

BLC0301CW

Bidirectional Ultra Low Capacitance ESD/Surge Protection

DESCRIPTION

The BLC0301CW is an ultra low capacitance ESD and Surge Protector designed to provide electrostatic discharge (ESD) protection for high-speed data interfaces. BLC0301CW is designed to protect parasitic-sensitive systems against over-voltage and over-current transient events. It complies with IEC 61000-4-2 (ESD), Level 4 ($\pm 15\text{kV}$ air, $\pm 8\text{kV}$ contact discharge), IEC 61000-4-4 (EFT, 40A 5/50ns), IEC 61000-4-5 (Surge, 20A 8/20 μs), very fast charged device model (CDM) ESD and cable discharge event (CDE), etc.

BLC0301CW is in an SOD-323 package. The combined features of ultra-low capacitance and high ESD robustness make BLC0301CW ideal for applications where arrays are not practical. The low clamping voltage of BLC0301CW guarantees a minimum stress on the protected IC.

FEATURES

- ✧ IEC61000-4-2 (ESD) $\pm 30\text{kV}$ (air), $\pm 30\text{kV}$ (contact)
- ✧ IEC61000-4-4 (EFT) 40A (5/50ns)
- ✧ IEC61000-4-5 (Surge) 20A (8/20 μs)
- ✧ Protects one I/O line (bidirectional)
- ✧ Low operating and clamping voltage
- ✧ Low leakage current
- ✧ Each I/O pin can withstand over 1000 ESD strikes for $\pm 8\text{kV}$ contact discharge

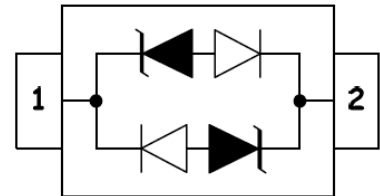
MACHANICAL DATA

- ✧ SOD-323 package
- ✧ Flammability Rating: UL 94V-0
- ✧ Packaging: Tape and Reel
- ✧ High temperature soldering guaranteed: $260^{\circ}\text{C}/10\text{s}$
- ✧ Reel size: 7 inch
- ✧ MSL 1

PACKAGE OUTLINE



PIN CONFIGURATION

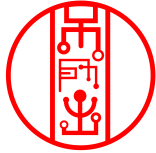


ORDERING INFORMATION

- ✧ Device: BLC0301CW
- ✧ Package: SOD-323
- ✧ Marking: CC.
- ✧ Material: Halogen free
- ✧ Packing: Tape & Reel
- ✧ Quantity per reel: 3,000pcs

APPLICATIONS

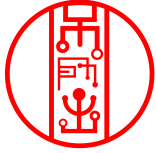
- ✧ Cell Phone Handsets and Accessories
- ✧ Microprocessor based equipment
- ✧ Personal Digital Assistants (PDA's)
- ✧ Notebooks, Desktops, and Servers
- ✧ Portable Instrumentation
- ✧ Peripherals
- ✧ Analog Inputs



BLC0301CW

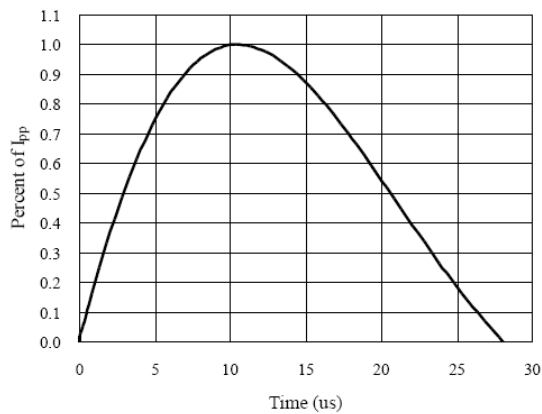
ABSOLUTE MAXIMUM RATING			
Symbol	Parameter	Value	Units
V_{ESD}	ESD per IEC 61000-4-2 (Air)	± 30	kV
	ESD per IEC 61000-4-2 (Contact)	± 30	
P_{PP}	Peak Pulse Power (8/20 μ s)	350	W
I_{PP}	Peak Pulse Current (8/20 μ s)	20	A
T_{OPT}	Operating Temperature	-45 ~ +85	°C
T_{STG}	Storage Temperature	-55 ~ +150	°C

ELECTRICAL CHARACTERISTICS (T _{amb} =25°C)						
Symbol	Parameter	Test Condition	Min	Typ	Max	Units
V_{RWM}	Reverse Working Voltage				3.3	V
V_B	Reverse Breakdown Voltage	$I_R = 1\text{mA}$	3.5			V
I_R	Reverse Leakage Current	$V_{RWM} = 3.3\text{V}$			500	nA
V_{C1}	Clamping Voltage 1	$I_{PP} = 1\text{A}$, $t_p = 8/20\mu\text{s}$			6.5	V
V_{C2}	Clamping Voltage 2	$I_{PP} = 20\text{A}$, $t_p = 8/20\mu\text{s}$			18.0	V
C_{ESD}	Parasitic Capacitance	$V_R = 0\text{V}$, $f = 1\text{MHz}$		0.6	1.0	pF

