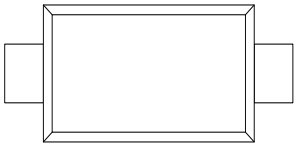
GESDBS12VD1F1P

Bi-direction Transient Voltage Suppressors

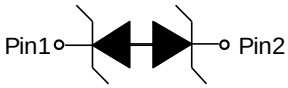
Product Summary

The GESDBS12VD1F1P 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. It has been specifically designed to protect sensitive components which are connected to data and transmission lines from overvoltage caused by ESD(electrostatic discharge), and EFT (electrical fast transients).

SOD-123FL



Schematic diagram



Feature

- Low reverse stand−off voltage: 12V
- Low leakage current
- 7500W Peak pulse power per line (t_P = 8/20μs)
- SOD-123FL package
- Response time is typically < 1ns
- Protect one I/O or power line

Application

- Cell phone handsets and accessories
- Personal digital assistants (PDA's)
- Notebooks, desktops and servers
- Portable instrumentation
- Cordless phones
- Digital cameras
- Peripherals
- MP3 players
- Digital cameras

Marking：12C

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

Parameter	Symbol	Value	Unit
IEC 61000-4-2 ESD Voltage — Air Model	V_{ESD}	±30	KV
IEC 61000-4-2 ESD Voltage — Contact Model		±30	
ESD Voltage — Per Human Body Model		±16	
ESD Voltage — Machine Model		±0.4	
Peak Pulse Power	P_{PP}	7500	W
Peak Pulse Current	I_{PP}	300	A
Lead Solder Temperature − Maximum (10 Second Duration)	T_L	260	℃
Junction Temperature	T_j	150	℃
Storage Temperature	T_{stg}	-55~ +150	℃

