

### DESCRIPTION

The GBLC0301CW is an ultra low capacitance ESD and Surge Protector designed to provide electrostatic discharge (ESD) protection for high-speed data interfaces. GBLC0301CW 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 $\mu\text{s}$ ), very fast charged device model (CDM) ESD and cable discharge event (CDE), etc.

GBLC0301CW is in an SOD-323 package. The combined features of ultra-low capacitance and high ESD robustness make GBLC0301CW ideal for applications where arrays are not practical. The low clamping voltage of GBLC0301CW 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 $\mu\text{s}$ )
- ✧ 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

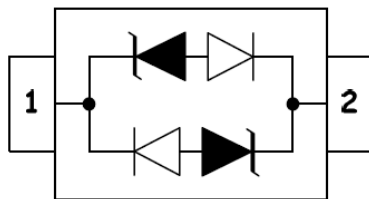
### ORDERING INFORMATION

- ✧ Device: GBLC0301CW
- ✧ 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

### PIN CONFIGURATION



### PACKAGE OUTLINE



## ABSOLUTE MAXIMUM RATING

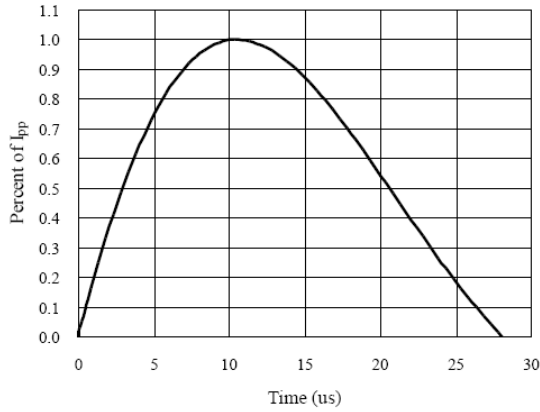
| Symbol    | Parameter                         | Value      | Units        |
|-----------|-----------------------------------|------------|--------------|
| $V_{ESD}$ | ESD per IEC 61000-4-2 (Air)       | $\pm 30$   | kV           |
|           | ESD per IEC 61000-4-2 (Contact)   | $\pm 30$   |              |
| $P_{PP}$  | Peak Pulse Power (8/20 $\mu$ s)   | 350        | W            |
| $I_{PP}$  | Peak Pulse Current (8/20 $\mu$ s) | 20         | A            |
| $T_{OPT}$ | Operating Temperature             | -45 ~ +85  | $^{\circ}$ C |
| $T_{STG}$ | Storage Temperature               | -55 ~ +150 | $^{\circ}$ C |

## ELECTRICAL CHARACTERISTICS (Tamb=25 $^{\circ}$ C)

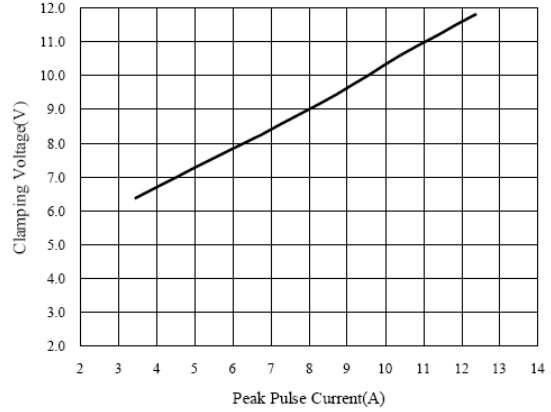
| Symbol    | Parameter                 | Test Condition                  | Min | Typ | Max  | Units |
|-----------|---------------------------|---------------------------------|-----|-----|------|-------|
| $V_{RWM}$ | Reverse Working Voltage   |                                 |     |     | 3.3  |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

