

Product Summary

The GESDBX5V0Y1 is designed with GP technology to protect voltage sensitive components from ESD. Excellent clamping capability, low leakage, and fast response time provide best in class protection on designs that are exposed to ESD. Because of its small size, it is suited for use in cellular phones, MP3 players, digital cameras and many other portable applications where board space comes at a premium. Also because of its low capacitance, it is suited for use in high frequency designs such as USB 2.0 high speed, VGA, DVI, SDI and other high speed line applications.

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)

Feature

- Low reverse stand-off voltage: 5.0V
- Low reverse clamping voltage
- Low leakage current
- No insertion loss to 1.0GHz
- Fast response time
- ROHS compliant
- Meets MSL 1 Requirements
- Response Time is < 1 ns

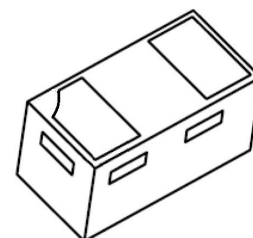
Application

- High Speed Line :USB1.0/2.0, VGA, DVI, SDI,
- Serial and Parallel Ports
- Notebooks, Desktops, Servers
- Audio and video equipment
- Cellular handsets and accessories
- Other electronic equipment communication systems

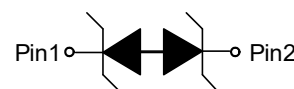
Package Marking and Ordering Information:

Device	Marking	Qty
GESDBX5V0Y1	56	10000

DFN1006-2L



Schematic diagram



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

Parameter	Symbol	Value	Unit
IEC 61000-4-2 ESD Voltage	$V_{\text{ESD}}^{1)}$	± 20	kV
IEC 61000-4-2 ESD Voltage		± 20	
Peak Pulse Power	$P_{\text{pp}}^{2)}$	20	W
Peak Pulse Current	$I_{\text{pp}}^{2)}$	2	A
Lead Solder Temperature – Maximum (10 Second Duration)	T_L	260	$^{\circ}\text{C}$
Junction Temperature	T_J	-55~ +150	$^{\circ}\text{C}$
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

