



JLS12BGS1-2

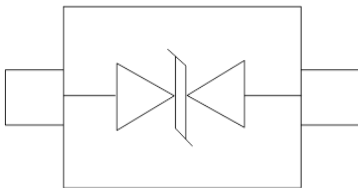
1-Line Bi-directional High Power TVS Diode

Jialan-Microelectronics

Description

The JLS12BGS1-2 is an bi-directional TVS diode, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive data and power lines. The JLS12BGS1-2 complies with the IEC 61000-4-2 (ESD) standard with $\pm 30\text{kV}$ air and $\pm 30\text{kV}$ contact discharge. It is assembled into a SOD-123FL lead-free package. The small size and high ESD/surge protection make JLS12BGS1-2 an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

Circuit Diagram



Circuit and Pin Schematic

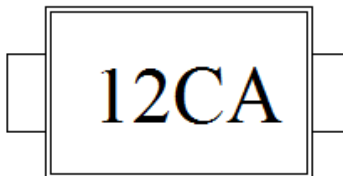
Features

- * 5000W peak pulse power (8/20 μs)
- * Low leakage
- * Operating voltage: 12V
- * Ultra low clamping voltage
- * One power line protects
- * 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) 150A (8/20 μs)
- * RoHS Compliant
- * Package: SOD-123FL
- * Lead Finish: Matte Tin

Applications

- * Fast-charge battery chargers
- * Power management system
- * Cellular Handsets and Accessories
- * Personal Digital Assistants
- * Notebooks and Handhelds
- * Portable Instrumentation
- * Digital Cameras

Marking Diagram



Transparent top view

12CA:Device Marking Code

Ordering Information

Part Number	Packaging	Reel Size
JLS12BGS1-2	3000/Tape & Reel	7 inch



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

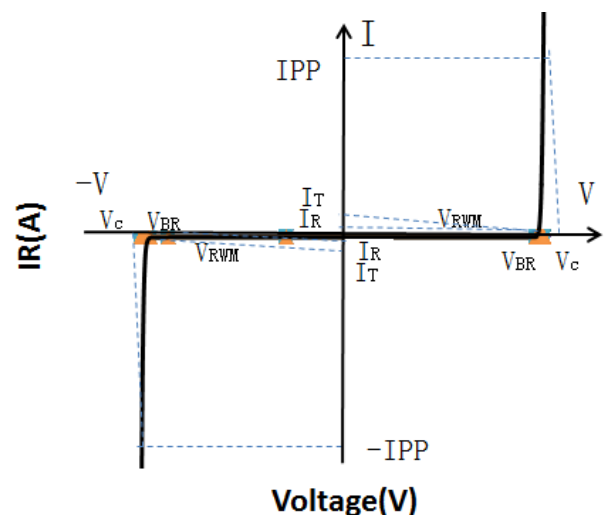
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	Ppk	5000	W
Peak Pulse Current (8/20 μs)	IPP	150	A
ESD per IEC 61000-4-2 (Air)	VESD	± 30	kV
ESD per IEC 61000-4-2 (Contact)		± 30	
Operating Temperature Range	TJ	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	Tstg	-55 to +150	$^{\circ}\text{C}$

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

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}				12.0	V
Breakdown Voltage	V_{BR}	$I_{\text{T}} = 1\text{mA}$	13.0			V
Reverse Leakage Current	I_{R}	$V_{\text{RWM}} = 12\text{V}$			2.0	μA
Clamping Voltage	V_{C}	$I_{\text{PP}} = 100\text{A}$ (8 x 20 μs pulse)			27.0	V
Clamping Voltage	V_{C}	$I_{\text{PP}} = 150\text{A}$ (8 x 20 μs pulse)			35.0	V
Junction Capacitance	C_{J}	$V_{\text{R}} = 0\text{V}$, $f = 1\text{MHz}$		300	400	pF

