



General description

GBLC15CB a 15V 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 GBLC15CB has a low capacitance with a typical value at 1.0pF, and complies with the IEC61000-4-2(ESD) standard with $\pm 30\text{kV}$ air and $\pm 30\text{kV}$ contact discharge. It is assembled into a leadfree SOD-323 package. The small size, low capacitance and high ESD surge protection make GBLC15CB an idea choice to protect cell phone, wireless systems, and communication equipment.

Features and benefits

- Ultra Low Capacitance 0.6 pF(Typ)
- 340W peak pulse power (8/20 μs)
- Working Voltage 15V
- Low leakage current: nA Level
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 30\text{kV}$
 - Contact discharge: $\pm 30\text{kV}$
 - IEC61000-4-5 (Lightning) 11A (8/20 μs)
 - IEC61000-4-4 (EFT) 40A (5/50nS)
- RoHS compliant

Application information

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

Ordering information

Device	Package	Packaging	Reel Size
GBLC15CB	SOD323	3000/Tape & Reel	7 Inch

Schematic & Pin configuration

Simplified outline	Graphic symbol

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

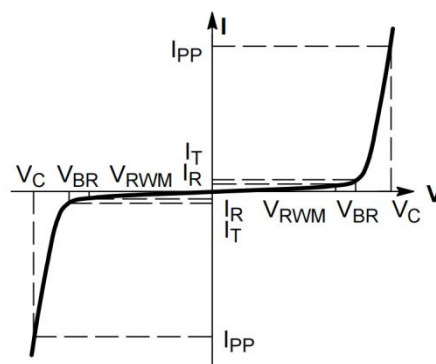
Parameter	Symbol	Value	Unit
Peak Pulse Power ($T_p = 8/20\mu\text{s}$)	P_{PPM}	340	W
Rated Peak Pulse Current ($T_p = 8/20\mu\text{s}$)	I_{PPM}	11	A
ESD voltage IEC 61000-4-2 (air discharge)	V_{ESD}	30	kV
ESD voltage IEC 61000-4-2 (contact discharge)	V_{ESD}	30	kV
Maximum lead temperature for soldering during 10s	T_L	260	$^{\circ}\text{C}$
Storage Temperature Range	T_{stg}	-55 to +150	$^{\circ}\text{C}$
Operating Temperature Range	T_J	-40 to +125	$^{\circ}\text{C}$

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

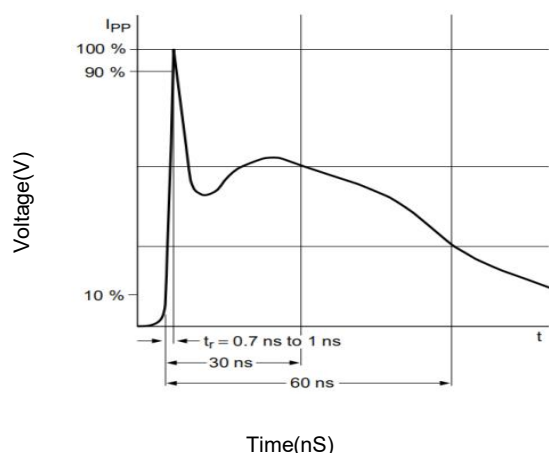
Parameter	Symbol	Min	Typ	Max	Unit	Condition
Reverse Working Voltage	V_{RWM}	--	--	15	V	
Breakdown Voltage	V_{BR}	17	19	21	V	$I_T = 1\text{mA}$
Leakage Current I_{Leak}	I_R	--	--	100	nA	$V_{RWM} = 15\text{V}$
Clamping Voltage	V_C	--	29	31	V	$I_{PP} = 11\text{A}, T_p = 8/20\mu\text{s}$
Junction Capacitance	C_j	--	0.6	0.8	pF	$V_R = 0\text{V}, f = 1\text{MHz}$
Junction Capacitance	C_j	--	0.45	--	pF	$V_R = 15\text{V}, f = 1\text{MHz}$

