



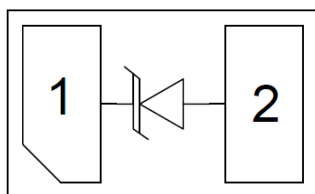
# JLE05URD21-2

1-Line Uni-directional TVS Diode

## Description

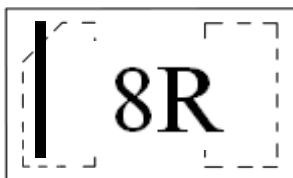
The JLE05URD21-2 is a Uni-directional TVS diode, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive high-speed data lines. The JLE05URD21-2 has an ultra-low capacitance with a typical value at 1.3 pF, and complies with the IEC 61000-4-2 (ESD) standard with ±15kV air and ±8kV 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 JLE05URD21-2 an ideal choice to protect cell phone, digital video interfaces and other high speed ports.

## Circuit Diagram



Circuit Diagram

## Marking Diagram



Transparent top view

8R:Device Marking Code

## Features

- \* Ultra small package: 1.0x0.6x0.5mm
- \* Ultra low capacitance: 1.3pF typical
- \* Ultra low leakage: nA level
- \* Low operating voltage: 5V
- \* Low clamping voltage
- \* 2-pin leadless package
- \* Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge: ±30kV
    - Contact discharge: ±30kV
  - IEC61000-4-5 (Lightning) 10A (8/20µs)
- \* RoHS Compliant
- \* Lead Finish: NiPdAu

## Applications

- \* Smart phones
- \* Display Ports
- \* MDDI Ports
- \* USB Ports
- \* Digital Video Interface (DVI)
- \* PCI Express and Serial SATA Ports

## Ordering Information

Part Number	Packaging	Reel Size
JLE05URD21-2	10000/Tape & Reel	7 inch



## JLE05URD21-2

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

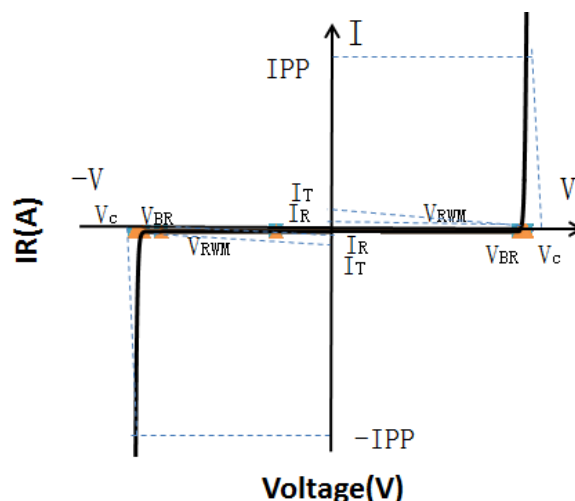
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 $\mu\text{s}$ )	Ppk	180	W
Peak Pulse Current (8/20 $\mu\text{s}$ )	IPP	10	A
ESD per IEC 61000-4-2 (Air)	VESD	$\pm 30$	kV
ESD per IEC 61000-4-2 (Contact)		$\pm 30$	
Operating Temperature Range	TJ	-55 to +125	$^\circ\text{C}$
Storage Temperature Range	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	$V_{RWM}$				5.0	V
Breakdown Voltage	$V_{BR}$	$I_T = 1\text{mA}$	6.0	7.5	8.5	V
Reverse Leakage Current	$I_R$	$V_{RWM} = 5.0\text{V}$			0.5	$\mu\text{A}$
Clamping Voltage	$V_C$	$I_{PP} = 1\text{A}$ (8 x 20 $\mu\text{s}$ pulse)			10	V
Clamping Voltage	$V_C$	$I_{PP} = 10\text{A}$ (8 x 20 $\mu\text{s}$ pulse)			20	V
Junction Capacitance	$C_J$	$V_R = 0\text{V}$ , $f = 1\text{MHz}$		1.3	1.5	pF

