

### Product Summary

The GESDS12VFA1 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.

### Feature

- Low reverse stand-off voltage: 12V
- 60A Peak pulse current per line (tp = 8/20μs)
- Low clamping voltage
- Unidirectional configurations
- Response time is typically <1ns
- Protect one power line
- IEC61000-4-2(ESD)±30kV(air), ±30kV(contact)

### Applications

- Power supply protection
- Power management

### Marking:



Front Side

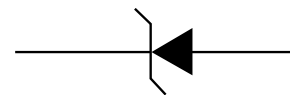
DG =Device Code

\* =Month Code

DFN1610-2L



Schematic diagram



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

Parameter	Symbol	Value	Unit
IEC 61000-4-2 ESD Voltage	Air Model	$\pm 30$	KV
IEC 61000-4-2 ESD Voltage	Contact Model	$\pm 30$	
JESD22-A114-B ESD Voltage	Per Human Body Model	$\pm 16$	
ESD Voltage	Machine Model	$\pm 0.4$	
Peak Pulse Power	$P_{PP}$	1800	W
Peak Pulse Current	$I_{PP}$	60	A
Lead Solder Temperature – Maximum (10 Second Duration)	$T_L$	260	$^{\circ}\text{C}$
Junction Temperature	$T_J$	-45~ +125	$^{\circ}\text{C}$
Storage Temperature	$T_{stg}$	-45~ +125	$^{\circ}\text{C}$

## ESD standards compliance

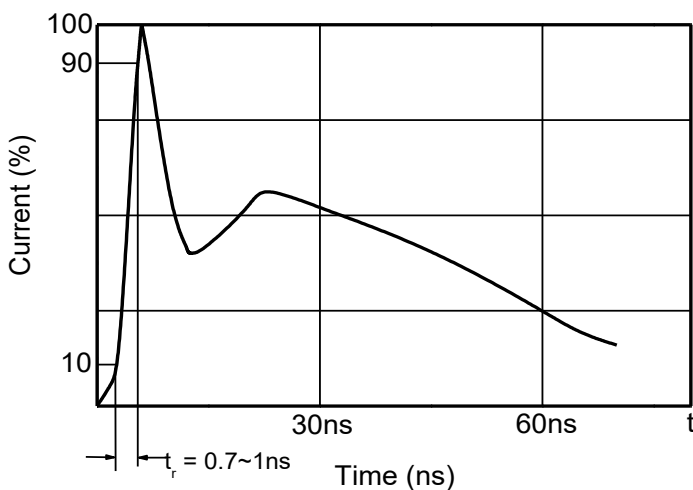
### IEC61000-4-2 Standard

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

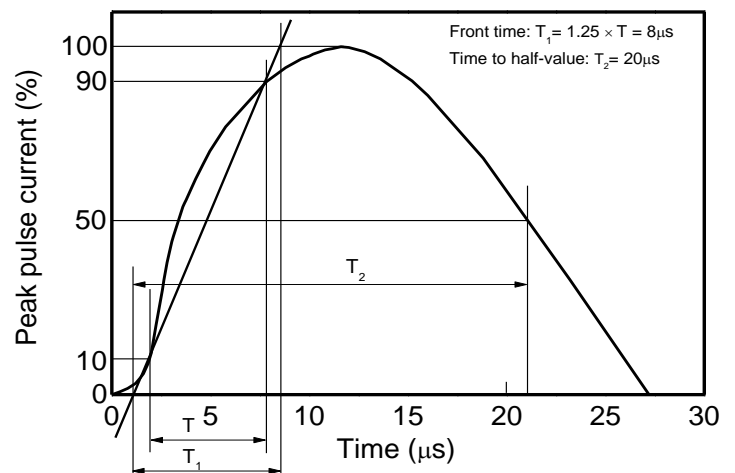
### JESD22-A114-B Standard

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

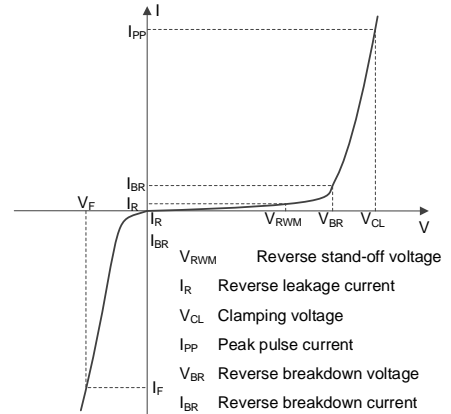


### 8/20 $\mu\text{s}$ waveform per IEC61000-4-5



## 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>T</sub>
I <sub>T</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 Uni-directional TVS

