



Discription

The VBUS051BD-HD1-GS08 protects sensitive semiconductor components from damage or upset due to electrostatic discharge (ESD) and other voltage induced transient events.

Excellent clamping capability, low leakage, low capacitance, and fast response time provide best in class protection on designs that are exposed to ESD.

It gives designer the flexibility to protect one unidirectional line in applications where arrays are not practical.



DFN1006-2L
(LLP1006-2L)

Features

- ★ Transient protection for high-speed data lines
IEC 61000-4-2(ESD) $\pm 20\text{kV}$ (Contact)
 $\pm 20\text{kV}$ (Air)
IEC 61000-4-4(EFT) 40A (5/50 ns)
- ★ Peak power dissipation: 60W (8/20 μs)
- ★ Working voltages : 5V
- ★ Ultra-small package (1.0mmx0.6mmx0.5mm)
- ★ Protects one data, control line
- ★ Low capacitance: 0.4pF (Typical)
- ★ Low clamping voltage
- ★ Low leakage current



Circuit Diagram

Ordering information

Product ID	Pack	Qty(PCS)
VBUS051BD-HD1-GS08	DFN1006-2L(LLP1006-2L)	10000

Absolute Ratings(Tamb = 25°C)

Symbol	Parameter	Value	Units
P _{PP}	Peak Pulse Power (t _p = 8/20 μs)	60	W
T _L	Maximum lead temperature for soldering during 10s	260	°C
T _{stg}	Storage Temperature Range	-55 to +150	°C
T _{op}	Operating Temperature Range	-55 to +150	°C
T _j	Maximum junction temperature	150	°C
	IEC61000-4-2 (ESD) air discharge	± 20	KV
	contact discharge	± 20	
	IEC61000-4-4 (EFT)	40	A



Electrical Characteristics Ratings at 25°C

Symbol	Parameter	Test Condition	Min	Typ	Max	Units
V_{RWM}	Reverse Working Voltage				5.0	V
V_{BR}	Reverse Breakdown Voltage	$I_T = 1mA$	6.0			V
I_R	Reverse Leakage Current	$V_{RWM} = 5V$			100	nA
V_C	Clamping Voltage	$I_{PP} = 1A, t_p = 8/20\mu s$			10	V
		$I_{PP} = 4A, t_p = 8/20\mu s$			15	V
C_J	Junction Capacitance	$V_R = 0V, f = 1MHz$		0.60	0.80	pF



Typical Characteristics

Fig 1 Power Derating Curve

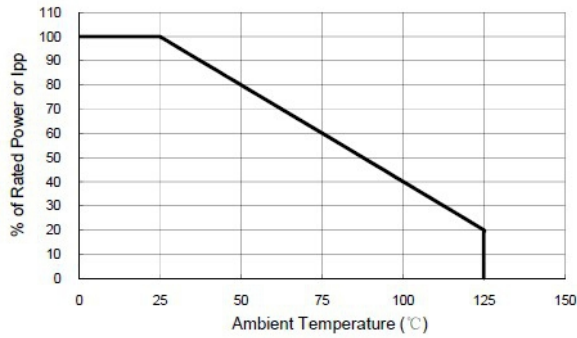


Fig 2 Clamping Voltage vs Peak Pulse Current

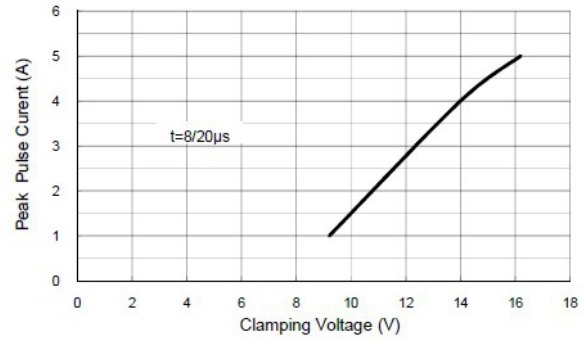


Fig 3 Voltage Sweeping

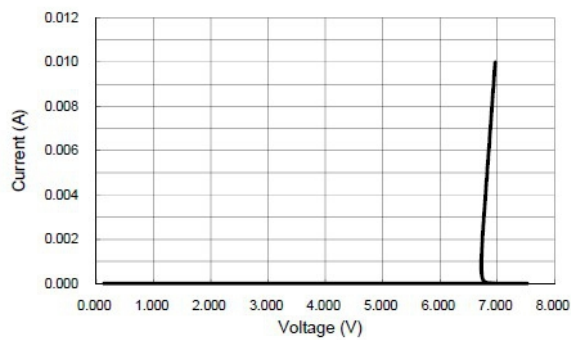


Fig 4 Voltage vs Capacitance

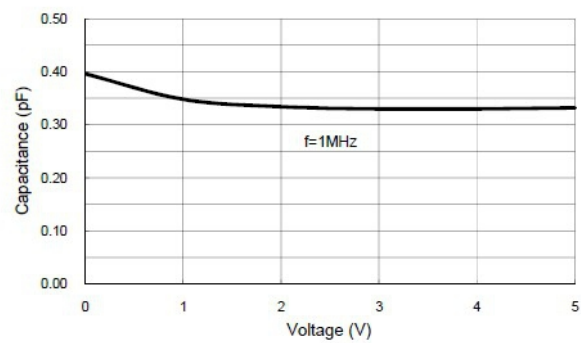


Fig 5 ESD Clamping
(+8kV Contact per IEC 61000-4-2)

