

## Product Summary

The GESDBY5V5Y1 is designed with Weipan 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)

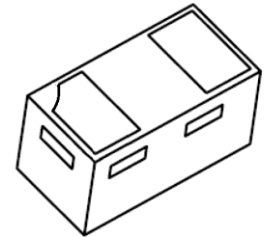
## Feature

- Low reverse stand-off voltage: 5.5V
- Low reverse clamping voltage
- Low leakage current
- No insertion loss to 10.0GHz
- Fast response time
- JESD22-A114-B ESD Rating of class 3B per human body model
- IEC 61000-4-2 Level 4 ESD protection

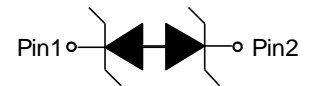
## Application

- 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

## Marking: S

**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	$V_{\text{ESD}}^{1)}$	$\pm 20$	kV
IEC 61000-4-2 ESD Voltage		$\pm 20$	
JESD22-A114-B ESD Voltage		$\pm 8$	
ESD Voltage		$\pm 0.4$	
Peak Pulse Power	$P_{\text{pp}}^{2)}$	45	W
Peak Pulse Current	$I_{\text{pp}}^{2)}$	4	A
Lead Solder Temperature – Maximum (10 Second Duration)	$T_L$	260	$^{\circ}\text{C}$
Junction Temperature	$T_j$	150	$^{\circ}\text{C}$
Storage Temperature	$T_{\text{stg}}$	-55~ +150	$^{\circ}\text{C}$

- 1) Device stressed with ten non-repetitive ESD pulses.
- 2) Non-repetitive current pulse 8/20 $\mu\text{s}$  exponential decay waveform according to IEC61000-4-5.

