



JLE33BLD1-2

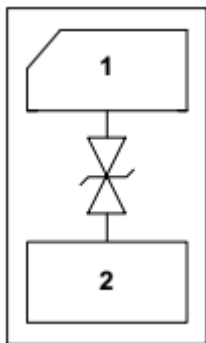
1-Line Ultra Small Bi-directional TVS Diode

Jialan-Microelectronics

Description

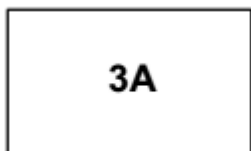
The JLE33BLD1-2 is a bi-directional TVS diode, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive data and power line. The JLE33BLD1-2 complies with the IEC 61000-4-2 (ESD) with $\pm 30\text{kV}$ air and $\pm 30\text{kV}$ contact discharge. It is assembled into an ultra-small $0.6 \times 0.3 \times 0.3\text{mm}$ lead-free DFN package. The ultra small size and high ESD surge protection make JLE33BLD1-2 an ideal choice to replace 0201 size multilayer varistors (MLVs) and protect cell phone, digital cameras, audio players and many other portable applications.

Circuit Diagram



Circuit and Pin Schematic

Marking Diagram



Transparent top view

3A:Device Marking Code

Features

- * 80W peak pulse power (8/20 μs)
- * Low leakage:nA level
- * Operating voltage: 3.3V
- * 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) 8A (8/20 μs)
- * RoHS Compliant
- * Package:DFN0603-2

Applications

- * Cellular Handsets and Accessories
- * Personal Digital Assistants
- * Notebooks and Handhelds
- * Portable Instrumentation
- * Digital Cameras
- * Peripherals
- * Audio Players
- * Keypads, Side Keys, LCD Displays

Ordering Information

Part Number	Packaging	Reel Size
JLE33BLD1-2	10000/Tape & Reel	7 inch



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

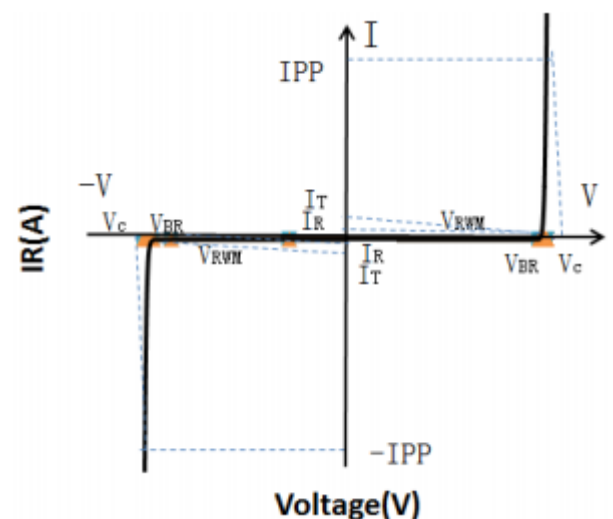
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	Ppk	80	W
Peak Pulse Current (8/20 μs)	IPP	8	A
ESD per IEC 61000-4-2 (Air)	VESD	± 30	kV
ESD per IEC 61000-4-2 (Contact)		± 30	
Operating Temperature Range	TJ	-55to +125	$^{\circ}\text{C}$
Storage Temperature Range	Tstg	-55 to +150	$^{\circ}\text{C}$

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

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}				3.3	V
Breakdown Voltage	V_{BR}	$I_{\text{T}} = 1\text{mA}$	3.8	4.5	4.8	V
Reverse Leakage Current	I_{R}	$V_{\text{RWM}} = 3.3\text{V}$	0.01	0.01	0.2	μA
Clamping Voltage	V_{C}	$I_{\text{PP}} = 1\text{A}$ (8 x 20 μs pulse)	5	5.5	6	V
Clamping Voltage	V_{C}	$I_{\text{PP}} = 8\text{A}$ (8 x 20 μs pulse)	8	9	10	V
Junction Capacitance	C_{J}	$V_{\text{R}} = 0\text{V}$, $f = 1\text{MHz}$	12	12.5	25	pF

