



## Description

The HD12V0X1B2LP-7B 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 bi-directional line in applications where arrays are not practical.



DFN1006-2L

## Features

- ★ Transient protection for high-speed data lines  
IEC 61000-4-2(ESD)  $\pm 15\text{kV}$  (Contact)  
 $\pm 20\text{kV}$  (Air)  
IEC 61000-4-4(EFT) 40A (5/50 ns)
- ★ Peak power dissipation: 64W (8/20us)
- ★ Working voltages : 12V
- ★ Ultra-small package (1.0mmx0.6mmx0.5mm)
- ★ Protects one I/O line
- ★ Low clamping voltage
- ★ Low leakage current



Circuit Diagram

## Ordering Information

Product ID	Pack	Qty(PCS)
HD12V0X1B2LP-7B	DFN1006-2L	10000

## Absolute Ratings(Tamb = 25°C)

Symbol	Parameter	Value	Units
P <sub>PP</sub>	Peak Pulse Power ( $t_p = 8/20 \mu\text{s}$ )	64	W
T <sub>L</sub>	Maximum lead temperature for soldering during 10s	260	°C
T <sub>stg</sub>	Storage Temperature Range	-55 to +150	°C
T <sub>op</sub>	Operating Temperature Range	-55 to +150	°C
T <sub>j</sub>	Maximum junction temperature	150	°C
	IEC61000-4-2 (ESD) air discharge contact discharge	$\pm 15$ $\pm 20$	KV
	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				12	V
$V_{BR}$	Reverse Breakdown Voltage	$I_T = 1\text{mA}$	13.3			V
$I_R$	Reverse Leakage Current	$V_{RWM} = 12\text{V}$			500	nA
$V_c$	Clamping Voltage	$I_{PP} = 1\text{A}, t_p = 8/20\mu\text{s}$			22	V
		$I_{PP} = 2\text{A}, t_p = 8/20\mu\text{s}$			32	V
$C_J$	Junction Capacitance	$V_R = 0\text{V}, f = 1\text{MHz}$		1.5	2.5	pF



## Typical Characteristics

Fig 1 Power Derating Curve

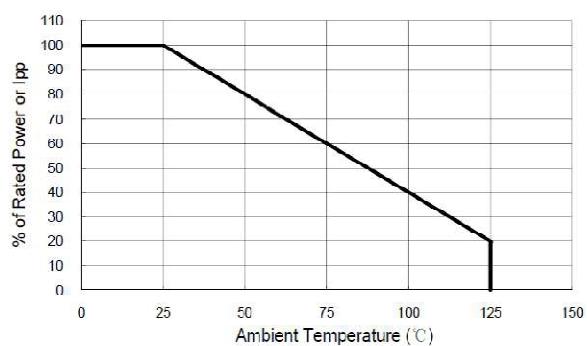


Fig 2 8/20μs Waveform per IEC61000-4-5

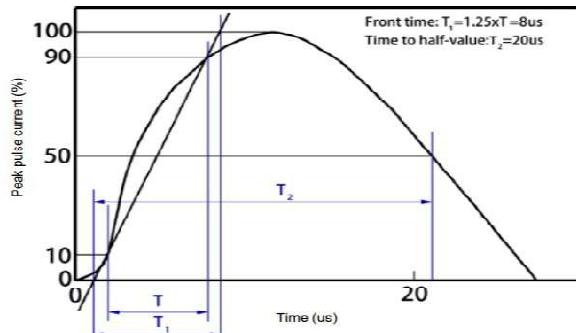


Fig 3 Clamping Voltage vs Peak Pulse Current

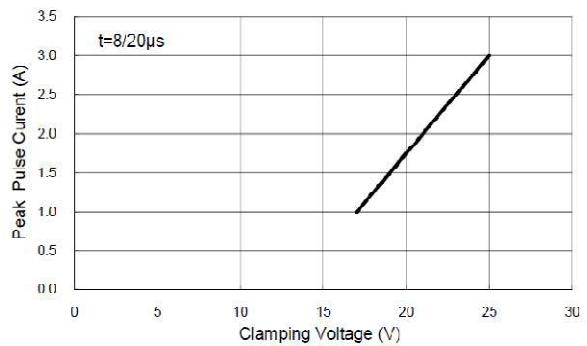


Fig 4 Voltage vs Capacitance

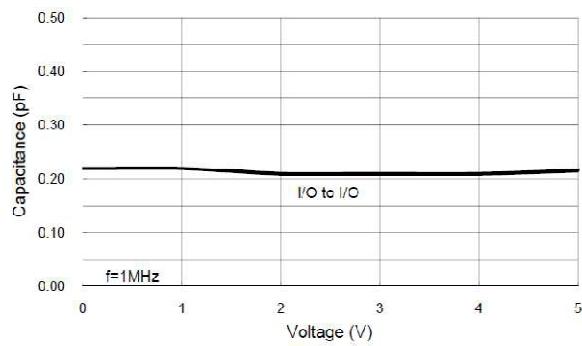


Fig 5 ESD Clamping of I/O to GND  
(+8kV Contact per IEC 61000-4-2)

