

Product Summary

The GESDBW2V8Q8 has a low typical capacitance of 0.65pF and operates with virtually no insertion loss to 1GHz. The GESDBW2V8Q8 is in an SOP-8 package and may be used to protect two high-speed line pairs. This makes the device ideal for protection of data lines such as 10/100M Ethernet, gigabit Ethernet interfaces. It may be used to meet the ESD immunity requirements of IEC61000-4-2, Level 4 ($\pm 15\text{kV}$ air, $\pm 8\text{kV}$ contact discharge).

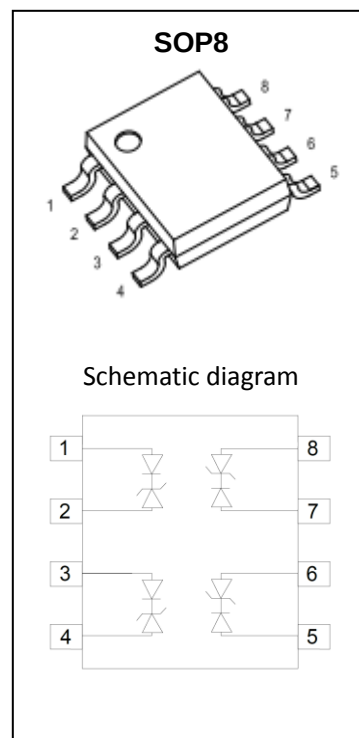
It has been specifically designed to protect sensitive components which are connected to high-speed data and transmission lines from overvoltage caused by ESD(electrostatic discharge), CDE (Cable Discharge Events),and lightning.

Feature

- Low capacitance
- 400 Watts peak pulse power ($t_p = 8/20\mu\text{s}$)
- Protects two line pairs (four lines)
- Low capacitance
- Working voltages : 2.8V
- Low leakage current
- Response Time is $< 1\text{ ns}$
- Low capacitance ($< 1.0\text{pF}$) for high-speed interfaces
- Meets MSL 1 Requirements
- Solid-state silicon avalanche technology
- ROHS compliant

Application

- 10/100/1000 Ethernet
- WAN/LAN Equipment
- Switching Systems
- Instrumentation
- Base Stations
- Analog Inputs



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	$P_{\text{PP}}^{2)}$	400	W
Peak Pulse Current	$I_{\text{PP}}^{2)}$	20	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

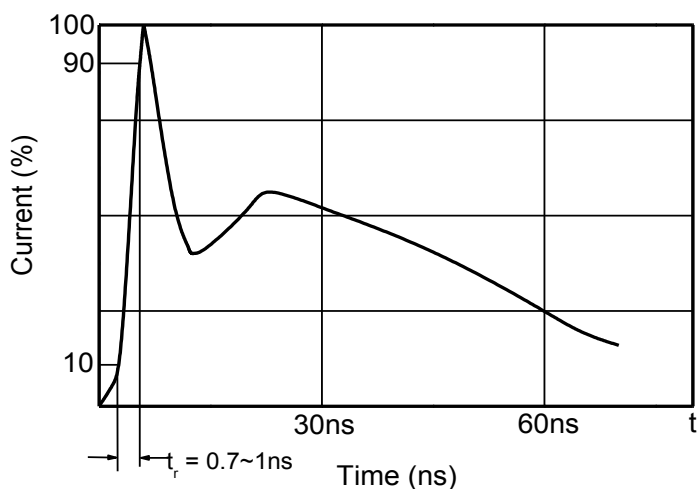
IEC61000-4-2 Standard

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

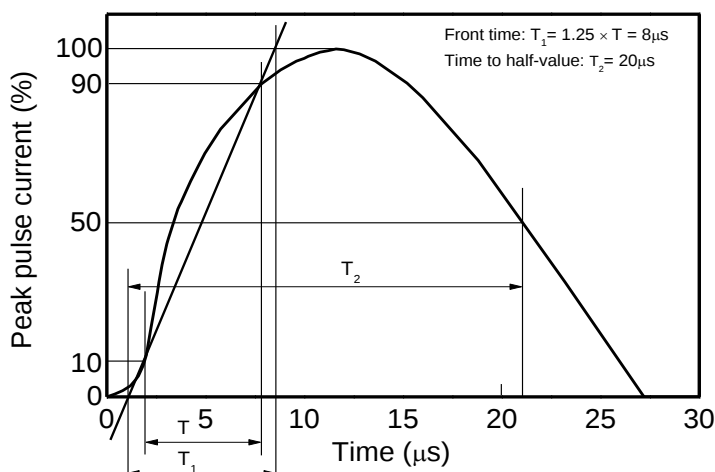
JESD22-A114-B Standard

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

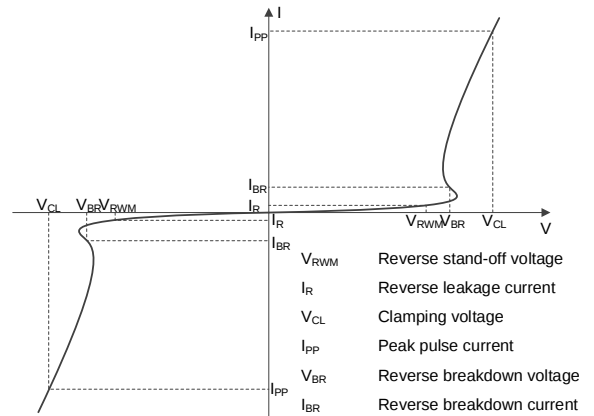


8/20 μs waveform per IEC61000-4-5



Electrical Parameter

Symbol	Parameter
V_C	Clamping Voltage @ I_{PP}
I_{PP}	Peak Pulse Current
V_{BR}	Breakdown Voltage @ I_{BR}
I_{BR}	Test Current
I_R	Reverse Leakage Current @ V_{RWM}
V_{RWM}	Reverse Standoff Voltage

