

### Description

ULLC03CI-SB a 3.3V low capacitance snapback 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 ULLC03CI-SB has a low capacitance with a typical value at 1.5pF, and complies with the IEC 61000-4-2 (ESD) standard with  $\pm 30\text{kV}$  air and  $\pm 30\text{kV}$  contact discharge. It is assembled into a lead-free SOD-323 package.

The small size, low capacitance and high ESD surge protection make ULLC03CI-SB an ideal choice to protect cell phone, wireless systems, and communication equipment.

### Features

- ◆ Ultra low capacitance : 1.5pF 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:  $\pm 30\text{kV}$
  - IEC61000-4-4 (EFT) 40A (5/50ns)
- ◆ RoHS Compliant

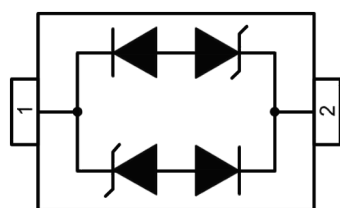
### Mechanical Characteristics

- ◆ Package: SOD-323
- ◆ Lead Finish: Matte Tin
- ◆ Case Material: “Green” Molding Compound.
- ◆ UL Flammability Classification Rating 94V-0
- ◆ Moisture Sensitivity: Level 3 per J-STD-020
- ◆ Terminal Connections: See Diagram Below
- ◆ Marking Information: See Below

### Applications

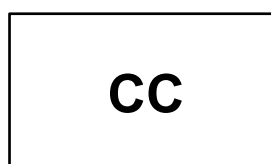
- ◆ USB Ports
- ◆ Smart Phones
- ◆ Wireless Systems
- ◆ Ethernet 10/100/1000 Base T

### Dimensions and Pin Configuration



Circuit and Pin Schematic

### Marking Information



CC = Device Marking Code

### Ordering Information

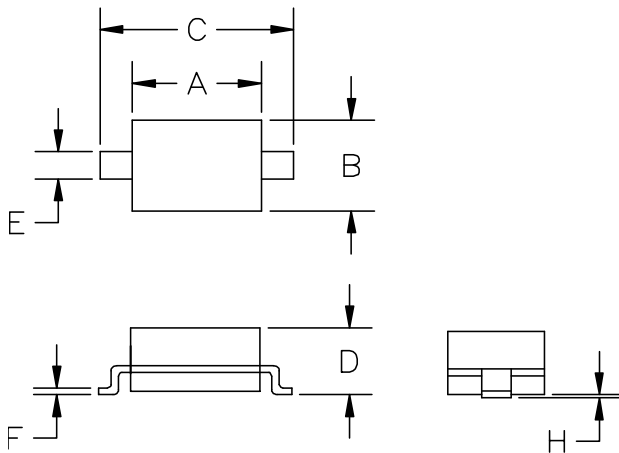
Part Number	Marking	Packaging	Reel Size
ULLC03CI-SB	CC	3000/Tape & Reel	7 inch

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

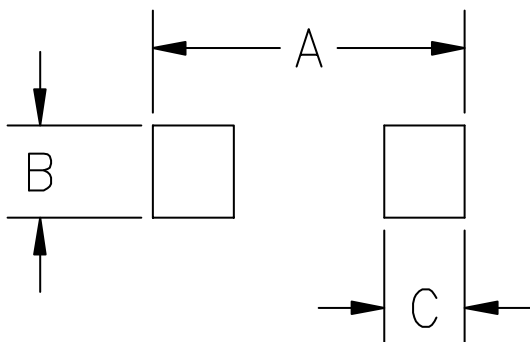
Parameter	Symbol	Value	Unit
Peak Pulse Power ( $t_p=8/20\mu\text{s}$ waveform)	$P_{PP}$	200	Watts
ESD per IEC 61000-4-2 (Air)	$V_{ESD}$	$\pm 30$	kV
ESD per IEC 61000-4-2 (Contact)		$\pm 30$	
Operating Temperature Range	$T_J$	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	$T_{stg}$	-55 to +125	$^{\circ}\text{C}$

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

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	$V_{RWM}$			3.3	V	
Pouch-Through Voltage	$V_{PT}$	3.5			V	$I_T = 2\mu\text{A}$
Breakdown Voltage	$V_{BR}$	3.5		6	V	$I_T = 1\text{mA}$
Reverse Leakage Current	$I_R$		1	500	nA	$V_{RWM} = 3.3\text{V}$
Clamping Voltage	$V_C$			5	V	$I_{PP} = 1\text{A}$ (8 x 20 $\mu\text{s}$ pulse)
Clamping Voltage	$V_C$			4	V	$I_{PP} = 10\text{A}$ (8 x 20 $\mu\text{s}$ pulse)
Clamping Voltage	$V_C$			5	V	$I_{PP} = 15\text{A}$ (8 x 20 $\mu\text{s}$ pulse)
Clamping Voltage	$V_C$			7	V	$I_{PP} = 20\text{A}$ (8 x 20 $\mu\text{s}$ pulse)
Clamping Voltage	$V_C$			8	V	$I_{PP} = 25\text{A}$ (8 x 20 $\mu\text{s}$ pulse)
Junction Capacitance	$C_J$		1.5		pF	$V_R = 0\text{V}$ , $f = 1\text{MHz}$

**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