

## Product Summary

The GESDBH12VY1U 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 equipments applications such as mobile phone, notebook, PAD, STB, LCD TV etc.

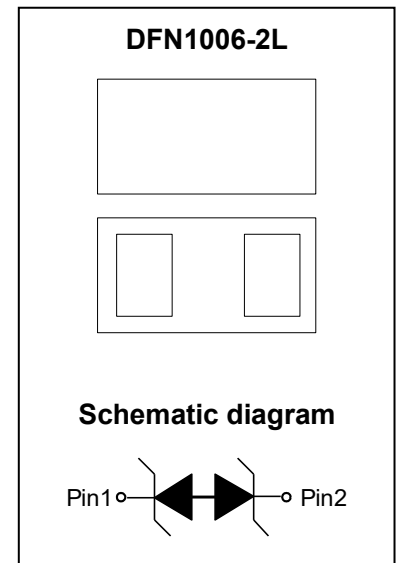
## Feature

- Low reverse stand-off voltage: 12V
- Low reverse clamping voltage
- Ultra-low leakage current
- Transient protection for high-speed data lines
- Protects one directional I/O line

## Application

- Computers and peripherals
- Power lines
- Audio and video equipment
- Cellular handsets and accessories
- Portable electronics
- Other electronics equipments communication
- Systems

## Marking: 2C



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

Parameter	Symbol	Value	Unit
IEC 61000-4-2 ESD Voltage Air Model	$V_{\text{ESD}}$	$\pm 30$	kV
IEC 61000-4-2 ESD Voltage Contact Model		$\pm 30$	
Peak Pulse Power (8/20 $\mu\text{s}$ )	$P_{\text{PP}}$	210	W
Peak Pulse Current (8/20 $\mu\text{s}$ )	$I_{\text{PP}}$	7	A
Junction Temperature	$T_{\text{J}}$	+125	$^{\circ}\text{C}$
Operating Temperature	$T_{\text{OP}}$	-40 ~ +125	$^{\circ}\text{C}$
Lead Temperature	$T_{\text{L}}$	260	$^{\circ}\text{C}$
Storage Temperature	$T_{\text{STG}}$	-55~ +150	$^{\circ}\text{C}$

