JLE05BRS3-2A

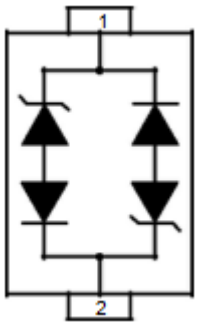
1-Line Bi-directional High Power TVS Diode

Jialan-Microelectronics

Description

The JLE05BRS3-2A is a 5V bi-directional TVS diode, utilizing leading monolithic silicon technology to provide fast re-sponse time and low ESD clamping voltage, mak-ing this device an ideal solution for protecting voltage sen-sitive high- speed data lines. The JLE05BRS3-2A has a low capaci-tance with a typical value at 2pF, and complies with the IEC 61000-4-2 (ESD) standard with ±30kV air and ±30kV contact discharge. It is assembled into a lead-free SOD-323 package. The small size, low capacitance and high ESD surge protection make JLE05BRS3-2A an ideal choice to protect cell phone, wireless systems, and communication equipment.

Circuit Diagram



Circuit and Pin Schematic

Marking Diagram

Transparent top view

R5:Device Marking Code

Features

* 450W peak pulse power (8/20μs)
* Low leakage
* Operating voltage: 5V
* Ultra 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) 18A (8/20μs)
* RoHS Compliant
* Package: SOD-323

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
JLE05BRS3-2A	3000/Tape & Reel	7 inch

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

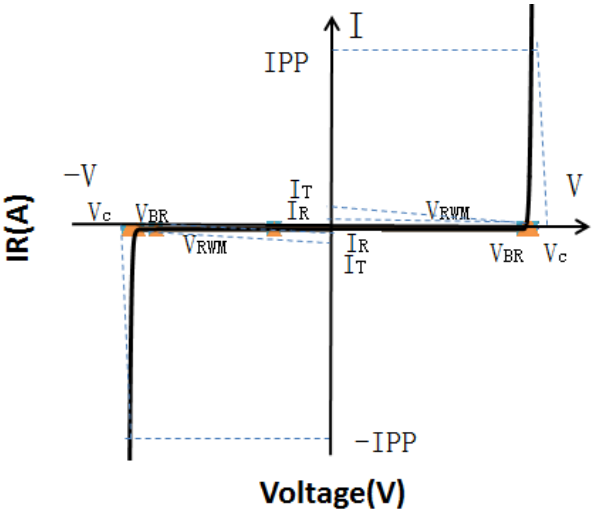
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	450	W
Peak Pulse Current (8/20μs)	IPP	18	A
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	VESD	±30 ±30	kV
Operating Temperature Range	TJ	−40to +85	°C
Storage Temperature Range	Tstg	−55 to +150	°C

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

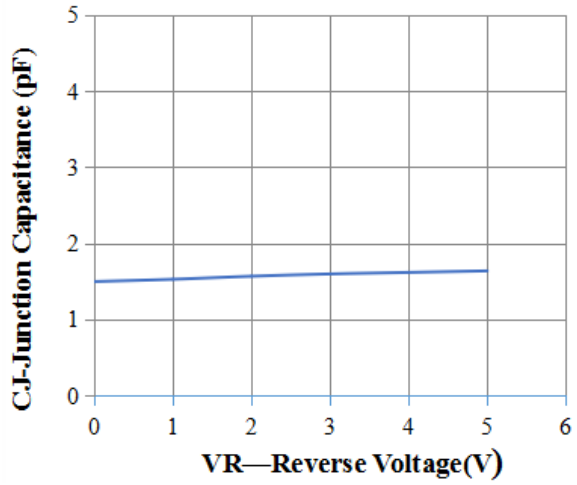
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}				5.0	V
Breakdown Voltage	V_{BR}	I_T = 1mA	6.0	7.0		V
Reverse Leakage Current	I_R	V_{RWM} = 5V			0.5	μA
Clamping Voltage	Vc	I_{PP} = 1A (8 x 20μs pulse)			12.0	V
Clamping Voltage	Vc	I_{PP} = 18A (8 x 20μs pulse)			25.0	V
Junction Capacitance	C_J	VR = 0V, f = 1MHz		2.0	3.0	pF

