GESDY5V0AG1

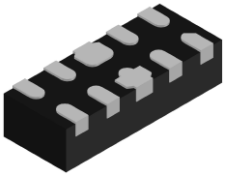
Uni-direction Transient Voltage Suppressors

Product Summary

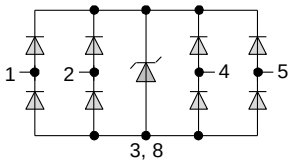
The GESDY5V0AG1 is designed to protect voltage sensitive electronic components from ESD and other transients. Excellent clamping capability, low leakage, low capacitance, and fast response time provide best in class protection on designs that are exposed to ESD.

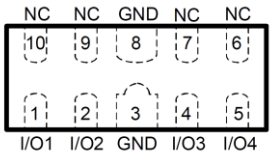
The combination of small size, low capacitance, and high level of ESD protection makes them a flexible solution for applications such as HDMI, Display Port TM, and MDDI interfaces. It is designed to replace multiplayer varistors (MLV) in consumer equipment applications such as mobile phone, notebook, PAD, STB, LCD TV etc.

DFN2510-10L



Schematic diagram





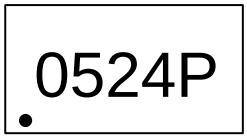
Feature

- Low reverse stand−off voltage: 5.0V
- 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 and USB 3.0
- HDMI 1.3 and HDMI 1.4
- 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

0524P=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)]	±20	kV
IEC 61000-4-2 ESD Voltage	Contact Model		±20	
JESD22-A114-B ESD Voltage	Per Human Body Model		±16	
ESD Voltage	Machine Model		±0.4	
Peak Pulse Power		P_{PP}[2)]	60	W
Peak Pulse Current		I_{PP}[2)]	4	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

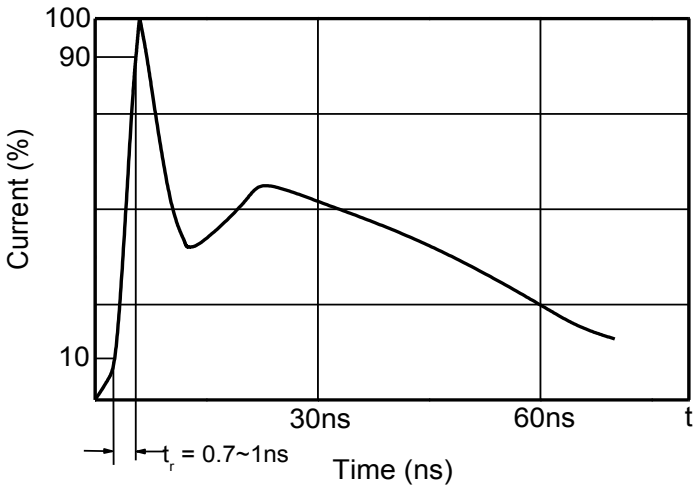
IEC61000-4-2 Standard

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

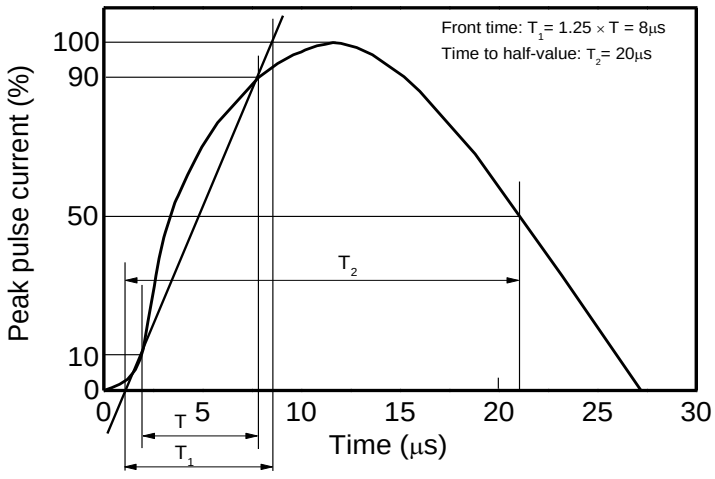
JESD22-A114-B Standard

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

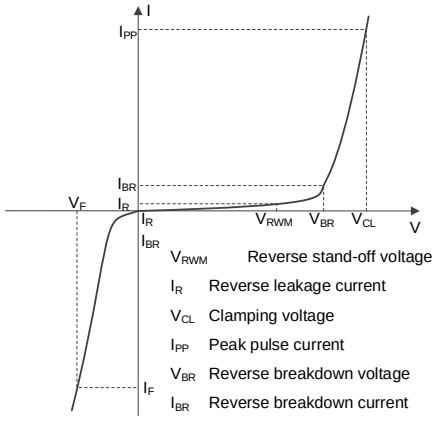


8/20μs waveform per IEC61000-4-5



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)

