



JLE05BRD2-2H

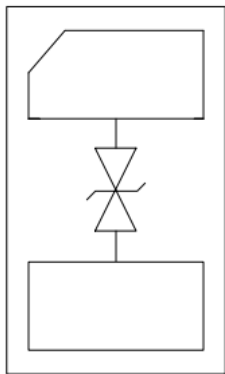
1-Line Bi-directional Low Capacitance TVS Diode

Jialan-Microelectronics

Description

The JLE05BRD2-2H 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 high-speed data lines. The JLE05BRD2-2H has an ultra-low capacitance with a typical value at 0.15pF, and complies with the IEC 61000-4-2 (ESD) with ±25kV air and ±22kV contact discharge. It is assembled into an ultra-small 1.0x0.6x0.5mm lead-free DFN package. The small size, ultra-low capacitance and high ESD surge protection make JLE05BRD2-2H an ideal choice to protect cell phone, digital video interfaces and other high speed ports.

Circuit Diagram



Circuit and Pin Schematic

Features

- * Ultra low capacitance: 0.15pF typical
- * Low leakage: nA level
- * Low operating voltage: 5V
- * Ultra low clamping voltage
- * One power line protects
- * Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: ±25kV
 - Contact discharge: ±22kV
 - IEC61000-4-5 (Lightning) 4A (8/20µs)
- * RoHS Compliant
- * Package: DFN1006-2

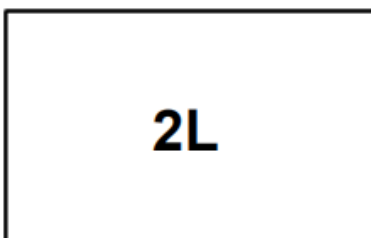
Applications

- * Cellular Handsets and Accessories
- * Display Ports
- * MDDI Ports
- * USB Ports
- * Digital Visual Interface (DVI)
- * PCI Express and Serial SATA Ports

Ordering Information

Part Number	Packaging	Reel Size
JLE05BRD2-2H	10000/Tape & Reel	7 inch

Marking Diagram



Transparent top view

2L: Device Marking Code



JLE05BRD2-2H

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

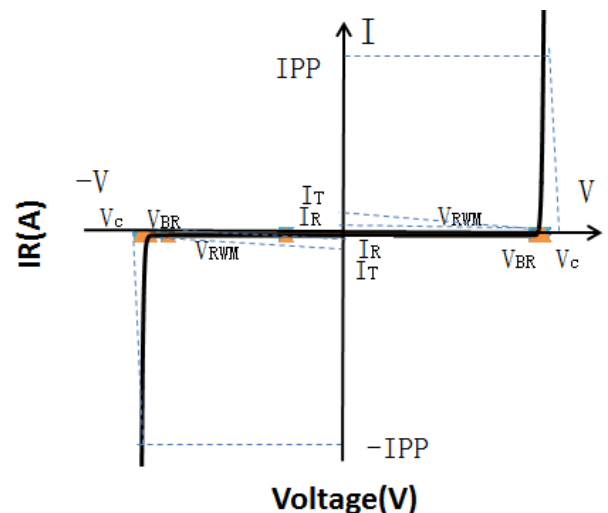
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	Ppk	100	W
Peak Pulse Current (8/20 μs)	Ipp	4	A
ESD per IEC 61000-4-2 (Air)	VESD	± 25	kV
ESD per IEC 61000-4-2 (Contact)		± 20	
Operating Temperature Range	TJ	-55to +125	$^\circ\text{C}$
Storage Temperature Range	Tstg	-55 to +150	$^\circ\text{C}$

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

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V _{RWM}				5	V
Breakdown Voltage	V _{BR}	I _T = 1mA	6.5		9.5	V
Reverse Leakage Current	I _R	V _{RWM} = 5V			0.2	μA
Clamping Voltage	V _C	I _{PP} = 1A (8 x 20 μs pulse)			12.5	V
Clamping Voltage	V _C	I _{PP} = 4A (8 x 20 μs pulse)			25	V
Junction Capacitance	C _J	V _R = 0V, f = 1MHz		0.15	0.3	pF