Portion Electronics Parameter

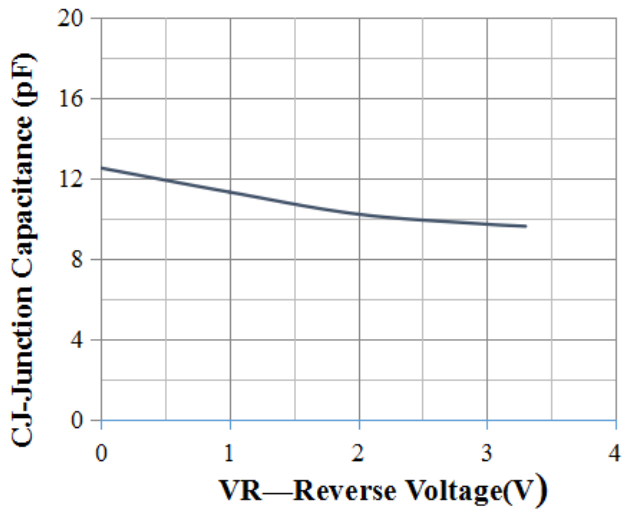
Symbol	Parameter
I_{T}	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
V_{C}	Clamping Voltage @ I_{C}



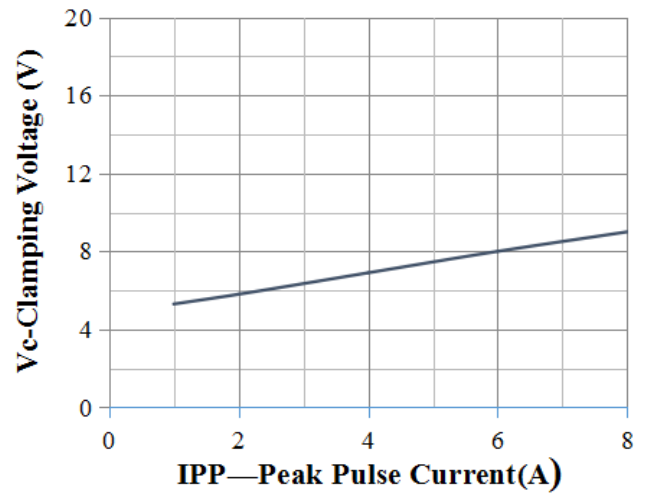


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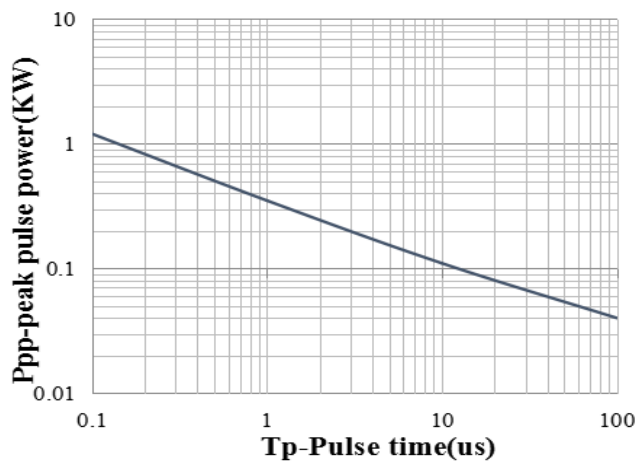
Typical Performance Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise Specified)



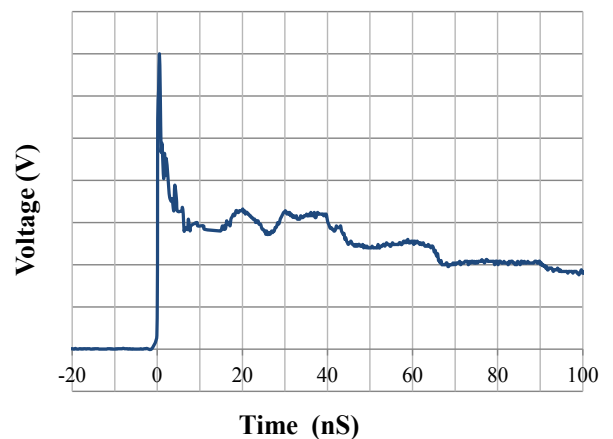
Junction Capacitance vs. Reverse Voltage