## ESD standards compliance

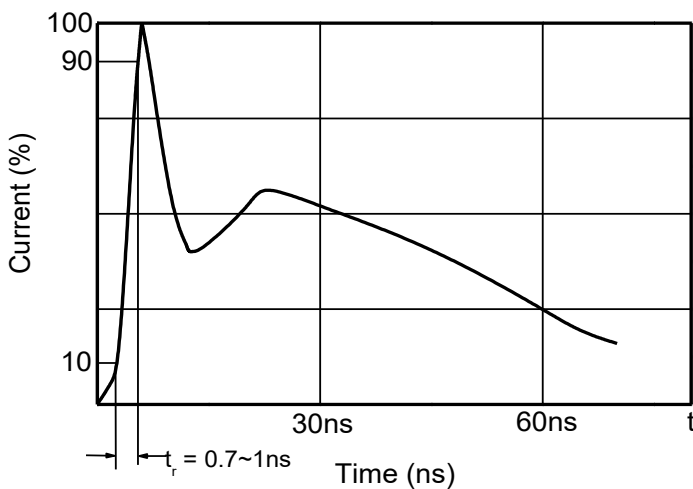
### IEC61000-4-2 Standard

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

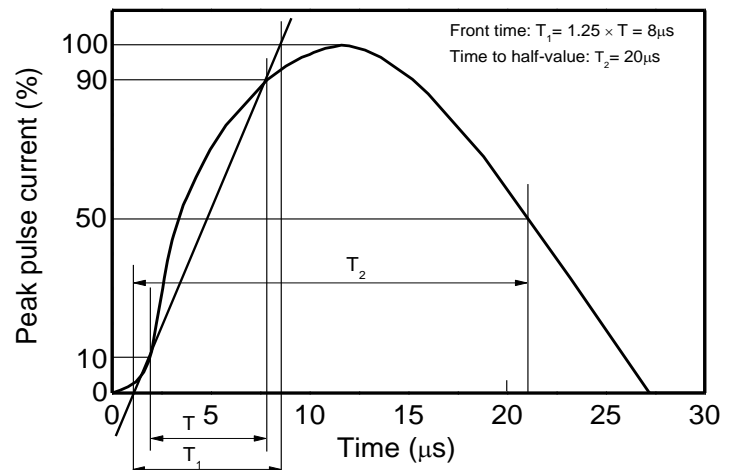
### JESD22-A114-B Standard

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

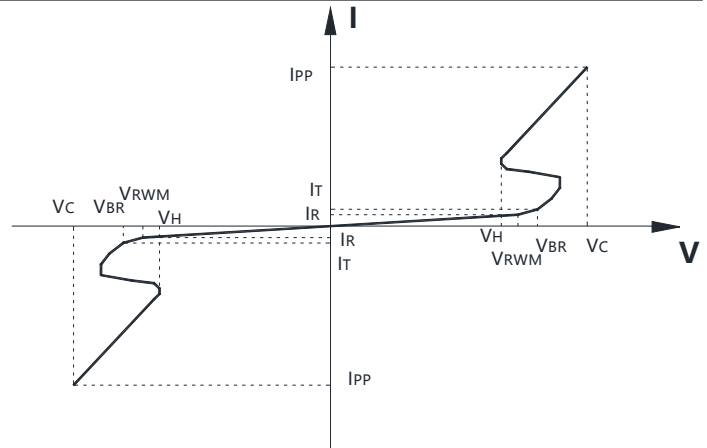


### 8/20 $\mu\text{s}$ waveform per IEC61000-4-5



## Electrical Parameter

Symbol	Parameter
V <sub>C</sub>	Clamping Voltage @ I <sub>PP</sub>
I <sub>PP</sub>	Peak Pulse Current
V <sub>BR</sub>	Breakdown Voltage @ I <sub>BR</sub>
I <sub>BR</sub>	Test Current
I <sub>R</sub>	Reverse Leakage Current @ V <sub>RWM</sub>
V <sub>RWM</sub>	Reverse Standoff Voltage



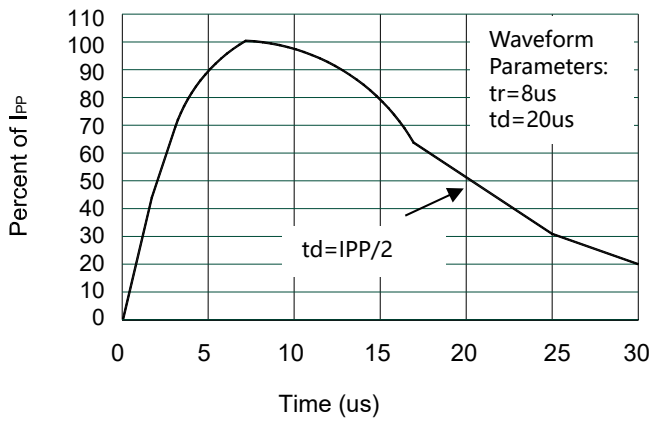
V-I characteristics for a Bi-directional TVS

## Electrical Characteristics (Ta=25°C unless otherwise specified)

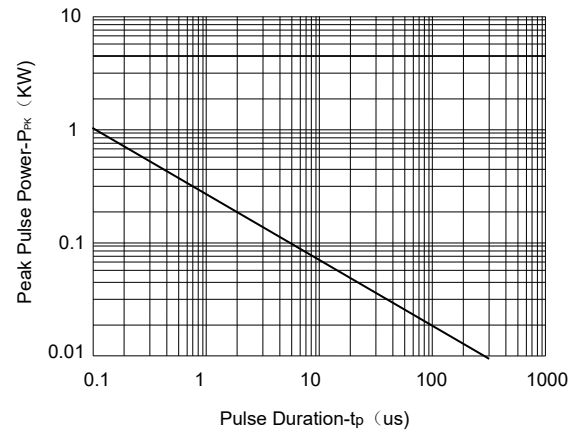
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Reverse stand-off voltage	V <sub>RWM</sub> <sup>1)</sup>				5.5	V
Reverse leakage current	I <sub>R</sub>	V <sub>RWM</sub> =5V			0.1	uA
Breakdown voltage	V <sub>BR</sub>	I <sub>T</sub> =1mA	6.0			V
Clamping voltage	V <sub>C</sub> <sup>2)</sup>	I <sub>PP</sub> =1A		4.5	9.8	V
		I <sub>PP</sub> =4A			13	V
Junction capacitance	C <sub>J</sub>	V <sub>R</sub> =0V, f=1MHz		0.18	0.35	pF

