



1-Line Low Capacitance Bi-directional TVS Diode

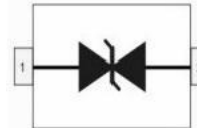
SOD323

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 μ 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 μ 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 |

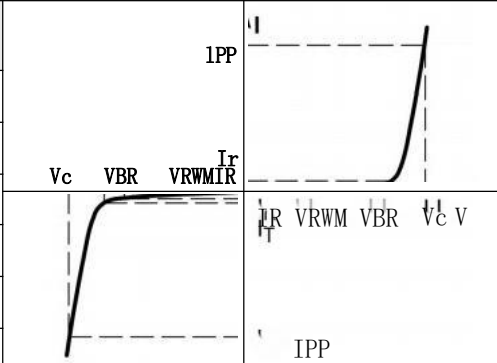
Maximum Ratings (T₄=25°C, unless otherwise specified)

| Parameter | Symbol | Value | Unit |
|---|------------------|-------------|------|
| Peak Pulse Power (t _p =8/20 μs) | P _{pk} | 400 | W |
| Peak Pulse Current (t _p =8/20 μs) | I _{pp} | 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 | T _{stg} | -55 to +150 | °C |
| Operating Temperature Range | T _{op} | -40 to +85 | °C |

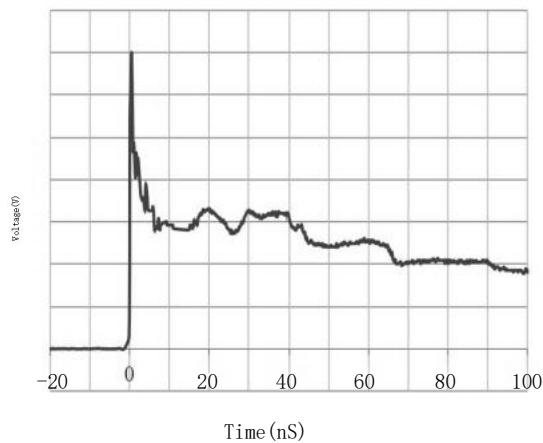
Electrical Characteristics (T_A=25 °C, unless otherwise specified)

| Parameter | Symbol | Min | Typ | Max | Unit | Condition |
|-----------------------------------|------------------|------|------|------|------|---|
| Reverse Working Voltage | VR _{WM} | | | 12 | V | |
| Breakdown Voltage | V _{BR} | 14.0 | 15.0 | 16.5 | V | I _r =1mA |
| Leakage Current I _{Leak} | I _{lg} | | | 0.2 | μA | VR _{WM} =12V |
| Clamping Voltage | V _c | | 16.5 | | V | I _{pp} =1A, T _p =8/20 μs |
| Clamping Voltage | V _c | | 26.0 | 30.0 | V | I _{pp} =15A, T _p =8/20 μs |
| Junction Capacitance | C _j | | 0.6 | 1.0 | pF | V _r =0V, f=1MHz |

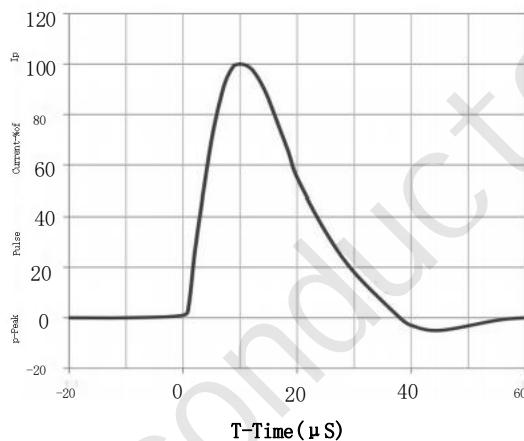
Portion Electronics Parameter

| Symbol | Parameter | Diagram | |
|------------------|---|--|---|
| I _{pp} | Reverse Peak Pulse Current |  | <p>IPP</p> <p>V_c V_{BR} VR_{WM} I_r</p> <p>I_r VR_{WM} V_{BR} V_c V</p> <p>IPP</p> |
| V _c | Clamping Voltage @IPP | | |
| VR _{WM} | Working Peak Reverse Voltage | | |
| I _r | Reverse Leakage Current @VR _{WM} | | |
| V _{BR} | Breakdown Voltage @I _T | | |
| I _r | V _{BR} Test Current | | |

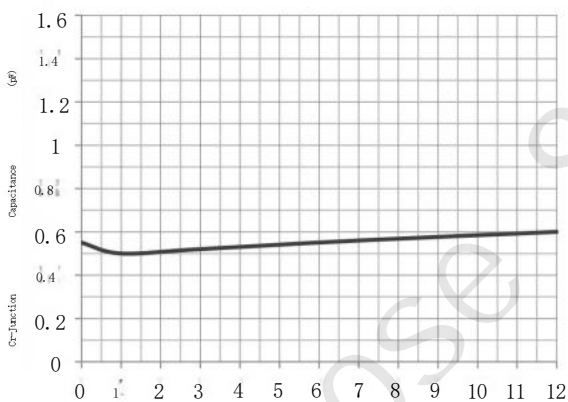
Typical Performance Characteristics (TA=25° C unless otherwise Specified)



