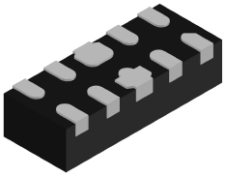
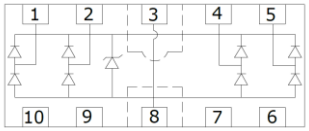
GESDY3V3AG1

Ultra Low Capacitance Array for ESD Protection

DFN2510-10L



Schematic diagram



Product Summary

The GESDY3V3AG1 provides a typical line to line capacitance of 0.08pF between I/O pins and low insertion loss up to 3GHz providing greater signal integrity making it ideally suited for HDMI applications, such as Digital TVs, DVD players, Computing, 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 ESD(electrostatic discharge), CDE (Cable Discharge Events),and EFT (electrical fast transients).

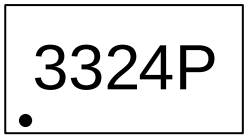
Feature

- Low reverse stand−off voltage: 3.3V
- Low reverse clamping voltage
- Low leakage current
- Fast response time
- 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
- HDMI 1.3/1.4/2.0
- Computers and peripherals
- Portable electronics
- High speed data lines
- Audio and video equipment
- Cellular handsets and accessories
- Other electronics equipment communication systems

Marking:



Front Side

3324P=Device Code

Absolute Maximum Ratings (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
IEC 61000-4-2 ESD Voltage Air Model	V_{ESD}[1)]	±17	kV
IEC 61000-4-2 ESD Voltage Contact Model		±8	
Peak Pulse Power	P_{PP}[2)]	17.5	W
Peak Pulse Current	I_{PP}[2)]	5	A
Lead Solder Temperature − Maximum (10 Second Duration)	T_L	260	℃
Junction Temperature	T_j	150	℃
Storage Temperature	T_{stg}	-55~ +150	℃

1) Device stressed with ten non-repetitive ESD pulses.

