



# JLS12UGS1-2

1-Line Uni-directional TVS Diode

## Description

The JLS12UGS1-2 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 lines. The JLS12UGS1-2 complies with the IEC 61000-4-2 (ESD) standard with  $\pm 30\text{kV}$  air and  $\pm 30\text{kV}$  contact discharge. It is assembled into a SOD-123FL lead-free package. The small size and high ESD/surge protection make JLS12UGS1-2 an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

## Features

- \* 3750W peak pulse power (8/20 $\mu\text{s}$ )
- \* Low leakage:  $\mu\text{A}$  level
- \* Operating voltage: 12V
- \* 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) 150A (8/20 $\mu\text{s}$ )
- \* RoHS Compliant
- \* Package: SOD-123FL

## Circuit Diagram

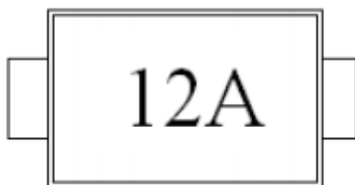


Circuit and Pin Schematic

## Applications

- \* Fast-charge battery charges
- \* Power management system
- \* Cellular Handsets and Accessories
- \* Personal Digital Assistants
- \* Notebooks and Handhelds
- \* Portable Instrumentation
- \* Digital Cameras

## Marking Diagram



Transparent top view

12A:Device Marking Code

## Ordering Information

Part Number	Packaging	Reel Size
JLS12UGS1-2	3000/Tape & Reel	7 inch



## JLS12UGS1-2

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

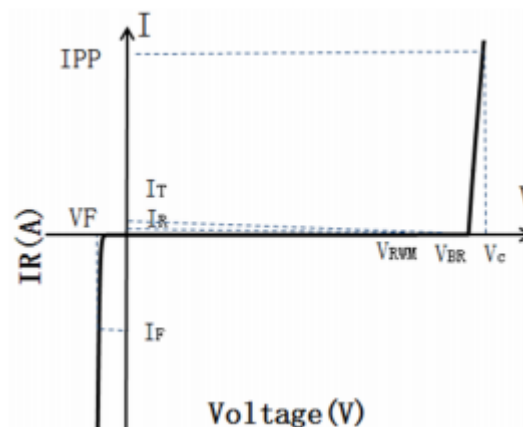
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 $\mu\text{s}$ )	Ppk	3750	W
Peak Pulse Current (8/20 $\mu\text{s}$ )	IPP	150	A
ESD per IEC 61000-4-2 (Air)	VESD	$\pm 30$	kV
ESD per IEC 61000-4-2 (Contact)		$\pm 30$	
Operating Temperature Range	TJ	-55to +125	$^\circ\text{C}$
Storage Temperature Range	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	$V_{RWM}$				12	V
Breakdown Voltage	$V_{BR}$	$I_T = 1\text{mA}$	12.9			V
Reverse Leakage Current	$I_R$	$V_{RWM} = 12\text{V}$			2.0	$\mu\text{A}$
Clamping Voltage	$V_C$	$I_{PP} = 100\text{A}$ (8 x 20 $\mu\text{s}$ pulse)			21	V
Clamping Voltage	$V_C$	$I_{PP} = 150\text{A}$ (8 x 20 $\mu\text{s}$ pulse)			25	V
Junction Capacitance	$C_J$	$V_R = 0\text{V}$ , $f = 1\text{MHz}$		1300		pF

### Portion Electronics Parameter

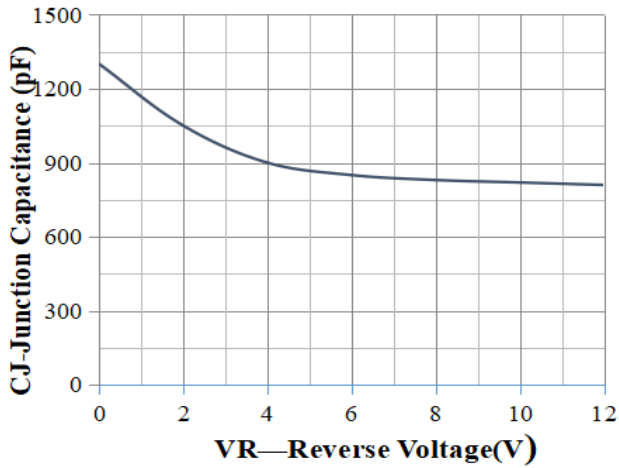
Symbol	Parameter
$I_T$	Test Current
$I_{PP}$	Maximum Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_C$



