



JLE05ULD2-2A

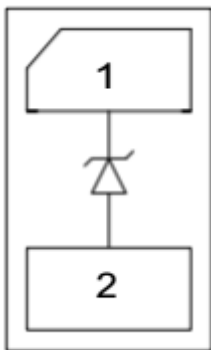
1-Line Uni-directional TVS Diode

Jialan-Microelectronics

Description

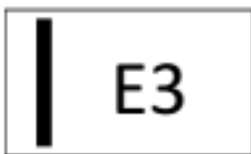
The JLE05ULD2-2A is an uni-directional TVS diode, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive data and power line. The JLE05ULD2-2A complies with the IEC 61000-4-2 (ESD) with $\pm 30\text{kV}$ air and $\pm 30\text{kV}$ contact discharge. It is assembled into a small lead-free DFN1006-2 ($1.0 \times 0.6 \times 0.5\text{mm}$) package. The small size and high ESD surge protection make JLE05ULD2-2A an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

Circuit Diagram



Circuit and Pin Schematic

Marking Diagram



Transparent top view

E3: Device Marking Code

Features

- * 200W peak pulse power (8/20 μs)
- * Low leakage: nA level
- * Operating voltage: 5V
- * 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) 15A (8/20 μs)
- * RoHS Compliant
- * Package: DFN1006-2

Applications

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

Ordering Information

Part Number	Packaging	Reel Size
JLE05ULD2-2A	10000/Tape & Reel	7 inch



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

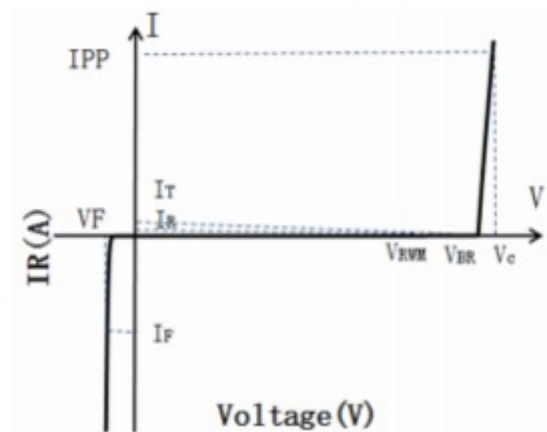
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	Ppk	200	W
Peak Pulse Current (8/20 μs)	IPP	15	A
ESD per IEC 61000-4-2 (Air)	VESD	± 30	kV
ESD per IEC 61000-4-2 (Contact)		± 30	
Operating Temperature Range	TJ	-55to +125	$^{\circ}\text{C}$
Storage Temperature Range	Tstg	-55 to +150	$^{\circ}\text{C}$

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

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}				5	V
Breakdown Voltage	V_{BR}	$I_{\text{T}} = 1\text{mA}$	6			V
Reverse Leakage Current	I_{R}	$V_{\text{RWM}} = 5\text{V}$			0.2	μA
Clamping Voltage	V_{C}	$I_{\text{PP}} = 1\text{A}$ (8 x 20 μs pulse)			8	V
Clamping Voltage	V_{C}	$I_{\text{PP}} = 15\text{A}$ (8 x 20 μs pulse)			14	V
Junction Capacitance	C_{J}	$V_{\text{R}} = 0\text{V}$, $f = 1\text{MHz}$,)			100	pF

Portion Electronics Parameter

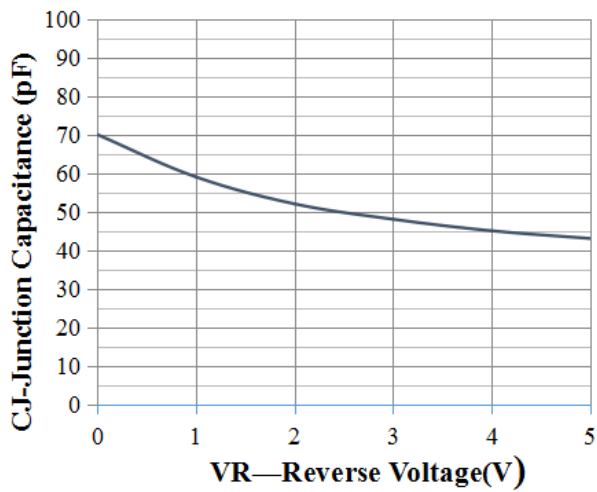
Symbol	Parameter
I_{T}	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
V_{C}	Clamping Voltage @ I_{C}