Portion Electronics Parameter

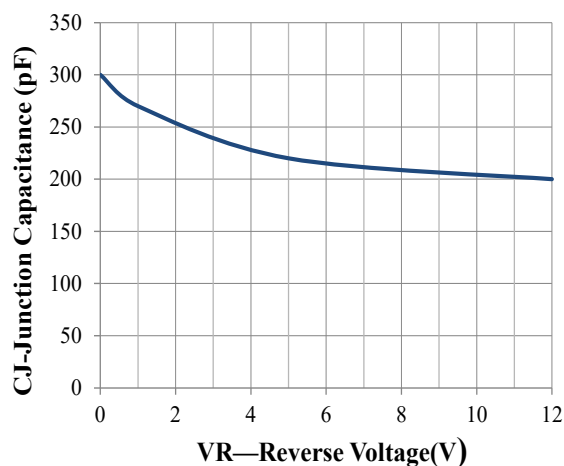
Symbol	Parameter
I_{T}	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
V_{C}	Clamping Voltage @ I_{C}



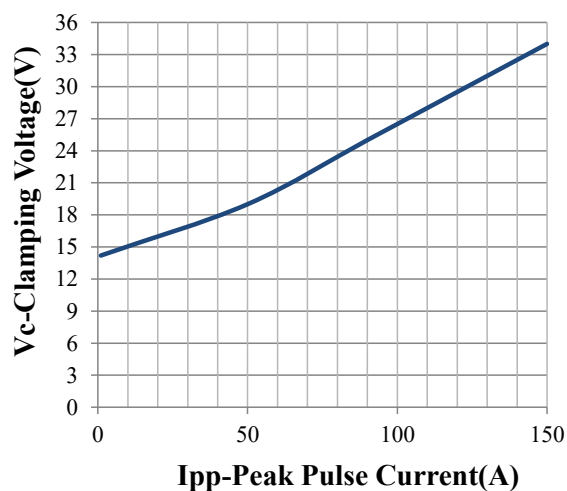


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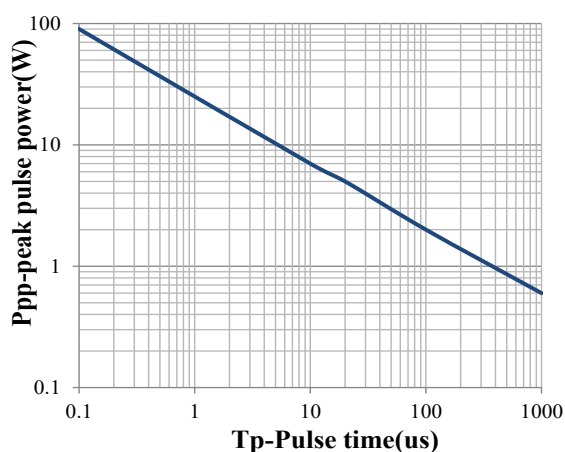
Typical Performance Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise Specified)



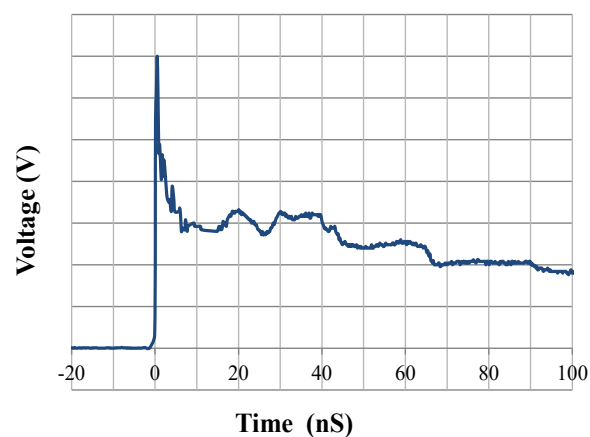
Junction Capacitance vs. Reverse Voltage