ESD standards compliance

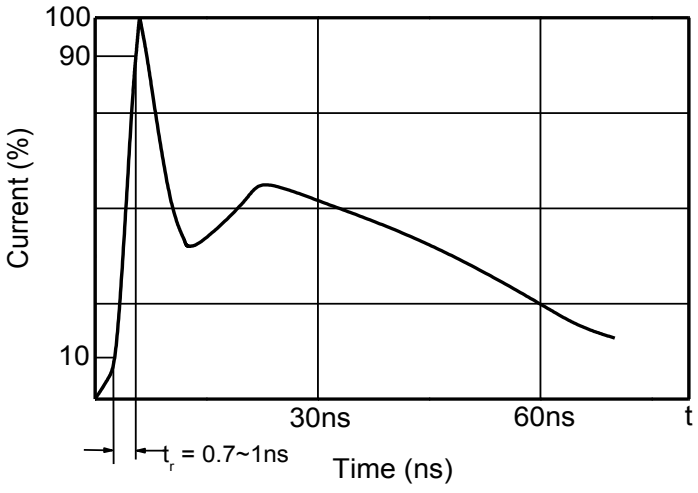
IEC61000-4-2 Standard

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

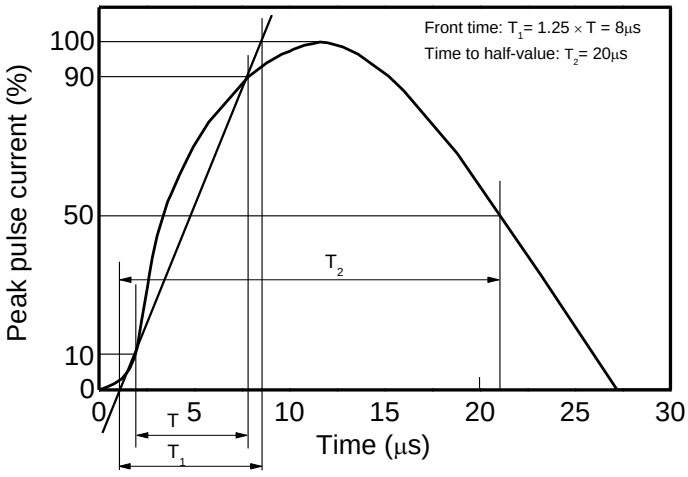
JESD22-A114-B Standard

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

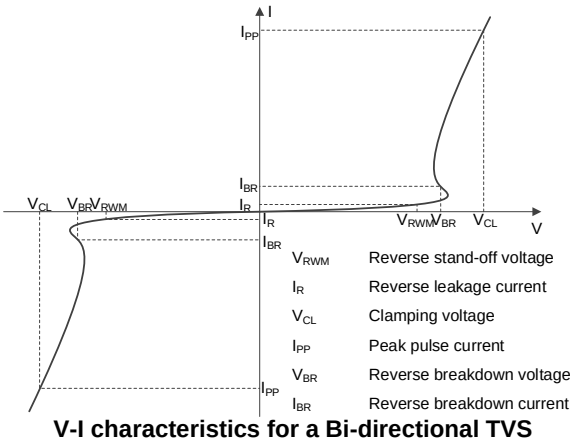


8/20μs waveform per IEC61000-4-5



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

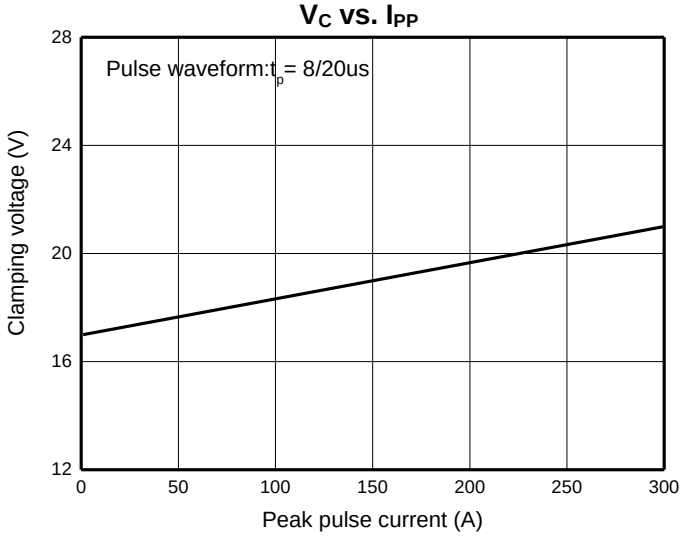
Electrical Characteristics (Ta=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Reverse stand-off voltage	V_{RWM}				12	V
Reverse leakage current	I_R	V_{RWM}=12V			5	μA
Breakdown voltage	V_{BR} 1)	I_T=1mA	13.3	14.3	15	V
Clamping voltage	V_{C1}	I_{PP}=300A(8/20μS)		21	25	V
Junction capcitance	C_j	V_R=0V,f=1MHz		500		pF

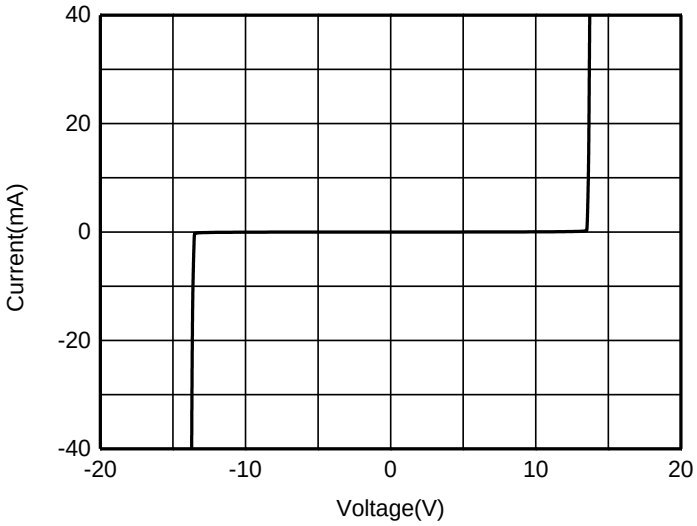
1) V_{BR} is measured with a pulse test current IT at an ambient temperature of 25℃

