



# JLS45BGD5-3L

## 1-Line Bi-directional TVS Diode

Jialan-Microelectronics

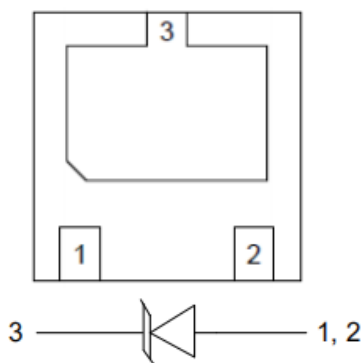
### Description

The JLS45BGD5-3L is a high power TVS , 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 lines. The JLS45BGD5-3L 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 3-pin DFN2020-3 lead-free package. The lead are finished with NiPdAu. Each device will protect one line. The combination of small size, and high surge capability makes them ideal for use in application such as cellular phones, LCD displays, USB, and multi media card interfaces.

### Features

- \* 2700W peak pulse power (8/20 $\mu\text{s}$ )
- \* Low leakage: nA level
- \* Operating voltage: 4.5V
- \* 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) 180A (8/20 $\mu\text{s}$ )
- \* RoHS Compliant
- \* Package: DFN2020-3

### Circuit Diagram

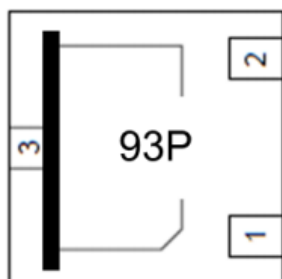


Circuit and Pin Schematic

### Applications

- \* Power Management
- \* Industrial Application
- \* Power Supply Protection

### Marking Diagram



Transparent top view

93P:Device Marking Code

### Ordering Information

Part Number	Packaging	Reel Size
JLS45BGD5-3L	3000/Tape & Reel	7 inch



## JLS45BGD5-3L

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

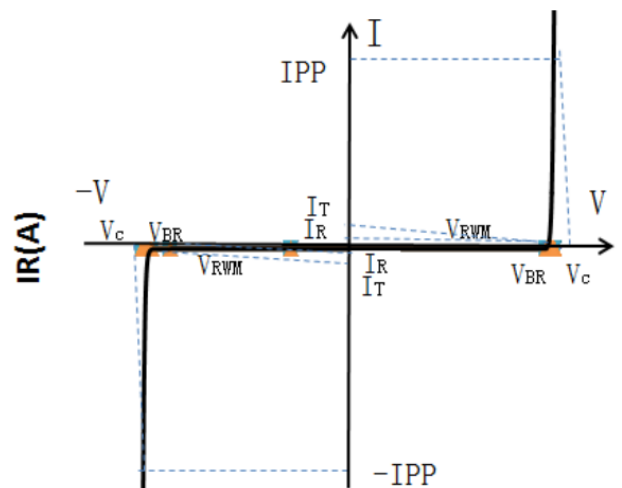
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 $\mu\text{s}$ )	Ppk	2700	W
Peak Pulse Current (8/20 $\mu\text{s}$ )	IPP	180	A
ESD per IEC 61000-4-2 (Air)	VESD	$\pm 30$	kV
ESD per IEC 61000-4-2 (Contact)		$\pm 30$	
Operating Temperature Range	TJ	-55 to +125	$^\circ\text{C}$
Storage Temperature Range	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	$V_{RWM}$				4.5	V
Breakdown Voltage	$V_{BR}$	$I_T = 1\text{mA}$	4.8			V
Reverse Leakage Current	$I_R$	$V_{RWM} = 4.5\text{V}$			2.0	$\mu\text{A}$
Clamping Voltage	$V_C$	$I_{PP} = 1\text{A}$ (8 x 20 $\mu\text{s}$ pulse)			5	V
Clamping Voltage	$V_C$	$I_{PP} = 180\text{A}$ (8 x 20 $\mu\text{s}$ pulse)			15	V
Junction Capacitance	$C_J$	$V_R = 0\text{V}$ , $f = 1\text{MHz}$		360		pF

### Portion Electronics Parameter

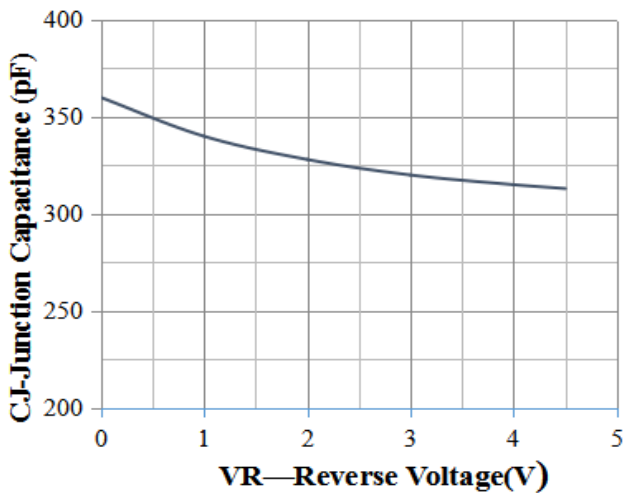
Symbol	Parameter
$I_T$	Test Current
$I_{PP}$	Maximum Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_C$