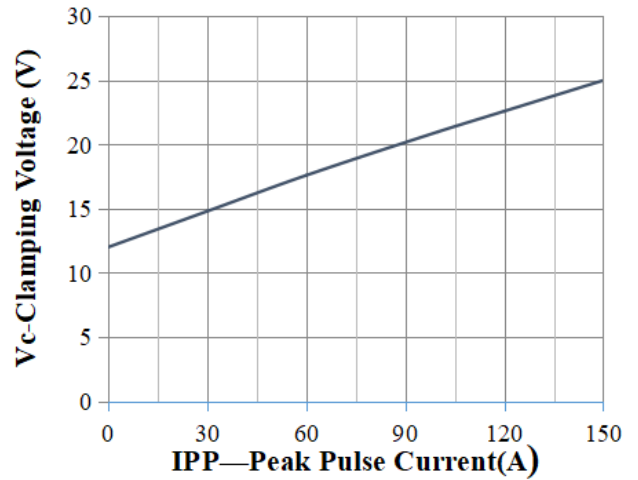


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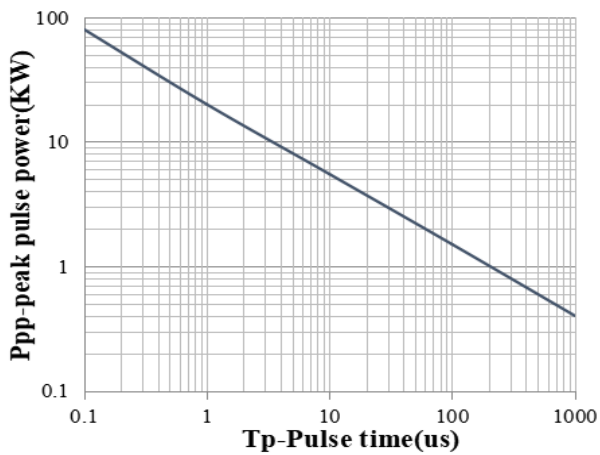
## Typical Performance Characteristics ( $T_A=25^\circ\text{C}$ unless otherwise Specified)



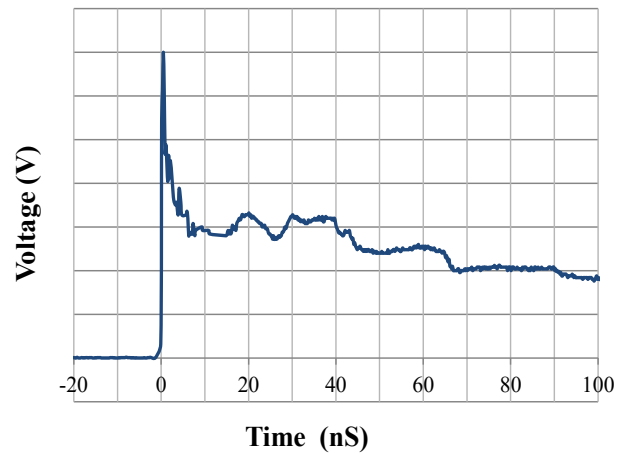
Junction Capacitance vs. Reverse Voltage



