

Product Summary

The GESDU5V0EL1 TVS array is designed to protect sensitive electronics from damage or latch-up due to ESD and other voltage-induced transient events. It is designed for use in applications where board space is at a premium. Each device will protect up to two lines. It is unidirectional devices and may be used on lines where the signal polarities are above ground. TVS Diode Array For ESD and Latch-Up Protection.

It has been specifically designed to protect sensitive components which are connected to high-speed data and transmission lines from overvoltage caused by ESD (electrostatic discharge), CDE (Cable Discharge Events), and EFT (electrical fast transients)

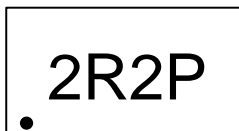
Feature

- Low reverse stand-off voltage: 5.0V
- Low reverse clamping voltage
- Low leakage current
- Fast response time
- JESD22-A114-B ESD Rating of class 3B per human body model
- IEC 61000-4-2 Level 4 ESD protection

Application

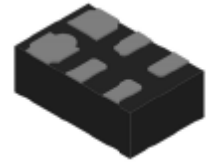
- USB 2.0 and USB 3.0
- HDMI 1.3 and HDMI 1.4
- Computers and peripherals
- Portable electronics
- High speed data lines
- Audio and video equipment
- Cellular handsets and accessories
- Other electronics equipment communication systems

Marking:

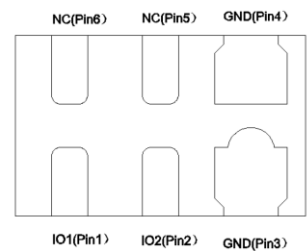
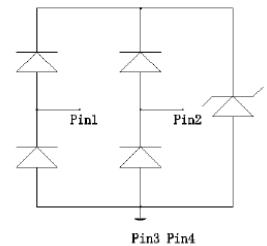


Front Side
 2R2P=Device Code

DFN1610-6L



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	$V_{\text{ESD}}^{1)}$	± 30	kV
IEC 61000-4-2 ESD Voltage Contact Model		± 20	
JESD22-A114-B ESD Voltage Per Human Body Model		± 8	
ESD Voltage Machine Model		± 0.4	
Peak Pulse Power	$P_{\text{PP}}^{2)}$	30	W
Peak Pulse Current	$I_{\text{PP}}^{2)}$	3	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_{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

