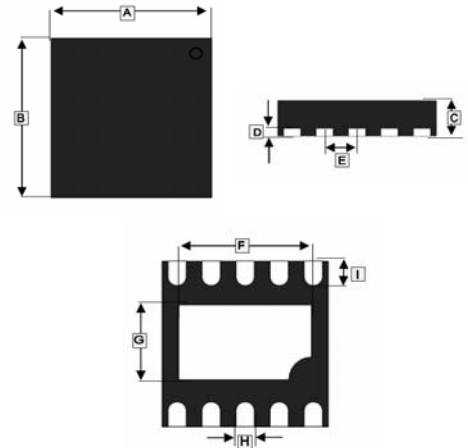


RoHS Compliant Product  
 A suffix of "-C" specifies halogen & lead-free

**DESCRIPTION**

SGESD2201-33 is a low-capacitance Transient Voltage Suppressor (TVS) array designed to provide electrostatic discharge (ESD) protection for high-speed data interfaces. With typical capacitance of 3.8pF only, SGESD2201-33 is designed to protect parasitic-sensitive systems against over-voltage and over-current transient events. It complies with IEC 61000-4-2 (ESD), Level 4 ( $\pm 15\text{kV}$  air,  $\pm 8\text{kV}$  contact discharge), IEC 61000-4-4 (electrical fast transient - EFT) (40A, 5/50 ns), IEC 61000-4-5 (Surge) (25A, 8/20 $\mu\text{s}$ ), very fast charged device model (CDM) ESD and cable discharge event (CDE), etc. SGESD2201-33 is in a DFN2610 package. Each SGESD2201-33 device can protect two high-speed line pairs. The combined features of low capacitance and high ESD robustness make SGESD2201-33 ideal for high-speed data port and high-frequency line (e.g., Gigabit Ethernet Ports) applications. The low clamping voltage of the SGESD2201-33 guarantees a minimum stress on the protected IC.

**DFN2610**



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.55	2.65	F	2.00	2.25
B	2.55	2.65	G	1.10	1.36
C	0.50	0.60	H	0.20	0.30
D	0.15 REF.		I	0.25	0.45
E	0.50 BSC.				

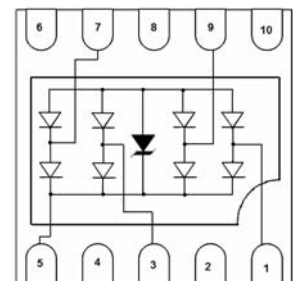
**APPLICATIONS**

- 10/100/1000M Ethernet Ports
- WAN/LAN Equipment
- Desktops, Servers and Notebooks
- Cellular Phones

**PACKAGE INFORMATION**

Package	MPQ	Leader Size
DFN2610	3K	7 inch

**Top View**



**ABSOLUTE MAXIMUM RATINGS** ( $T_A=25^\circ\text{C}$  unless otherwise specified)

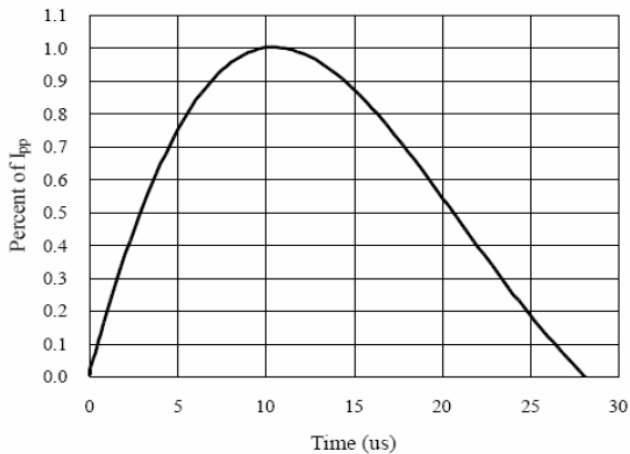
Rating		Symbol	Value	Unit
IEC 61000-4-2 (ESD)	Air contact	$V_{ESD}$	$\pm 25$	kV
	Contact discharge		$\pm 15$	
Peak pulse power ( $t_p=8/20\mu\text{s}$ )		$P_{PK}$	400	W
Peak pulse current ( $t_p=8/20\mu\text{s}$ )		$I_{PP}$	25	A
Operation & Storage temperature range		$T_J, T_{STG}$	-55~125, -55~150	$^\circ\text{C}$

