

# JE12U1LD20-2

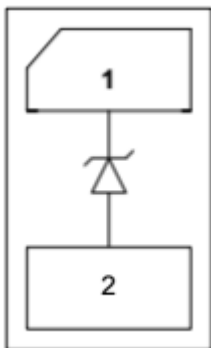
## 1-Line Uni-directional High Power TVS Diode



### Description

The JE12U1LD20-2 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 JE12U1LD20-2 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 a small DFN1006-2 (1.0 $\times$ 0.6 $\times$ 0.5mm) package. The small size and high ESD surge protection make JE12U1LD20-2 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

2P:Device Marking Code

### Features

- \* 350W peak pulse power (8/20 $\mu\text{s}$ )
- \* Low leakage: nA level
- \* Operating voltage: 12V
- \* 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) 14A (8/20 $\mu\text{s}$ )
- \* Package: DFN1006-2
- \* ROHS Compliant

This product does not contain lead, mercury, cadmium, Hexavalent chromium, polybrominated biphenyls (PBB) and polybrominated diphenyleths (PBDE), and are considered RoHS compliant.

### Applications

- \* Fast-charge battery chargers
- \* Power management system
- \* Cellular Handsets and Accessories
- \* Personal Digital Assistants

### Ordering Information

Part Number	Packaging	Reel Size
JE12U1LD20-2	3000/Tape & Reel	7 inch

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

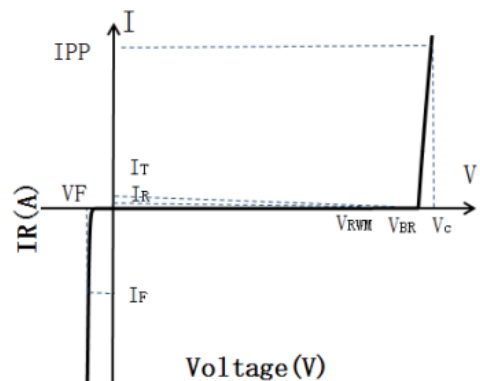
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 $\mu\text{s}$ )	Ppk	350	W
Peak Pulse Current (8/20 $\mu\text{s}$ )	IPP	14	A
ESD per IEC 61000-4-2 (Air)	VESD	$\pm 30$	kV
ESD per IEC 61000-4-2 (Contact)		$\pm 30$	
Operating Temperature Range	TJ	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	Tstg	-55 to +150	$^{\circ}\text{C}$

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

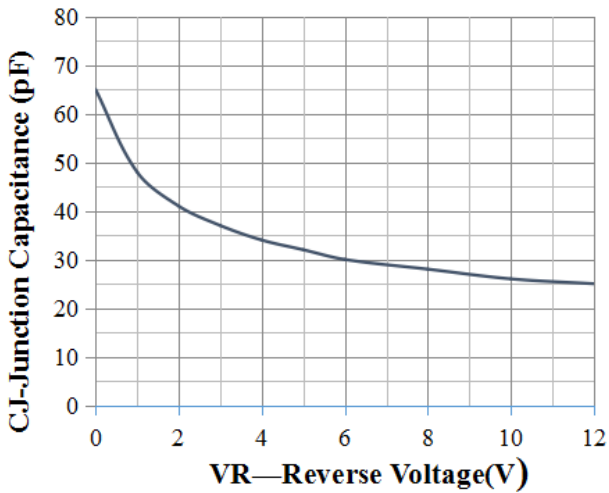
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	$V_{RWM}$				12	V
Breakdown Voltage	$V_{BR}$	$I_T = 1\text{mA}$	13.3		17.8	V
Reverse Leakage Current	$I_R$	$V_{RWM} = 12\text{V}$			100	nA
Clamping Voltage	$V_C$	$I_{PP} = 1\text{A}$ (8 x 20 $\mu\text{s}$ pulse)			15	V
Clamping Voltage	$V_C$	$I_{PP} = 14\text{A}$ (8 x 20 $\mu\text{s}$ pulse)			25	V
Junction Capacitance	$C_J$	$V_R = 0\text{V}, f = 1\text{MHz}$		65		pF

**Portion Electronics Parameter**

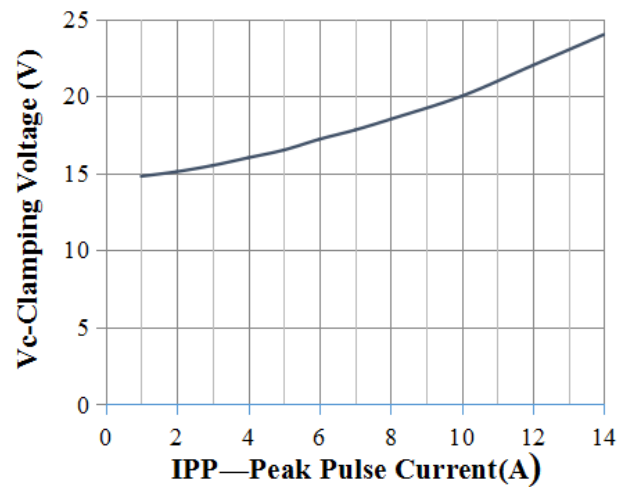
Symbol	Parameter
$I_T$	Test Current
$I_{PP}$	Maximum Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_C$