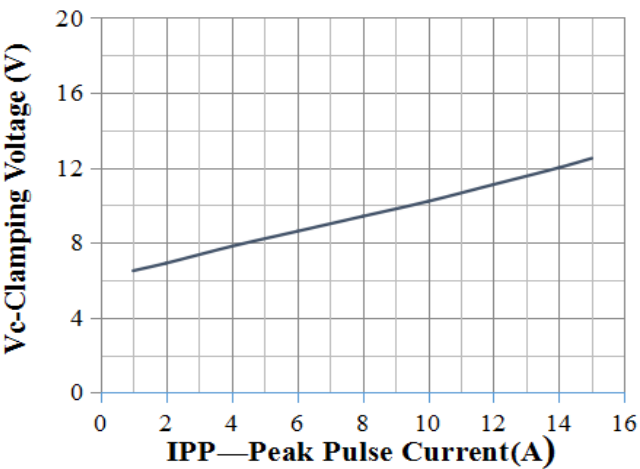


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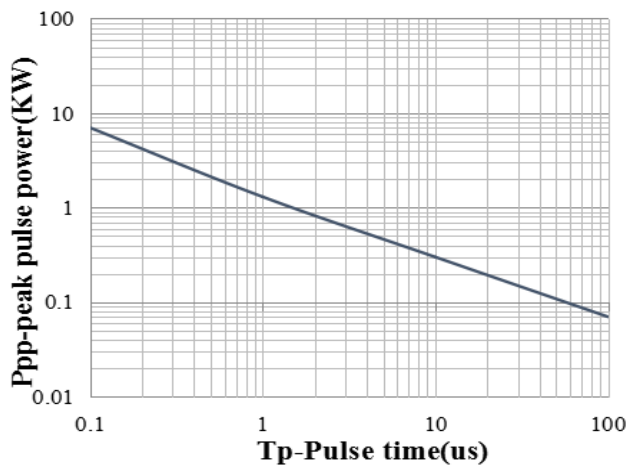
Typical Performance Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise Specified)



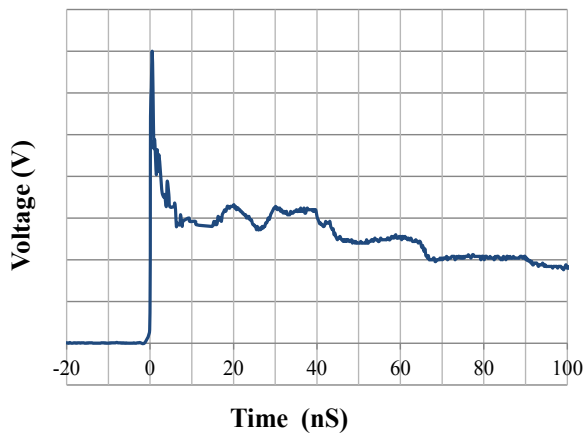
Junction Capacitance vs. Reverse Voltage



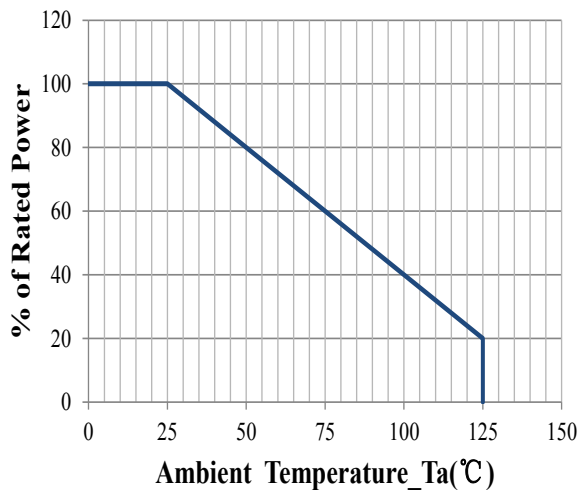
Clamping Voltage vs. Peak Pulse Current



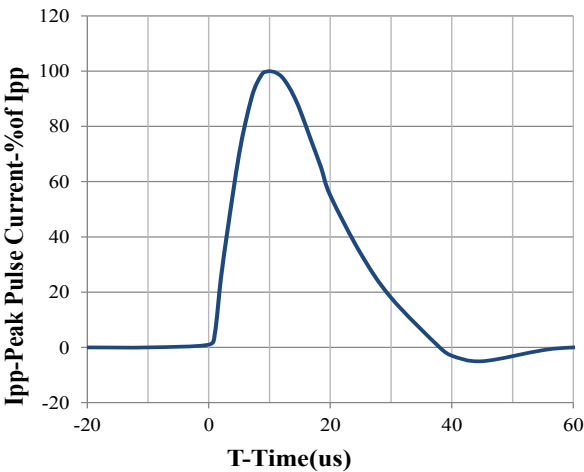
Peak Pulse Power vs. Pulse Time



IEC61000-4-2 Pulse Waveform



Power Derating Curve

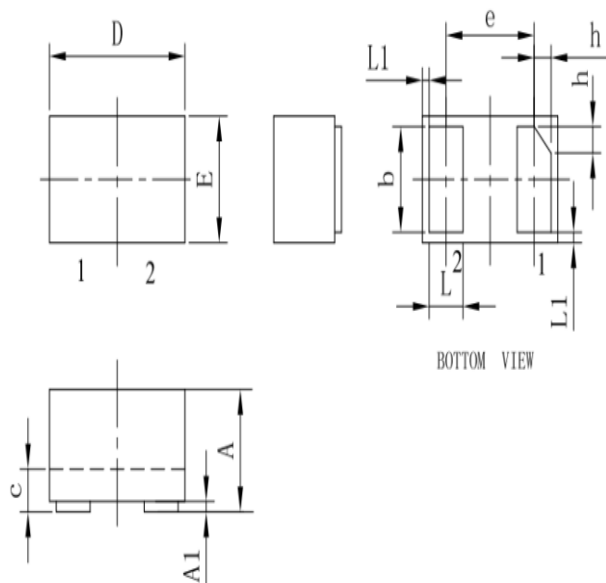


8 X 20us Pulse Waveform



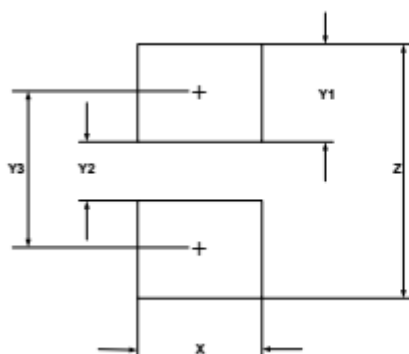
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DFN1006-2 Package Outline Drawing (Dimensions in millimeters)



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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