

Product Summary

The GESDX2V5GJ1 provides a typical line to line capacitance of 1.5pF and low insertion loss up to 2GHz providing greater signal integrity making it ideally suited for GbE, USB 2.0 applications, such as Digital TVs, DVD players, Computer, 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 Lightning, ESD(electrostatic discharge), CDE (Cable Discharge Events),and EFT (electrical fast transients).

Feature

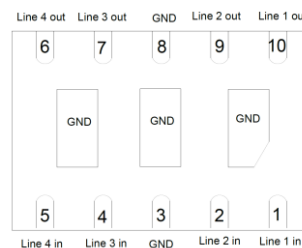
- Working voltage: 2.5V
- Low capacitance
- Low leakage current
- Protects eight I/O lines
- Fast response time
- No insertion loss to 2.0GHz
- Meets MSL 1 Requirements
- JESD22-A114-B ESD Rating of class 3B per human body model
- IEC 61000-4-2 Level 4 ESD protection

Application

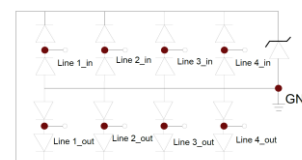
- USB 2.0/3.0/3.1
- Digital Visual Interface (DVI)
- 10/100/1000 Ethernet
- Projection TV Monitors and Flat Panel Displays
- Portable electronics
- Set Top Box

Marking: 111E

DFN3020-10L



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		± 30	
JESD22-A114-B ESD Voltage Per Human Body Model		± 16	
ESD Voltage Machine Model		± 0.4	
Peak Pulse Power	$P_{\text{PP}}^{2)}$	600	W
Peak Pulse Current	$I_{\text{PP}}^{2)}$	40	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