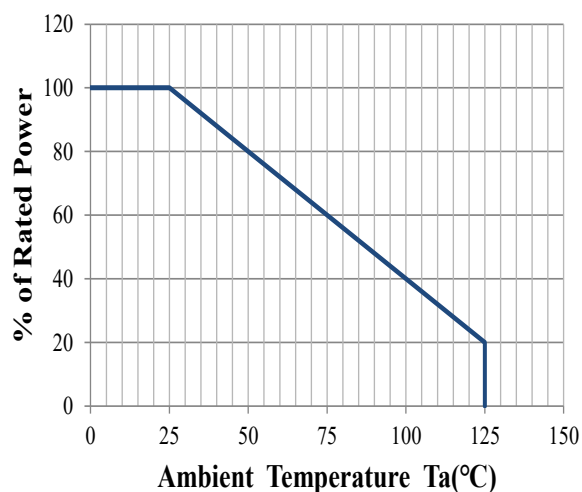
Clamping Voltage vs. Peak Pulse Current



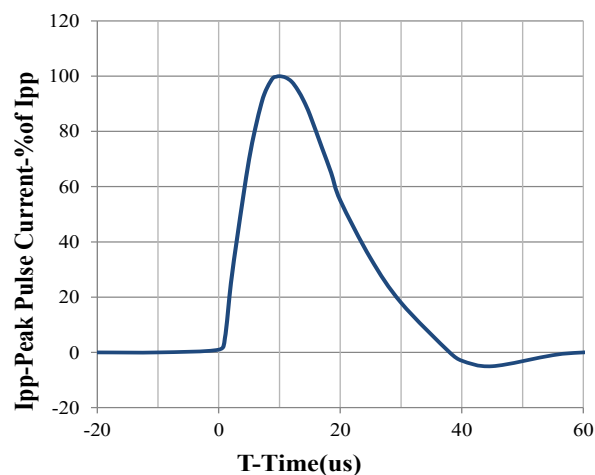
Peak Pulse Power vs. Pulse Time



IEC61000-4-2 Pulse Waveform



Power Derating Curve

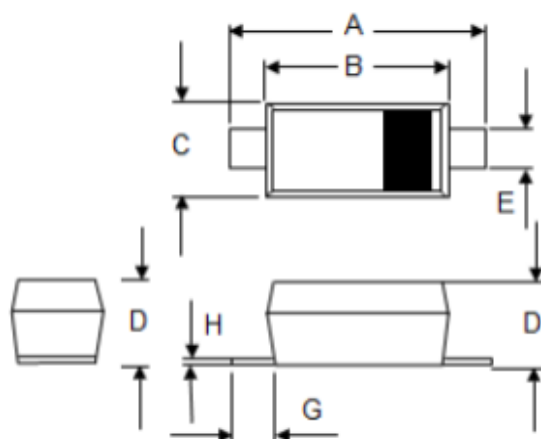


8 X 20us Pulse Waveform



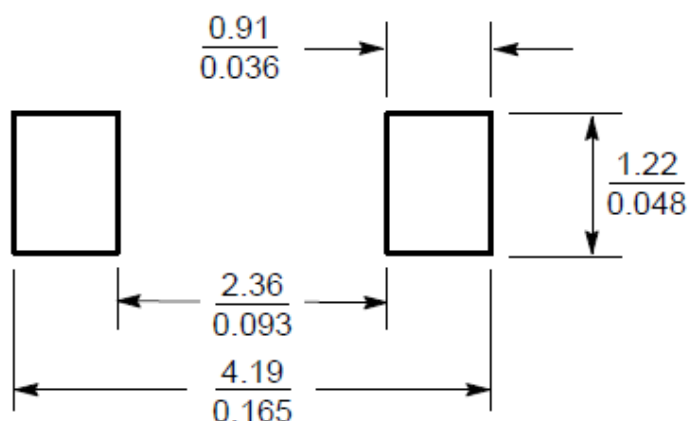
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SOD-123FL Package Outline Drawing (Dimensions in millimeters)



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	3.4	3.7	3.95	0.142	0.148	0.155
B	2.5	2.7	2.90	0.098	0.106	0.114
C	1.4	1.70	1.95	0.055	0.066	0.077
D	1.10	1.15	1.20	0.044	0.046	0.048
E	0.5	0.80	1.10	0.020	0.031	0.043
G	0.25	—	—	0.010	—	—
H	—	—	0.20	—	—	0.008

Suggested Land Pattern



SCALE 10:1 $\left(\frac{\text{mm}}{\text{inches}} \right)$

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