

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
- Marking code:21

Description

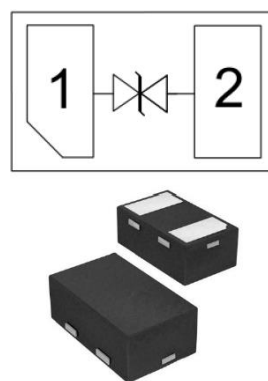
The ESDLLC5V0D8BH is a bi-directional TVS diode, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive high-speed data lines. The ESDLLC5V0D8BH has an ultra-low capacitance with 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

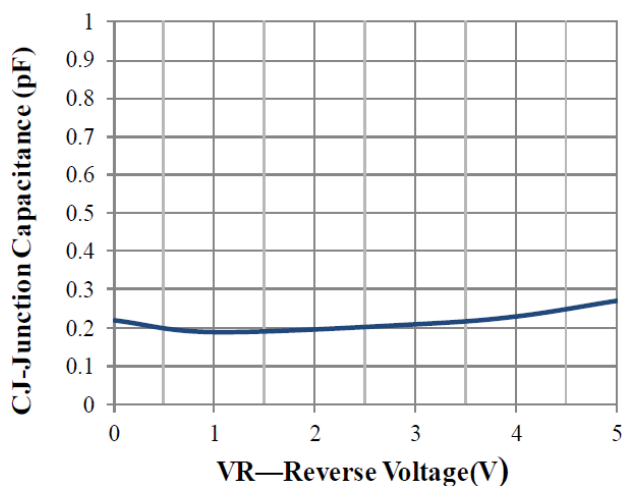
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	P _{pp}	110	W
Maximum Reverse Peak Pulse Current	I _{PP} *1	4.5	A
ESD per IEC 61000-4-2 (Air)	V _{ESD}	± 20	KV
ESD per IEC 61000-4-2 (Contact)		± 15	
Storage Temperature Range	T _{STJ}	-55 to +150	°C
Operating Temperature Range	T _J	-55 to +125	°C

Electrical Characteristics

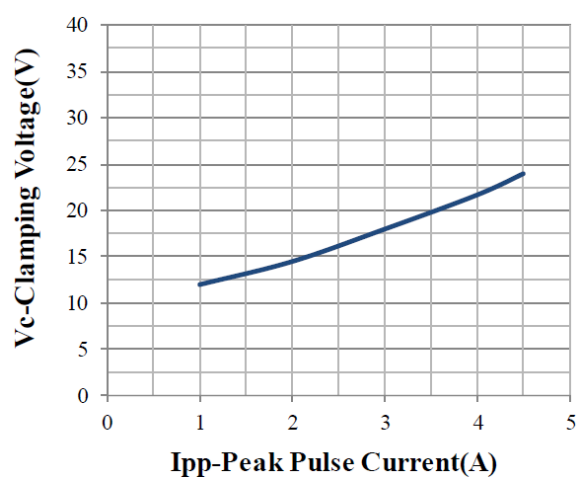
TA=25°C unless otherwise specified

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			0.1	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

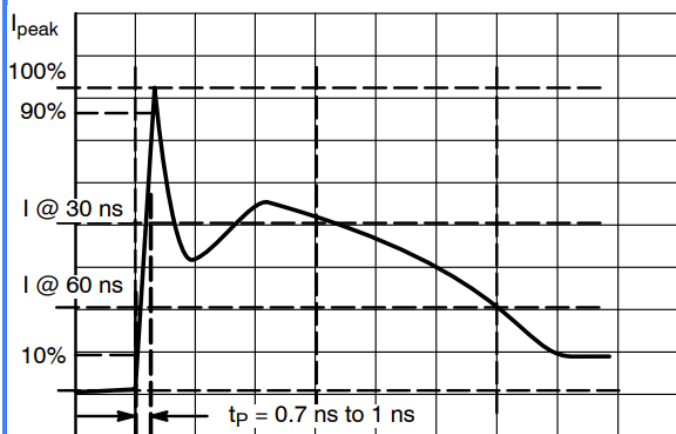
Characteristic Curves



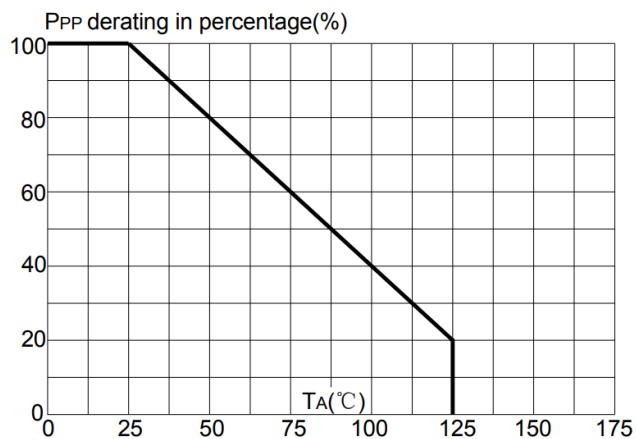
Junction Capacitance vs. Reverse Voltage