- 1) Other voltages available upon request.
- 2) Non-repetitive current pulse 8/20μs exponential decay waveform according to IEC61000-4-5

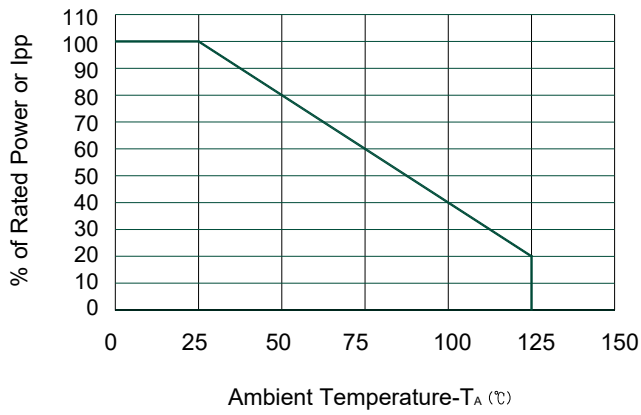
**Typical Characteristics**



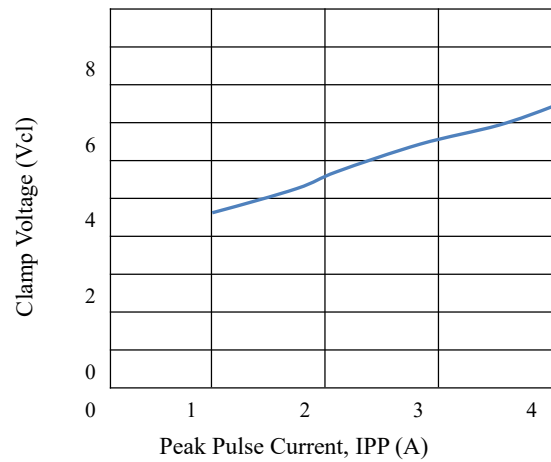
**Pulse Waveform**



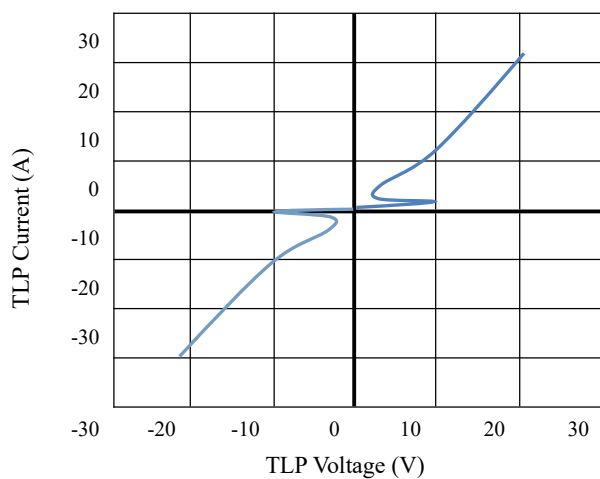
**Non-Repetitive Peak Pulse Power vs. Pulse Time**