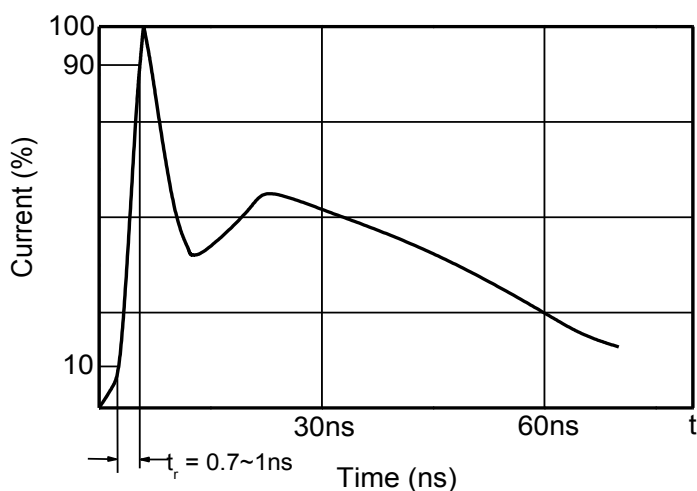
IEC61000-4-2 Standard

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

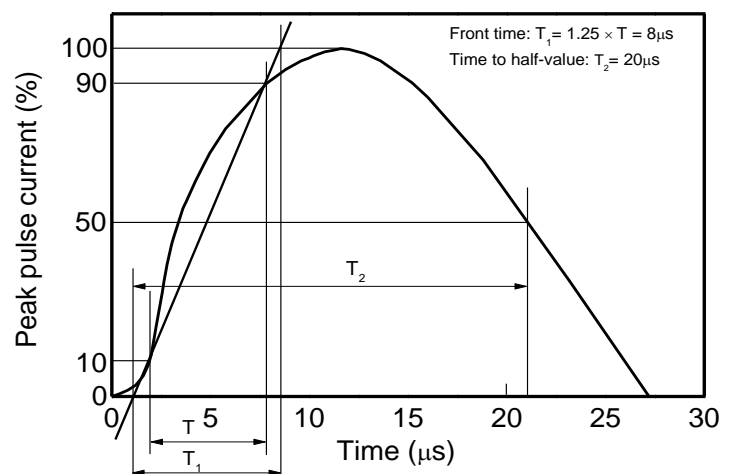
JESD22-A114-B Standard

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

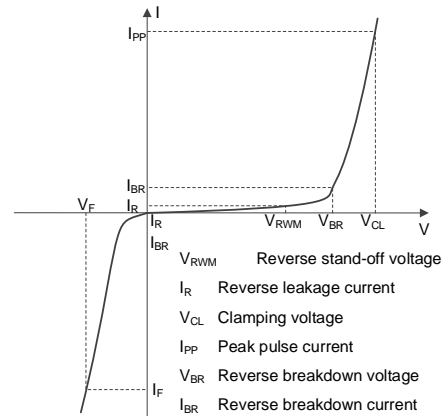


8/20 μs waveform per IEC61000-4-5



Electrical Parameter

Symbol	Parameter
V _C	Clamping Voltage @ I _{PP}
I _{PP}	Peak Pulse Current
V _{BR}	Breakdown Voltage @ I _T
I _T	Test Current
I _R	Reverse Leakage Current @ V _{RWM}
V _{RWM}	Reverse Standoff Voltage