## ESD standards compliance

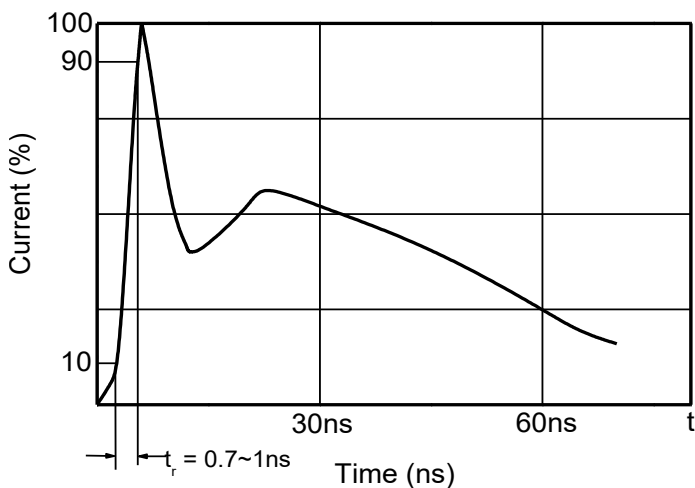
### IEC61000-4-2 Standard

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

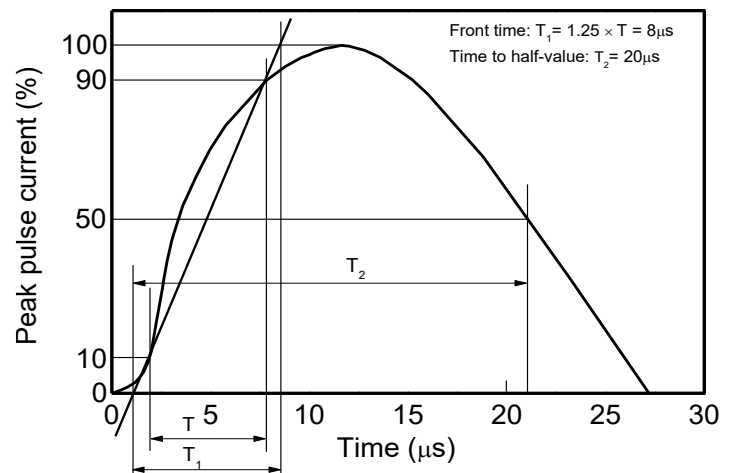
### JESD22-A114-B Standard

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

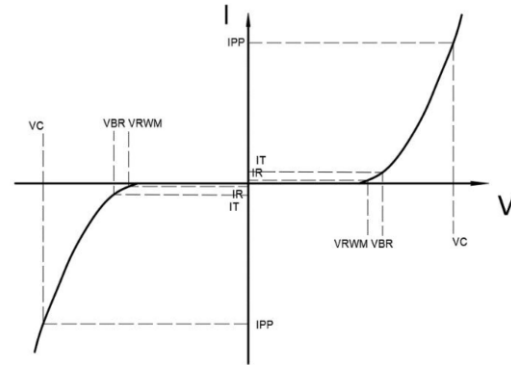


### 8/20 $\mu\text{s}$ waveform per IEC61000-4-5



## 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 (T<sub>A</sub>=25°C unless otherwise specified)

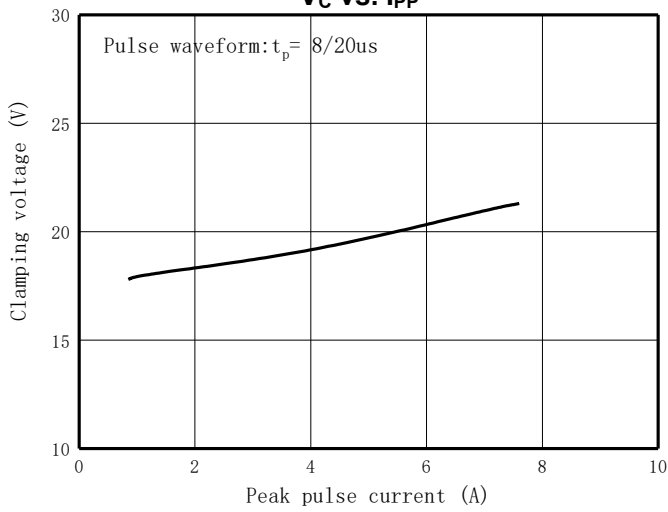
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Reverse Stand-off Voltage	V <sub>RWM</sub> <sup>1)</sup>				12	V
Reverse Leakage Current	I <sub>R</sub>	V <sub>RWM</sub> =12V			1	μA
Breakdown Voltage	V <sub>BR</sub>	I <sub>T</sub> =1mA	13.3			V
Clamping Voltage	V <sub>C</sub> <sup>2)</sup>	I <sub>PP</sub> = 1A		18		V
		I <sub>PP</sub> = 7A		21		V
Junction Capacitance	C <sub>J</sub>	V <sub>R</sub> =0V, f=1MHz		10		pF

1) Other voltages available upon request.

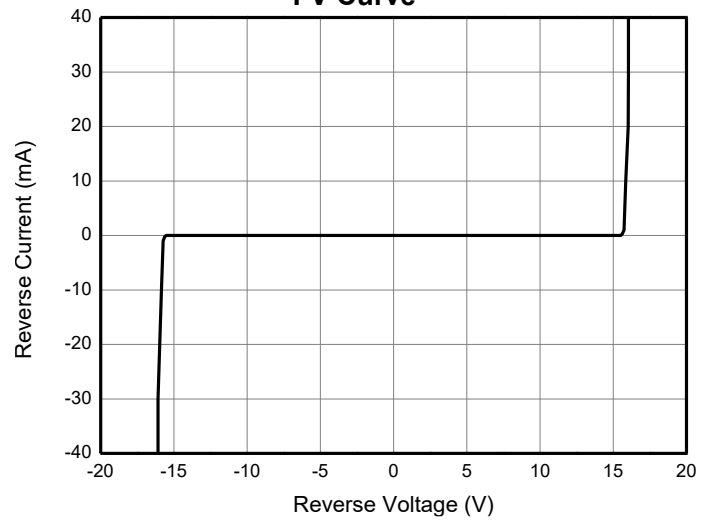
2) Non-repetitive current pulse 8/20μs exponential decay waveform according to IEC61000-4-5