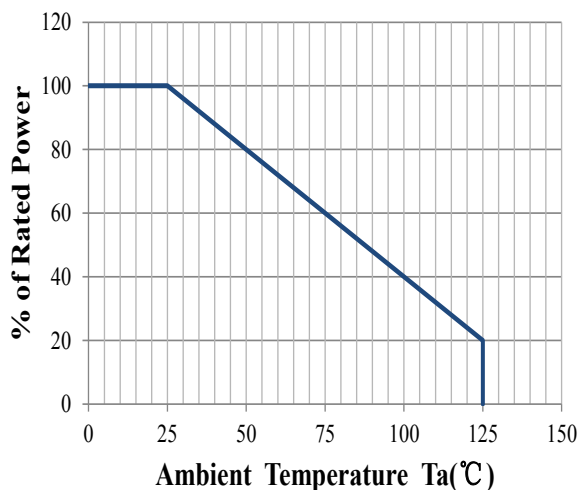
Clamping Voltage vs. Peak Pulse Current



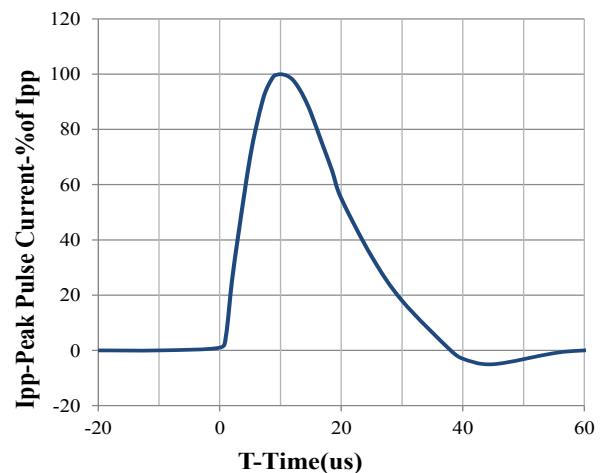
Peak Pulse Power vs. Pulse Time



IEC61000-4-2 Pulse Waveform



Power Derating Curve

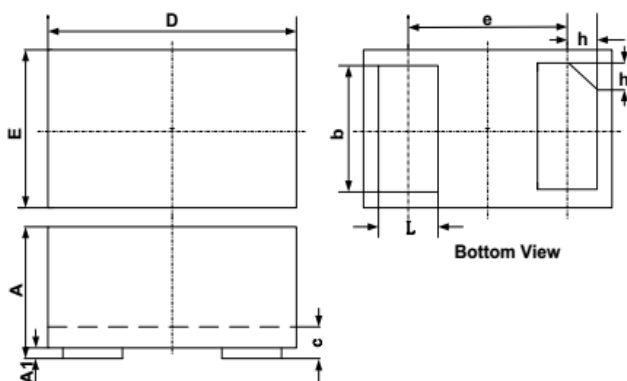


8 X 20us Pulse Waveform



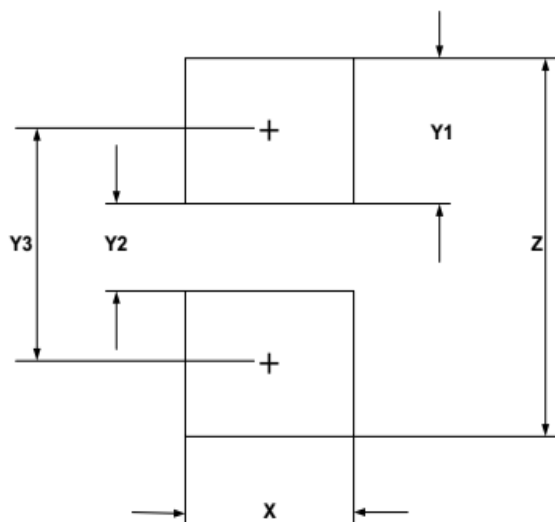
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DFN0603-2 Package Outline Drawing (Dimensions in millimeters)



SYM	DIMENSIONS		
	MILLIMETERS		
	MIN	NOM	MAX
A	0.230		0.330
A1	0.000	0.020	0.050
b	0.215	0.245	0.275
c	0.120	0.150	0.180
D	0.550	0.600	0.650
e	0.355 BSC		
E	0.250	0.300	0.350
L	0.160	0.190	0.220
h	0.079 BSC		

Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
X	0.30	0.012
Y1	0.25	0.010
Y2	0.15	0.006
Y3	0.40	0.016
Z	0.65	0.026

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