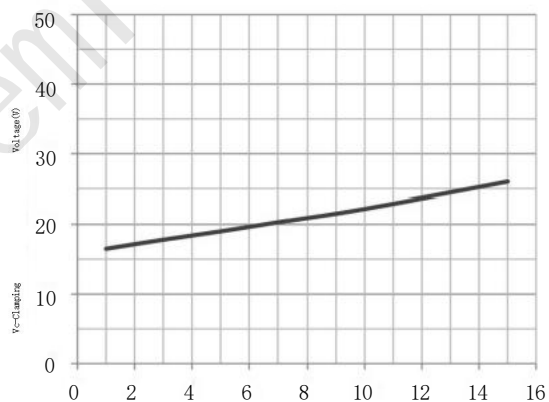
IEC61000-4-2 Pulse Waveform



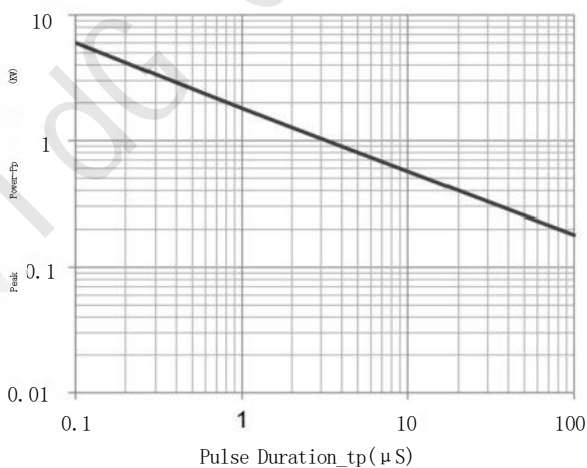
IEC61000-4-58X20 μs Pulse Waveform



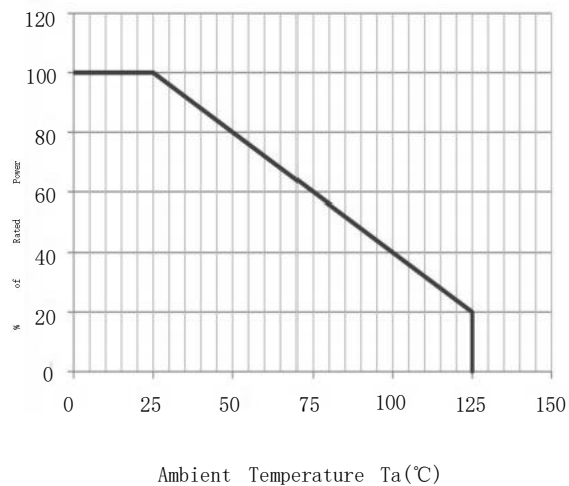
Junction Capacitance vs. Reverse Voltage



Clamping Voltage vs. Peak Pulse Current



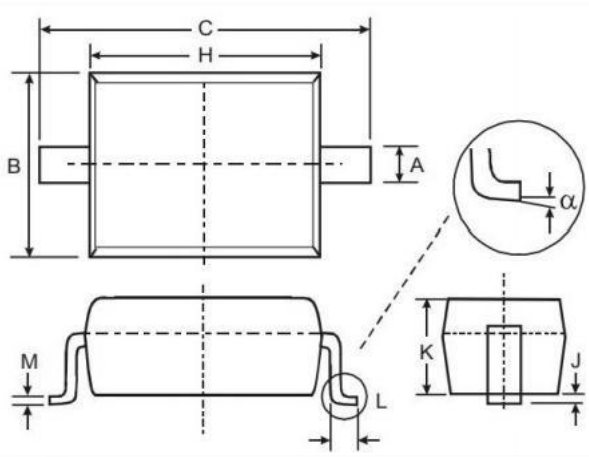
Peak Pulse Power vs. Pulse Time



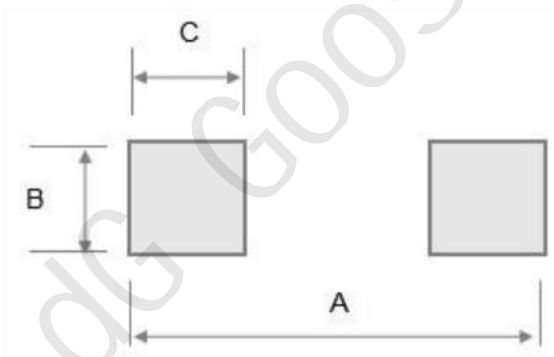
Power Derating Curve

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 |

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