

GSEN2U020

Ultra Low Capacitance ESD TVS Array

Features

- Low capacitance: 2pF typical
- Ultra low leakage: nA level
- Ultra low operating voltage: 2.5V
- Low clamping voltage
- Protects two line pairs
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 30\text{kV}$, Contact discharge: $\pm 30\text{kV}$
 - IEC61000-4-5 (Lightning) 30A (8/20 μs)
- RoHS Compliant

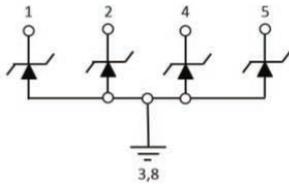


DFN3x2

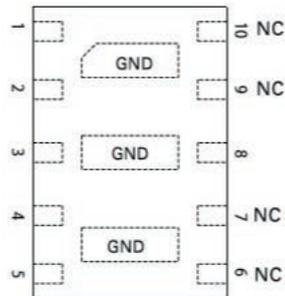
Applications

- LVDS interfaces
- 10/100/1000 Ethernet
- Notebooks, desktops, servers
- Networking equipment
- Switching systems
- Audio/Video inputs

Schematic Diagram



Circuit Schematic



Pin Schematic
(Top view)

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

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	P_{pk}	330	W
Peak Pulse Current (8/20 μs)	I_{pp}	30	A
ESD Per IEC 61000-4-2 (Air)	V_{ESD}	± 30	kV
ESD Per IEC 61000-4-2 (Contact)		± 30	
Operating Temperature Range	T_J	-55 to +125	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to +150	$^\circ\text{C}$

Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}	-	-	-	2.5	V
Breakdown Voltage	V_{BR}	$I_T=2\mu\text{A}$	5	-	-	V
Reverse Leakage Current	I_R	$V_{RWM}=2.5\text{V}$	-	-	0.2	μA
Holding Voltage	V_{HOLD}	any I/O pin to ground	-	1	-	V
Clamping Voltage	V_C	$I_{pp}=30\text{A}$ (8 x 20 μs pulse), any I/O pin to ground	-	9	11	V
Dynamic Resistance	R_{DYN}	$t_p=0.2/100\text{ns}$ (TLP)	-	0.17	-	Ohm
Junction Capacitance	C_J	$V_R=0\text{V}$, $F=1\text{MHz}$, any I/O pin to ground	-	2	3	pF

Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise specified)

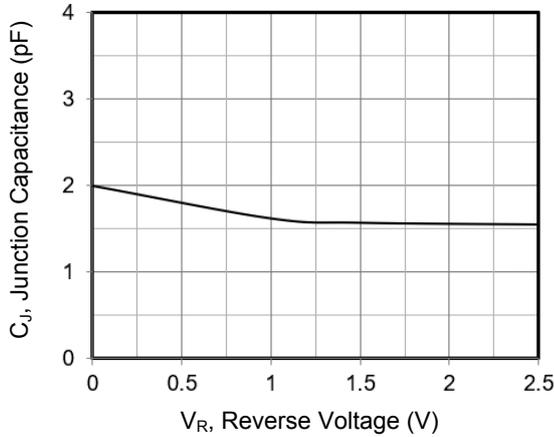


Figure 1. Junction Capacitance Vs. Reverse Voltage

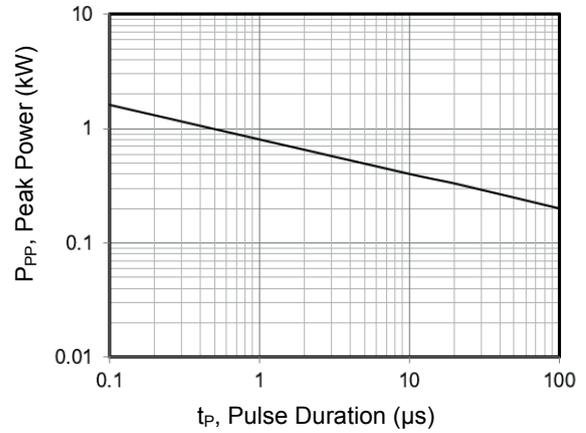


Figure 2. Peak Pulse Power Vs. Pulse Time

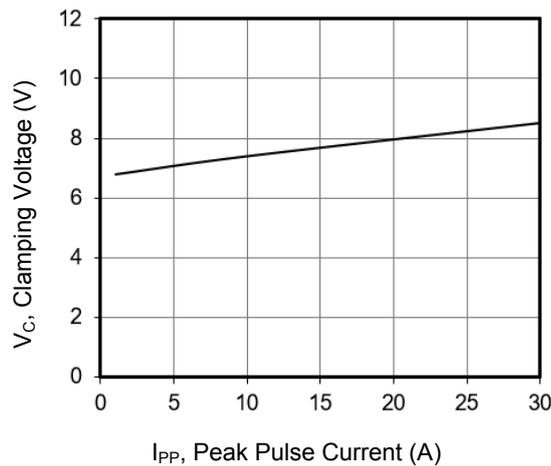


Figure 3. Clamping Voltage Vs. Peak Pulse Current
 ($t_p=8/20\mu\text{s}$)

