Rev: B

ULLC03CI-SB

1-Line Low Cap Bi-directional TVS Diode

Description

ULLC03CI-SB a 3.3V low capacitance 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 ±30kV air and ±30kV 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: ±30kV
    Contact discharge: ±30kV
  - – IEC61000-4-4 (EFT) 40A (5/50ns)
- RoHS 2.0 Compliant

Mechanical Characteristics

- Package: SOD-323
- Lead Finish: Matte Tin
- Case Material: “Green” Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: See Diagram Below
- Marking Information: See Below

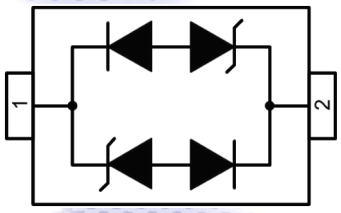
Applications

- Ethernet 10/100/1000 Base T

Caution:

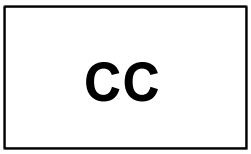
This Device is designed for signal line protection only.
Not intended to be used under bias, not for application with a power line.

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

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Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (tp=8/20μs waveform)	P_{PP}	200	Watts
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	V_{ESD}	±30 ±30	kV
Operating Temperature Range	T_J	−55 to +125	°C
Storage Temperature Range	Tstg	−55 to +125	°C

Electrical Characteristics (T_A=25°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 = 2μA
Breakdown Voltage	V_{BR}	3.5		6	V	I_T = 1mA
Reverse Leakage Current	I_R		1	500	nA	V_{RWM} = 3.3V
Clamping Voltage	V_C			5	V	I_{PP} = 1A (8 x 20μs pulse)
Clamping Voltage	V_C			4	V	I_{PP} = 10A (8 x 20μs pulse)
Clamping Voltage Clamping Voltage	V_C V_C			5 7	V V	I_{PP} = 15A (8 x 20μs pulse) I_{PP} = 20A (8 x 20μs pulse)
Clamping Voltage	V_C			8	V	I_{PP} = 25A (8 x 20μs pulse)
Junction Capacitance	C_J		1.5		pF	VR = 0V, f = 1MHz

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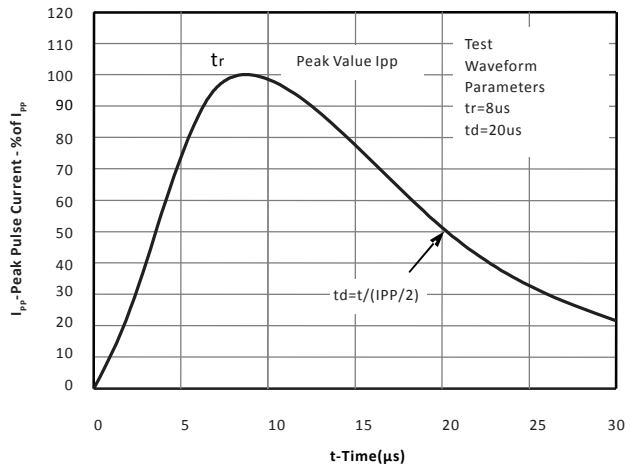
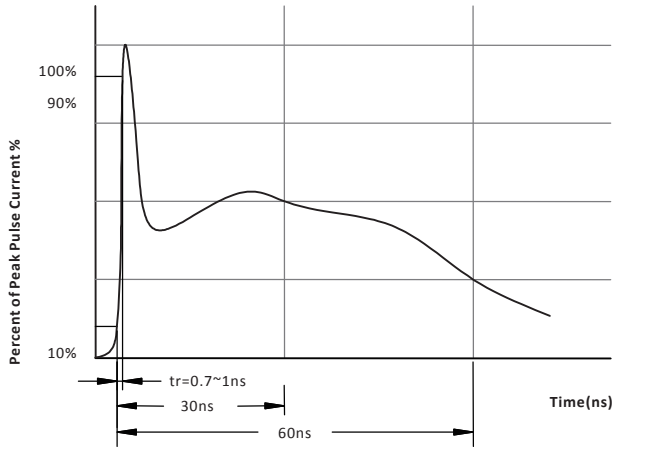
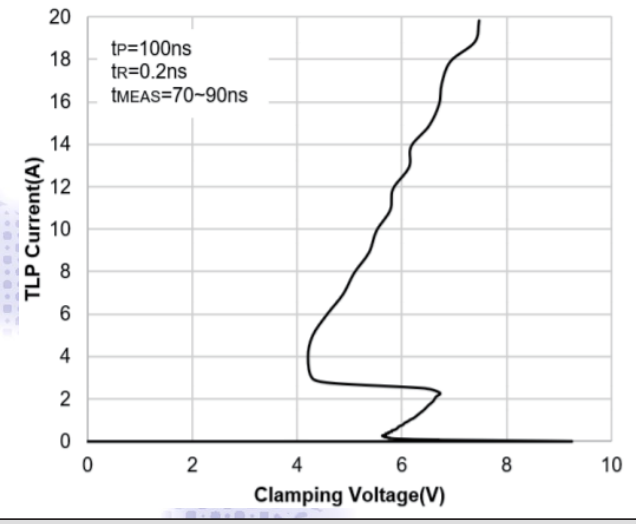
CHARACTERISTIC CURVES