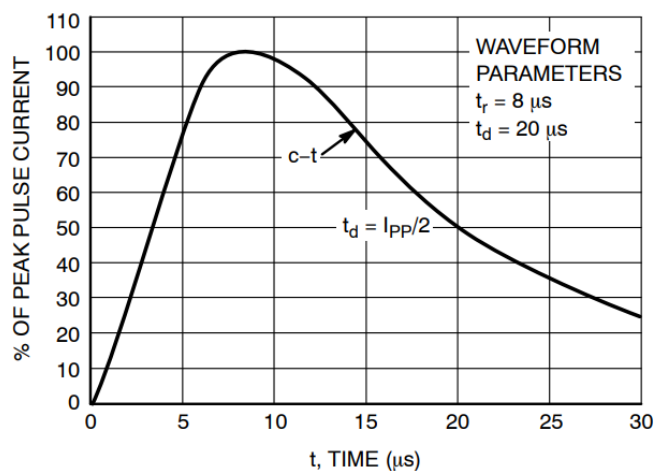
Clamping Voltage vs. Peak Pulse Current



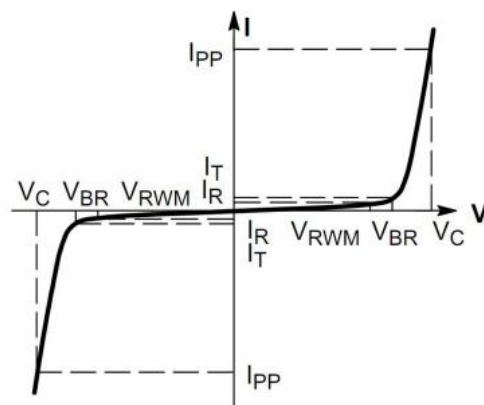
IEC61000-4-2 Pulse Waveform



Power Derating Curve

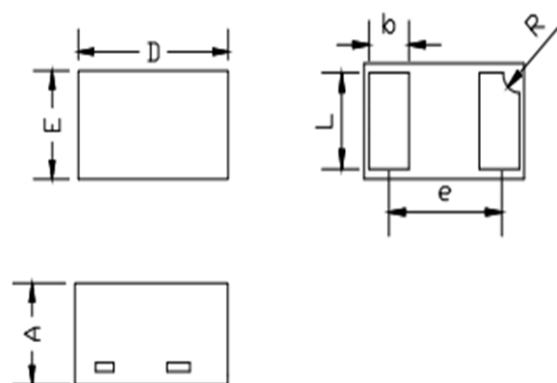


8/20μs Pulse Waveform



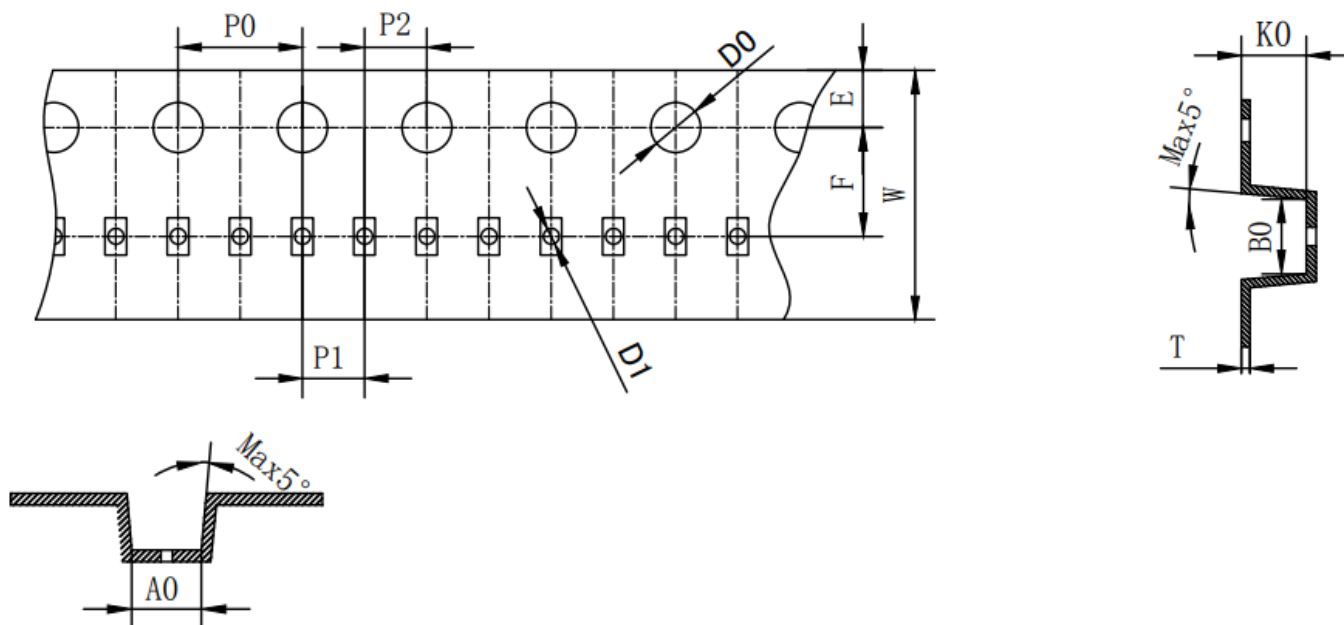
V-I Characteristics for Bidirectional Diode

