

Product Summary

The GESDU5V0C2P has a typical capacitance of only 0.15pF (pin 1 to 2). This means it can be used on circuits operating in excess of 5GHz with minimal signal attenuation. It may be used to meet the ESD immunity requirements of IEC 61000-4-2, Level 4 ($\pm 15\text{kV}$ air, $\pm 8\text{kV}$ contact discharge). Each device can be configured to protect 1 bidirectional line or two unidirectional lines. The combination of small size, low capacitance, and high level of ESD protection makes them a flexible solution for applications such as HDMI, MDDI, antenna circuits, Automatic Test Equipment, USB 2.0/3.0, and Infiniband circuits.

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

Feature

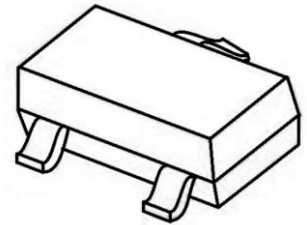
- Low reverse stand-off voltage: 5V
- Low capacitance:
- Low reverse clamping voltage
- Low leakage current
- Fast response time
- IEC 61000-4-2 Level 4 ESD protection

Application

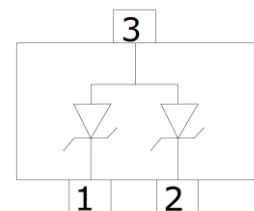
- Data lines
- Antenna Circuits (RF)
- HDMI, USB 2.0/3.0, HDDI
- Industrial Controls
- Cellular handsets AND accessories
- Portable instrumentation
- Peripherals
- Notebook Computers
- Set-Top Box
- Projection TV

Marking: U05

SOT-23



Schematic diagram



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

Parameter	Symbol	Value	Unit
IEC 61000-4-2 ESD Voltage	$V_{\text{ESD}}^{1)}$	± 15	kV
IEC 61000-4-2 ESD Voltage		± 15	
JESD22-A114-B ESD Voltage		± 16	
ESD Voltage		± 0.4	
Peak Pulse Power	$P_{\text{PP}}^{2)}$	80	W
Peak Pulse Current	$I_{\text{PP}}^{2)}$	5	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