## ELECTRICAL CHARACTERISTICS CURVE

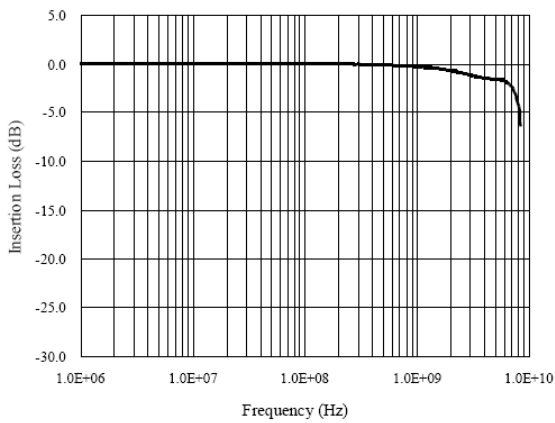
8/20 $\mu$ s Pulse Waveform



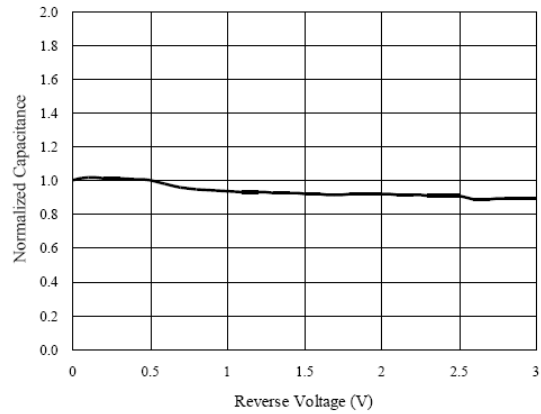
Clamping Voltage  $V_C$  vs. Current  $I_{PP}$



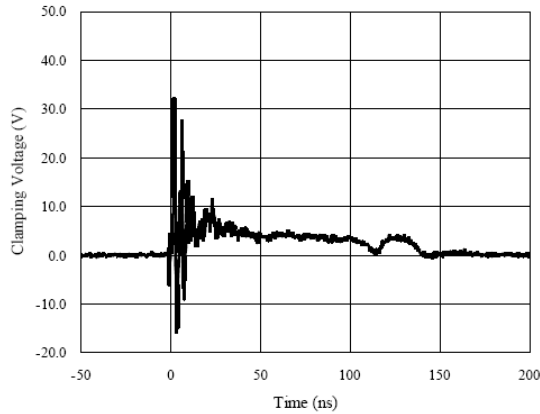
Insertion Loss S21



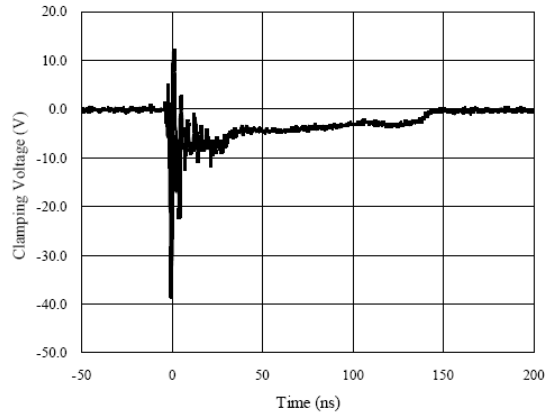
Normalized Capacitance vs. Voltage



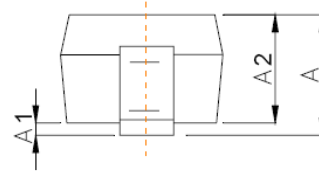
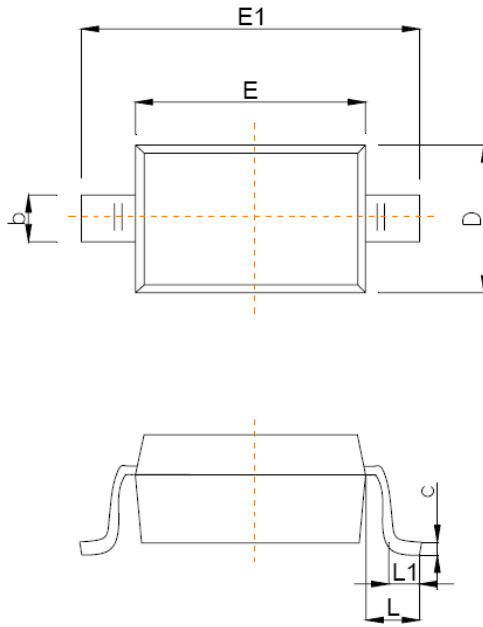
ESD Clamping of I/O to GND  
(+8kV Contact per IEC 61000-4-2)



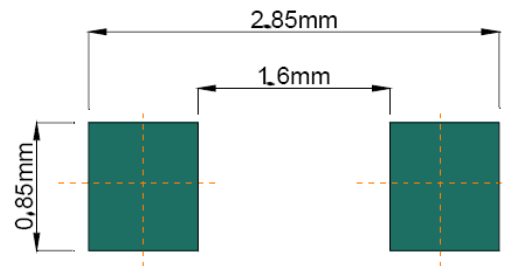
ESD Clamping of I/O to GND  
(-8kV Contact per IEC 61000-4-2)



## 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 |
| $\theta$ | 0°                        | 8°    |



**Recommended Pad outline**