Portion Electronics Parameter

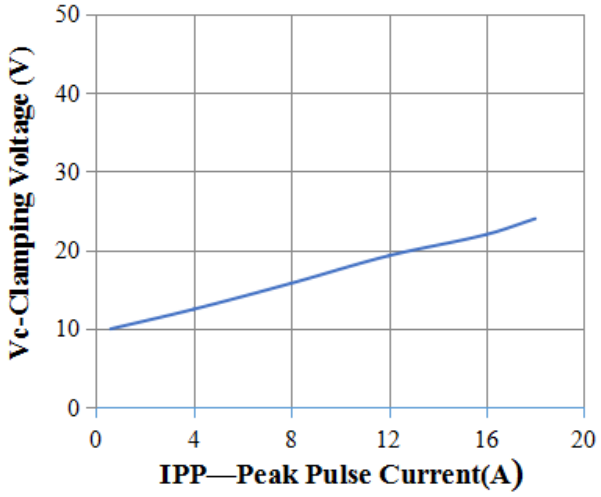
Symbol	Parameter
I_T	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
Vc	Clamping Voltage @Ic



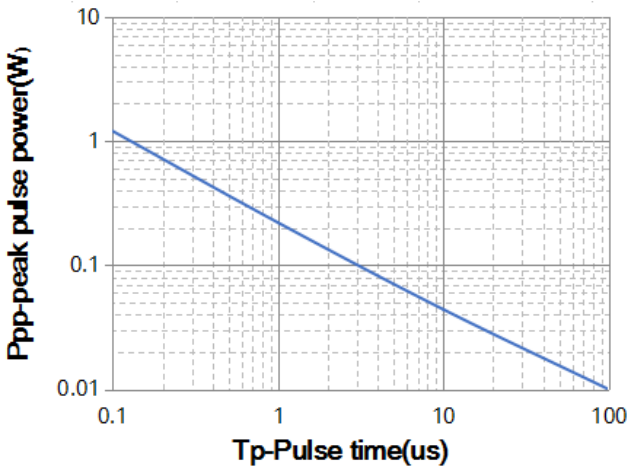
Typical Performance Characteristics (T_A=25°C unless otherwise Specified)



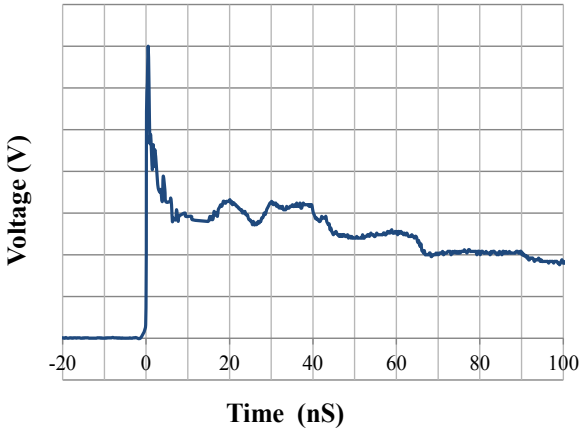
Junction Capacitance vs. Reverse Voltage



