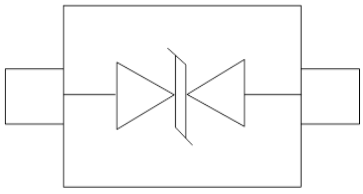
JS24B1GS10-2

1-Line High Power Bi-direction TVS Diode

Description

The JS24B1GS10-2 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 JS24B1GS10-2 complies with the IEC 61000-4-2 (ESD) standard with ± 30kV air and ± 30kV contact discharge. It is assembled into a SOD-123FL lead-free package. The small size and high ESD/ surge protection make JS24B1GS10-2 an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

Circuit Diagram



Circuit and Pin Schematic

Marking Diagram

Transparent top view

24CA:Device Marking Code

Features

* 6500W peak pulse power (8/20μs)
* Low leakage:uA level
* Operating voltage: 24V
* Low clamping voltage
* One power line protects
* Complies with following standards:
  – IEC 61000-4-2 (ESD) immunity test
    Air discharge: ±30kV
    Contact discharge: ±30kV
  – IEC61000-4-5 (Lightning) 200A (8/20μs)
* RoHS Compliant
* Package: SOD-123FL

Applications

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

Ordering Information

Part Number	Packaging	Reel Size
JS24B1GS10-2	3000/Tape & Reel	7 inch

Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

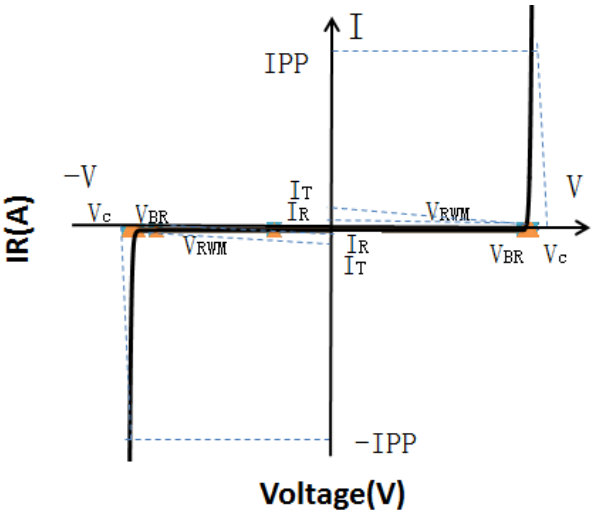
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	6500	W
Peak Pulse Current (8/20μs)	IPP	200	A
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	VESD	±30 ±30	kV
Operating Temperature Range	TJ	−55 to +125	°C
Storage Temperature Range	Tstg	−55 to +150	°C

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

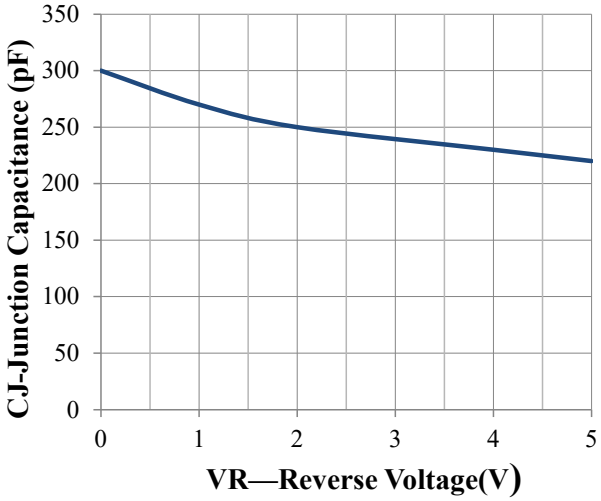
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}				24.0	V
Breakdown Voltage	V_{BR}	I_T = 1mA	25.5			V
Reverse Leakage Current	I_R	V_{RWM} = 24V			2.0	μA
Clamping Voltage	V_C	I_{PP} = 100A (8 x 20μs pulse)			30.0	V
Clamping Voltage	V_C	I_{PP} = 200A (8 x 20μs pulse)			35.0	V
Junction Capacitance	C_J	VR = 0V, f = 1MHz		300	350	pF

Portion Electronics Parameter

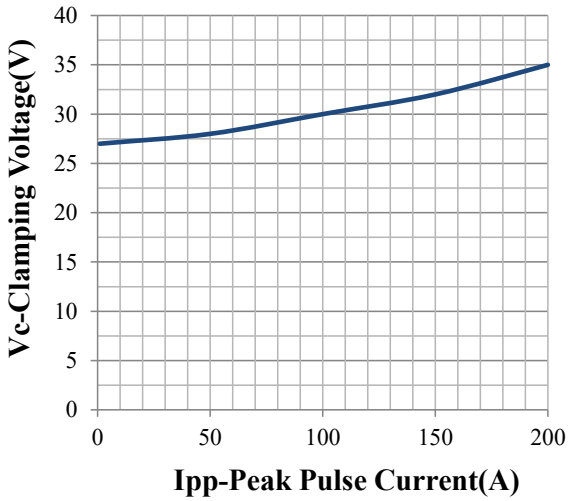
Symbol	Parameter
I_T	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
Vc	Clamping Voltage @Ic



