



JLE24BRS3-2

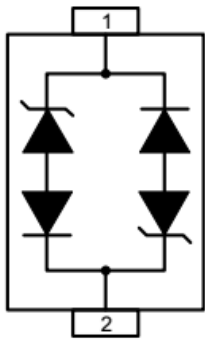
1-Line Low Capacitance Bi-directional TVS Diode

Jalan-Microelectronics

Description

The JLE24BRS3 -2 is a 24V 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 high-speed data lines. The JLE24BRS3 -2 has a low capacitance with a typical value at 1pF, and complies with the IEC 61000-4-2 (ESD) with $\pm 30\text{kV}$ air and $\pm 30\text{kV}$ contact discharge. It is assembled into a lead-free SOD-323 package. The small size, low capacitance and high ESD surge protection make JLE24BRS3 -2 an ideal choice to protect cell phone, wireless systems, and communication equipment.

Circuit Diagram



Circuit and Pin Schematic

Features

- * 360W peak pulse power (8/20 μs)
- * Ultra low capacitance: 1pF typical
- * Low leakage: nA level
- * Operating voltage: 24V
- * 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) 10A (8/20 μs)
- * RoHS Compliant

Applications

- * USB Ports
- * Smart Phones
- * Wireless Systems
- * Ethernet 10/100/1000 Base T

Marking Diagram



Transparent top view

HC: Device Marking Code

Ordering Information

Part Number	Packaging	Reel Size
JLE24BRS3-2	3000/Tape & Reel	7 inch



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

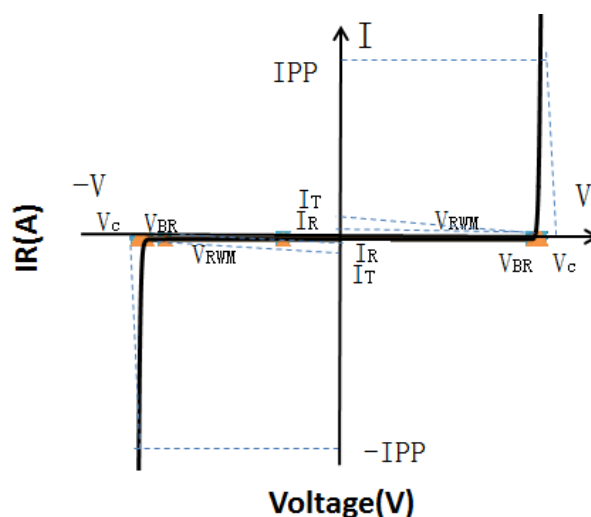
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	Ppk	360	W
Peak Pulse Current (8/20 μs)	IPP	10	A
ESD per IEC 61000-4-2 (Air)	VESD	± 30	kV
ESD per IEC 61000-4-2 (Contact)		± 30	
Operating Temperature Range	TJ	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	Tstg	-55 to +150	$^{\circ}\text{C}$

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

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}				24	V
Breakdown Voltage	V_{BR}	$I_{\text{T}} = 1\text{mA}$	27			V
Reverse Leakage Current	I_{R}	$V_{\text{RWM}} = 24\text{V}$			0.2	μA
Clamping Voltage	V_{C}	$I_{\text{PP}} = 1\text{A}$ (8 x 20 μs pulse)			30	V
Clamping Voltage	V_{C}	$I_{\text{PP}} = 10\text{A}$ (8 x 20 μs pulse)			36	V
Junction Capacitance	C_{J}	$V_{\text{R}} = 0\text{V}$, $f = 1\text{MHz}$		1		pF

