



1-Line Low Capacitance Bi-directional TVS Diode

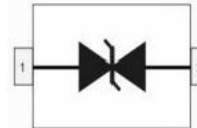
SOD323

## Schematic & Pin configuration

### Simplified outline



### Graphic symbol



## General description

GBLC12C a 12V bi-directional TVS diode,utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage,making his device an ideal solution for protecting voltage sensitive high-speed data lines.The GBLC12C has a low capacitance with a typical value at 1.0pF,and complies with the IEC61000-4-2(ESD) standard with  $\pm 30KV$  air and  $\pm 30KV$  contact discharge.It is assembled into a leadfree SOD-323 package.The small size,low capacitance and high ESD surge protection make GBLC12C an idea choice to protect cell phone,wireless systems,and communication equipment.

## Features and benefits

- Ultra Low Capacitance 0.6 pF(Typ)
- 400W peak pulse power (8/20 $\mu$ s)
- Working Voltage 12V
- Low leakage current:nA Level
- Complies with following standards:
  - IEC 61000-4-2 (ESD)immunity test  
Air discharge: $\pm 30KV$   
Contact discharge: $\pm 30KV$
  - IEC61000-4-5(Lightning)15A(8/20 $\mu$ s)
  - IEC61000-4-4 (EFT)80A (5/50ns)
- RoHS compliant

## Application information

- High-speed data lines
- Smart phones
- USB Ports
- Wireless Systems
- Ethernet 10/100/1000 Base T

## Ordering information

Par Number	Package	Packaging	Reel Size
GBLC12C	SOD323	3000/Tape &Reel	7 inch

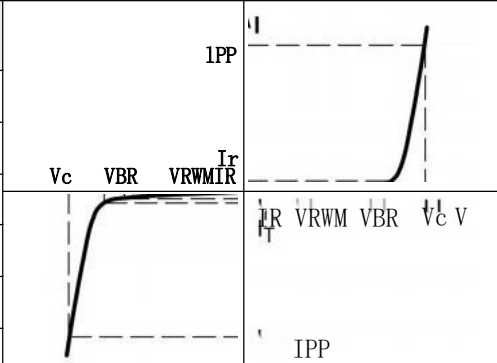
### Maximum Ratings ( $T_4=25^{\circ}\text{C}$ , unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power ( $t_p=8/20 \mu\text{s}$ )	Ppk	400	W
Peak Pulse Current ( $t_p=8/20 \mu\text{s}$ )	Ipp	15	A
ESD voltage IEC 61000-4-2 (air discharge)	VESD	30	KV
ESD voltage IEC 61000-4-2 (contact discharge)	VESD	30	KV
Storage Temperature Range	Tstg	-55 to +150	$^{\circ}\text{C}$
Operating Temperature Range	Top	-40 to +85	$^{\circ}\text{C}$

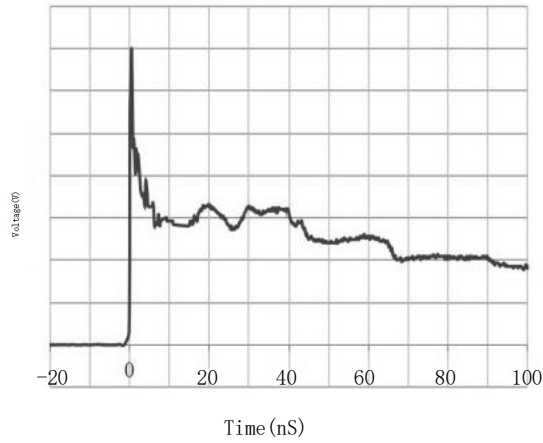
### Electrical Characteristics ( $T_A=25^{\circ}\text{C}$ , unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Condition
Reverse Working Voltage	VRWM			12	V	
Breakdown Voltage	VBR	14.0	15.0	16.5	V	$I_r=1\text{mA}$
Leakage Current ILeak	Ilg			0.2	$\mu\text{A}$	VRWM=12V
Clamping Voltage	Vc		16.5		V	$I_{pp}=1\text{A}$ , $T_p=8/20 \mu\text{s}$
Clamping Voltage	Vc		26.0	30.0	V	$I_{pp}=15\text{A}$ , $T_p=8/20 \mu\text{s}$
Junction Capacitance	Cj		0.6	1.0	pF	$V_r=0\text{V}$ , $f=1\text{MHz}$