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

ESD standards compliance

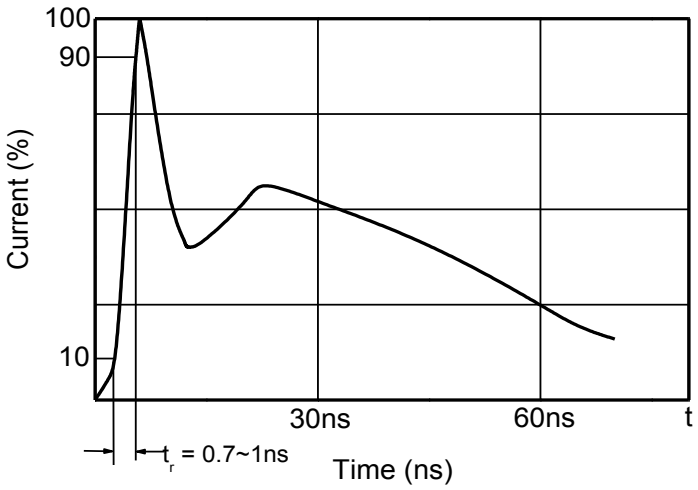
IEC61000-4-2 Standard

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

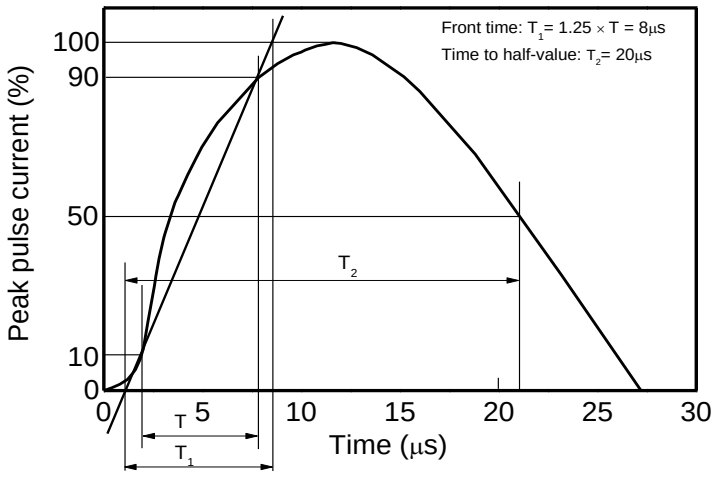
JESD22-A114-B Standard

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

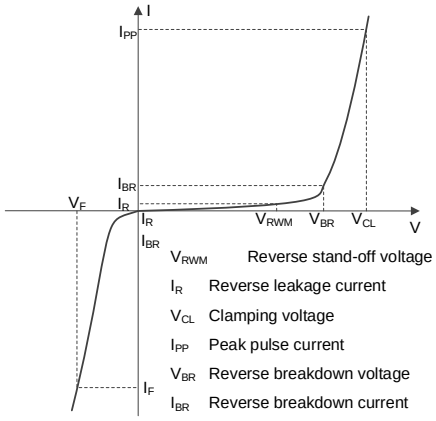


8/20μs waveform per IEC61000-4-5



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

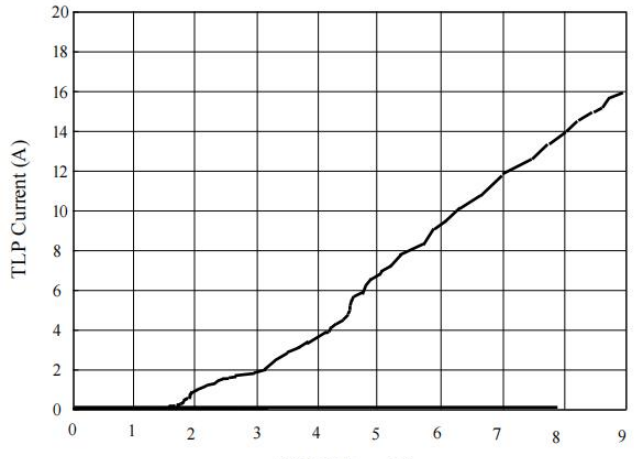
Electrical Characteristics (T_a=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Reverse Standoff Voltage	V_{RWM}[1)]	Any I/O to Ground			3.3	V
Reverse Leakage Current	I_R	V_{RWM}=3.3V		0.01	0.1	uA
Forward Voltage	V_F	I_F=15mA		0.85	1.2	V
Breakdown Voltage	V_{BR}	I_T=100uA	3.4			V
Hold Current Voltage	V_H	I_H=50mA	1.7			V
Clamping Voltage	V_C	I_{PP}=5A, t_p=8/20us		3.5		V
		I_{PP}=8A, t_p=100ns[1)]		5.5		V
		I_{PP}=16A, t_p=100ns[1)]		9		V
Dynamic Resistance	R_{dyn}	Positive transient(TLP) Negative transient(TLP)		0.3		Ω
Junction Capacitance[2)]	C_{IN}	V_{IN}=0V,f=1MHz,I/O to I/O		0.55	0.65	pF
		V_{IN}=0V,f=1MHz,I/O to GND		0.2	0.3	

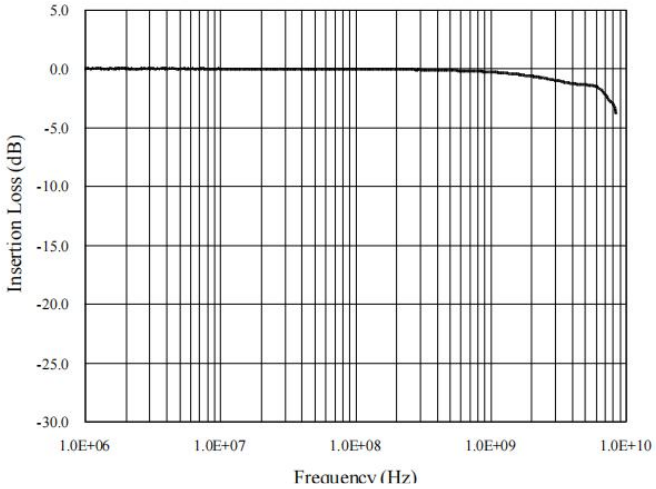
1) Measurements performed using a 100ns Transmission Line Pulse(TLP) system.