### Portion Electronics Parameter

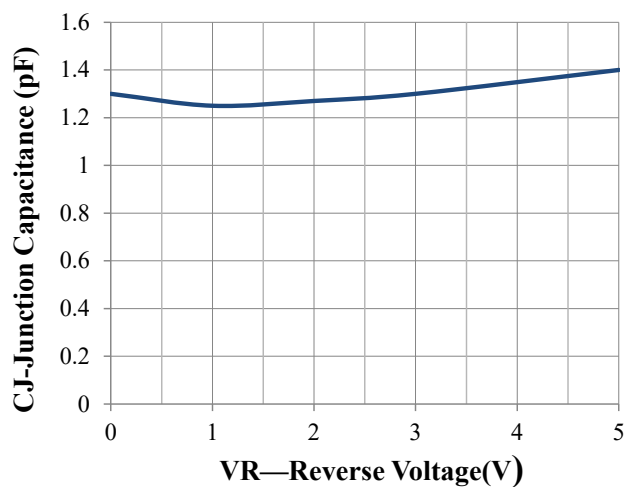
Symbol	Parameter
$I_T$	Test Current
$I_{PP}$	Maximum Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_C$



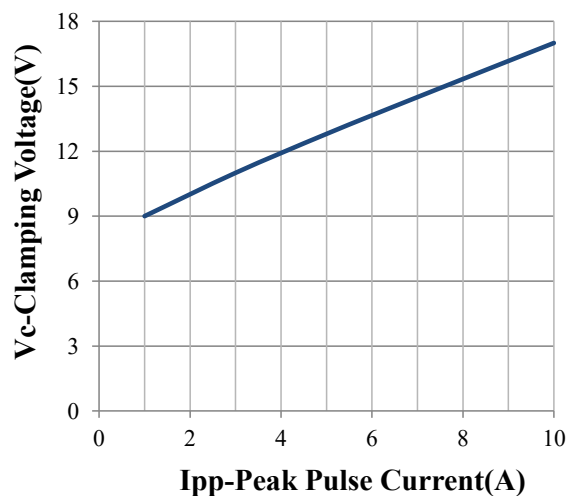


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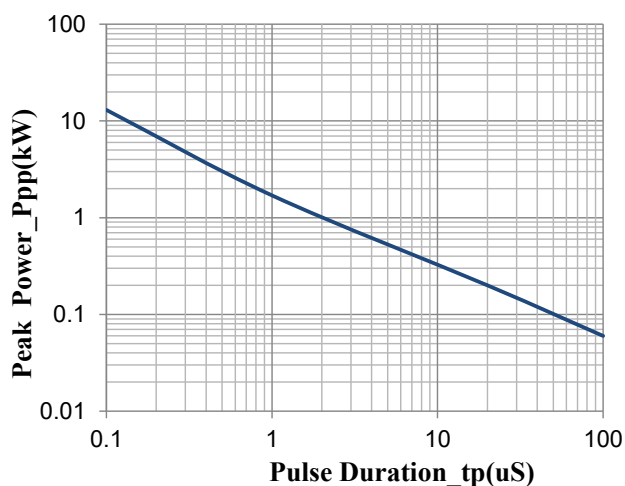
## Typical Performance Characteristics ( $T_A=25^{\circ}\text{C}$ unless otherwise Specified)



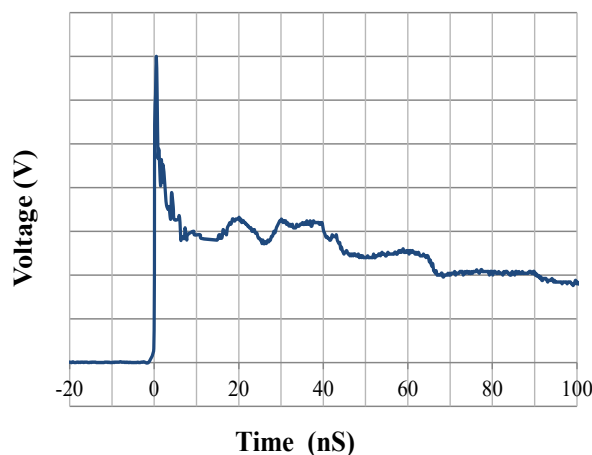
Junction Capacitance vs. Reverse Voltage