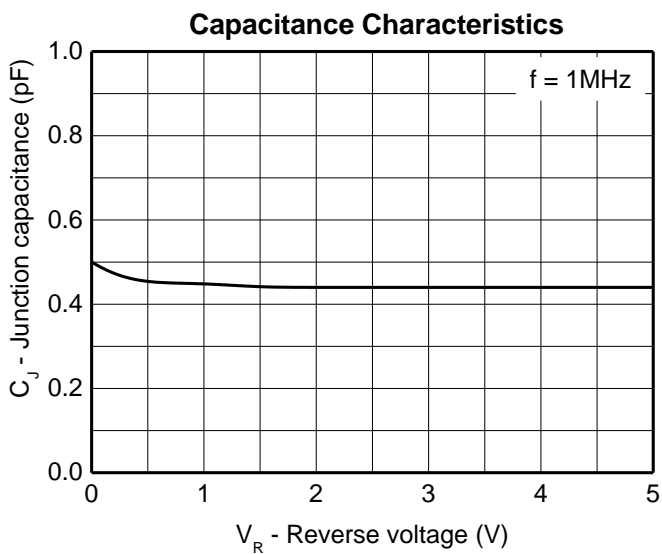
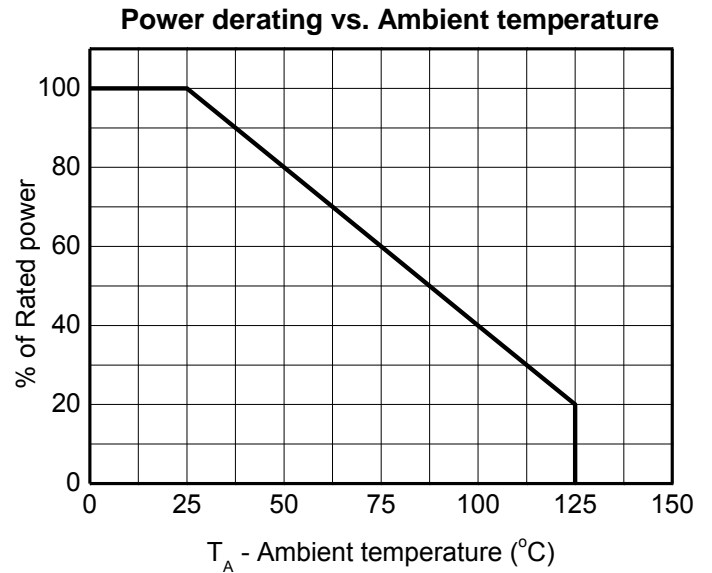
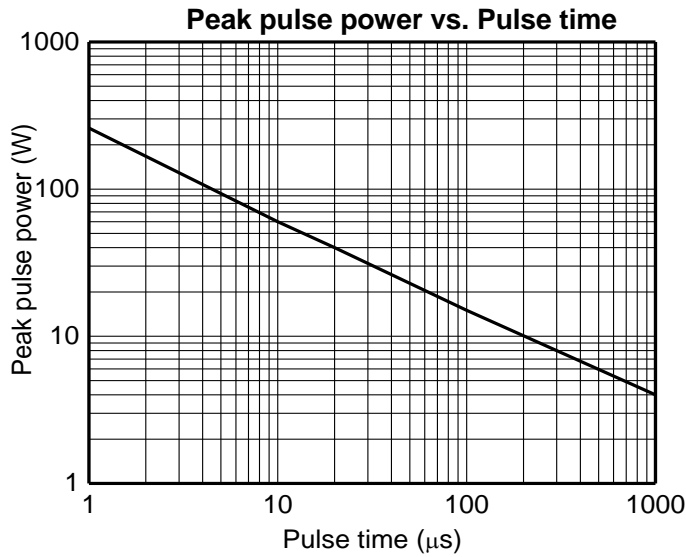
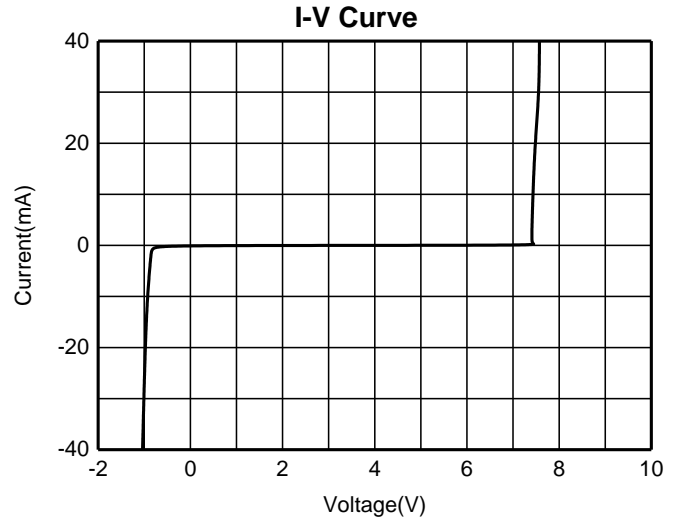
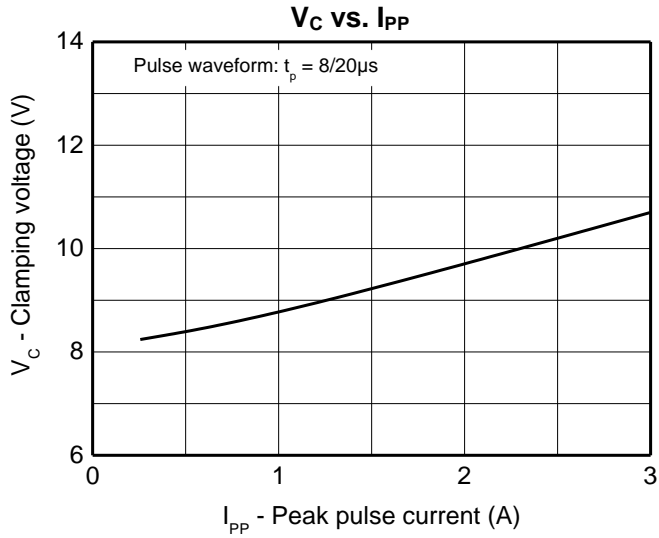
V-I characteristics for a Uni-directional TVS