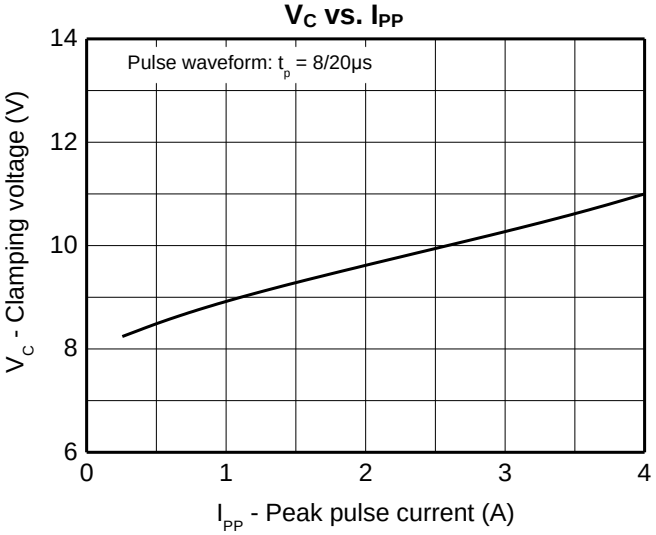
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Reverse standoff voltage	V_{RWM}[1)]				5	V
Reverse leakage current	I_R	V_{RWM}=5V			1	uA
Breakdown voltage	V_{BR}	I_T=1mA	6	7.5		V
Forward Voltage	V_F	I_F=15mA		0.85	1.2	V
Clamping voltage	V_C[2)]	I_{PP}=1A			9.8	V
		I_{PP}=4A		11	15	V
Dynamic Resistance	Rdyn	Positive Transient(8/20us)		0.48		Ω
		Negative Transient(8/20us)		0.35		Ω
Channel Input Capacitance	C_{IN}	V_{IN}=0V,f=1MHz,I/O to GND		0.36	0.6	pF
		V_{IN}=0V,f=1MHz,I/O to I/O		0.1	0.25	pF

1) Other voltages available upon request.

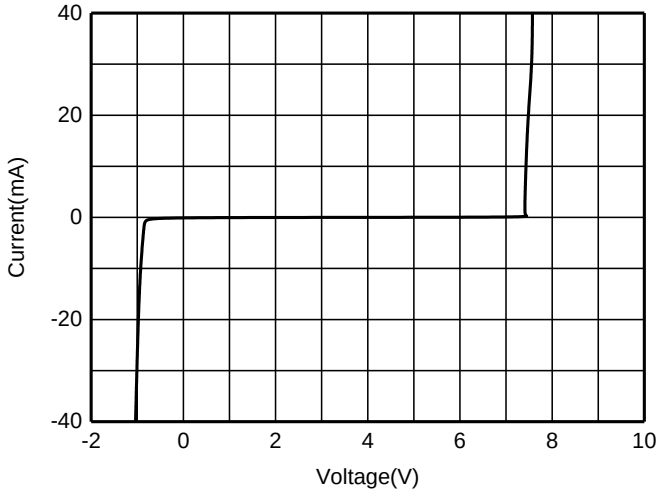
2) Non-repetitive current pulse 8/20μs exponential decay waveform according to IEC61000-4-5