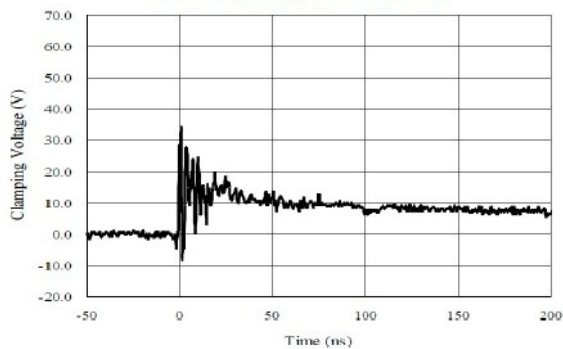
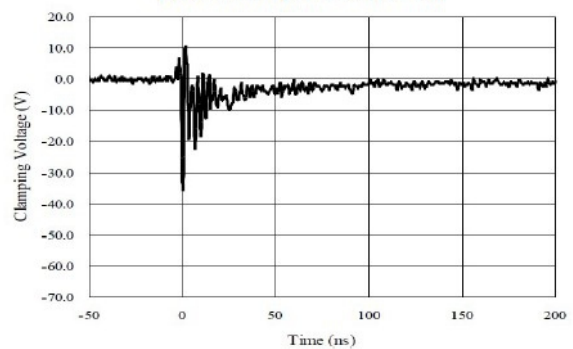
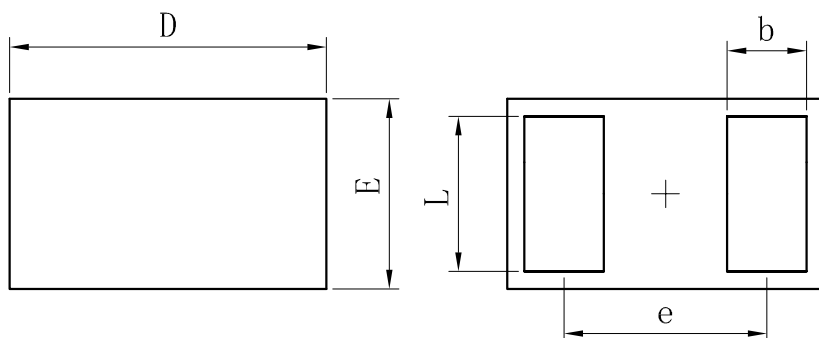


Fig 6 ESD Clamping
(-8kV Contact per IEC 61000-4-2)



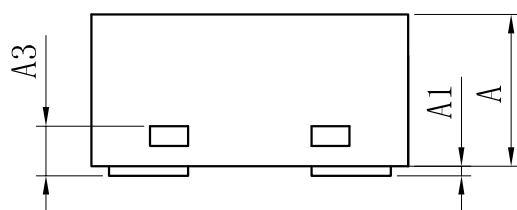


Outline And Dimensions



TOP VIEW

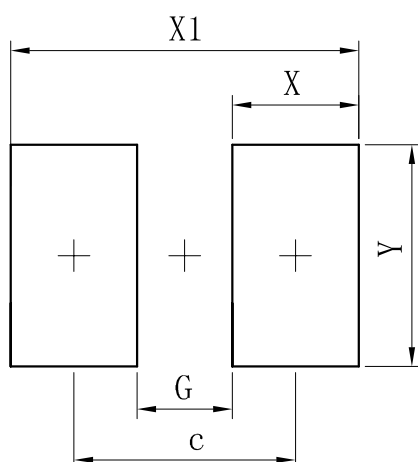
BOTTOM VIEW



SIDE VIEW

DFN1006-2L(LLP1006-2L)			
Dim	Min	Typ	Max
D	0.95	1.00	1.05
E	0.55	0.60	0.65
e	—	0.64	—
L	0.44	0.49	0.54
b	0.20	0.25	0.30
A	0.43	0.48	0.53
A1	0	—	0.05
A3	0.127REF.		
All Dimensions in mm			

Soldering Footprint



Dimensions	(mm)
c	0.70
G	0.30
X	0.40
X1	1.10
Y	0.70



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