

ESDLLC5V0D8BH

Features

- Ultra small package: 1.0x0.6x0.5mm
- Ultra low capacitance: 0.25pF typical
- Ultra low leakage: nA level
- Low operating voltage: 5V
- Low clamping voltage
- 2-pin leadless package
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 20\text{kV}$
 - Contact discharge: $\pm 15\text{kV}$
 - IEC61000-4-5 (Lightning) 4.5A (8/20 μs)
- RoHS Compliant
- Lead Finish: NiPdAu

Description

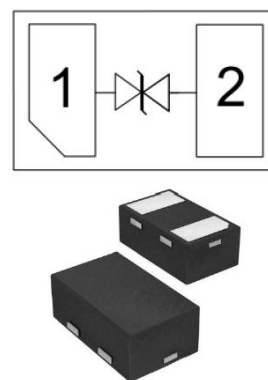
The ESDLLC5V0D8BH is a bi-directional TVS diode, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive high-speed data lines. The ESDLLC5V0D8BH has an ultra-low capacitance with a typical value at 0.25pF, and complies with the IEC 61000-4-2 (ESD) standard with $\pm 15\text{kV}$ air and $\pm 8\text{kV}$ contact discharge. It is assembled into an ultra-small 1.0x0.6x0.5mm lead-free DFN

package. The small size, ultra-low capacitance and high ESD surge protection make ESDLLC5V0D8BH an ideal choice to protect cell phone, digital video interfaces and other high speed ports.

Applications

- Smart phones
- Display Ports
- MDDI Ports
- USB Ports
- Digital Video Interface (DVI)
- PCI Express and Serial SATA Ports

Circuit Diagram



Absolute Maximum Ratings

Tamb=25°C unless otherwise specified

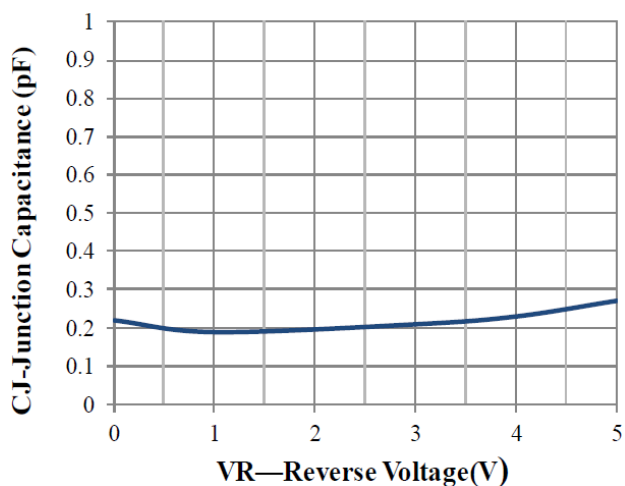
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	P _{pp}	110	W
Maximum Reverse Peak Pulse Current	I _{PP} *1	4.5	A
ESD per IEC 61000-4-2 (Air)	V _{ESD}	± 20	KV
ESD per IEC 61000-4-2 (Contact)		± 15	
Storage Temperature Range	T _{STJ}	-55 to +150	°C
Operating Temperature Range	T _J	-55 to +125	°C

Electrical Characteristics

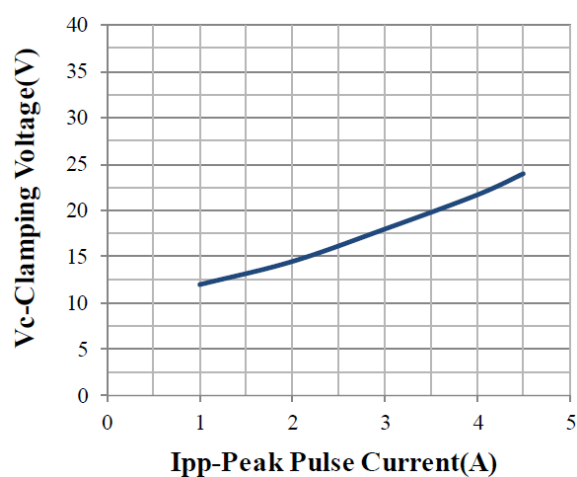
TA=25°C unless otherwise specified

Symbol	Parameter	Conditions	Min	Typ	Max	Units
V _{RWM}	Reverse Working Peak Voltage	-			5.0	V
V _{BR}	Reverse Breakdown Voltage	I _T = 1mA	6.0	7.5	8.5	V
I _R	Reverse Current	V _{RWM} = 5V			0.5	μA
V _C	Clamping Voltage	I _{PP} =1A, t _P =8/20 μs			12	V
V _C	Clamping Voltage	I _{PP} =4.5A, t _P =8/20 μs		18	20	V
C _D	Diode Capacitance	V _R = 0V, f = 1MHz		0.22	0.30	pF