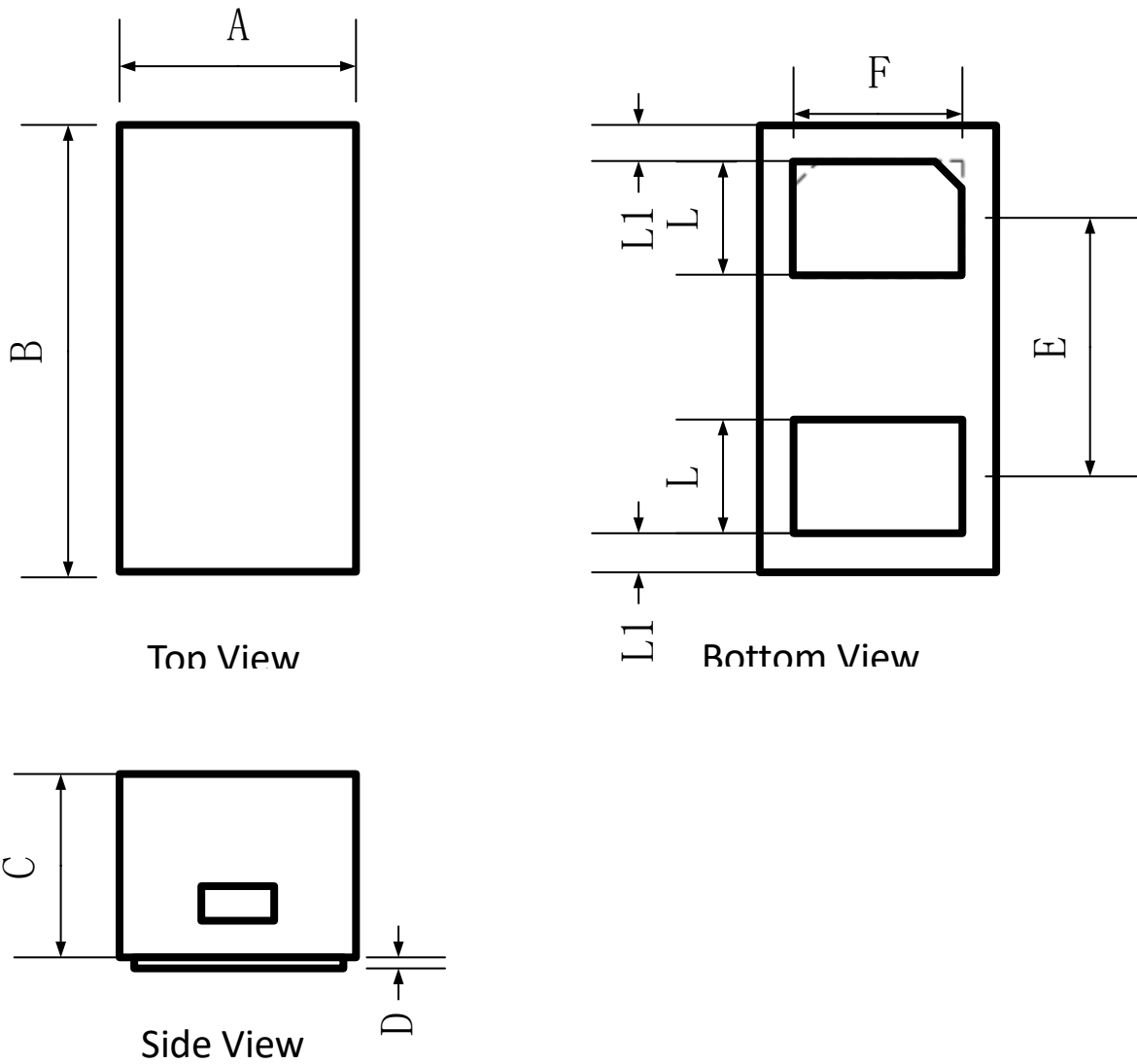
**Power Derating Curve**



**Clamping Voltage Vs Peak Pulse Current( Ipp)**



**Clamping Voltage Vs Peak Pulse Current(I<sub>TLP</sub>)**

**DFN1006-2L Package Outline Dimensions**


	Dimensions In Millimeters		
	Min.	Typ.	Max.
A	0.48	0.60	0.65
B	0.95	1.00	1.08
C	0.37	0.47	0.55
D	0.00	0.03	0.05
E	-	0.65	-
F	0.35	0.50	0.55
L	0.15	0.25	0.35
L1	0.05REF		