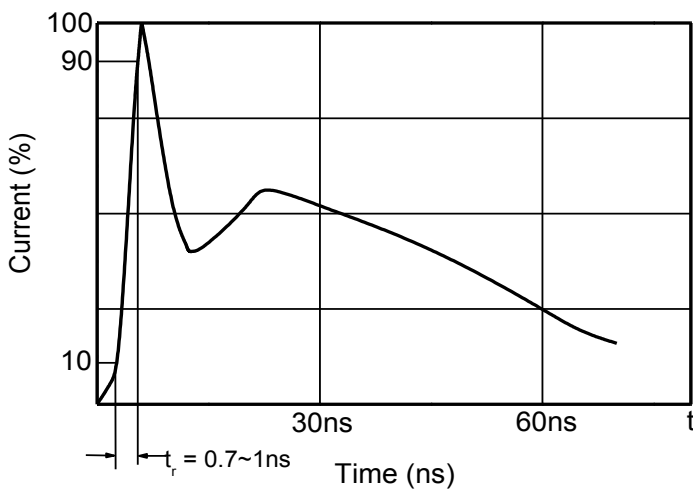
IEC61000-4-2 Standard

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

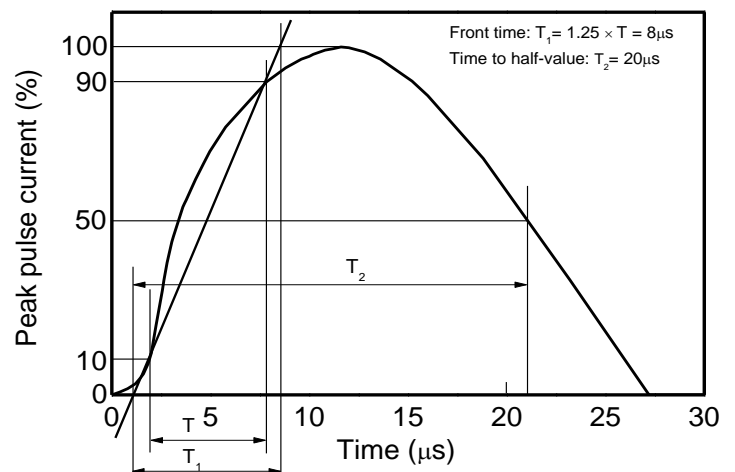
JESD22-A114-B Standard

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

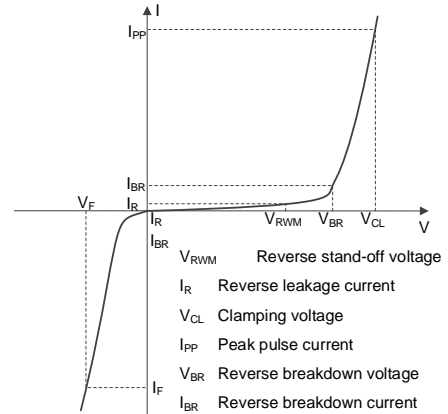


8/20 μs waveform per IEC61000-4-5