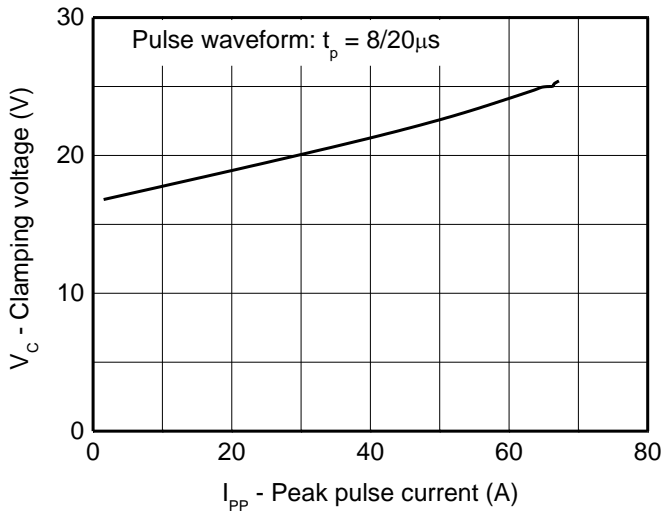
## Electrical Characteristics (T<sub>a</sub>=25°C unless otherwise specified)

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			0.1	uA
Breakdown voltage	V <sub>BR</sub>	I <sub>T</sub> =1mA	12.7		14.6	V
Clamping voltage	V <sub>C</sub> <sup>2)</sup>	I <sub>PP</sub> =60A		25	30	V

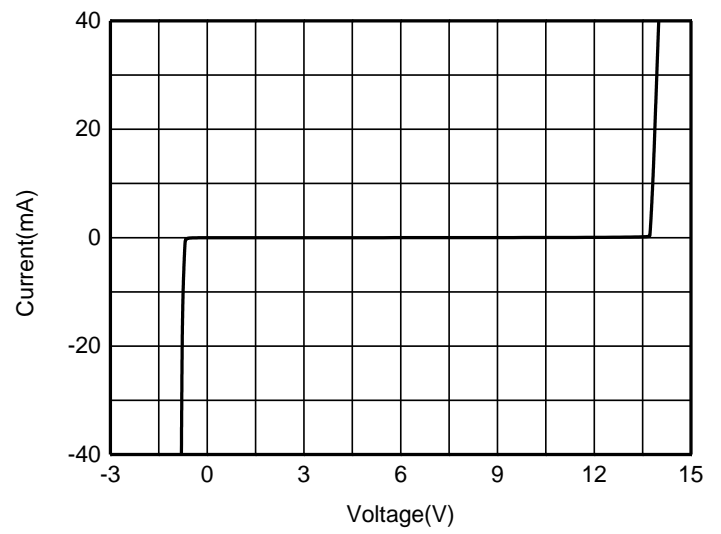
- 1) Other voltages available upon request.
- 2) Non-repetitive current pulse 8/20μs exponential decay waveform according to IEC61000-4-5