Typical Characteristics

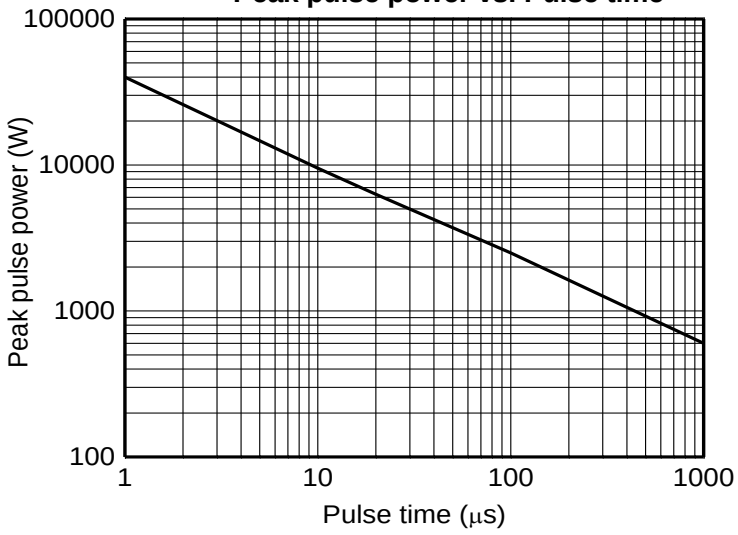
V_C vs. I_{PP}



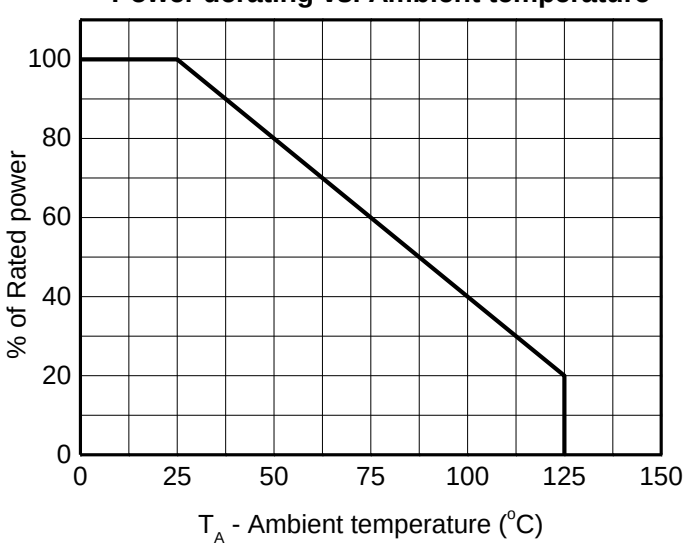
I-V Curve



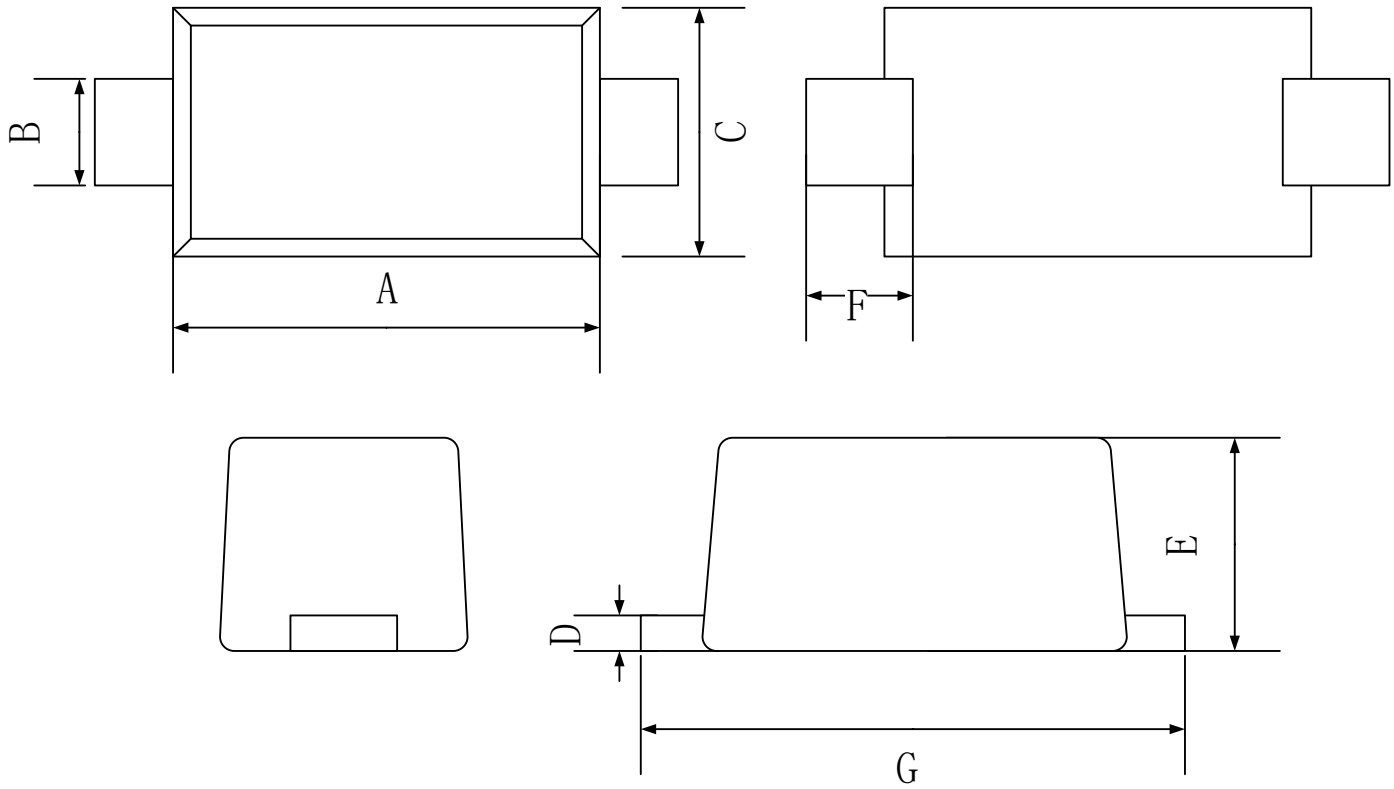
Peak pulse power vs. Pulse time



Power derating vs. Ambient temperature



SOD-123FL Package Outline Dimensions



Symbol	Dimensions In Millimeters	
	Min.	Max.
A	2.85	2.95
B	0.99	1.01
C	1.75	1.85
D	0.10	0.20
E	0.95	1.05
F	0.65	0.85
G	3.75	4.05