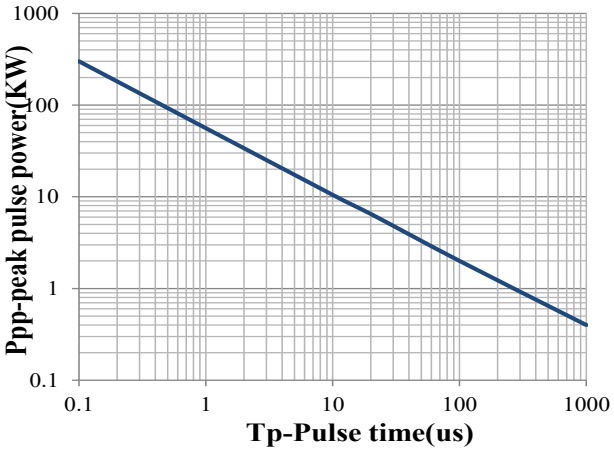
Typical Performance Characteristics (T_A=25°C unless otherwise Specified)



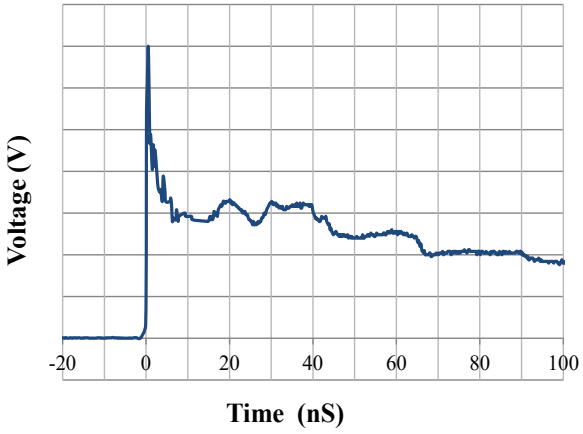
Junction Capacitance vs. Reverse Voltage



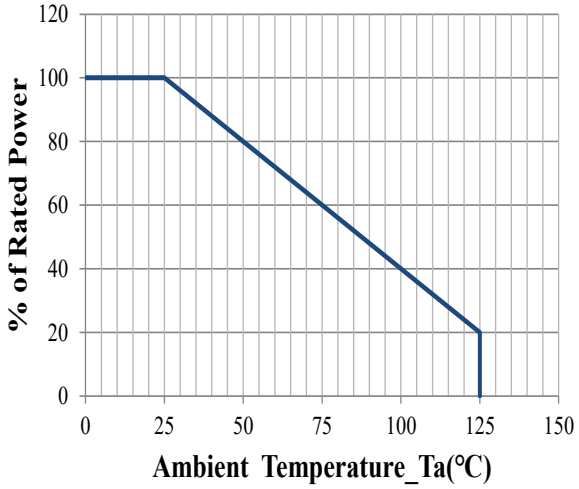
Clamping Voltage vs. Peak Pulse Current



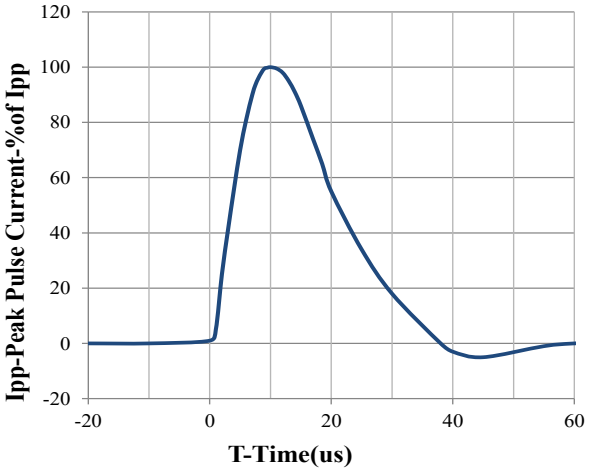
Peak Pulse Power vs. Pulse Time



IEC61000−4−2 Pulse Waveform

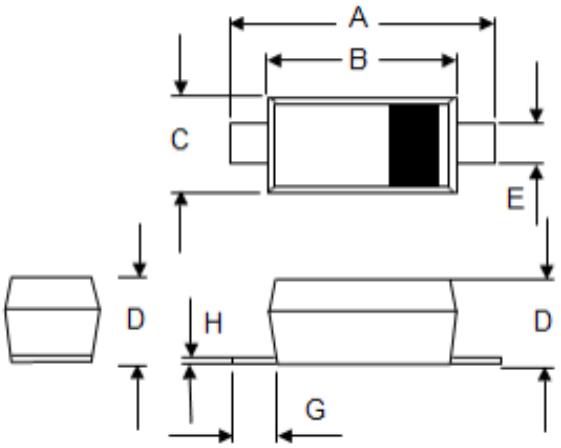


Power Derating Curve



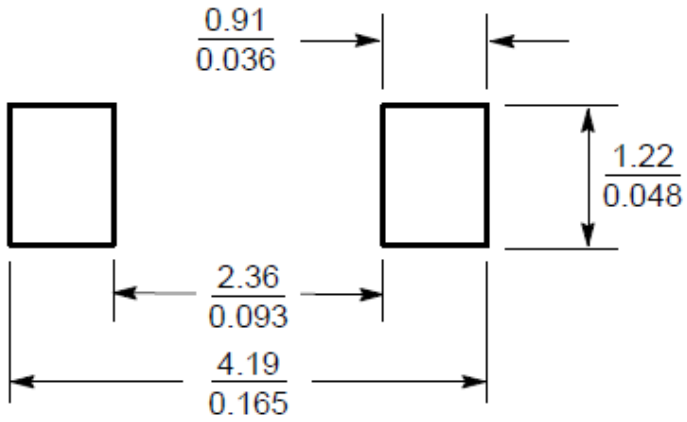
8 X 20us Pulse Waveform

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	1.7	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 $\left(\frac{mm}{inches}\right)$

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