1-Line Low Capacitance Bi-directional TVS Diode

General description

GBLC03C a 3.3V 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 GBLC03C has a low capacitance with a typical value at 1.0pF,and complies with the IEC61000-4-2(ESD) standard with ±30KV air and ±30KV contact discharge. It is assembled into a leadfree SOD-323 package. The small size, low capacitance and high ESD surge protection make GBLC03C an idea choice to protect cell phone, wireless systems, and communication equipment.

Features and benefits

- Ultra Low Capacitance 0.6 pF(Typ)
- 360W peak pulse power (8/20μS)
- Working Voltage 3.3V
- Low leakage current: nA Level
- Complies with following standards:
  --IEC 61000-4-2 (ESD) immunity test
  Air discharge: ±30KV
  Contact discharge: ±30KV
  --IEC61000-4-5 (Lightning) 20A (8/20μS)
  --IEC61000-4-4 (EFT) 80A (5/50nS)
- RoHS compliant

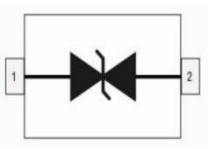
Application information

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

Ordering information

Par Number	Package	Packaging	Reel Size
GBLC03C	SOD323	3000/Tape & Reel	7 inch

Schematic & Pin configuration

Simplified outline	Graphic symbol
	

Maximum Ratings (T_A = 25 。 C, unless otherwise specified)

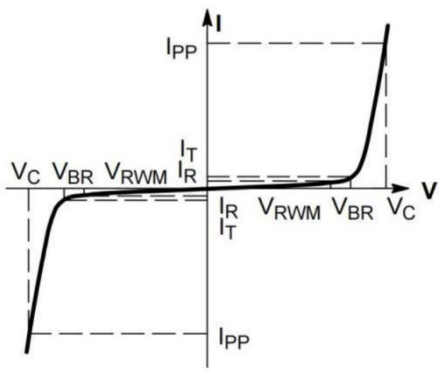
Parameter	Symbol	Value	Unit
Peak Pulse Power (tp = 8/20μS)	P_{Pk}	360	W
Peak Pulse Current(tp = 8/20μS)	I_{PP}	20	A
ESD voltage IEC 61000-4-2 (air discharge)	V_{ESD}	30	KV
ESD voltage IEC 61000-4-2 (contact discharge)	V_{ESD}	30	KV
Storage Temperature Range	T_{stg}	-55 to +150	°C
Operating Temperature Range	T_{OP}	-40 to +85	°C

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

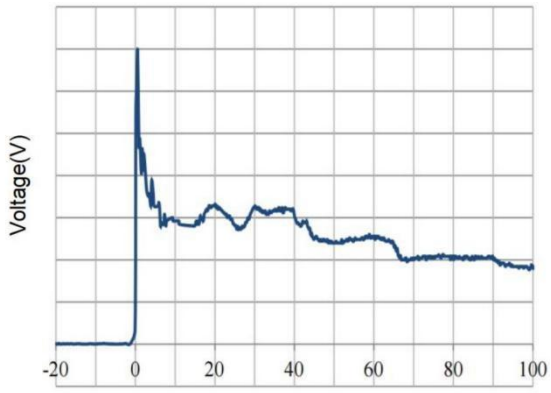
Parameter	Symbol	Min	Typ	Max	Unit	Condition
Reverse Working Voltage	V_{RWM}	--	--	3.3	V	
Breakdown Voltage	V_{BR}	4.0	5.0	6.0	V	I_T=1mA
Leakage Current ILeak	I_R	--	--	0.1	μA	V_{RWM}=3.3V
Clamping Voltage	V_C	--	8.0	--	V	I_{PP}=5A,Tp=8/20μs
Clamping Voltage	V_C	--	17.0	18.0	V	I_{PP}=20A,Tp=8/20μs
Junction Capacitance	C_J	--	0.6	1.0	pF	V_R=0V, f=1MHz

Portion Electronics Parameter

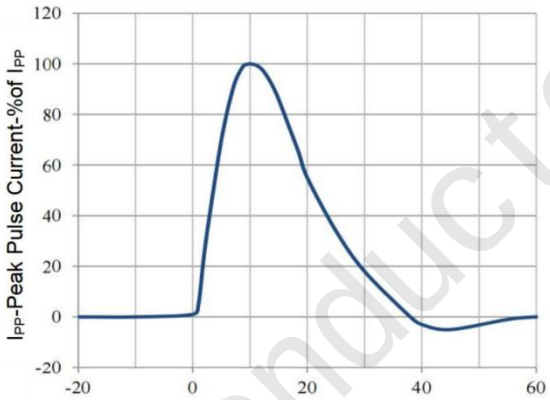
Symbol	Parameter
I_{PP}	Reverse Peak Pulse Current
V_C	Clamping Voltage @ IPP
V_{RWM}	Working Peak Reverse Voltage
I_R	Reverse Leakage Current @ VRWM
V_{BR}	Breakdown Voltage @ IT
I_T	VBR Test Current