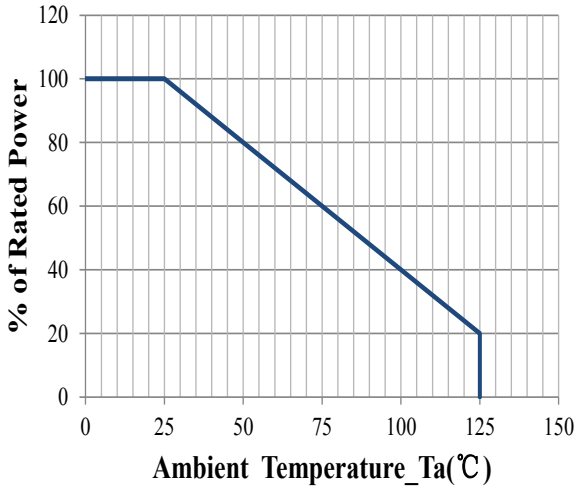
Clamping Voltage vs. Peak Pulse Current



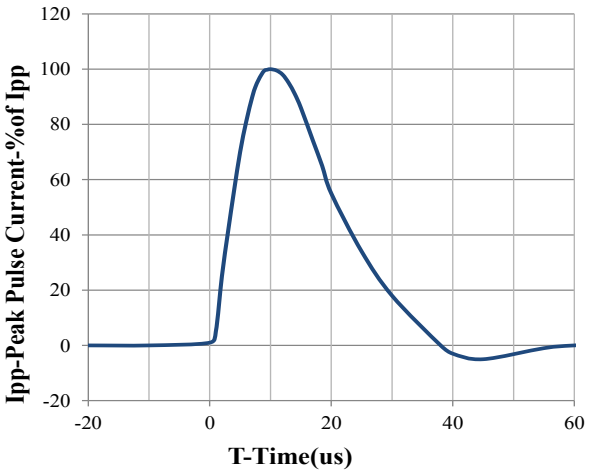
Peak Pulse Power vs. Pulse Time



IEC61000-4-2 Pulse Waveform

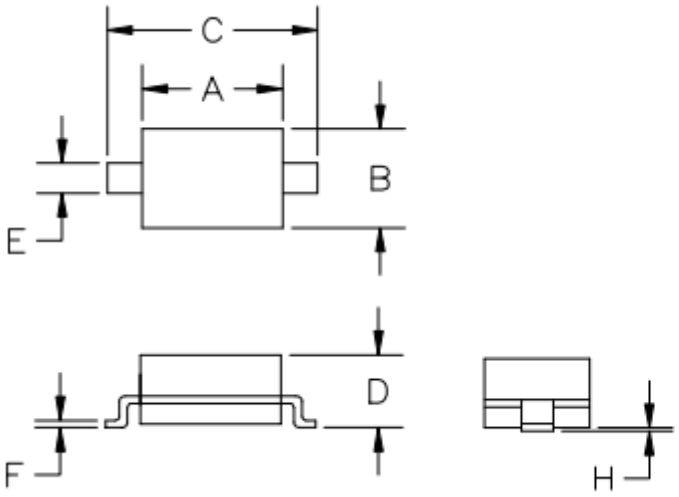


Power Derating Curve



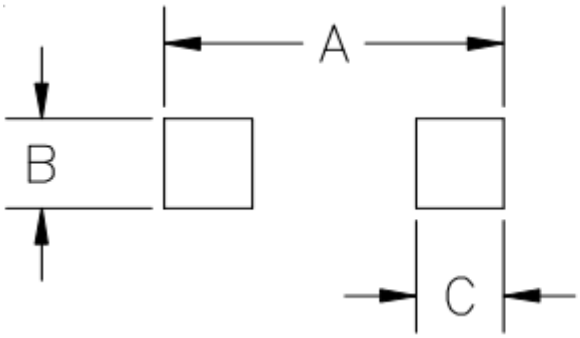
8 X 20us Pulse Waveform

SOD-323 Package Outline Drawing (Dimensions in millimeters)



SYM	DIMENSIONS			
	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.50	1.80	0.060	0.071
B	1.20	1.40	0.045	0.054
C	2.30	2.70	0.090	0.107
D	-	1.10	-	0.043
E	0.30	0.40	0.012	0.016
F	0.10	0.25	0.004	0.010
H	-	0.10	-	0.004

Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
A	3.15	0.120
B	0.80	0.031
C	0.80	0.031

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