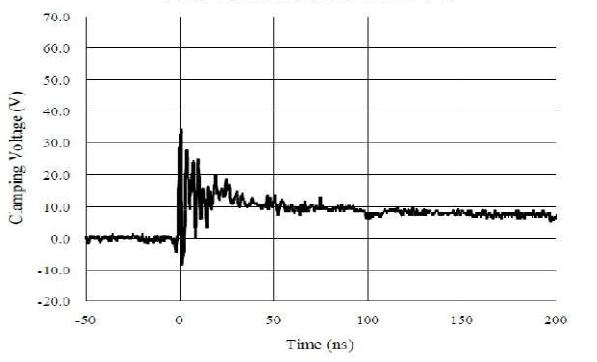
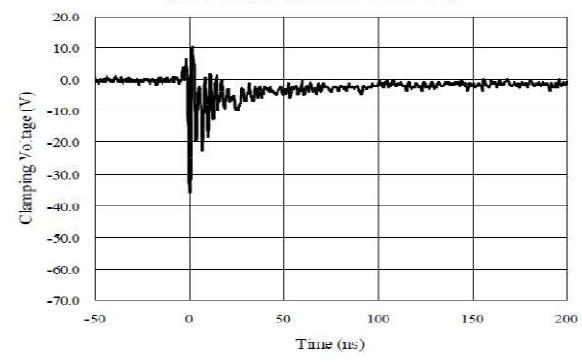
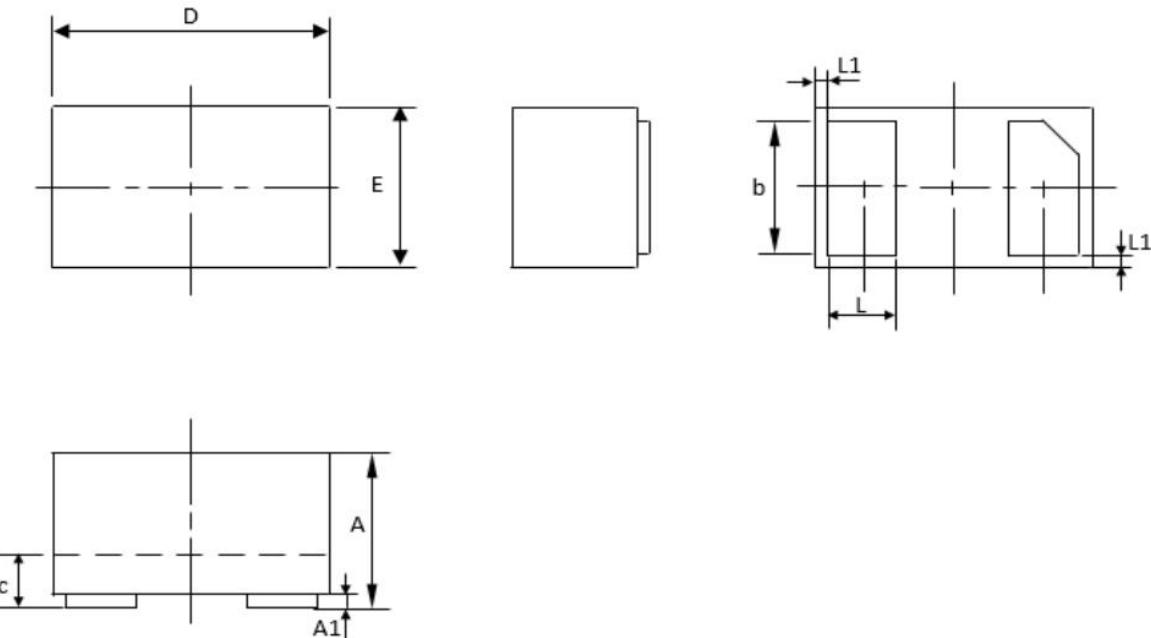


Fig 6 ESD Clamping of I/O to GND  
(-8kV Contact per IEC 61000-4-2)





## Outline And Dimensions



DFN1006-2L(FBP-02C)			
Dim	Min	Typ.	Max
A	0.46	0.48	0.50
A1	0	0.02	0.05
b	0.45	0.5	0.55
c	0.1	0.12	0.14
D	0.95	1.00	1.05
E	0.55	0.60	0.65
L	0.20	0.25	0.30
L1	0.035	0.05	0.065
h	0.07	0.12	0.17

All Dimensions in mm



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