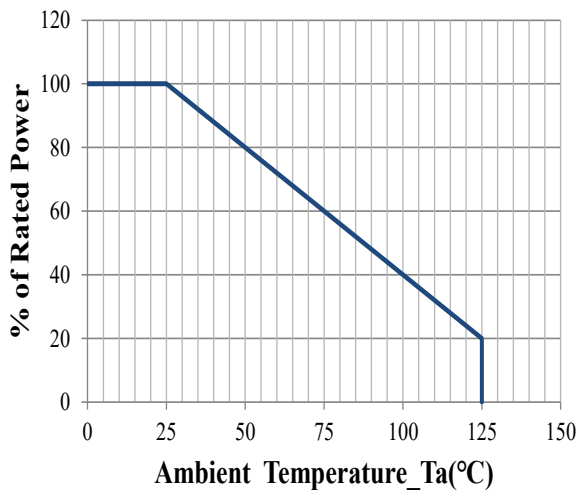
Clamping Voltage vs. Peak Pulse Current



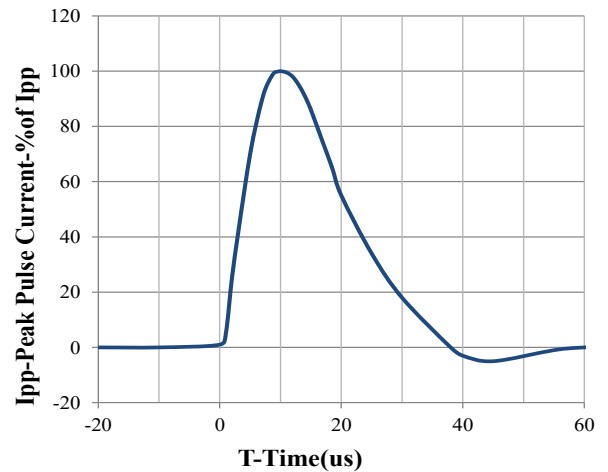
Peak Pulse Power vs. Pulse Time



IEC61000-4-2 Pulse Waveform



Power Derating Curve

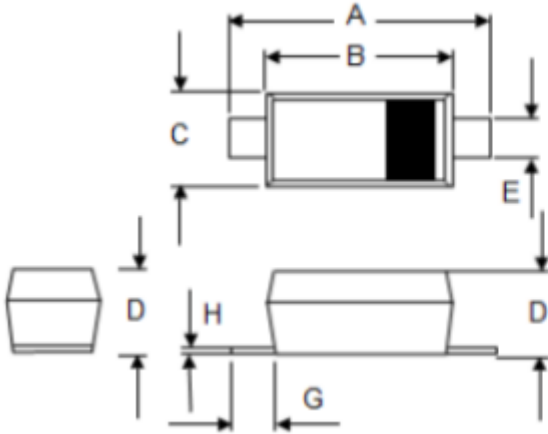


8 X 20us Pulse Waveform



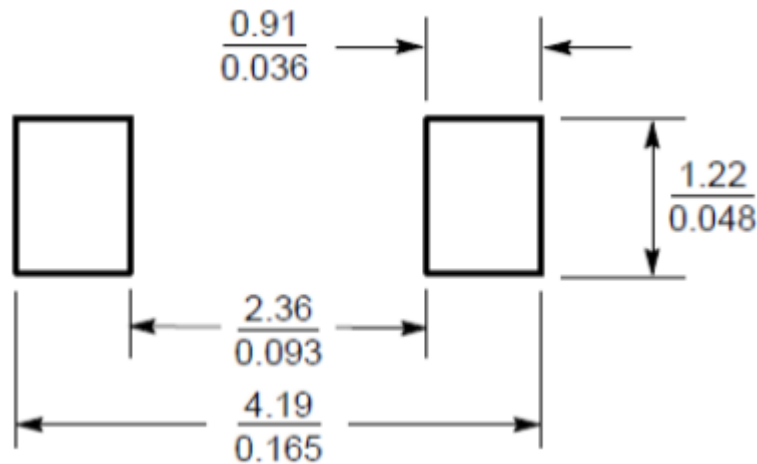
# JLS12UGS1-2

## SOD-123FL Package Outline Drawing (Dimensions in millimeters)



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	3.4	3.7	3.95	0.142	0.148	0.155
B	2.5	2.7	2.90	0.098	0.106	0.114
C	1.4	1.7	1.95	0.055	0.066	0.077
D	0.8	0.9	1.00	0.032	0.036	0.040
E	0.5	0.80	1.10	0.020	0.031	0.043
G	0.25	—	—	0.010	—	—
H	—	—	0.20	—	—	0.008

## Suggested Land Pattern



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