

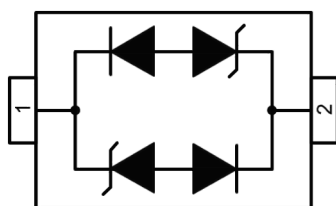
## Description

The DLLC03CI-SB is a bi-directional TVS diode, utilizing leading monolithic silicon technology to provide fast re-sponse time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive high-speed data lines. The DLLC03CI-SB has an ultra-low capacitance with a typical value at 1.4pF, and complies with the IEC 61000-4-2 (ESD) with  $\pm 30\text{kV}$  air and  $\pm 30\text{kV}$  contact discharge. It is assembled into DFN1006-2 lead-free package. The small size, ultra-low capacitance and high ESD surge protection make DLLC03CI-SB an ideal choice to protect cell phone, digital video interfaces and other high speed ports.

## Mechanical Characteristics

- ◆ Package: SOD-323
- ◆ Lead Finish: Matte Tin
- ◆ Case Material: "Green" Molding Compound.
- ◆ Moisture Sensitivity: Level 3 per J-STD-020
- ◆ Terminal Connections: See Diagram Below
- ◆ Marking Information: See Below

## Dimensions and Pin Configuration



Circuit and Pin Schematic

## Features

- ◆ 300W peak pulse power ( 8/20 $\mu\text{s}$ )
- ◆ Ultra low capacitance : 1.4pF typical
- ◆ Ultra low leakage: nA level
- ◆ Low Operating: 3.3V
- ◆ Low clamping voltage
- ◆ Protects one power line or data line
- ◆ Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge:  $\pm 30\text{kV}$
    - Contact discharge:  $\pm 30\text{kV}$
  - IEC61000-4-5 (Lightning) 30A (8/20 $\mu\text{s}$ )
- ◆ RoHS Compliant

## Applications

- ◆ Ethernet 10/100/1000 Base T

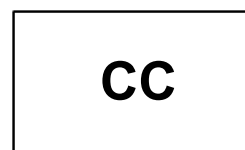
Caution:



This Device is designed for signal line protection only.

Not intended to be used under bias, not for application with a power line.

## Marking Information



CC = Device Marking Code

## Ordering Information

Part Number	Marking	Packaging	Reel Size
DLLC03CI-SB	CC	3000/Tape & Reel	7 inch

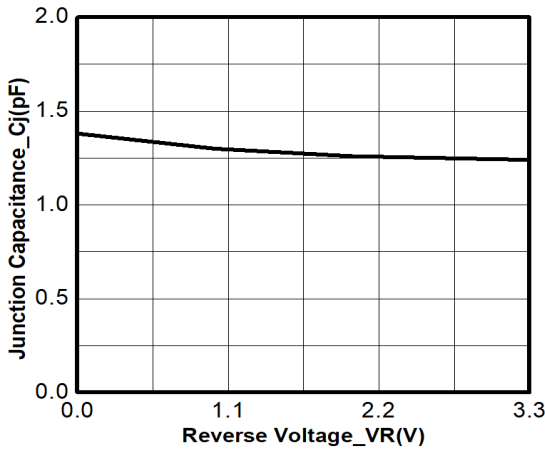
### **Absolute Maximum Ratings ( $T_A=25^{\circ}\text{C}$ unless otherwise specified)**

Parameter	Symbol	Value	Unit
Peak Pulse Power(8/20 $\mu\text{s}$ )	Ppk	300	W
Peak Pulse Current(8/20 $\mu\text{s}$ )	I <sub>PP</sub>	30	A
ESD per IEC 61000-4-2 (Air)	V <sub>ESD</sub>	$\pm 30$	kV
ESD per IEC 61000-4-2 (Contact)		$\pm 30$	
Operating Temperature Range	T <sub>J</sub>	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	T <sub>stg</sub>	-55 to +150	$^{\circ}\text{C}$