**Typical Characteristics**

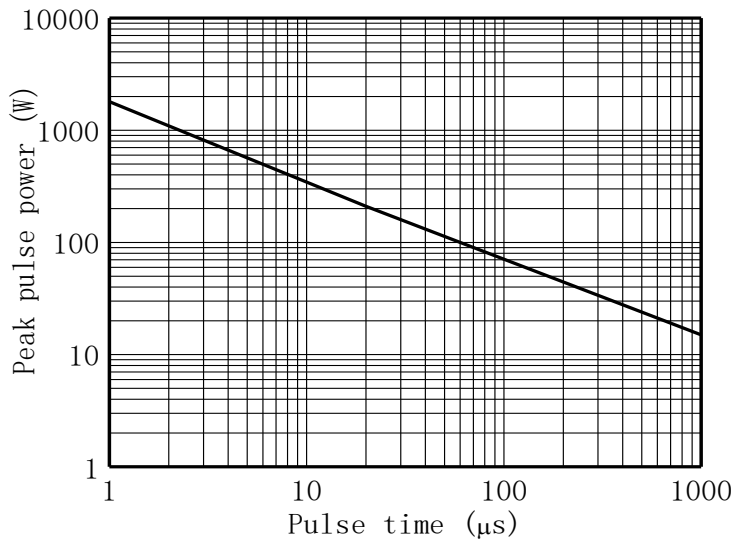
**V<sub>C</sub> vs. I<sub>PP</sub>**



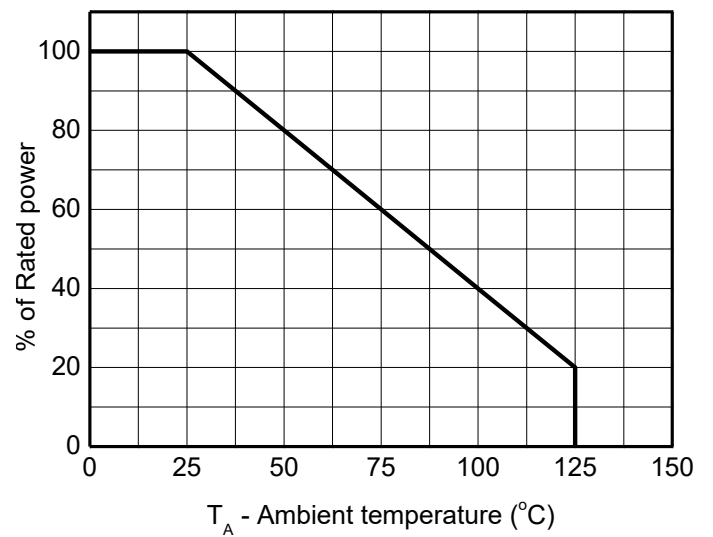
**I-V Curve**



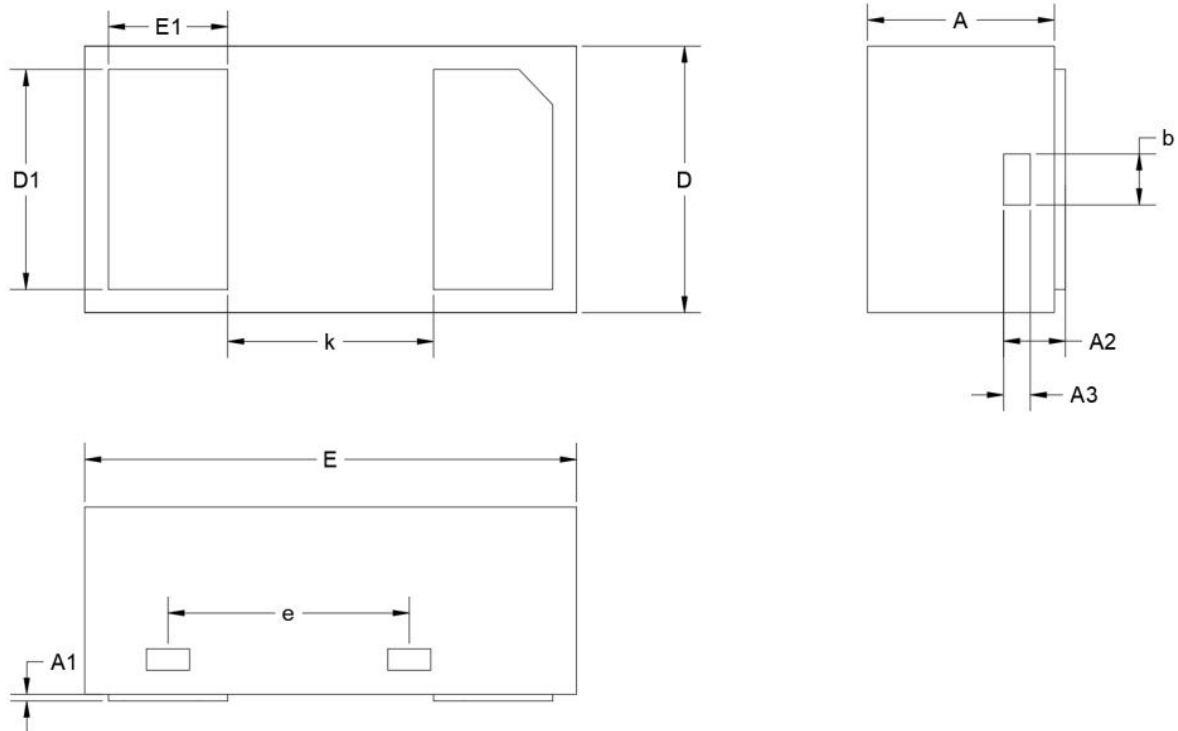
**Peak pulse power vs. Pulse time**



**Power derating vs. Ambient temperature**



## DFN1006-2L Package Outline Dimensions



Units in millimeters

Symbol	Min.	Nom.	Max.
A	0.350	0.450	0.550
A1	0.000	0.020	0.050
A2	0.077	0.127	0.207
A3	0.013	0.063	0.113
b	0.070	0.120	0.200
D	0.500	0.600	0.700
D1	0.400	0.500	0.600
E	0.900	1.000	1.100
E1	0.150	0.250	0.350
e	0.310	0.410	0.560
k	0.300	0.400	0.500

**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.