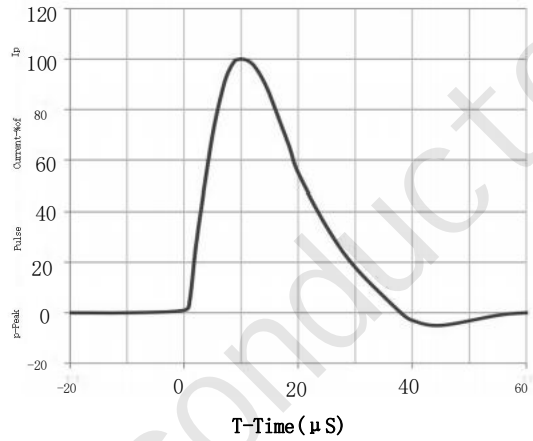
### Portion Electronics Parameter

Symbol	Parameter	Diagram	
Ipp	Reverse Peak Pulse Current		
Vc	Clamping Voltage @IPP		
VRWM	Working Peak Reverse Voltage		
I <sub>r</sub>	Reverse Leakage Current @VRWM		
VBR	Breakdown Voltage @IT		
I <sub>r</sub>	VBR Test Current		

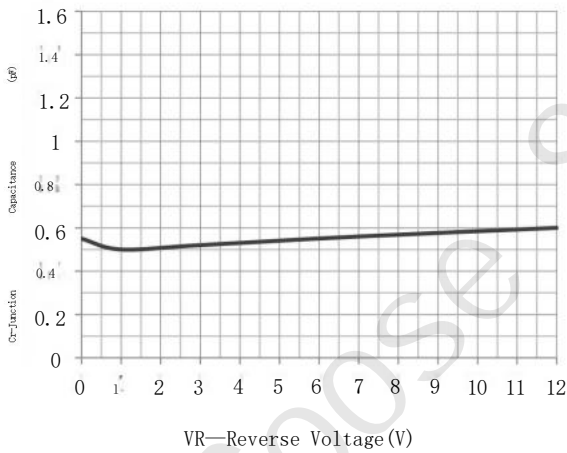
## Typical Performance Characteristics (TA=25° C unless otherwise Specified)