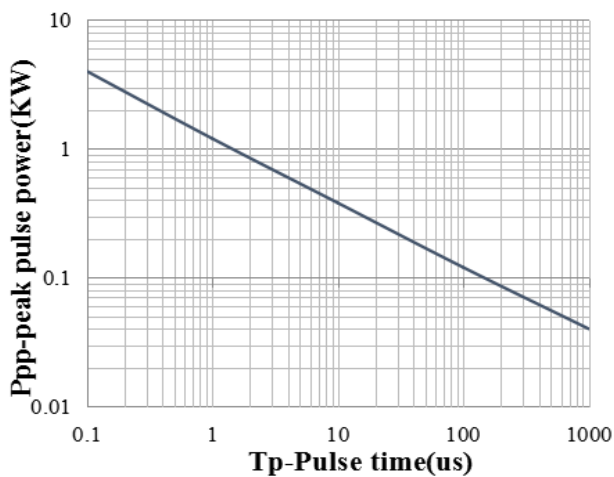
Typical Performance Characteristics ( $T_A=25^{\circ}\text{C}$  unless otherwise Specified)



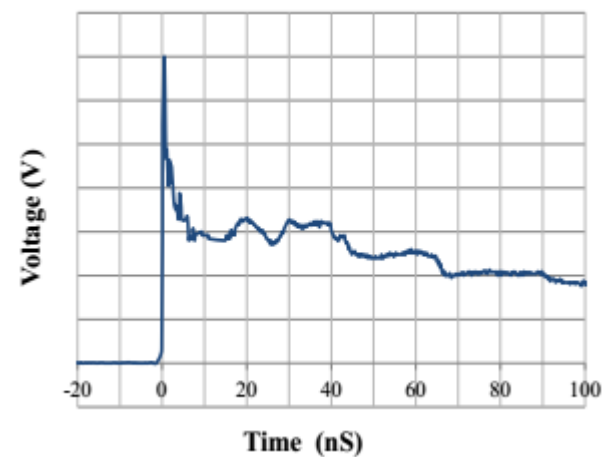
Junction Capacitance vs. Reverse Voltage



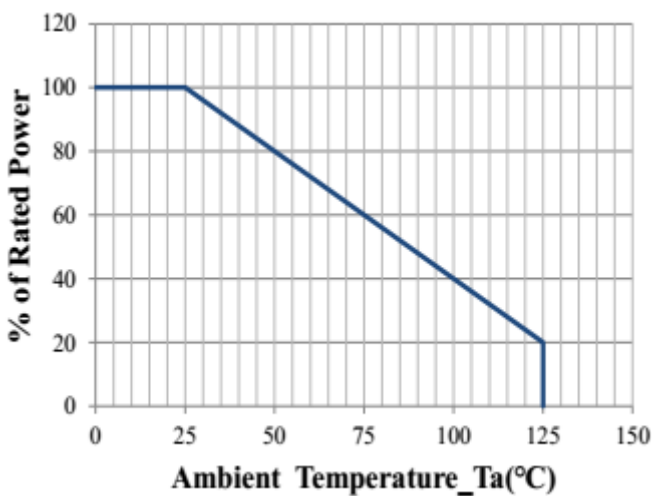
Clamping Voltage vs. Peak Pulse Current



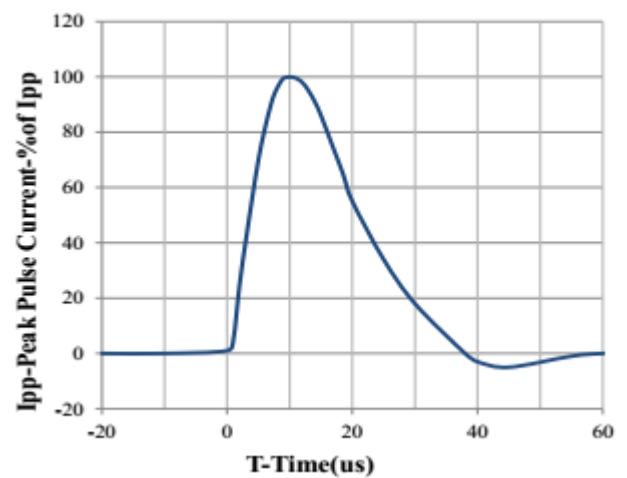
Peak Pulse Power vs. Pulse Time



IEC61000-4-2 Pulse Waveform

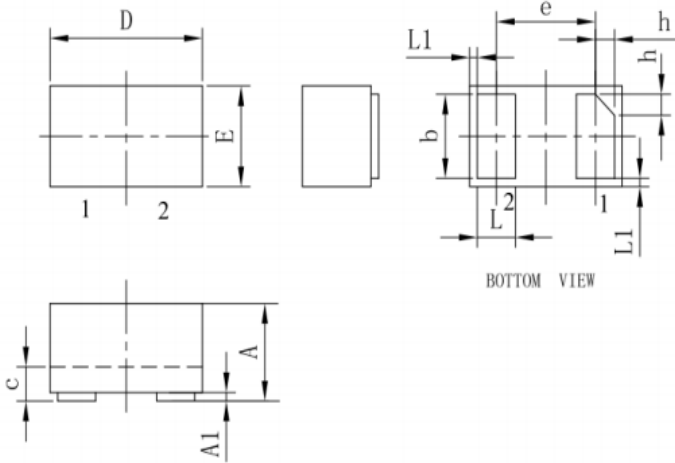


Power Derating Curve



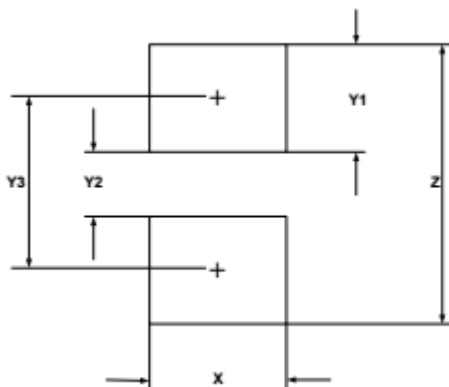
8 X 20us Pulse Waveform

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
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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