GESDW5V0L1

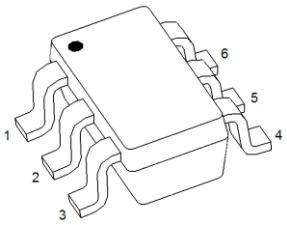
Uni-direction Transient Voltage Suppressors

Product Summary

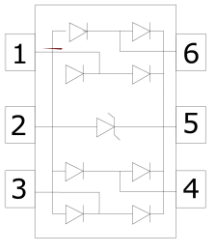
The GESDW5V0L1 provides a typical line to line capacitance of 0.80pF and low insertion loss up to 5GHz providing greater signal integrity making it ideally suited for USB 2.0/3.0 applications, such as Digital TVs, DVD players, Computing, set-top boxes and MDDI applications in mobile computing devices.

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).

SOT-23-6L



Schematic diagram



Feature

- Protects 4 I/O lines and 1 Vcc line
- Low reverse clamping voltage
- Low leakage current
- Fast response time
- Low capacitance
- Response Time is <1 ns

Application

- USB 2.0 and USB 3.0
- Digital Visual Interface (DVI)
- Computers and peripherals
- Set Top Box
- Projection TV
- Notebook Compiuters

Marking:

Front Side

V05=Device Code

Absolute Maximum Ratings (T_a=25℃ unless otherwise noted)

Parameter		Symbol	Value	Unit
IEC 61000-4-2 ESD Voltage	Air Model	V_{ESD}[1)]	±8	kV
IEC 61000-4-2 ESD Voltage	Contact Model		±15	
JESD22-A114-B ESD Voltage	Per Human Body Model		±15	
ESD Voltage	Machine Model		±0.4	
Peak Pulse Power		P_{PP}[2)]	50	W
Peak Pulse Current		I_{PP}[2)]	5	A
Lead Solder Temperature − Maximum (10 Second Duration)		T_L	260	℃
Junction Temperature		T_j	150	℃
Storage Temperature		T_{stg}	-55~ +150	℃

1) Device stressed with ten non-repetitive ESD pulses.