**ELECTRICAL CHARACTERISTICS** ( $T_A=25^\circ\text{C}$  unless otherwise specified)

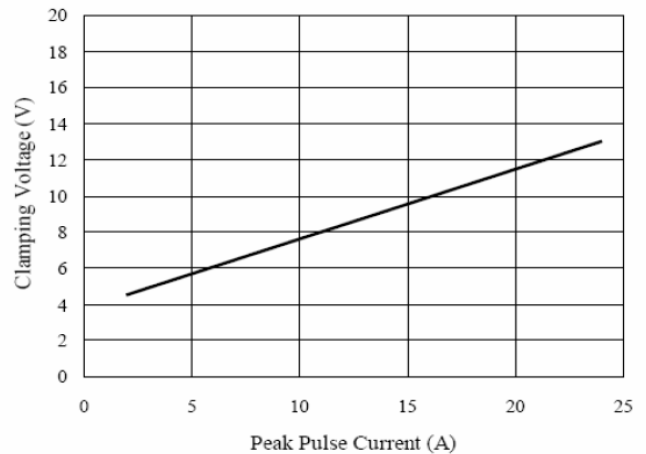
Parameter	Symbol	Condition	Min.	Typ.	Max.	Units
Reverse Working Voltage	$V_{RWM}$		-	-	3.3	V
Reverse Leakage Current	$I_R$	$V_{RWM} = 3.3\text{V}$ , I/O-to-GND	-	0.1	1	$\mu\text{A}$
Trigger Voltage	$V_t$	$I_T = 1\mu\text{A}$ , I/O-to-GND	3.5	4.2	5	V
Holding Voltage	$V_h$	$I_H = 1\text{mA}$ , I/O-to-GND	3.3	-	4.5	V
Clamping Voltage	$V_{Clamp}$	$I_{PP} = 1\text{A}$ , $t_p = 8/20\mu\text{s}$ , I/O-to-GND	-	-	5.5	V
		$I_{PP} = 10\text{A}$ , $t_p = 8/20\mu\text{s}$ , I/O-to-GND	-	-	8.5	
		$I_{PP} = 25\text{A}$ , $t_p = 8/20\mu\text{s}$ , I/O-to-GND	-	-	16	
Junction capacitance	$C_j$	I/O-to-GND $V_R = 0$ , $f = 1\text{MHz}$	-	3.8	5	pF
		I/O-to-I/O $V_R = 0$ , $f = 1\text{MHz}$	-	2	2.5	pF

**RATINGS AND CHARACTERISTICS CURVES**

**8/20 $\mu\text{s}$  Pulse Waveform**

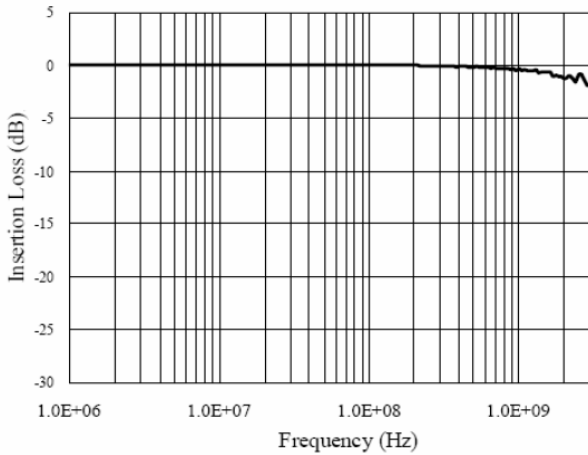


**Clamping Voltage  $V_C$  vs. Current  $I_{PP}$**

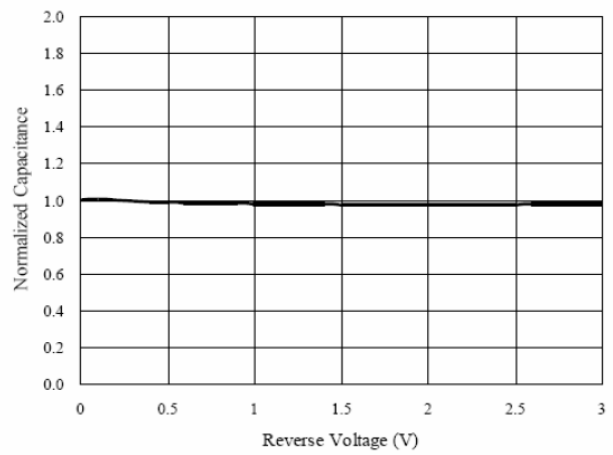


**RATINGS AND CHARACTERISTICS CURVES**

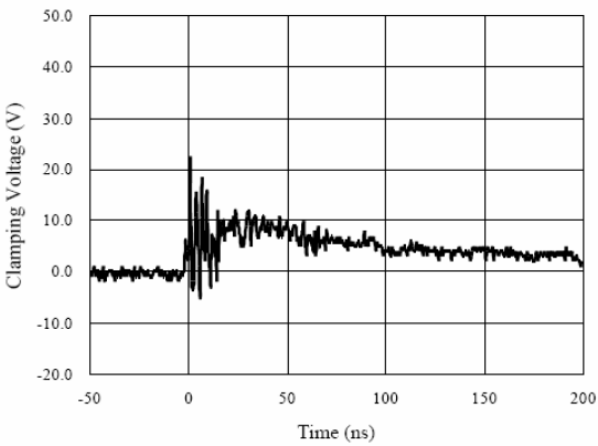
**Insertion Loss S21**



**Normalized Capacitance vs. Voltage**



**ESD Clamping of I/O to GND  
(+8kV Contact per IEC 61000-4-2)**



**ESD Clamping of I/O to GND  
(-8kV Contact per IEC 61000-4-2)**