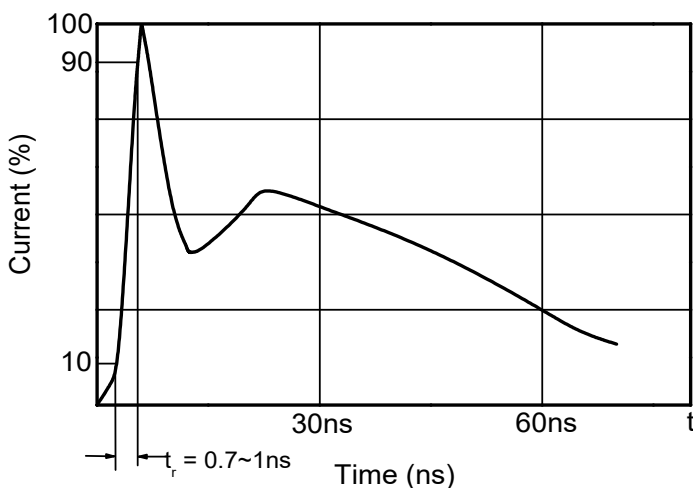
IEC61000-4-2 Standard

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

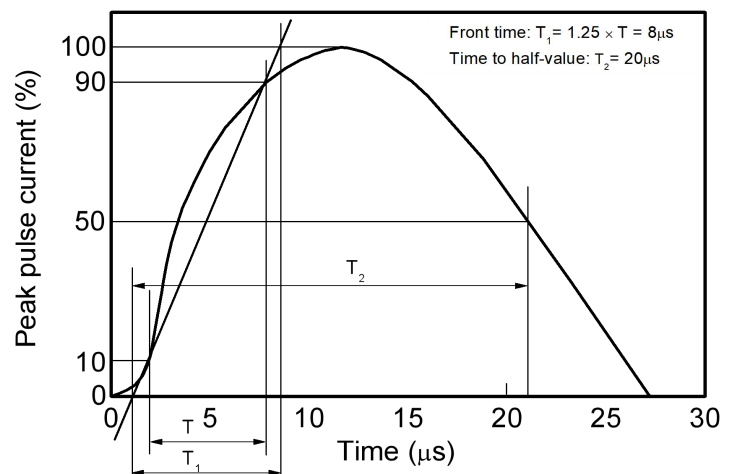
JESD22-A114-B Standard

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

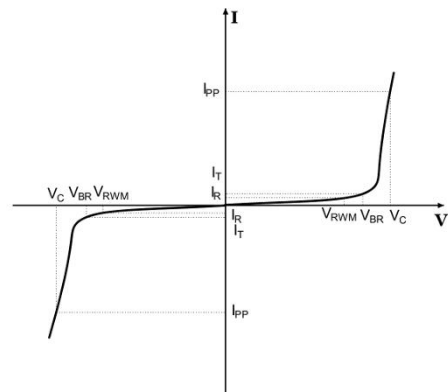


8/20 μs waveform per IEC61000-4-5



Electrical Parameter

Symbol	Parameter
V _C	Clamping Voltage @ I _{PP}
I _{PP}	Peak Pulse Current
V _{BR}	Breakdown Voltage @ I _{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°C unless otherwise specified)

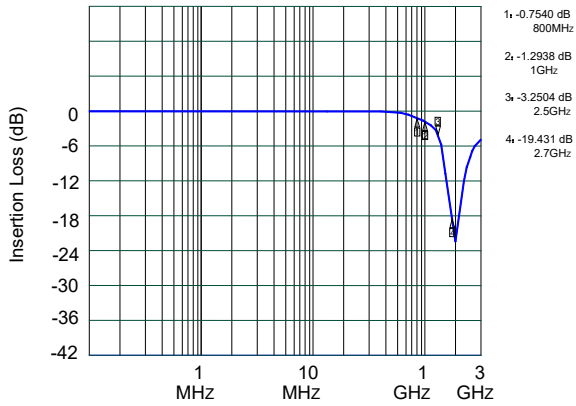
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Reverse Stand-off Voltage	V _{RWM} ¹⁾				5	V
Reverse Leakage Current	I _R	V _{RWM} =5V			0.1	uA
Breakdown Voltage	V _{BR}	I _T =1mA	6.0		12	V
Clamping Voltage	V _C ²⁾	I _{PP} =1A		9		V
		I _{PP} =2A		10		
Junction Capacitance	C _J	V _R =0V, f=1MHz		2.2	3.5	pF

1) Other voltages available upon request.

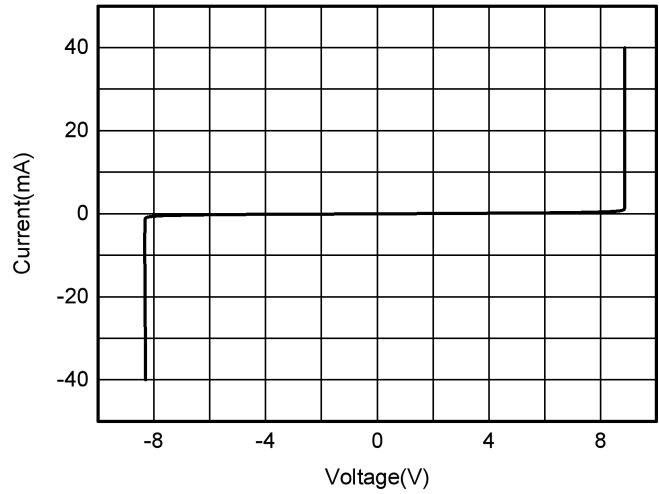
2) Non-repetitive current pulse 8/20μs exponential decay waveform according to IEC61000-4-5