Electrical Characteristics (T_a=25°C unless otherwise specified)

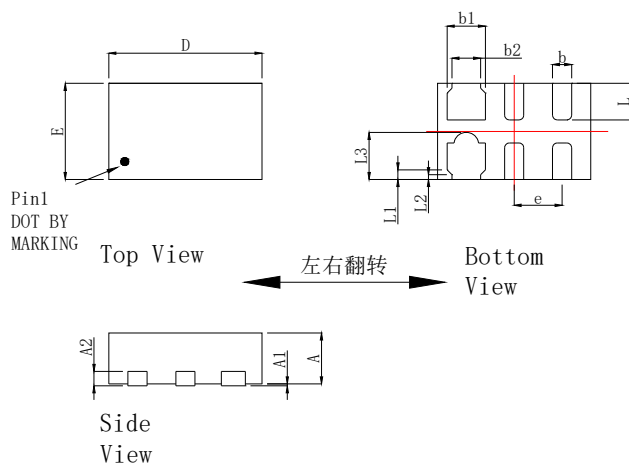
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Reverse standoff voltage	V _{RWM} ¹⁾				5	V
Reverse leakage current	I _R	V _{RWM} =5V			1	uA
Breakdown voltage	V _{BR}	I _T =1mA	6			V
Forward Voltage	V _F	I _F =15mA		0.85	1.2	V
Clamping voltage	V _C ²⁾	I _{PP} =1A		8.7		V
		I _{PP} =3A		10.7	12	V
Channel Input Capacitance	C _{IN}	V _{IN} =0V, f=1MHz, I/O to GND		0.5	0.75	pF

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

Typical Characteristics

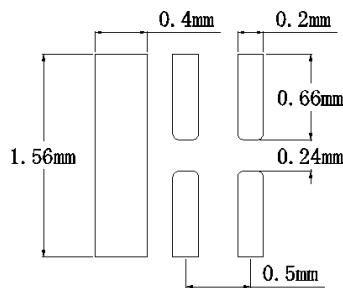


DFN1610-6L Package Outline Dimensions

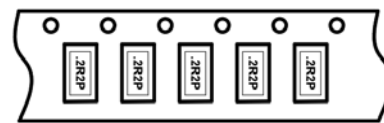


DIM	Millimeters	
	Min	Max
A	0.4	0.6
A1	0.05REF	
A2	0.15REF	
b	0.15	0.25
b1	0.35	0.45
b2	0.20REF	
D	1.55	1.65
E	0.95	1.05
e	0.50BSC	
L	0.33	0.43
L1	0.10 REF	
L2	0.05 REF	
L3	0.49 REF	

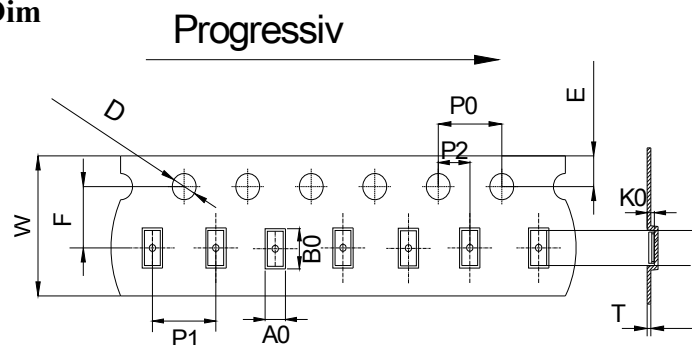
Recommended Pad outline



Device Orientation in Tape



DFN1610 Reel Dim



PACKAGE	W	E	F	P0	D	P2	P1	T	A0	B0	K0
DFN1610-6L	8mm	1.75mm	3.5mm	4mm	1.5mm	2mm	4mm	0.20mm	1.2mm	1.75mm	0.85mm
	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.05	±0.1	±0.1	±0.1