2) Junction capacitance is measured in VR=0V,F=1MHz.

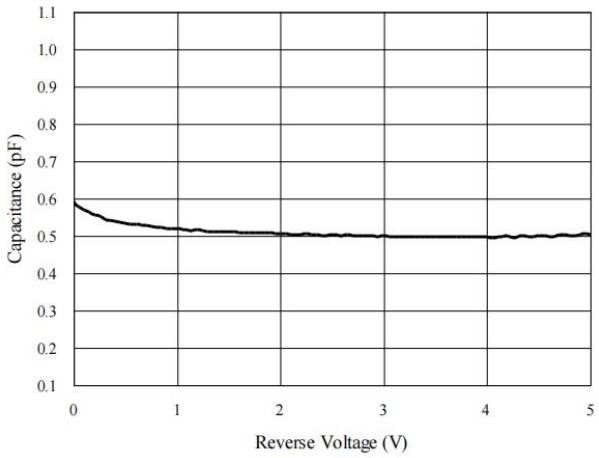
Typical Characteristics



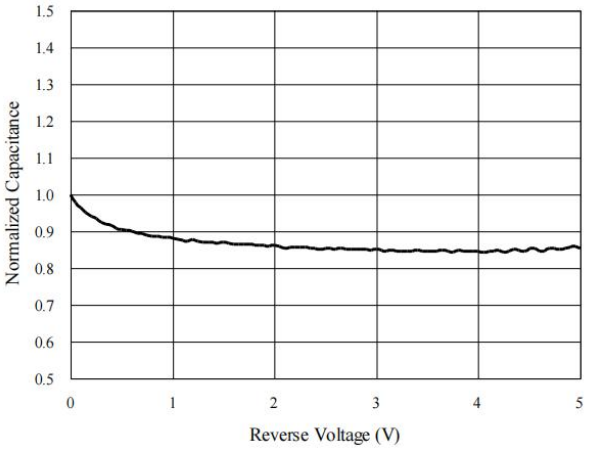
TLP Measurement of I/O to GND



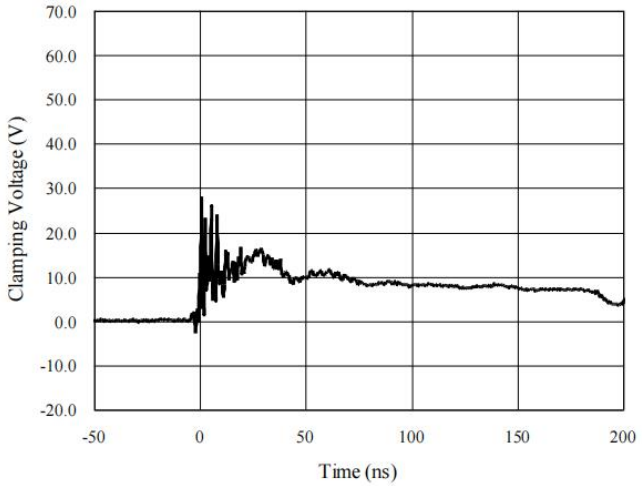
Insertion Loss S21 of I/O to GND



Capacitance vs. Reverse Voltage

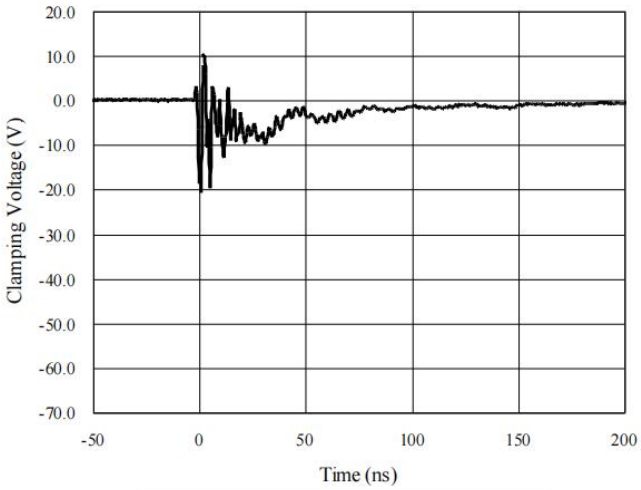


Normalized Capacitance vs. Reverse Voltage



ESD Clamping of I/O to GND

(+8kV Contact per IEC 61000-4-2)