Portion Electronics Parameter

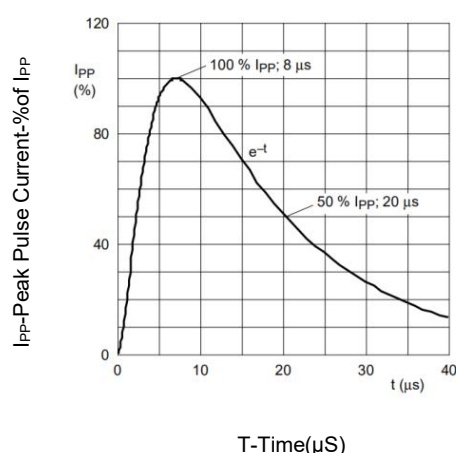
Symbol	Parameter
I_{PP}	Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Working Peak Reverse Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	V_{BR} Test Current



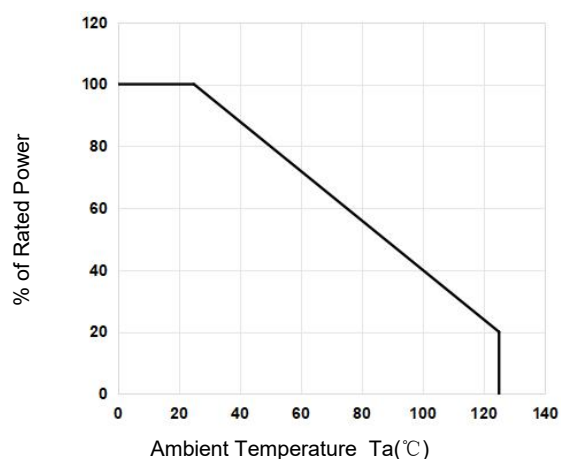
Typical Performance Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise Specified)