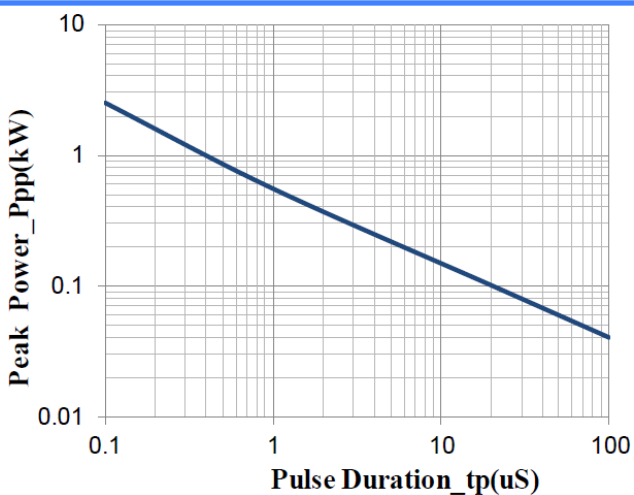
Characteristic Curves



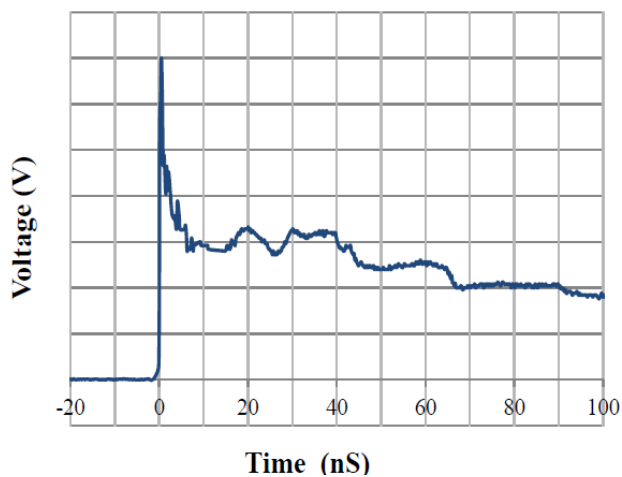
Junction Capacitance vs. Reverse Voltage



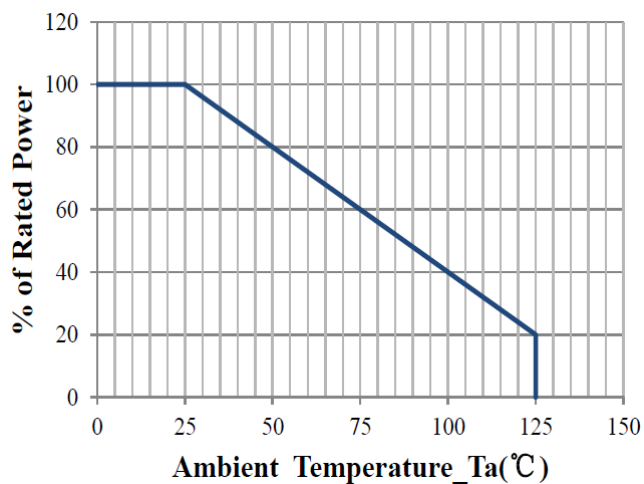
Clamping Voltage vs. Peak Pulse Current



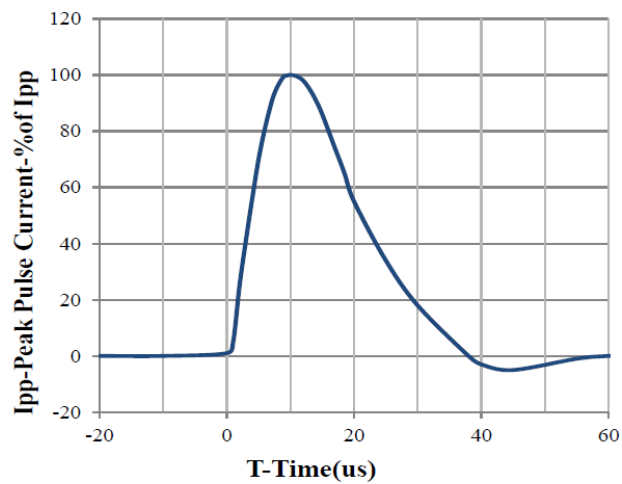
Peak Pulse Power vs. Pulse Time



IEC61000-4-2 Pulse Waveform

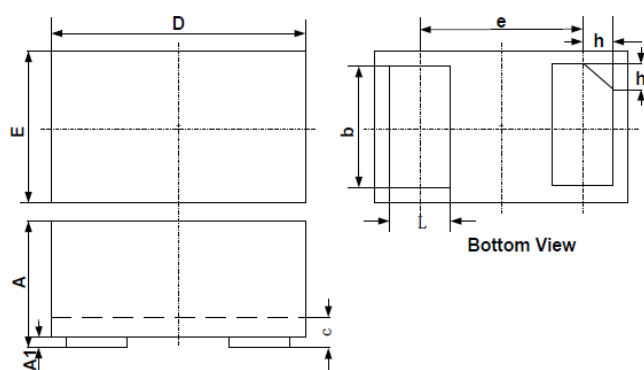


Power Derating Curve



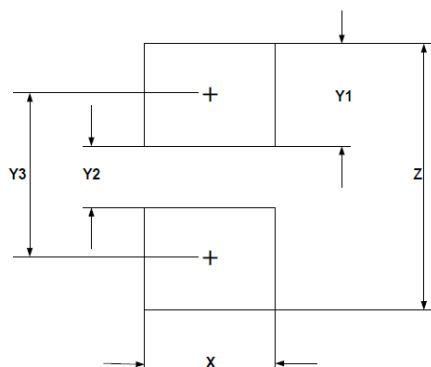
8/20μs Pulse Waveform

DFN1006-2 Package Outline & Dimensions



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.45	0.50	0.55	0.018	0.020	0.022
A1	0.00	0.02	0.05	0.000	0.001	0.002
b	0.45	0.50	0.55	0.018	0.020	0.022
c	0.12	0.15	0.18	0.005	0.006	0.007
D	0.95	1.00	1.05	0.037	0.039	0.041
e	0.65 BSC			0.026 BSC		
E	0.55	0.60	0.65	0.022	0.024	0.026
L	0.20	0.25	0.30	0.008	0.010	0.012
L1	0.05REF			0.002REF		
h	0.07	0.12	0.17	0.003	0.005	0.007

Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
X	0.60	0.024
Y1	0.50	0.020
Y2	0.30	0.012
Y3	0.80	0.032
Z	1.30	0.052