



JLE05BRD1-2L

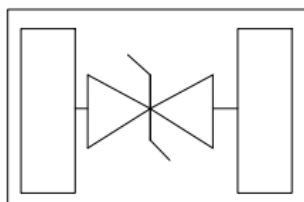
1-Line Ultra Low Capacitance Bi-directional TVS Diode

Jialan-Microelectronics

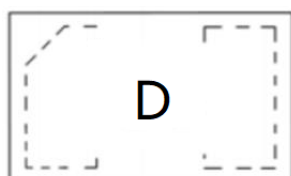
Description

The JLE05BRD1-2L is designed with Jelan process TVS technology to protect voltage sensitive components from ESD. Excellent clamping capability, low leakage, and fast response time provide best in class protection on designs that are exposed to ESD. Because of its small size, it is suited for use in cellular phones, MP3 players, digital cameras and many other portable applications where board space comes at a premium. Also because of its low capacitance, it is suited for use in high frequency designs such as USB 2.0 high speed, USB 3.0 super speed, USB 3.1 super speed ,VGA, DVI, HDMI, eSATA and other high speed line applications. It has been specifically designed to protect sensitive components which are connected to data and transmission lines from overvoltage caused by ESD(electrostatic discharge), and EFT (electrical fast transients).

Circuit Diagram



Marking Diagram



Transparent top view

D:Device Marking Code

Features

- * Ultra low capacitance: 0.17pF typical
- * Low leakage: nA level
- * Operating voltage: 5V
- * Low clamping voltage
- * 2-pin leadless package
- * Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 15\text{kV}$
 - Contact discharge: $\pm 15\text{kV}$
 - IEC 61000-4-5 (Lightning) 4A (8/20 μs)
- * RoHS Compliant
- * Package: DFN0603-2L

Applications

- * High Speed Line:
USB1.0/2.0/3.0/3.1,VGA,DVI,SDI
- * High Definition Multi-Media Interface
(HDMI1.3/1.4/2.0)
- * Cellular handsets and accessories
- * Notebooks, Desktops, Servers
- * Portable instrumentation
- * Serial and Parallel Ports
- * Projection TV
- * Peripherals

Ordering Information

Part Number	Packaging	Reel Size
JLE05BRD1 - 2L	15000/Tape & Reel	7 inch



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

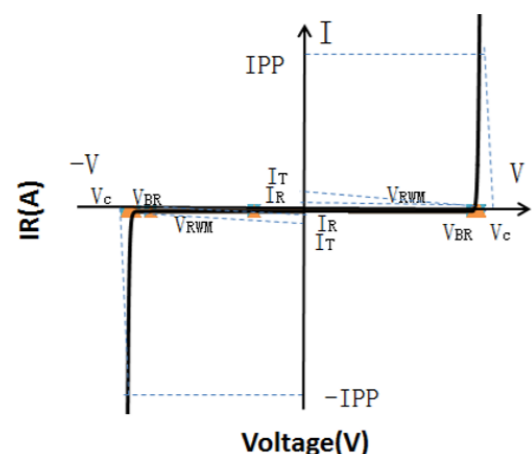
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	Ppk	30	W
Peak Pulse Current (8/20 μs)	IPP	2	A
ESD per IEC 61000-4-2 (Air)	VESD	± 15	kV
ESD per IEC 61000-4-2 (Contact)		± 15	
Operating Temperature Range	TJ	-55 to +150	$^{\circ}\text{C}$
Storage Temperature Range	Tstg	-55 to +150	$^{\circ}\text{C}$

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

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}				5.5	V
Breakdown Voltage	V_{BR}	$I_{\text{T}} = 1\text{mA}$	6			V
Reverse Leakage Current	I_{R}	$V_{\text{RWM}} = 5.5\text{V}$			0.2	μA
Clamping Voltage	V_{C}	$I_{\text{PP}} = 2\text{A}$ (8 x 20 μs pulse)		11	15	V
Junction Capacitance	C_{J}	$V_{\text{R}} = 0\text{V}$, $f = 1\text{MHz}$		0.17	0.25	pF

Portion Electronics Parameter

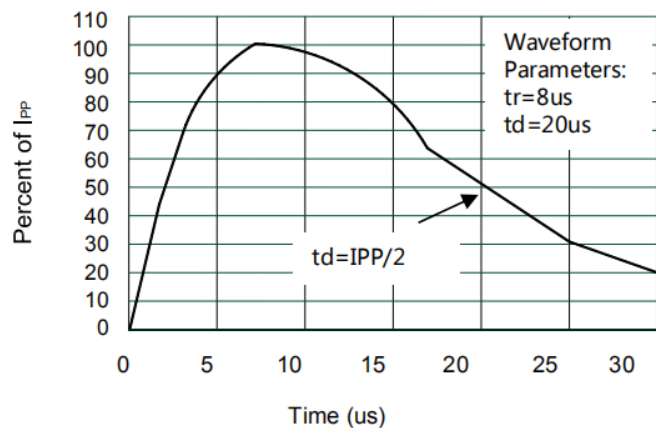
Symbol	Parameter
I_{T}	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
V_{C}	Clamping Voltage @ I_{C}