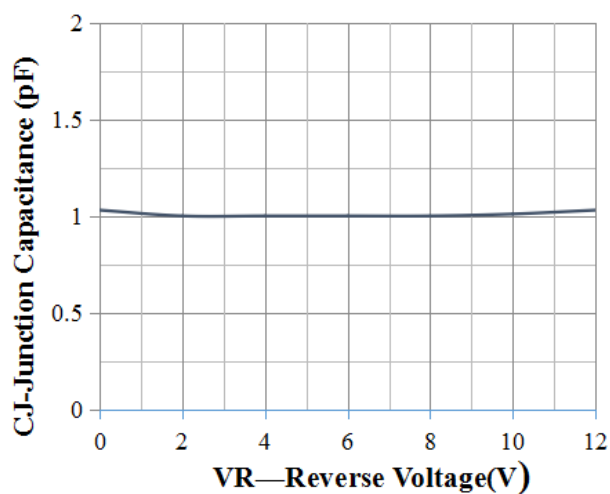
Portion Electronics Parameter

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

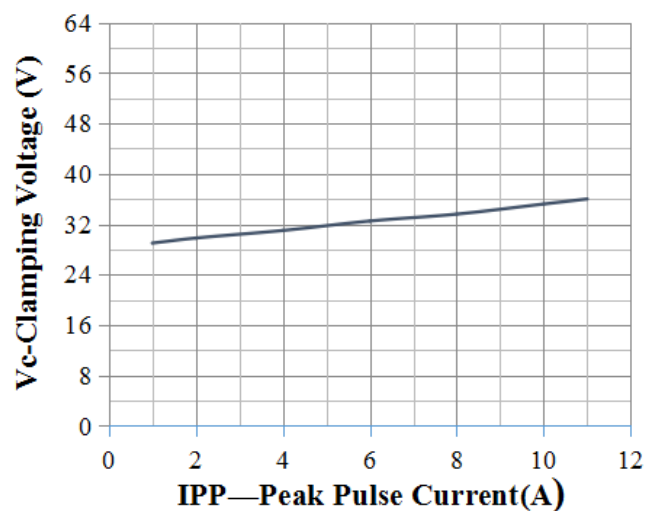




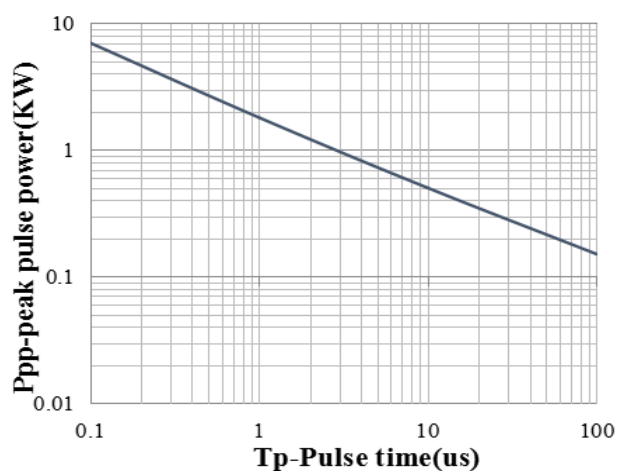
Typical Performance Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise Specified)



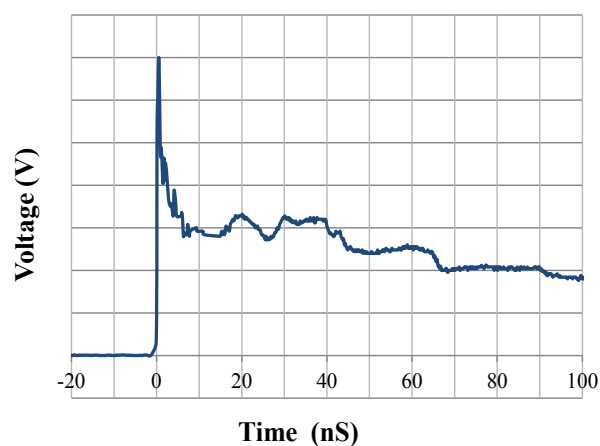
Junction Capacitance vs. Reverse Voltage



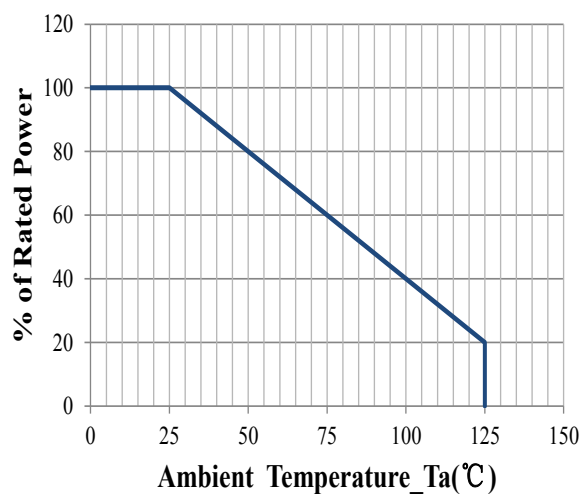
Clamping Voltage vs. Peak Pulse Current



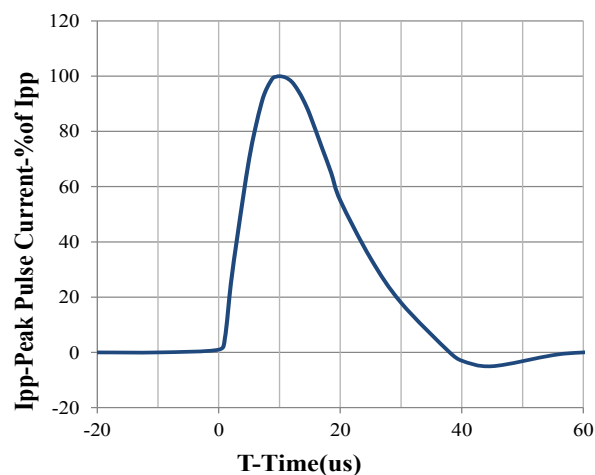
Peak Pulse Power vs. Pulse Time



IEC61000-4-2 Pulse Waveform



Power Derating Curve

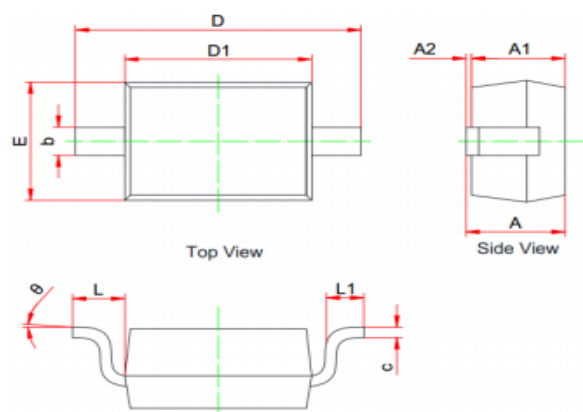


8 X 20us Pulse Waveform



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SOD-323 Package Outline Drawing (Dimensions in millimeters)



SYM	MILLIMETERS		
	MIN	NOM	MAX
A	0.800	--	1.100
A1	0.800	--	0.900
A2	0.000	--	0.100
b	0.250	--	0.400
c	0.080	--	0.177
D1	1.600	1.700	1.800
D	2.300	--	2.800
E	1.150	--	1.400
L	0.475REF		
L1	0.100	--	0.500
Θ	0°	--	8°

Suggested Land Pattern



Unit: mm

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