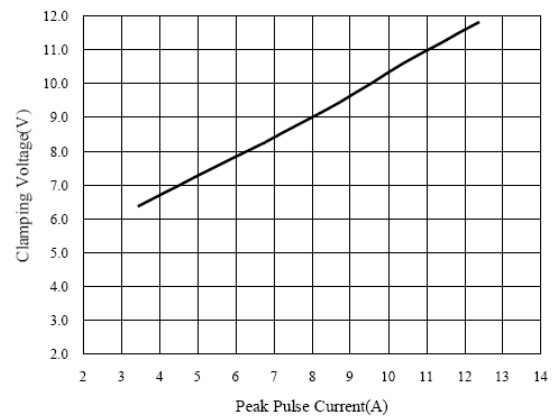


ELECTRICAL CHARACTERISTICS CURVE

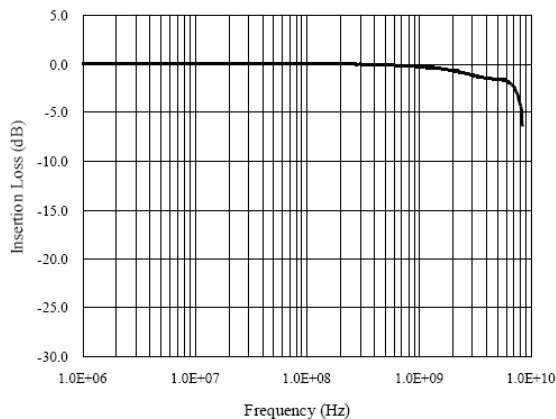
8/20 μ s Pulse Waveform



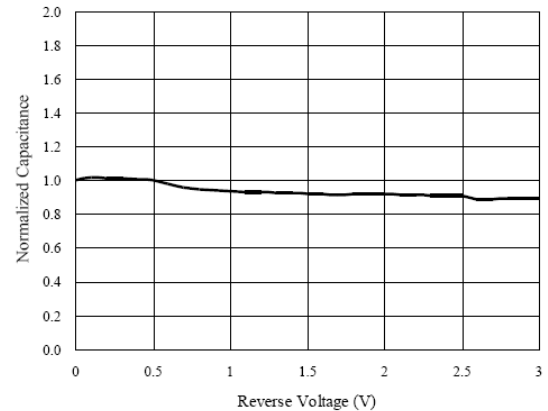
Clamping Voltage V_C vs. Current I_{PP}



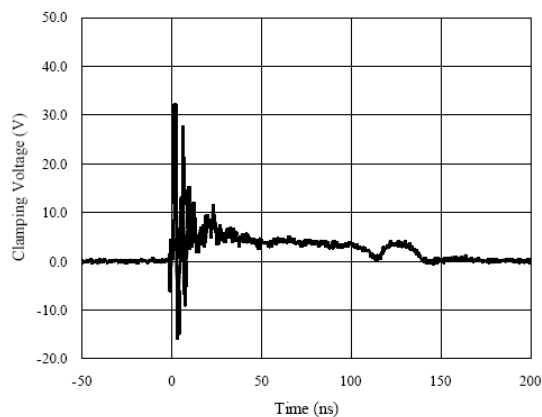
Insertion Loss S21



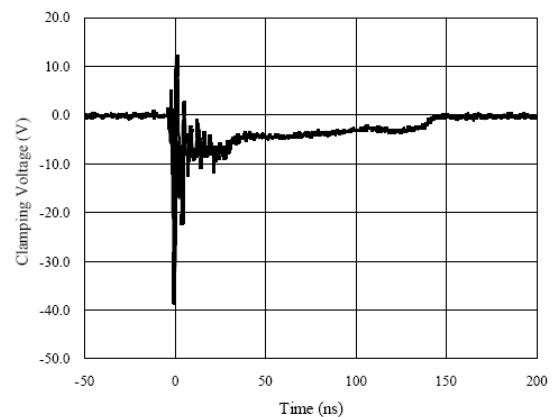
Normalized Capacitance vs. Voltage

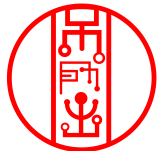


ESD Clamping of I/O to GND (+8kV Contact per IEC 61000-4-2)



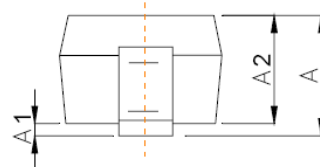
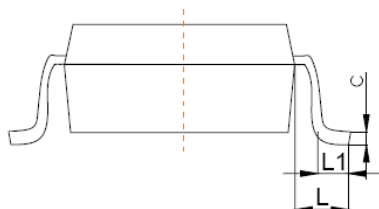
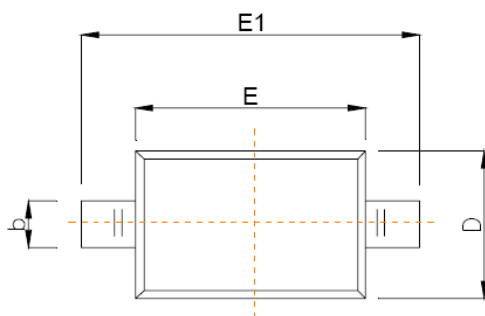
ESD Clamping of I/O to GND (-8kV Contact per IEC 61000-4-2)



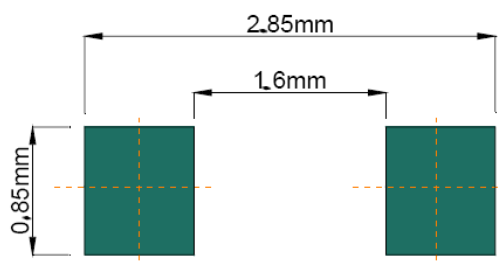


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SOD-323 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters	
	Min	Max
A		1.00
A1	0.000	0.100
A2	0.800	0.900
b	0.250	0.350
c	0.080	0.150
D	1.200	1.400
E	1.600	1.800
E1	2.500	2.700
e	1.800	2.040
L	0.475 REF	
L1	0.250	0.400
θ	0°	8°



Recommended Pad outline