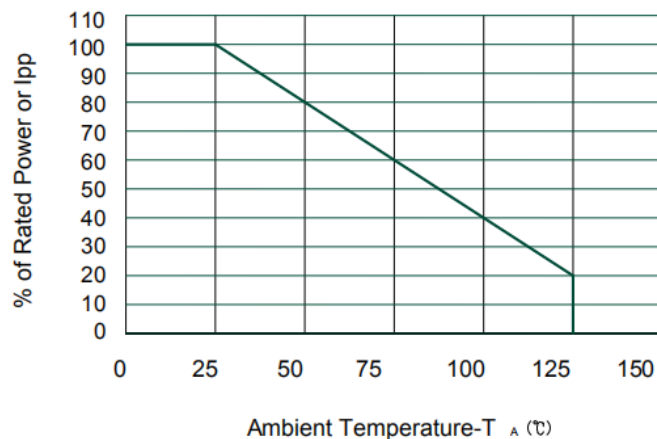


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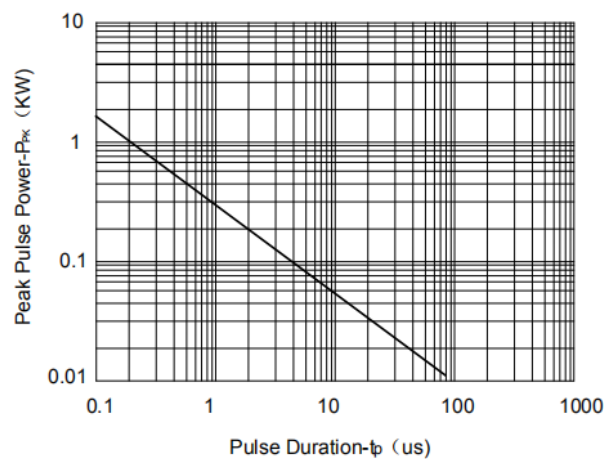
Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)



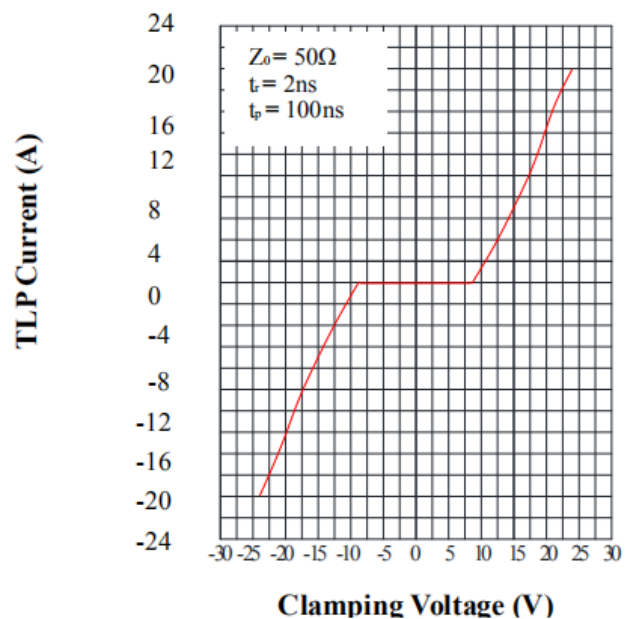
Pulse Waveform



Power Derating Curve



Non-Repetitive Peak Pulse Power vs. Pulse Time

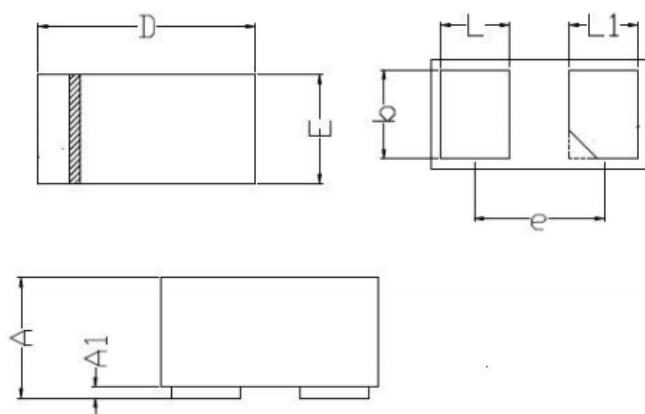


TLP Measurement



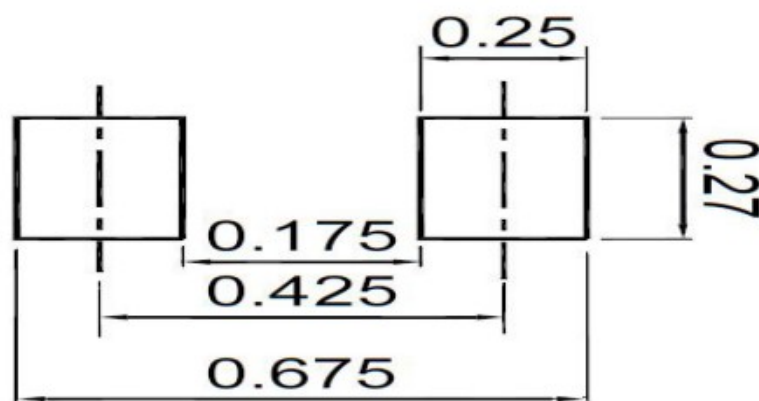
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DFN0603-2L Package Outline Drawing



DIM	Millimeters	
	Min	Max
A	0.230	0.330
A1	0.000	0.050
D	0.550	0.670
E	0.250	0.370
b	0.175	0.275
L	0.11	0.21
L1	0.11	0.21
e	0.355BSC	

Suggested Land Pattern



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