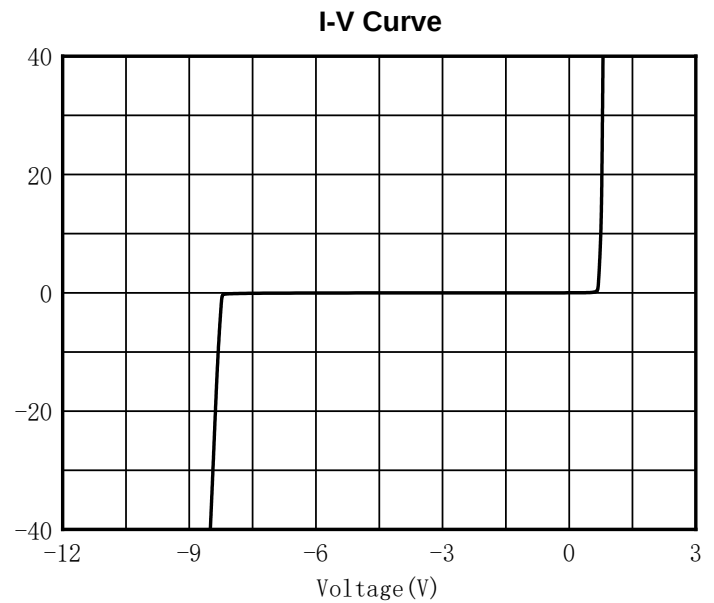
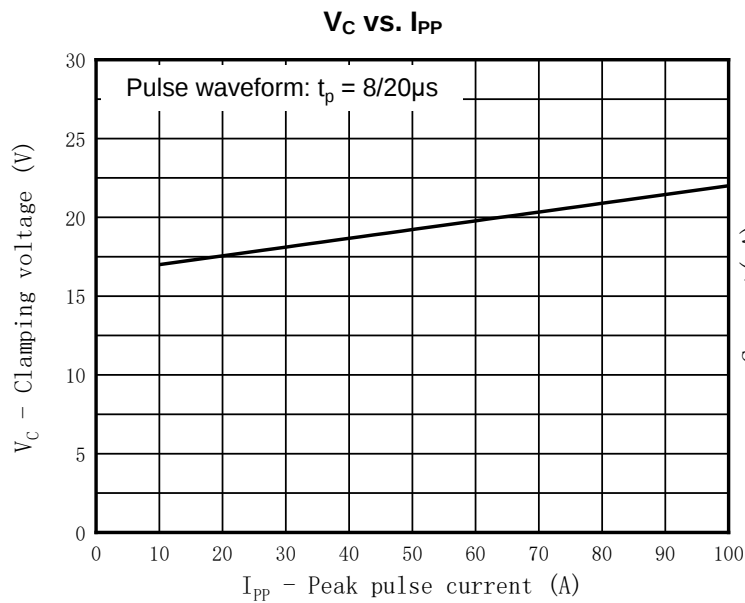
Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise specified)

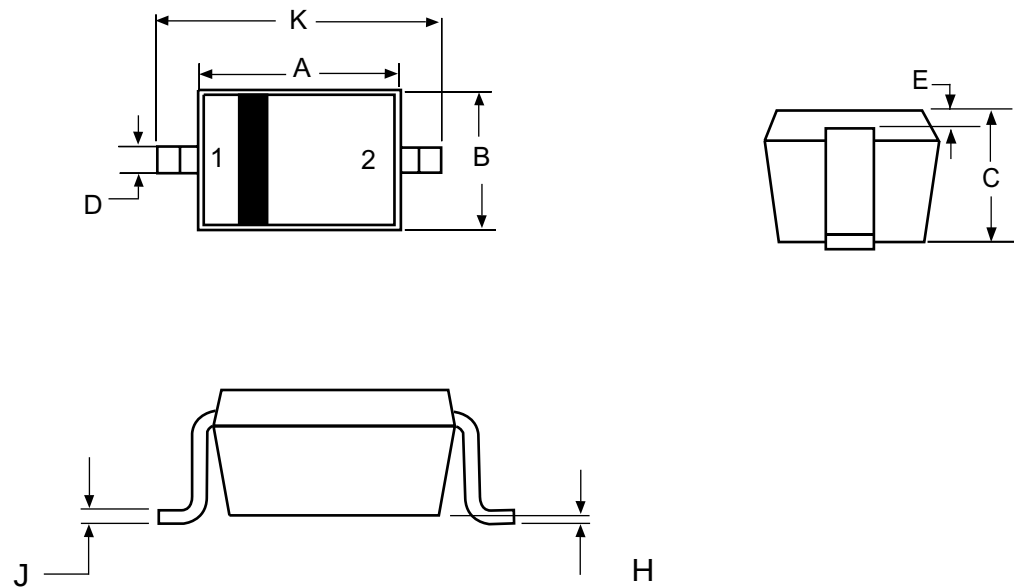
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Reverse stand-off voltage	$V_{RWM}^{1)}$	$I_R=0.2\mu\text{A}$			7.0	V
Reverse leakage current	I_R	$V_{RWM}=7.0\text{V}$			0.5	μA
Breakdown voltage	V_{BR}	$I_T=1\text{mA}$	7.5	8.5	9.5	V
Forward Voltage	V_F	$I_F=10\text{mA}$		0.7		V
Clamping voltage	$V_C^{2)}$	$I_{PP}=100\text{A}$		20	22	V
Junction capacitance	C_j	$V_R=0\text{V}, f=1\text{MHz}$		500		pF

1) Other voltages available upon request.

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

Typical Characteristics



SOD-323 Package Outline Dimensions


Symbol	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	1.60	1.80	0.063	0.071
B	1.15	1.35	0.045	0.053
C	0.80	1.00	0.031	0.039
D	0.25	0.40	0.010	0.016
E	0.15 REF		0.006 REF	
H	0.00	0.10	0.000	0.004
J	0.089	0.177	0.0035	0.0070
K	2.30	2.70	0.091	0.106

Attention:

- GreenPower Electronics reserves the right to improve product design function and reliability without notice.
- Any and all semiconductor products have certain probability to fail or malfunction, which may result in personal injury, death or property damage. Customers are solely responsible for providing adequate safe measures when design their systems.
- GreenPower Electronics products belong to consumer electronics or other civilian electronic products.