**Typical Characteristics**

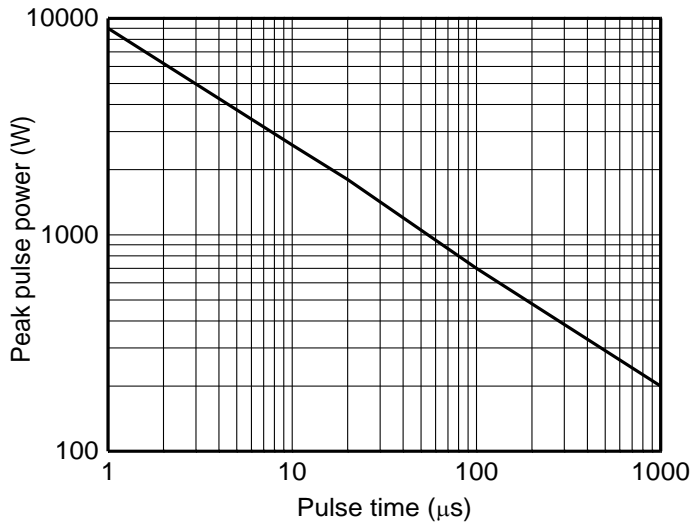
**$V_C$  vs.  $I_{PP}$**



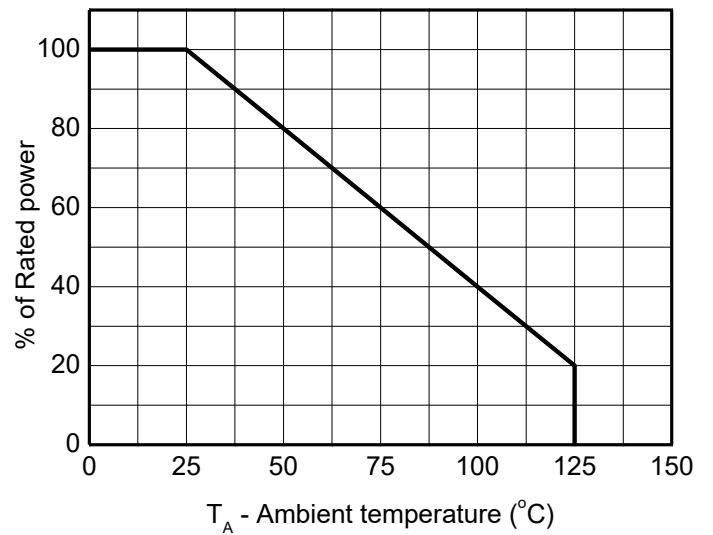
**I-V Curve**



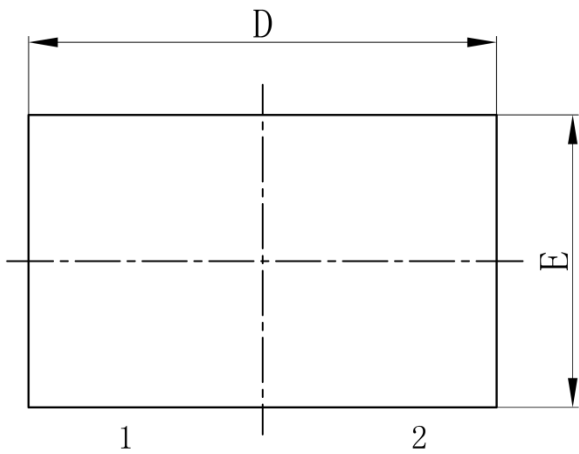
**Peak pulse power vs. Pulse time**



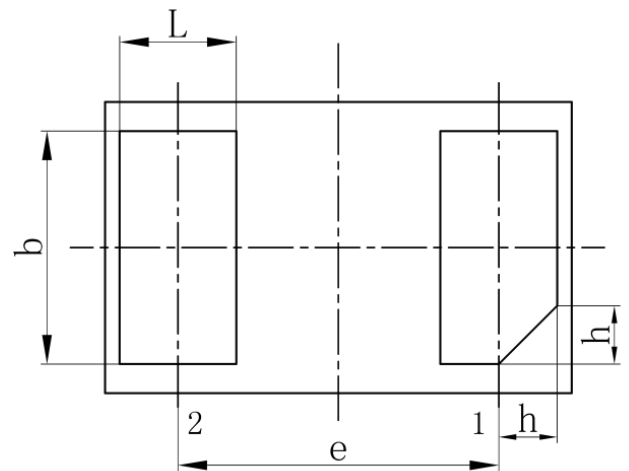
**Power derating vs. Ambient temperature**



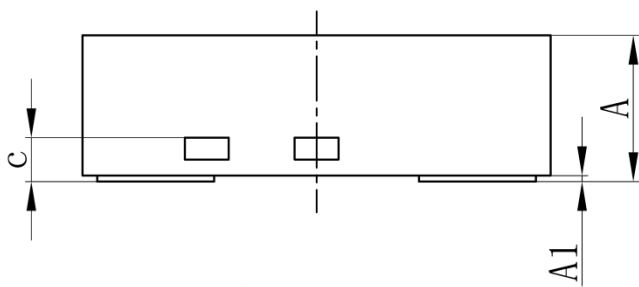
## DFN1610-2L Package Outline Dimensions



TOP VIEW



BOTTOM VIEW



SIDE VIEW

	Dimensions In Millimeters		
	Min.	Typ.	Max.
A	0.45	0.50	0.55
A1	-	0.02	0.05
b	0.75	0.80	0.85
c	0.10	0.15	0.20
D	1.55	1.60	1.65
e	1.10BSC		
E	0.95	1.00	1.05
L	0.35	0.40	0.45
h	0.15	0.20	0.25
载体尺寸(Mil)	34*35		