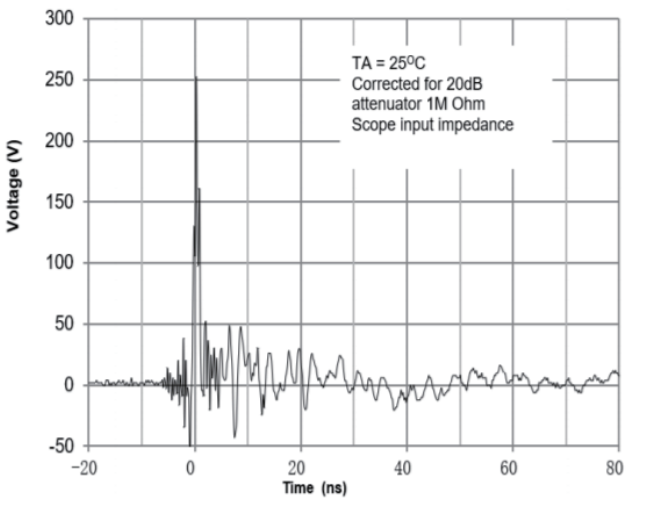
8/20µs Pulse Waveform



ESD Pulse Waveform (according to IEC 61000-4-2)



TLP I/V Curve



ESD Clamping Voltage
8 kV Contact per IEC61000–4–2

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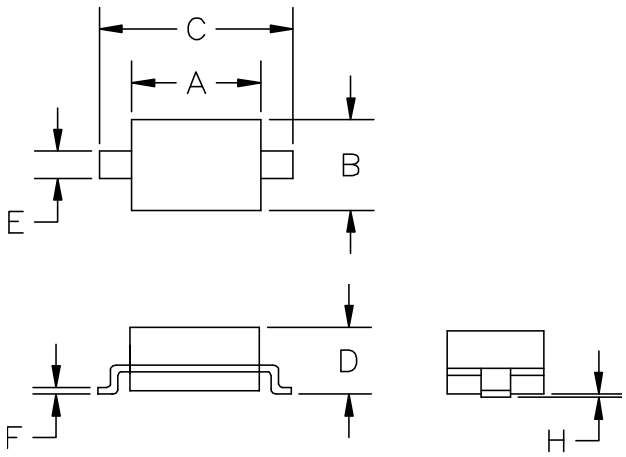
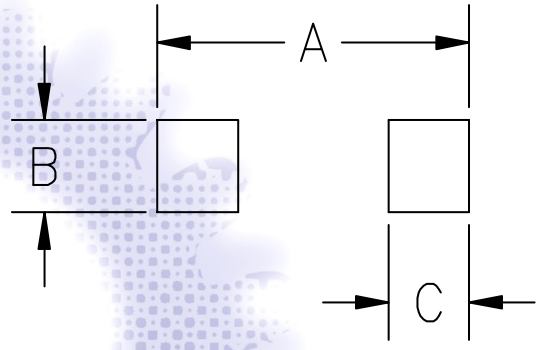
SOD-323 Package Outline Drawing



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

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