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

ESD standards compliance

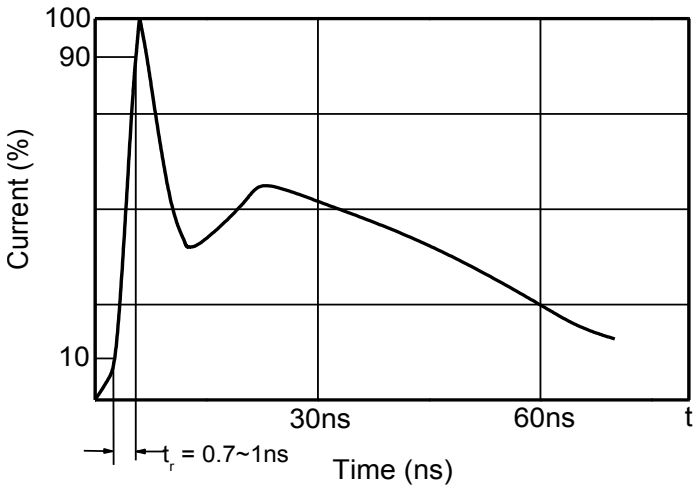
IEC61000-4-2 Standard

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

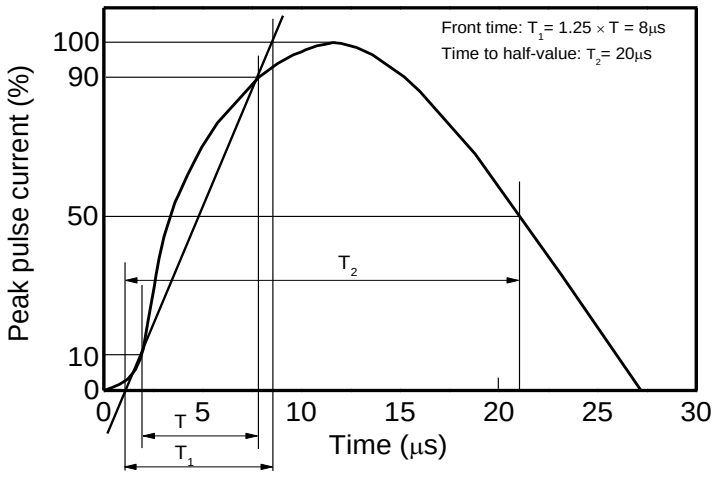
JESD22-A114-B Standard

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

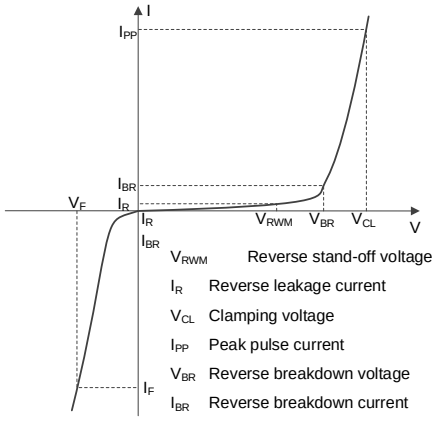


8/20μs waveform per IEC61000-4-5



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

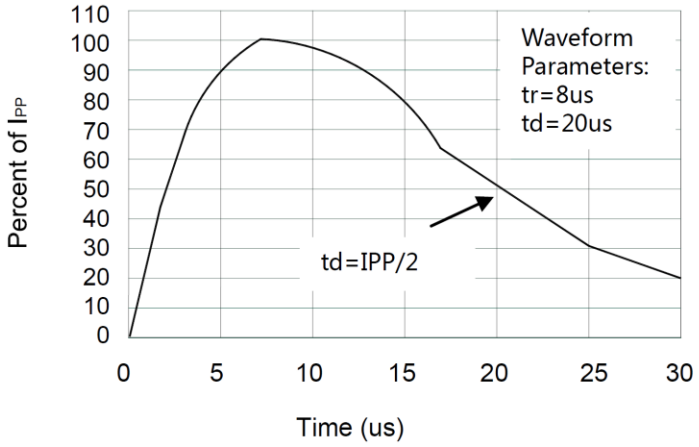
Electrical Characteristics (T_a=25℃ unless otherwise specified)

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
Clamping voltage	V_C[2)]	I_{PP}=1A			9	V
		I_{PP}=5A		12.3	15	V
Channel Input Capacitance	C_{IN}	V_{IN}=0V,f=1MHz,I/O to GND		0.35	0.45	pF
		V_{IN}=0V,f=1MHz,I/O to I/O		0.80	1.0	pF

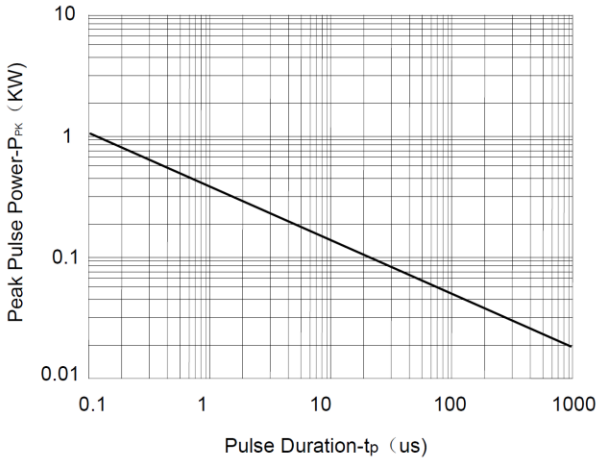
1) Other voltages available upon request.

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

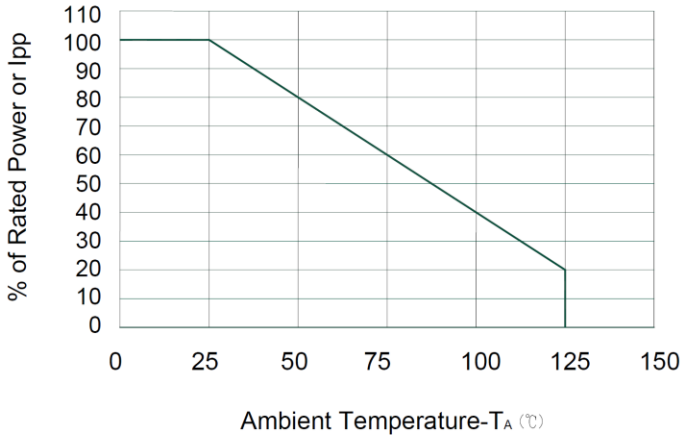
Typical Characteristics



Pulse Waveform

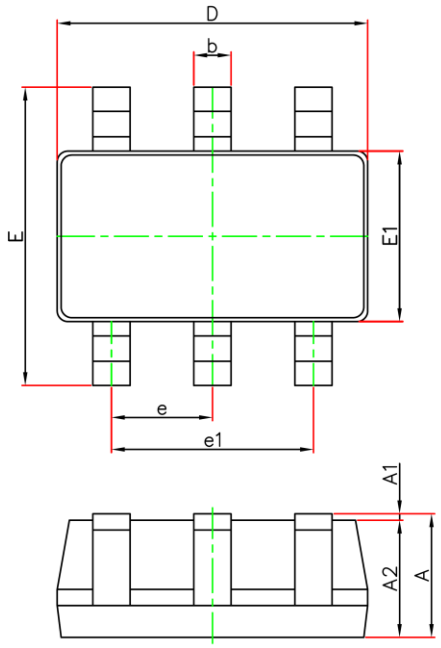


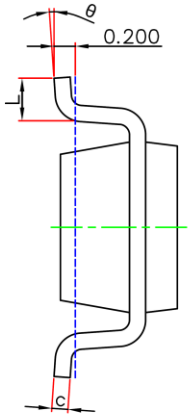
Non-Repetitive Peak Pulse Power vs. Pulse Time



Power Derating Curve

SOT-23-6L Package Outline Dimensions





Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E1	1.500	1.700	0.059	0.067
E	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°