Typical Characteristics

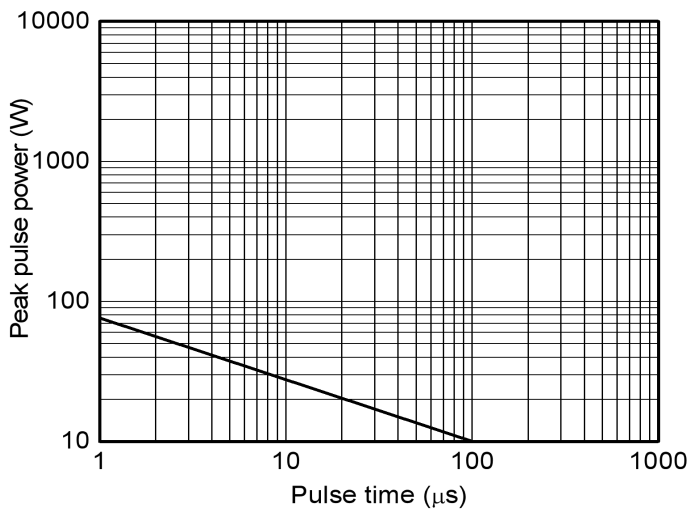
Insertion Loss



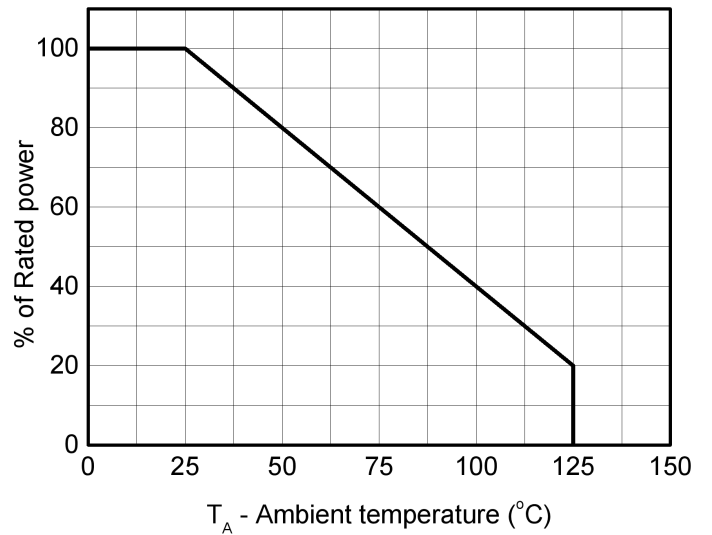
I-V Curve



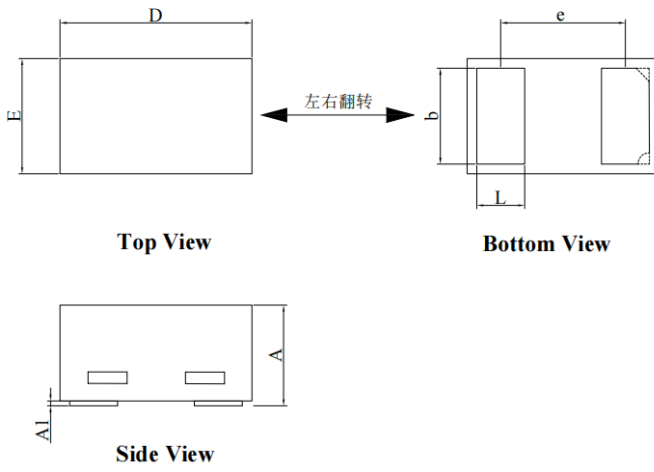
Peak pulse power vs. Pulse time



Power derating vs. Ambient temperature



DFN1006-2L Package Outline Dimensions



DIM	Millimeters	
	Min	Max
A	0.37	0.55
A1	0.00	0.05
D	0.95	1.05
E	0.48	0.65
b	0.35	0.55
e	0.65TYP	
L	0.15	0.35

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. Customer are solely responsible for providing adequate safe measures when design their systems.
- GreenPower Electronics products belong to consumer electronics or other civilian electronic products.