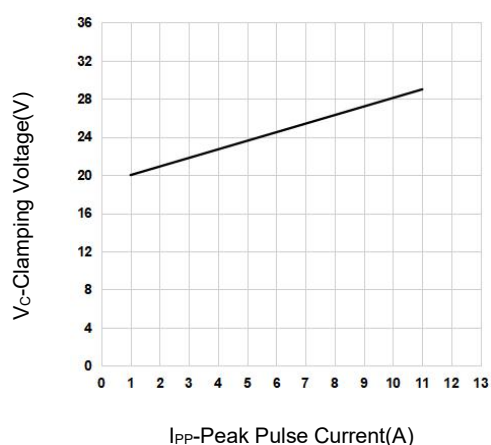
IEC61000-4-2 Pulse Waveform



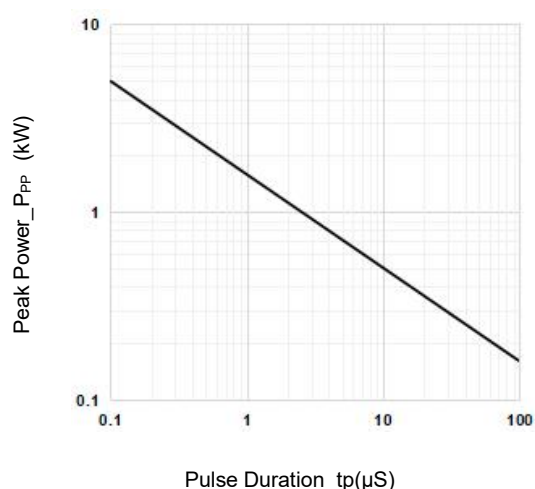
IEC61000-4-5 8X20 μs Pulse Waveform



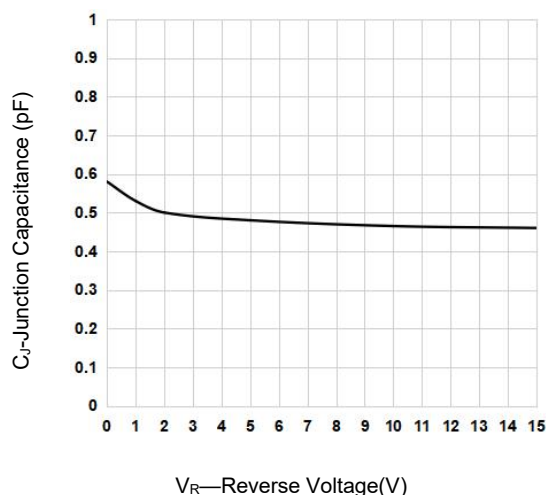
Power Derating Curve



Clamping Voltage vs. Peak Pulse Current



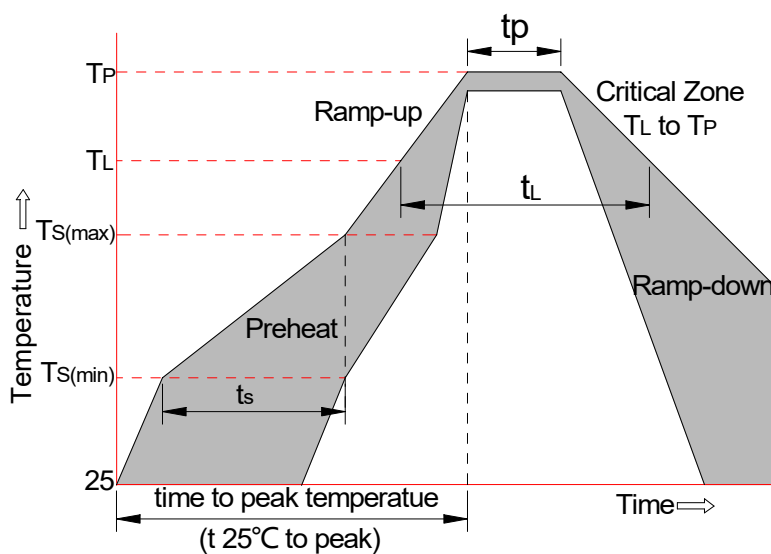
Peak Pulse Power vs. Pulse Time



Junction Capacitance vs. Reverse Voltage

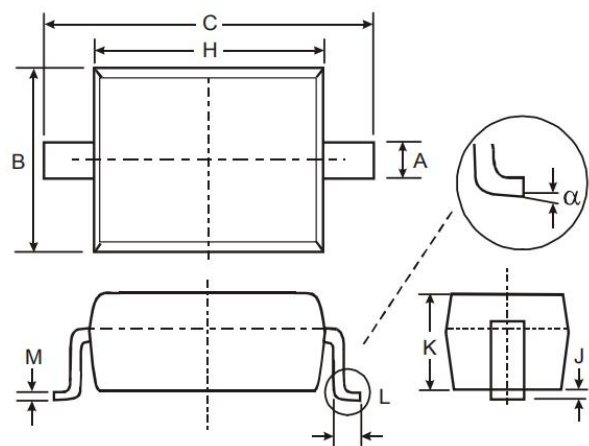
Soldering Parameters

Reflow Condition		Pb-Free Assembly
Pre-heat	-Temperature Min ($T_{s(min)}$)	+150°C
	-Temperature Max($T_{s(max)}$)	+200°C
	-Time (Min to Max) (t_s)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3°C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217°C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6°C/sec. Max
xTime 25°C to Peak Temp (T_p)		8 min. Max
Do not exceed		+260°C



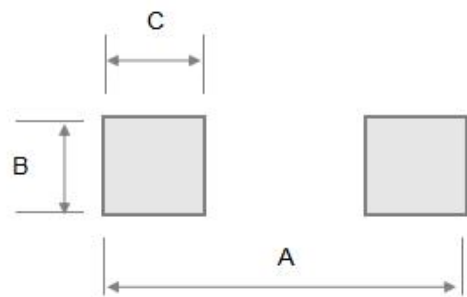
Package Outline Dimensions

SOD323



SYMBOL	MILLIMETERS	
	MIN	MAX
A	0.25	0.35
B	1.20	1.40
C	2.40	2.70
H	1.60	1.80
J	0.01	0.15
K	0.70	0.90
L	0.20	0.40
M	0.08	0.15
α	0°	8°

Soldering Footprint (mm)



SYMBOL	DIMENSIONS
A	3.20
B	0.80
C	0.80