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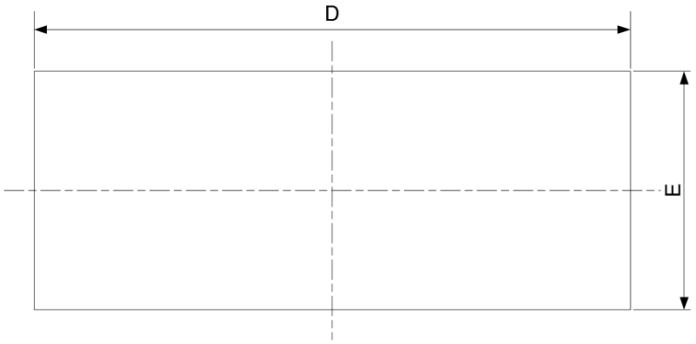
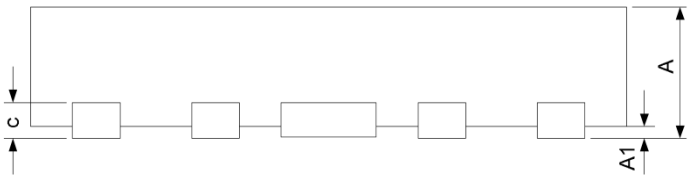
(-8kV Contact per IEC 61000-4-2)

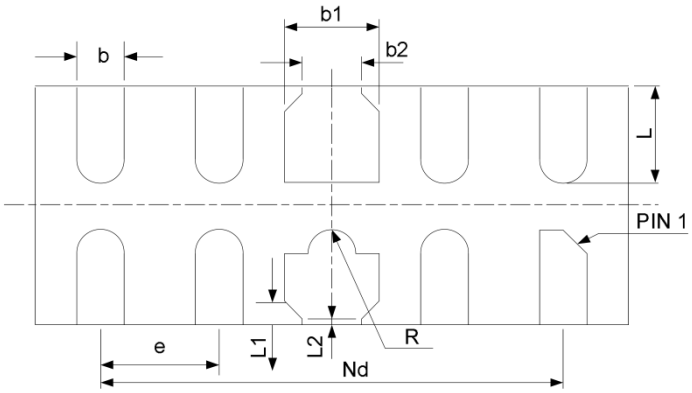
DFN2510-10L Package Outline Dimensions



TOP VIEW



SIDE VIEW



BOTTOM VIEW

SYM	MILLIMETERS		
	MIN	NOM	MAX
A	0.45	0.55	0.65
A1	0.05REF		
b	0.15	0.2	0.25
b1	0.3	0.4	0.5
b2	0.2REF		
c	0.1	0.15	0.2
D	2.42	2.5	2.58
e	0.50RER		
Nd	2.00BSC		
E	0.92	1	1.08
L	0.30	0.4	0.45
L1	0.075REF		
L2	0.050REF		
h	0.08	0.12	0.15
R	0.05	0.1	0.15