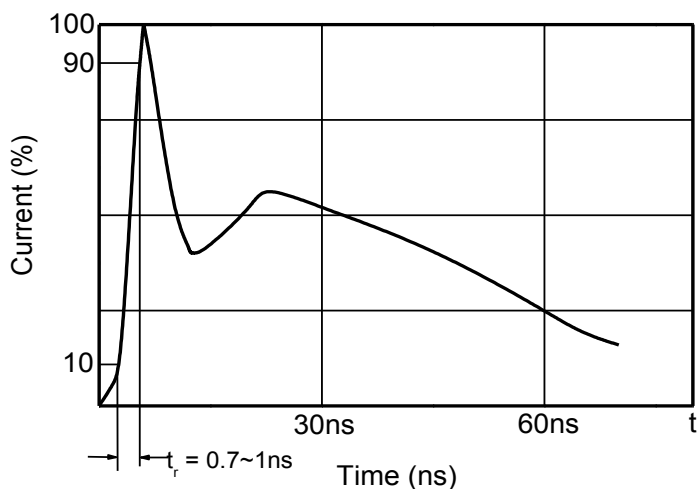
IEC61000-4-2 Standard

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

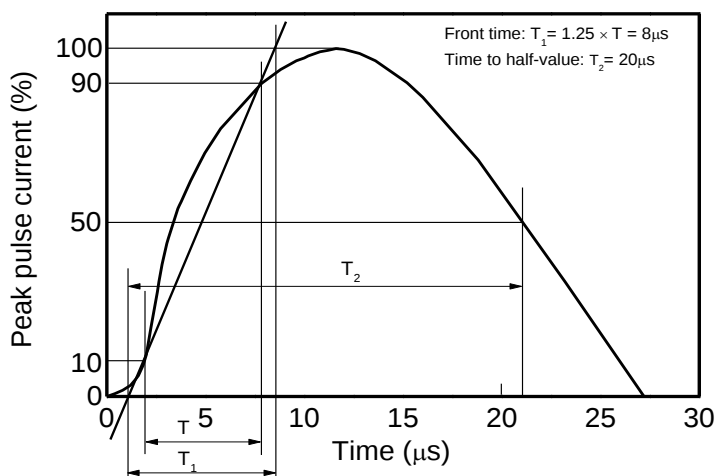
JESD22-A114-B Standard

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

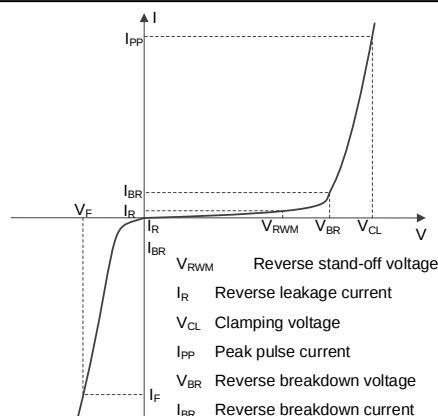


8/20 μs waveform per IEC61000-4-5



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

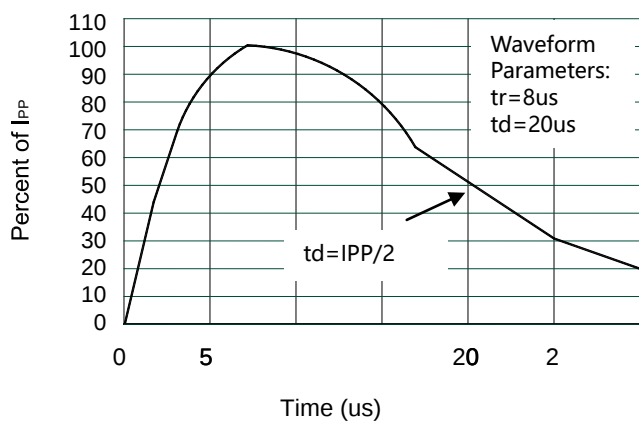
Electrical Characteristics (T_a=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Reverse standoff voltage	V _{RWM} ¹⁾				2.5	V
Reverse leakage current	I _R	V _{RWM} =1.5V		0.01	0.35	uA
Breakdown voltage	V _{BR}	I _{II} =2uA	2.5			V
Snap-Back voltage	V _{SB}	I _h =50mA	2.0			V
Clamping voltage	V _C ²⁾	I _{PP} =1A		4.5		V
	V _C ²⁾	I _{PP} =20A		7.5	15	V
	V _C ²⁾	I _{PP} =40A			20	V
Channel Input Capacitance	C _{IN}	V _{IN} =0V, f=1MHz, I/O to GND		4.1	5	pF
		V _{IN} =0V, f=1MHz, I/O to I/O		1.5	2.7	pF

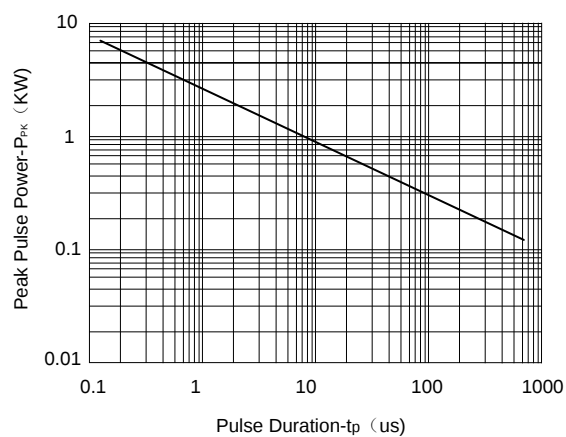
1) Other voltages available upon request.