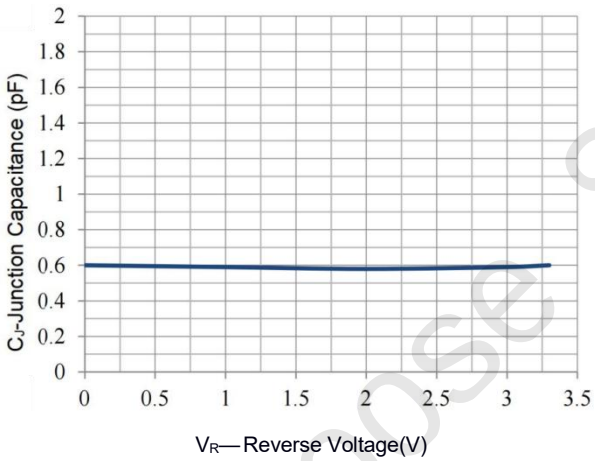
Typical Performance Characteristics (T_A=25°C unless otherwise Specified)



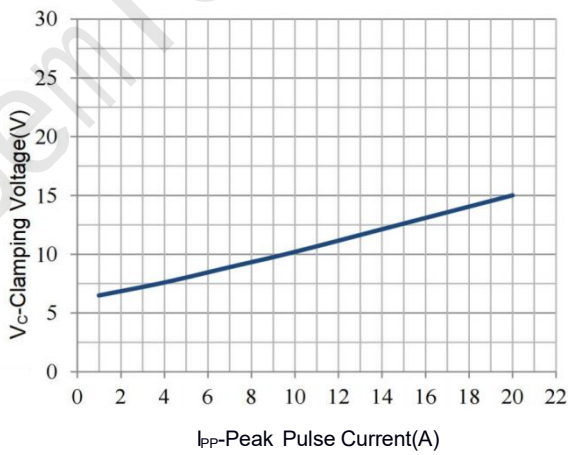
IEC61000−4−2 Pulse Waveform



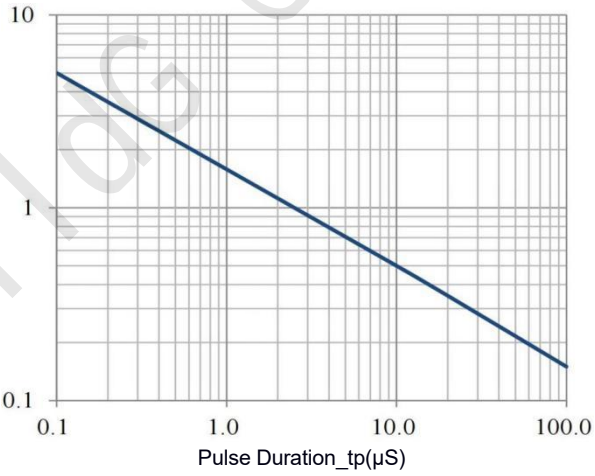
IEC61000−4−5 8X20μs Pulse Waveform



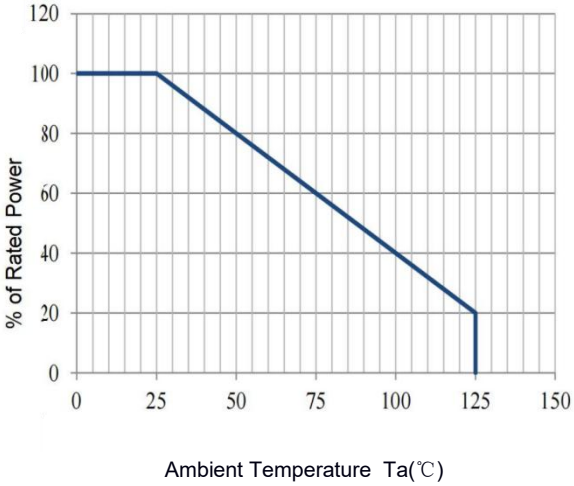
Junction Capacitance vs. Reverse Voltage



Clamping Voltage vs. Peak Pulse Current



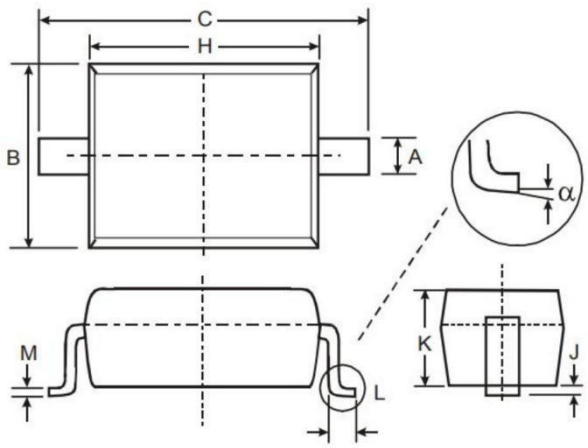
Peak Pulse Power vs. Pulse Time



Power Derating Curve

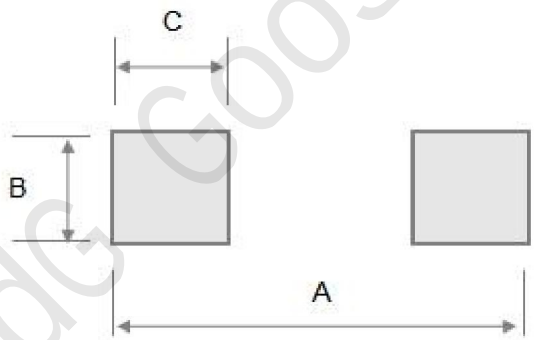
Package Outline Dimensions (mm)

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
“	0°	8°

Soldering Footprint (mm)



SYMBOL	DIMENSIONS
A	3.20
B	0.80
C	0.80