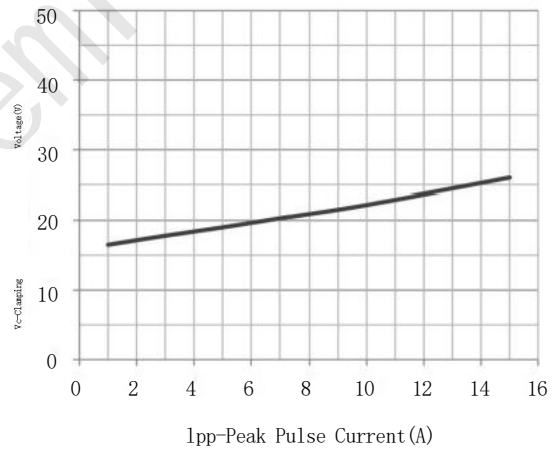
IEC61000-4-2 Pulse Waveform



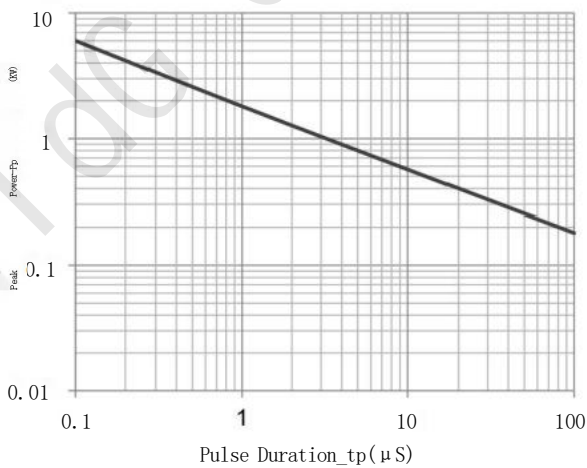
IEC61000-4-58X20 μs Pulse Waveform



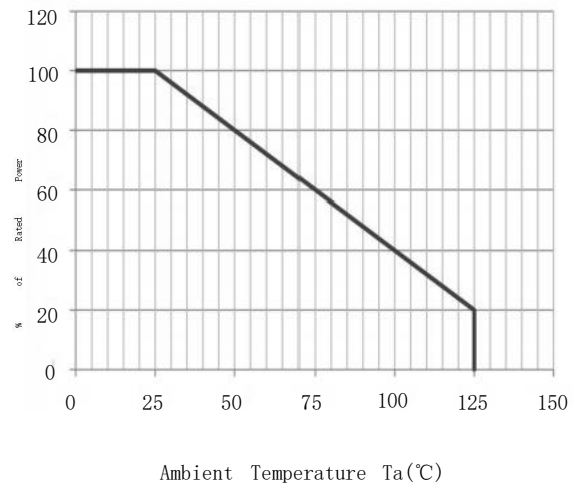
Junction Capacitance vs. Reverse Voltage



Clamping Voltage vs. Peak Pulse Current



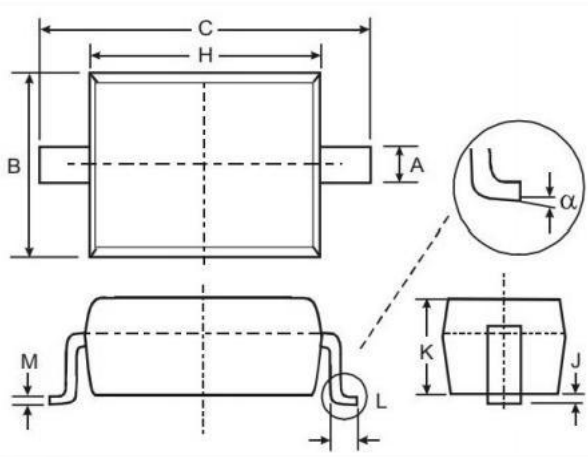
Peak Pulse Power vs. Pulse Time



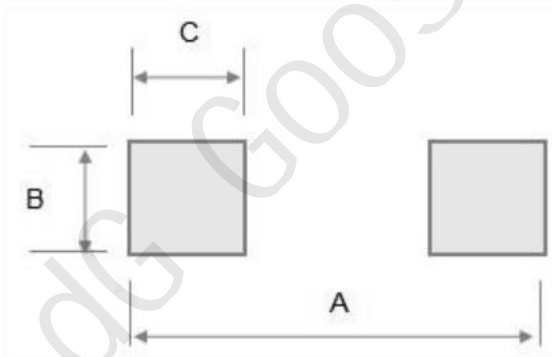
Power Derating Curve

**Package Outline Dimensions (mm)**

SOD323



SYMBOL	DIMENSIONS	
	MIN	MAX
A	0.25	0.40
B	1.20	1.40
C	2.35	2.75
H	1.50	1.80
J	0.01	0.15
K	0.75	1.05
L	0.20	0.40
M	0.08	0.25
a	0°	8°

**Soldering Footprint (mm)**


SYMBOL	DIMENSIONS
A	3.20
B	0.80
C	0.80