DFN1006-2 Package Outline & Dimensions

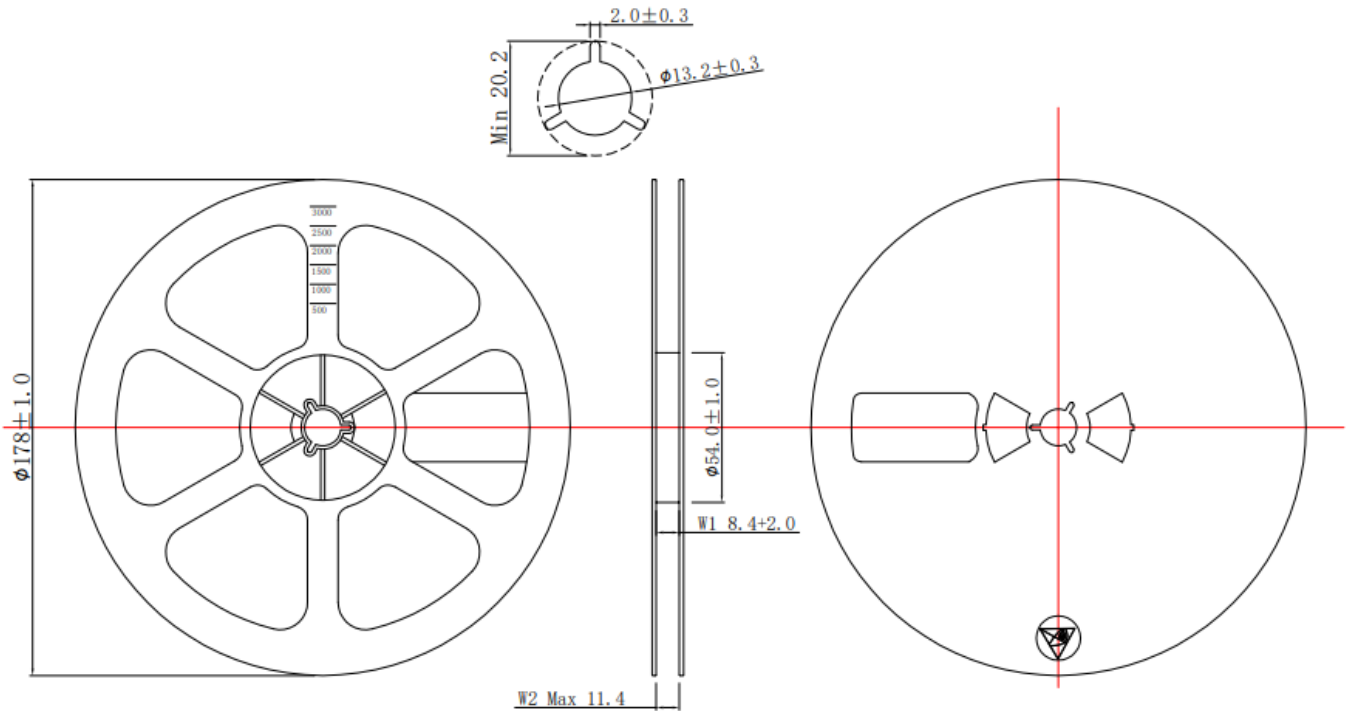


MILLMETER			
SYMBOL	MIN	NOM	MAX
A	0.40	-	0.50
D	0.95	1.00	1.05
E	0.55	0.60	0.65
b	0.20	0.25	0.30
L	0.45	0.50	0.55
e	0.675		
R	0.07	0.10	0.13

Tape and reel information



Symbol	A0	B0	K0	P0	P1	P2
Spec (mm)	0.69 ± 0.05	1.15 ± 0.05	0.60 ± 0.05	4.00 ± 0.10	2.00 ± 0.05	2.00 ± 0.05
Symbol	T	E	F	D0	D1	W
Spec (mm)	0.18 ± 0.03	1.75 ± 0.10	3.50 ± 0.05	1.55 ± 0.05	0.50 ± 0.05	$8.00^{+0.3}_{-0.1}$



ORDERING INFORMATIO:

PART No.	PACKAGE TYPE	QUANTITY(PCS) REEL	DESCRIPTION
ESDLLC5V0D8BH	DFN1006-2L	10,000	7 inch reel pack

Disclaimer

Specifications are subject to change without notice.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.

Users should verify actual device performance in their specific applications.