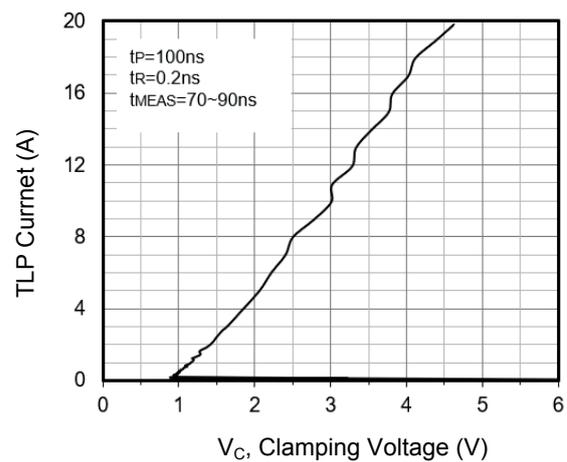


Figure 4. TLP Measurement

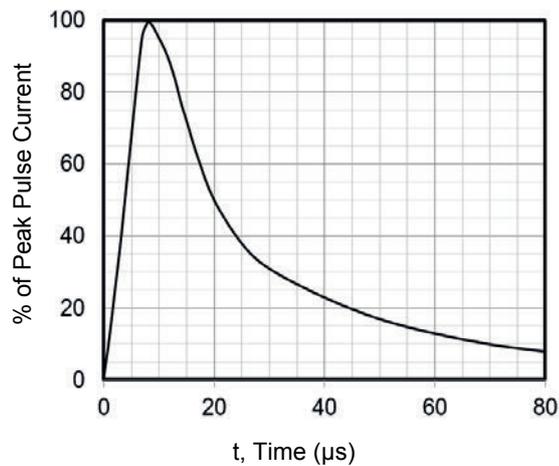


Figure 5. 8 X 20 μs Pulse Waveform

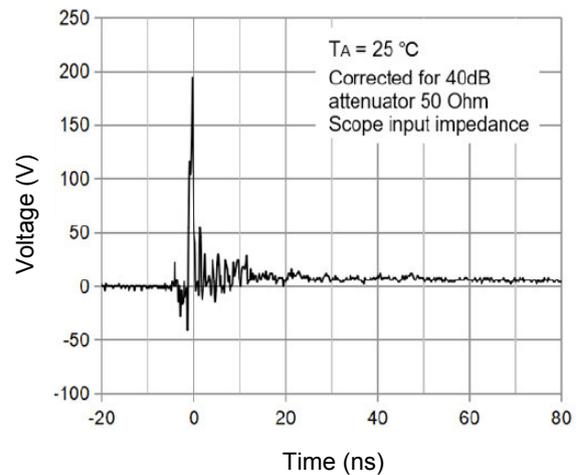
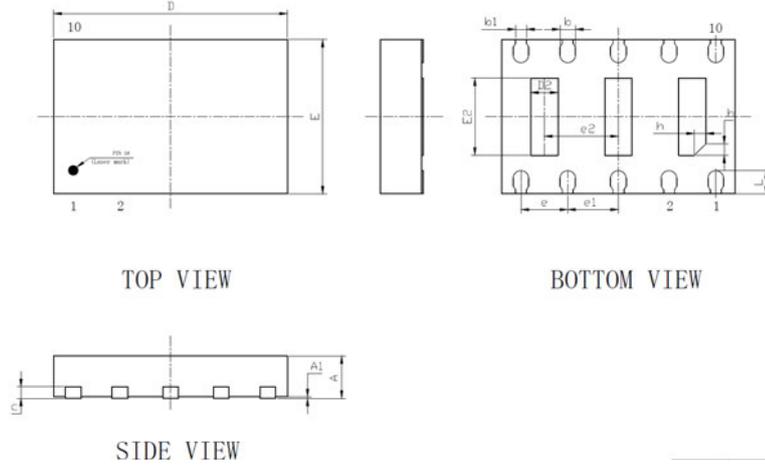


Figure 6. ESD Clamping Voltage 8 kV Contact per IEC61000-4-2

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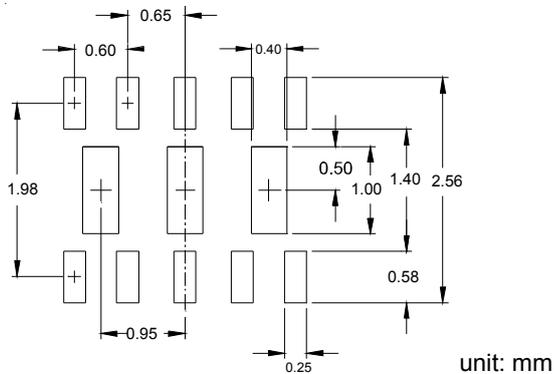
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Package Outline Dimensions (DFN3x2)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.50	0.60	0.020	0.024
A1	0.00	0.05	0.000	0.002
b	0.15	0.25	0.006	0.010
b1	0.14 REF		0.006 REF	
c	0.15 REF		0.006 REF	
D	2.90	3.10	0.114	0.122
D2	0.30	0.40	0.012	0.016
e	0.60 BSC		0.024 BSC	
e1	0.65 BSC		0.026 BSC	
e2	0.95 BSC		0.037 BSC	
E	1.90	2.10	0.075	0.083
E2	0.95	1.05	0.037	0.041
L	0.25	0.35	0.010	0.014
h	0.10	0.20	0.004	0.008

Recommended Pad Layout



Order Information

Device	Package	Marking	Carrier	Quantity
GSEN2U020	DFN3x2	2574L	Tape & Reel	3,000pcs / Reel