Portion Electronics Parameter

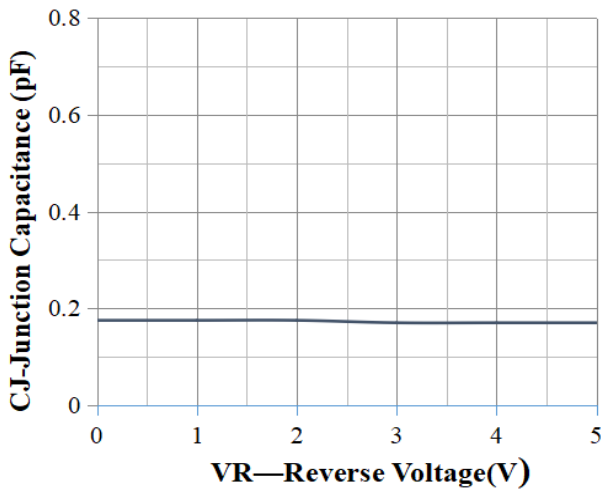
Symbol	Parameter
I _T	Test Current
I _{PP}	Maximum Reverse Peak Pulse Current
V _C	Clamping Voltage @I _C



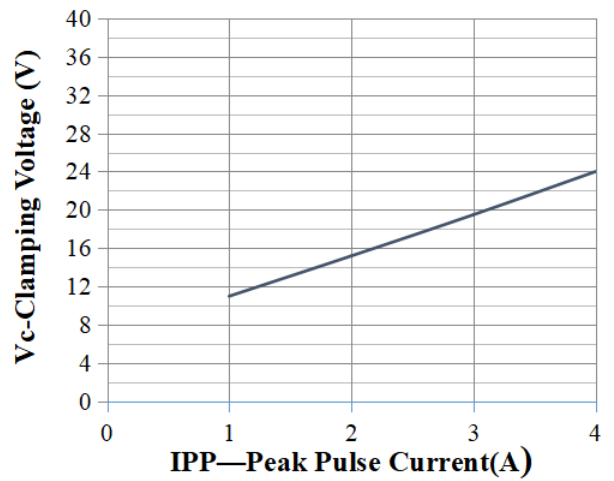


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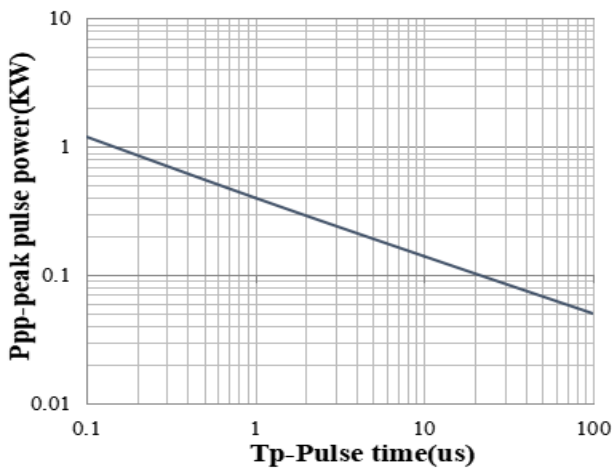
Typical Performance Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise Specified)



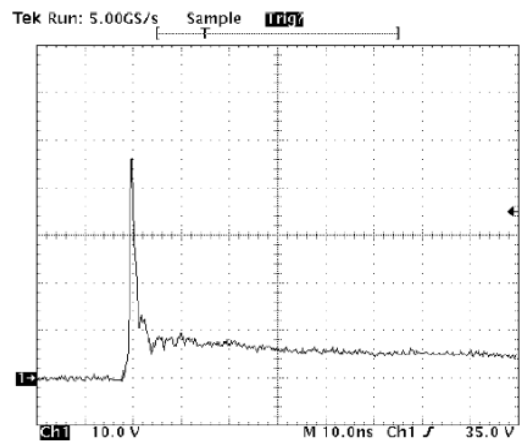
Junction Capacitance vs. Reverse Voltage