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



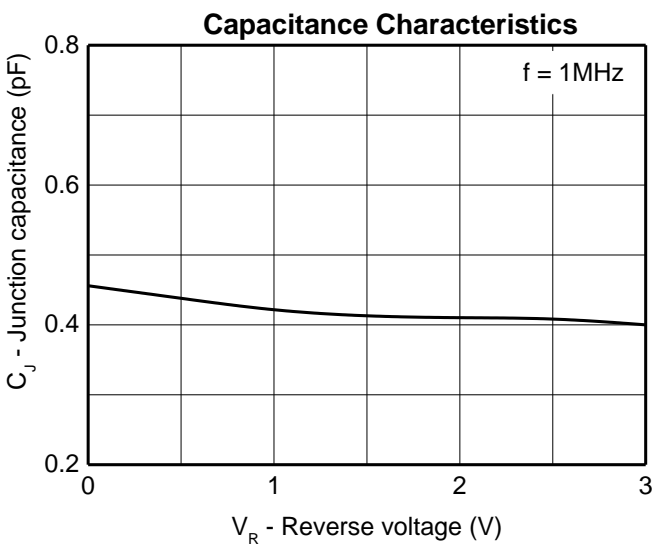
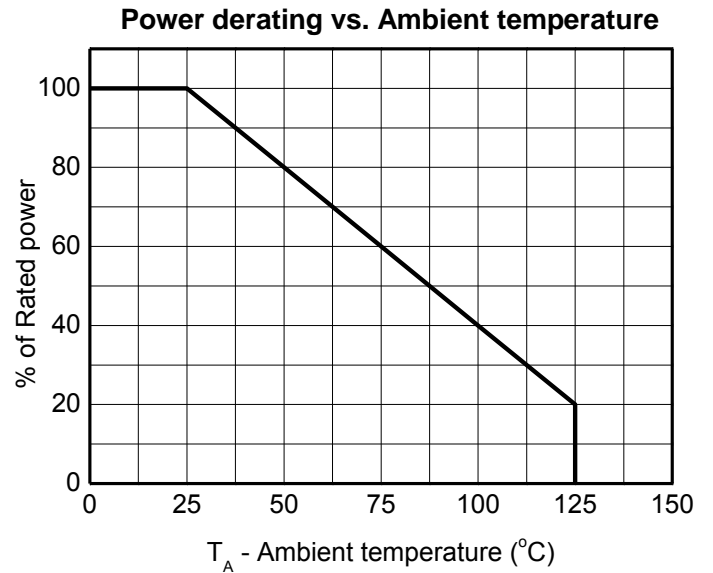
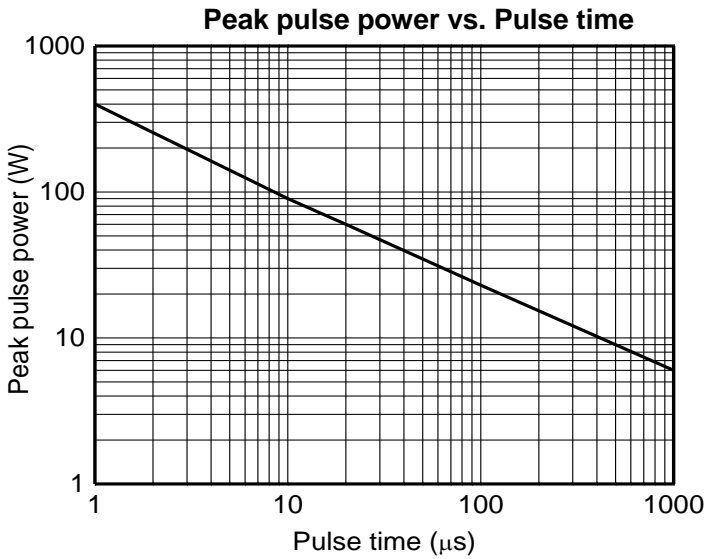
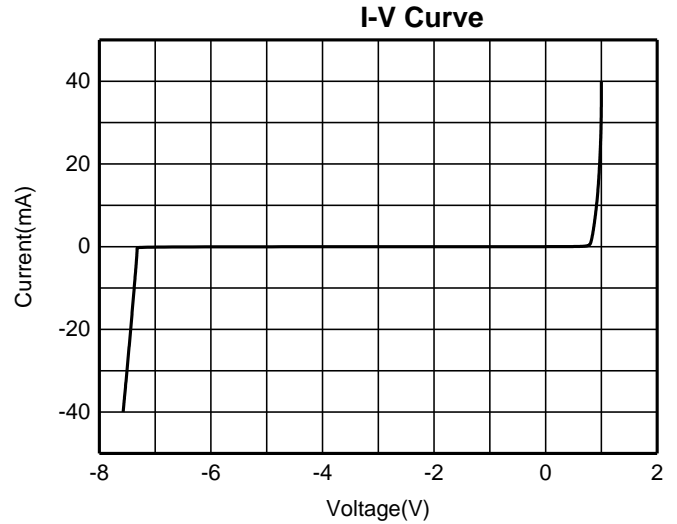
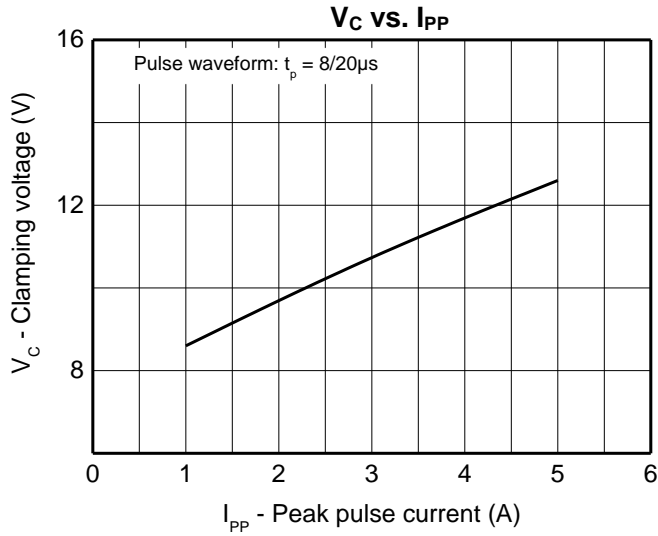
V-I characteristics for a Uni-directional TVS