Typical Characteristics

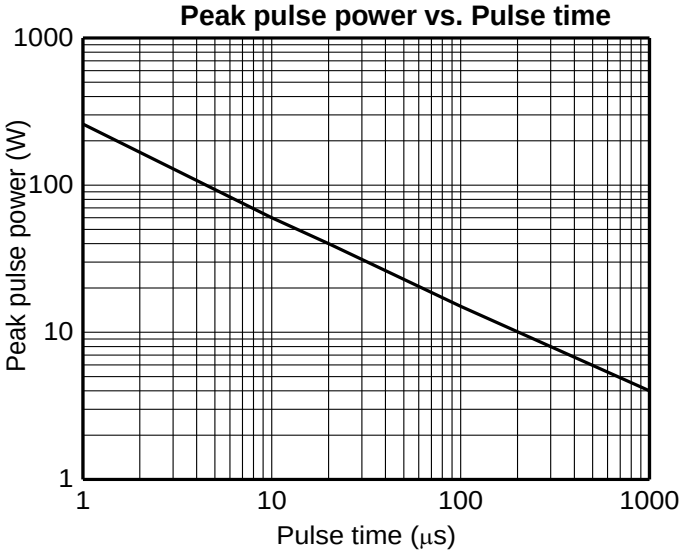
V_C vs. I_{PP}



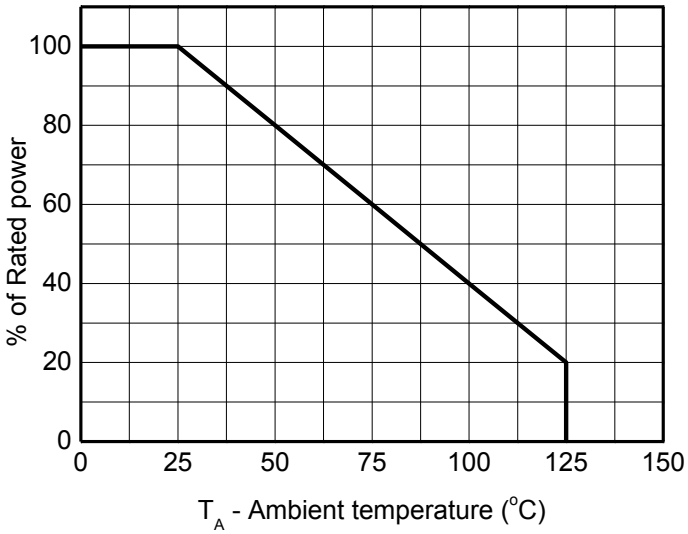
I-V Curve



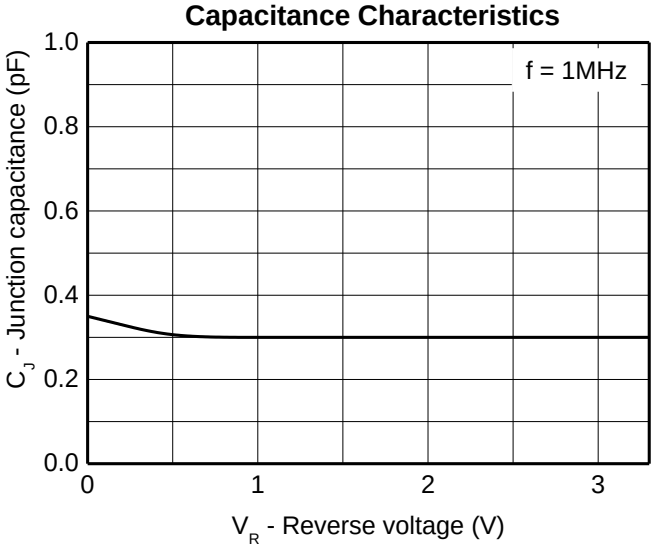
Peak pulse power vs. Pulse time



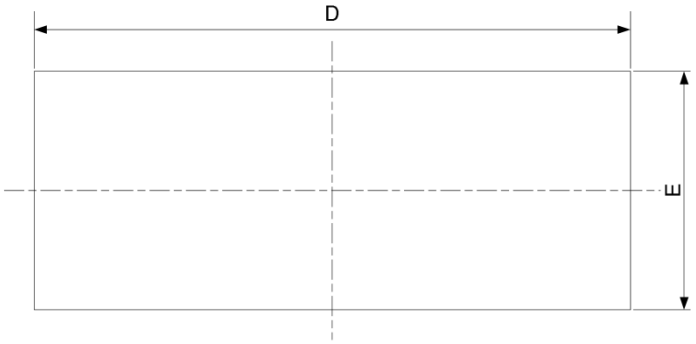
Power derating vs. Ambient temperature



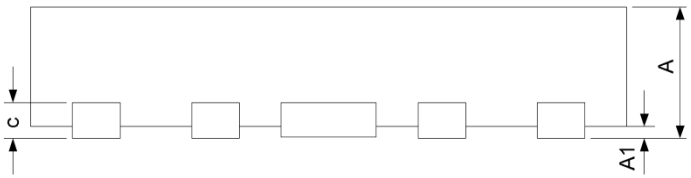
Capacitance Characteristics



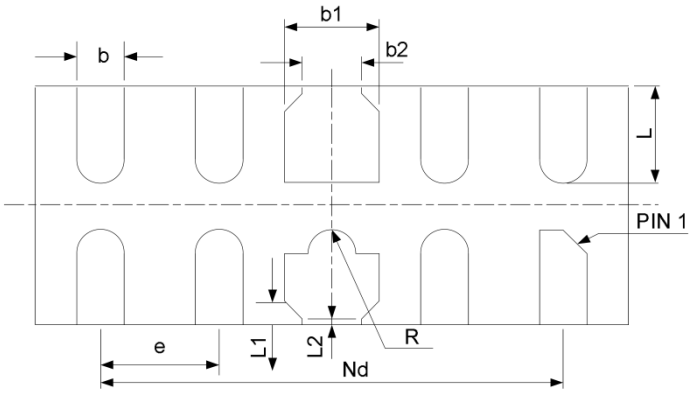
DFN2510-10L Package Outline Dimensions



TOP VIEW



SIDE VIEW



BOTTOM VIEW

SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.45	0.5	0.65	0.018	0.02	0.022
A1	0.05 REF			0.002 REF		
b	0.15	0.2	0.25	0.006	0.008	0.01
b1	0.30	0.4	0.50	0.014	0.016	0.018
b2	0.2	0.25	0.3	0.008	0.01	0.012
c	0.1	0.15	0.2	0.004	0.006	0.008
D	2.42	2.5	2.58	0.098	0.1	0.102
e	0.50 REF			0.020 REF		
Nd	2.00 REF			0.080 REF		
E	0.92	1	1.08	0.038	0.04	0.042
L	0.30	0.4	0.45	0.014	0.016	0.018
L1	0.075REF			0.003REF		
L2	0.050REF			0.002REF		
h	0.08	0.12	0.15	0.003	0.005	0.006
R	0.05	0.1	0.15	0.002	0.004	0.006