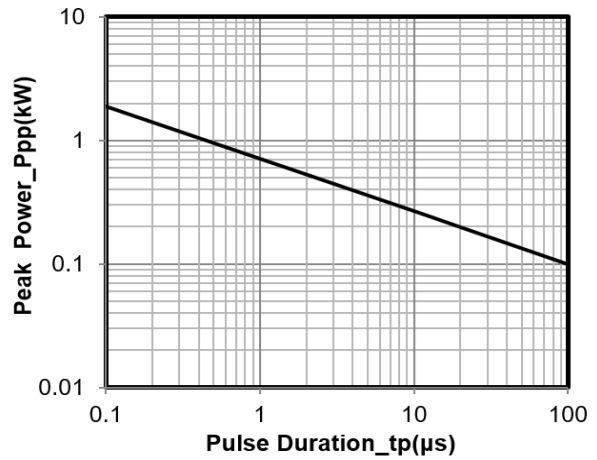
### **Electrical Characteristics ( $T_A=25^{\circ}\text{C}$ unless otherwise specified)**

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V <sub>RWM</sub>			3.3	V	
Punch-Through Voltage	V <sub>PT</sub>	3.5			V	I <sub>T</sub> = 2 $\mu\text{A}$
Snap-Back Voltage	V <sub>SB</sub>	0.8			V	I <sub>T</sub> = 50mA
Reverse Leakage Current	I <sub>R</sub>			0.1	$\mu\text{A}$	V <sub>RWM</sub> = 3.3V
Clamping Voltage	V <sub>C</sub>		4		V	I <sub>PP</sub> = 10A (8 x 20 $\mu\text{s}$ pulse)
Clamping Voltage	V <sub>C</sub>		9		V	I <sub>PP</sub> = 30A (8 x 20 $\mu\text{s}$ pulse)
Junction Capacitance	C <sub>J</sub>		1.4		pF	V <sub>R</sub> = 0V, f = 1MHz

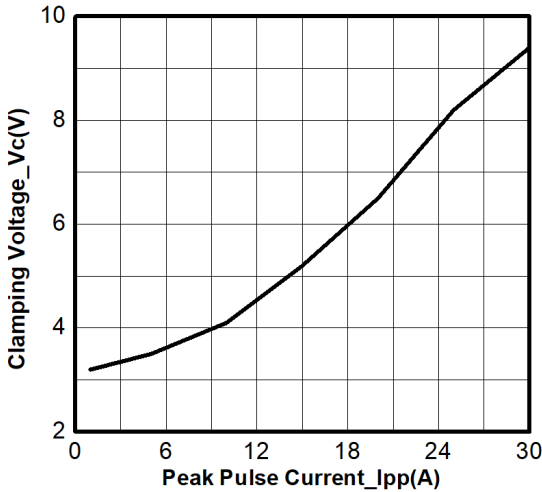
**Typical Performance Characteristics (TA=25°C unless otherwise Specified)**



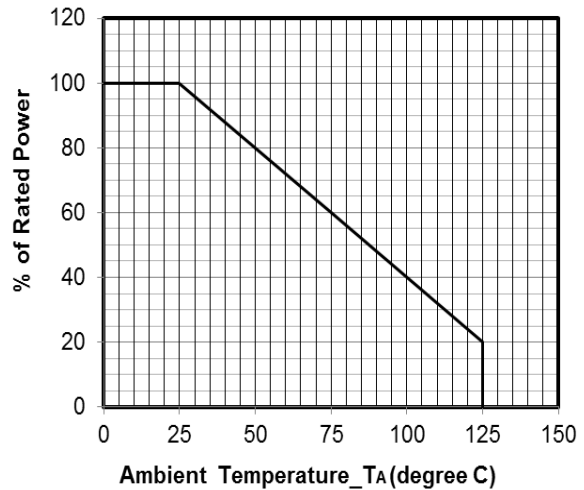
**Junction Capacitance vs. Reverse Voltage**