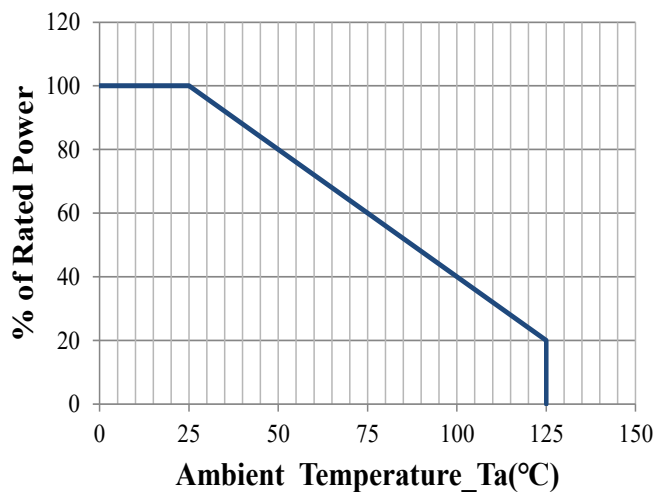
Clamping Voltage vs. Peak Pulse Current



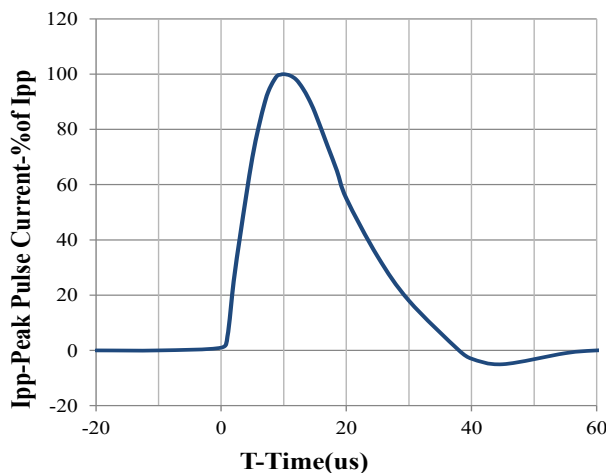
Peak Pulse Power vs. Pulse Time



IEC61000-4-2 Pulse Waveform



Power Derating Curve

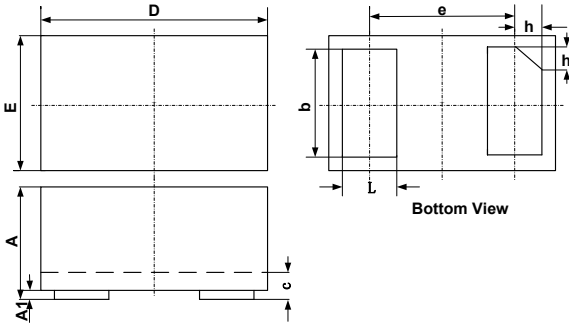


8 X 20us Pulse Waveform



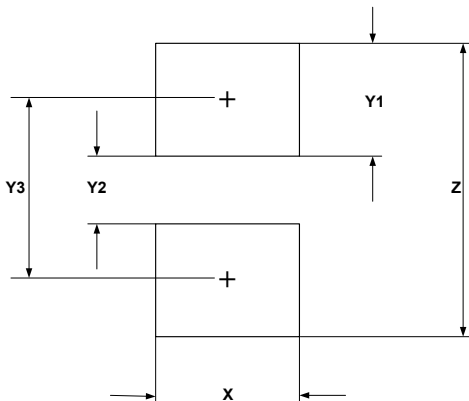
# JLE05URD21-2

## DFN1006-2 Package Outline Drawing



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
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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