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

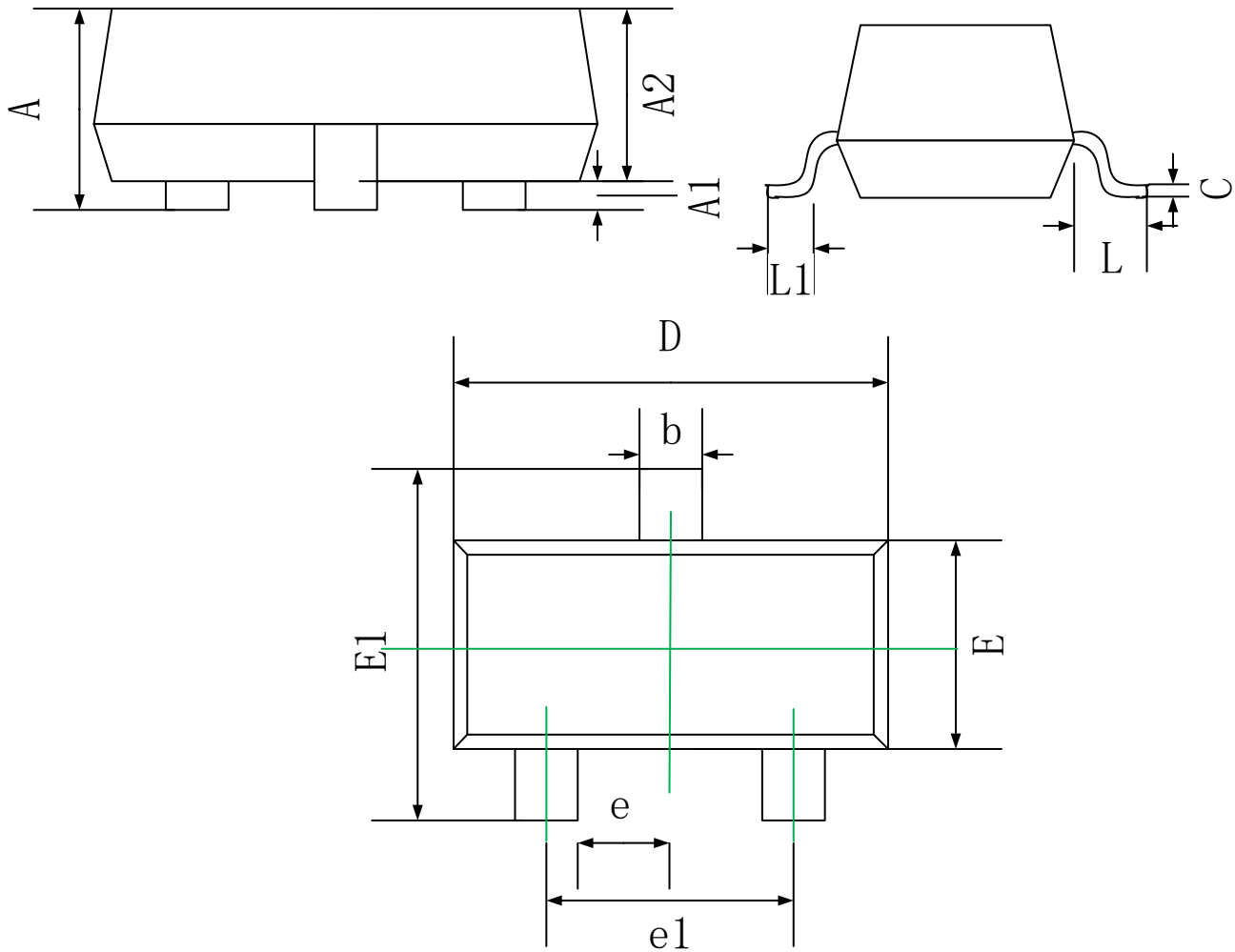
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Reverse stand-off voltage	V _{RWM} ¹⁾				5	V
Reverse leakage current	I _R	V _{RWM} =5V			1	uA
Breakdown voltage	V _{BR}	I _T =1mA	6.5		9	V
Forward voltage	V _F	I _F =15mA		0.85	1.2	V
Clamping voltage	V _C ²⁾	I _{PP} =1A		8.6	9.8	V
		I _{PP} =4A		12	15	V
Junction capacitance	C _J	V _R =0V, f=1MHz, pin1 or pin2 to pin3.		0.45	0.6	pF
		V _R =0V, f=1MHz, pin1 to pin2		0.15	0.3	Pf

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

Typical Characteristics



SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters	
	Min.	Max.
A	0.90	1.15
A1	0.00	0.10
A2	0.90	1.05
b	0.30	0.50
c	0.08	0.15
D	2.80	3.00
E	1.20	1.40
E1	2.25	2.55
e	0.95 REF.	
e1	1.80	2.00
L	0.55 REF.	
L1	0.30	0.50