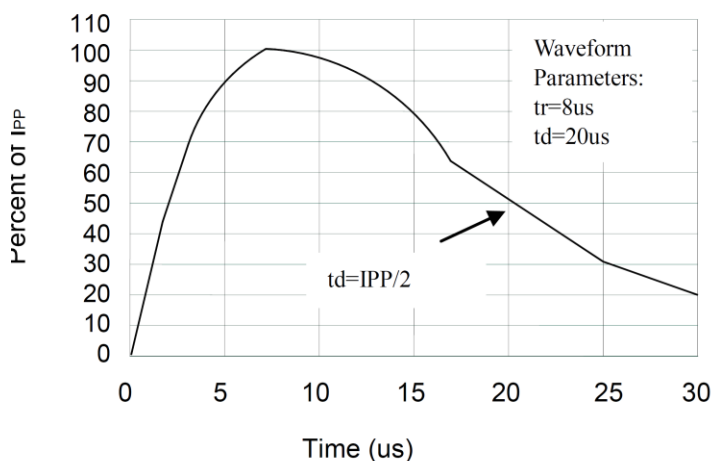

V-I characteristics for a Bi-directional TVS
Electrical Characteristics ($T_a=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Reverse standoff voltage	$V_{RWM}^{1)}$				2.8	V
Reverse leakage current	I_R	$V_{RWM}=2.8\text{V}$, Each Line			1	μA
Breakdown voltage	V_{BR}	$I_T=2\mu\text{A}$, Each Line	3			V
Clamping voltage	$V_C^{2)}$	$I_{PP}=1\text{A}$, Each Line			7.6	V
		$I_{PP}=20\text{A}$, Each Line		14	20	V
Peak Pulse Current	I_{PP}	$t_p=8/20\mu\text{s}$, Each Line			20	A
Channel Input Capacitance	C_{IN}	$V_{IN}=0\text{V}$, $f=1\text{MHz}$, Each Line		0.65	1.0	pF

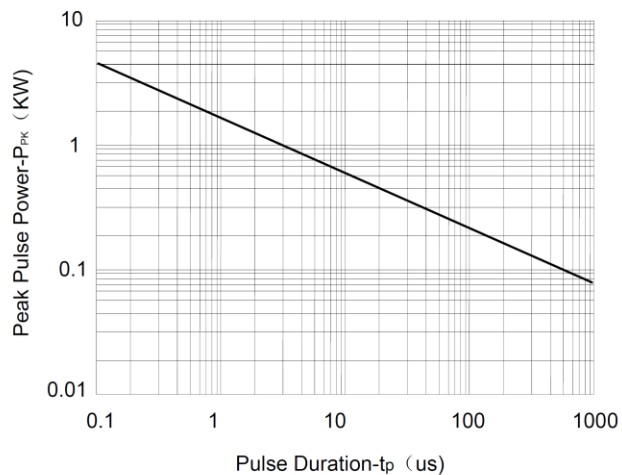
1) Other voltages available upon request.

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

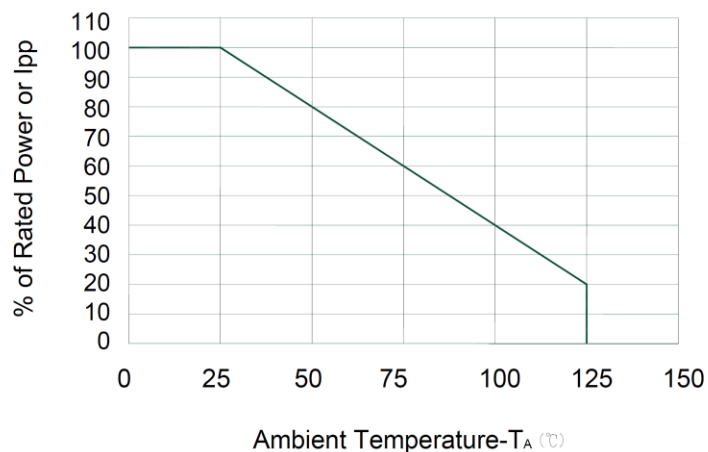
Typical Characteristics



Pulse Waveform

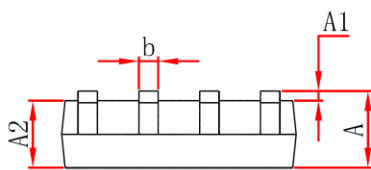
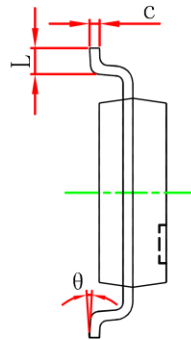
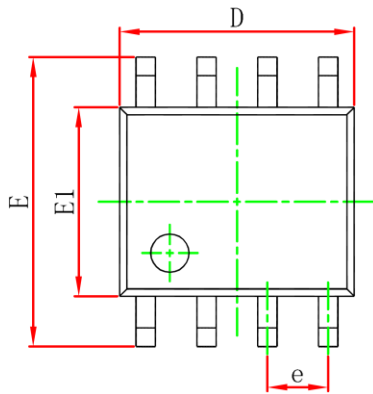


Non-Repetitive Peak Pulse Power vs. Pulse Time



Power Derating Curve

SOP8 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.007	0.010
D	4.800	5.000	0.189	0.197
e	1.270 (BSC)		0.050 (BSC)	
E	5.800	6.200	0.228	0.244
E1	3.800	4.000	0.150	0.157
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°