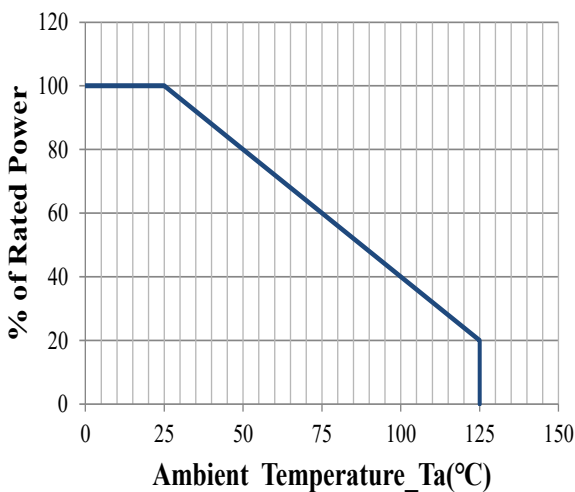
Clamping Voltage vs. Peak Pulse Current



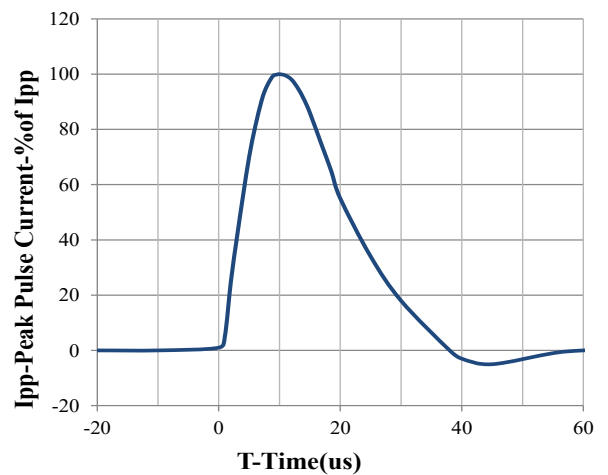
Peak Pulse Power vs. Pulse Time



Note: Data is taken with a 10x attenuator
IEC61000-4-2 Pulse Waveform



Power Derating Curve

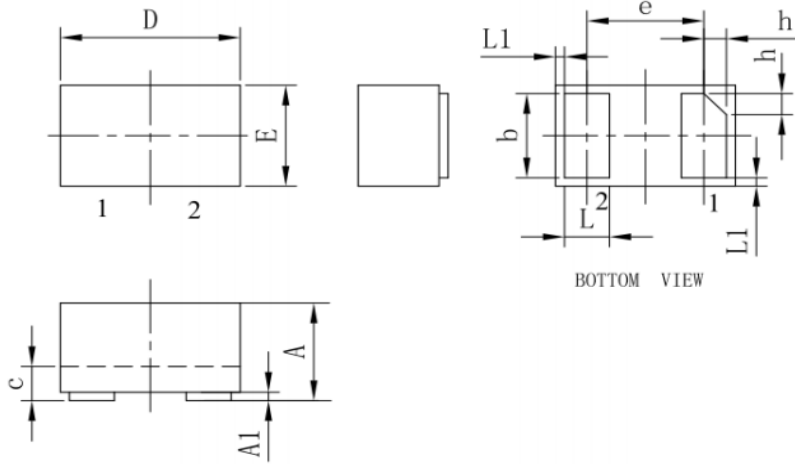


8 X 20us Pulse Waveform



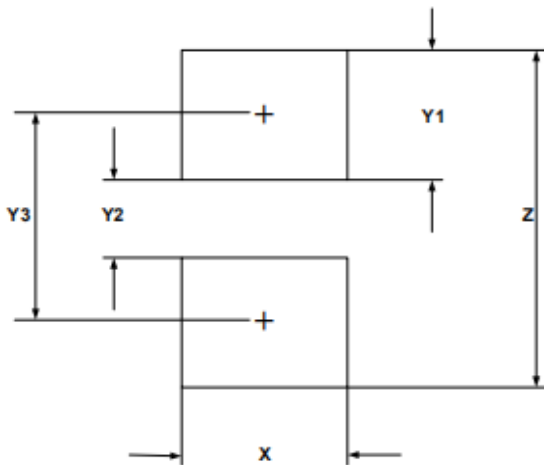
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DFN1006-2 Package Outline Drawing (Dimensions in millimeters)



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.45	0.50	0.55	0.018	0.020	0.022
A1	0.00	0.02	0.05	0.000	0.001	0.002
b	0.45	0.50	0.55	0.018	0.020	0.022
c	0.12	0.15	0.18	0.005	0.006	0.007
D	0.95	1.00	1.05	0.037	0.039	0.041
e	0.65 BSC			0.026 BSC		
E	0.55	0.60	0.65	0.022	0.024	0.026
L	0.20	0.25	0.30	0.008	0.010	0.012
L1	0.05REF			0.002REF		
h	0.07	0.12	0.17	0.003	0.005	0.007

Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
X	0.60	0.024
Y1	0.50	0.020
Y2	0.30	0.012
Y3	0.80	0.032
Z	1.30	0.052

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