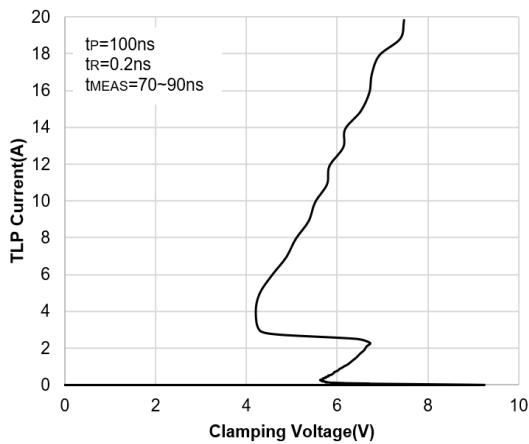
**Peak Pulse Power vs. Pulse Time**



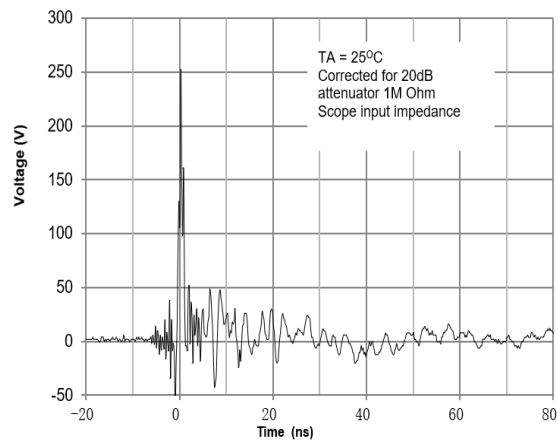
**Clamping Voltage vs. Peak Pulse Current**



**Power Derating Curve**

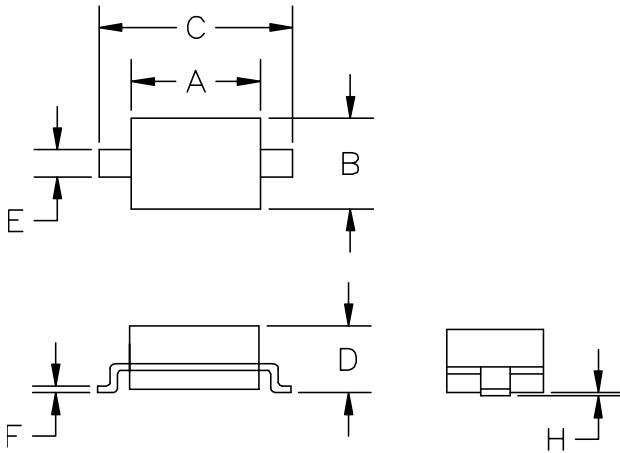


**TLP I/V Curve**



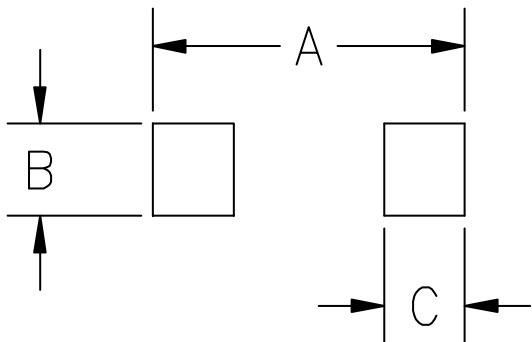
**ESD Clamping Voltage  
8 kV Contact per IEC61000-4-2**

## SOD-323 Package Outline Drawing



SYM	DIMENSIONS			
	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.50	1.80	0.060	0.071
B	1.20	1.40	0.045	0.054
C	2.30	2.70	0.090	0.107
D	-	1.10	-	0.043
E	0.30	0.40	0.012	0.016
F	0.10	0.25	0.004	0.010
H	-	0.10	-	0.004

## Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
A	3.15	0.120
B	0.80	0.031
C	0.80	0.031

## Contact Information

Changzhou D-first Electronics CO.,Ltd.

[www.first-electronic.com](http://www.first-electronic.com)

Email: [xhf@first-electronic.cn](mailto:xhf@first-electronic.cn)

Phone: +86 (0519) 88171671