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

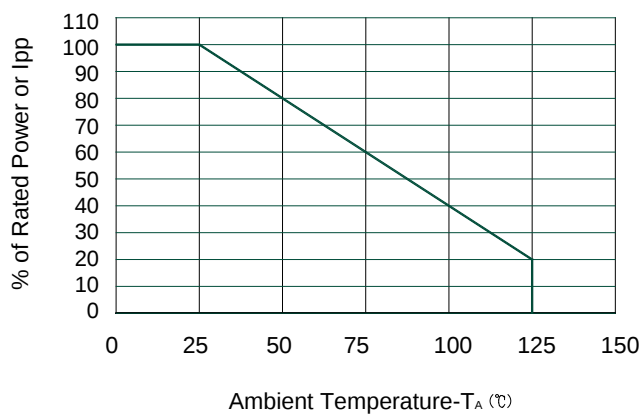
Typical Characteristics



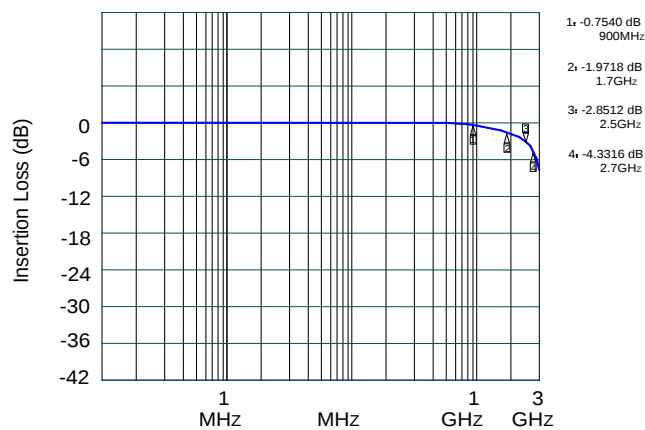
Pulse Waveform



Non-Repetitive Peak Pulse Power vs. Pulse Time

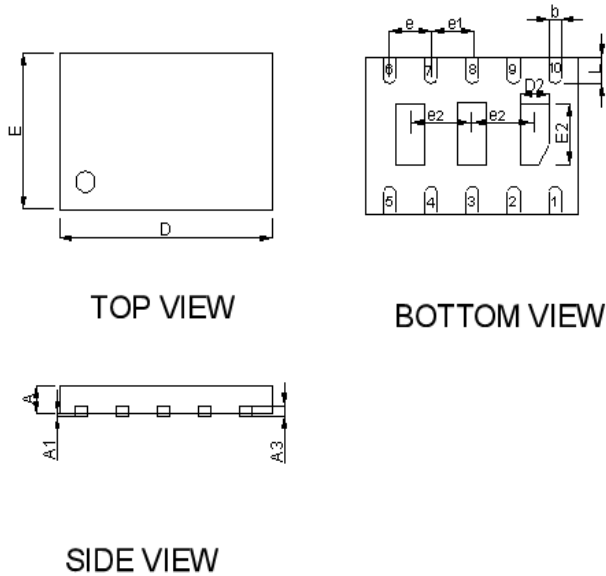


Power Derating Curve



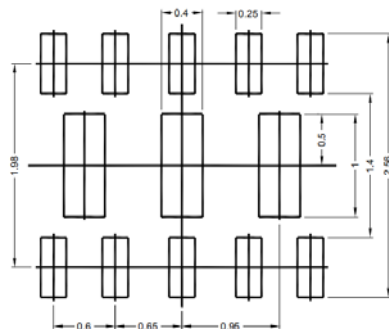
Insertion Loss S21

DFN3020-10L Package Outline Dimensions



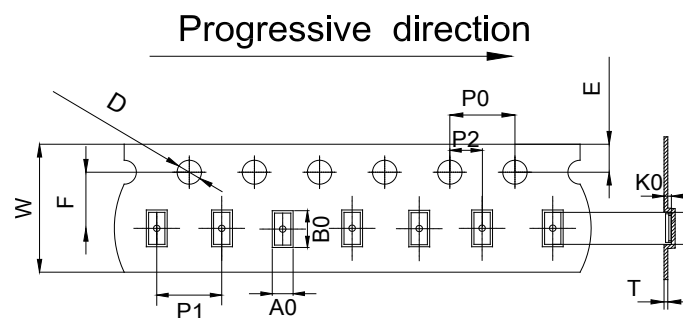
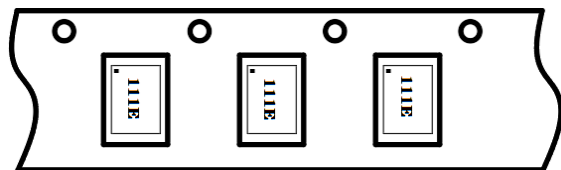
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.50	0.60	0.020	0.024
A1	0.00	0.05	0.00	0.02
A3	0.15REF		0.006 REF	
b	0.15	0.25	0.006	0.010
D	2.95	3.05	0.116	0.120
E	1.95	2.05	0.077	0.081
E2	0.90	1.10	0.035	0.043
D2	0.25	0.45	0.010	0.018
e	0.60BSC		0.024BSC	
e1	0.65BSC		0.026BSC	
e2	0.95BSC		0.038BSC	
L	0.20	0.40	0.008	0.016

Recommended Pad outline



DFN3020-10L Reel Dim

Device Orientation in Tape



PACKAGE	W	E	F	P0	D	P2	P1	T	A0	B0	K0
DFN3020-10L	8mm ±0.1	1.75mm ±0.1	3.5mm ±0.1	4mm ±0.1	1.5mm ±0.1	2mm ±0.1	4mm ±0.1	0.23mm ±0.05	2.2mm ±0.05	3.2mm ±0.1	0.9mm ±0.05