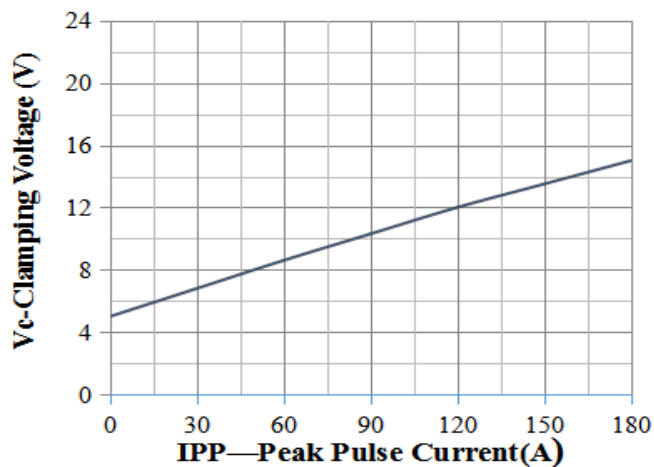


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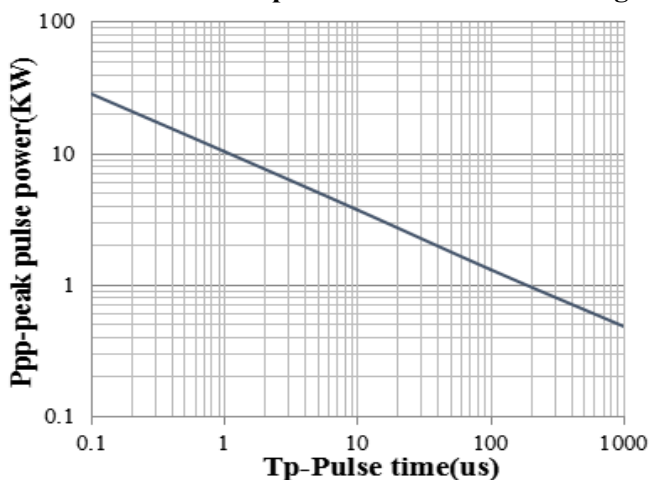
## Typical Performance Characteristics ( $T_A=25^{\circ}\text{C}$ unless otherwise Specified)



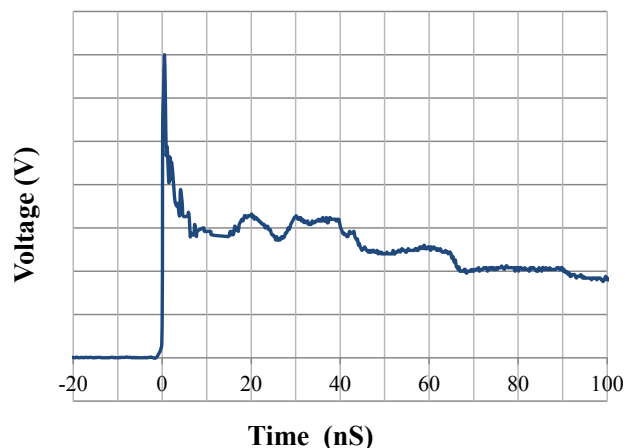
Junction Capacitance vs. Reverse Voltage



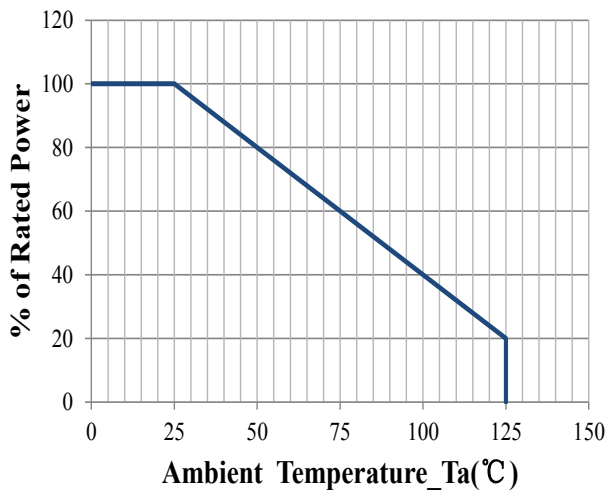
Clamping Voltage vs. Peak Pulse Current



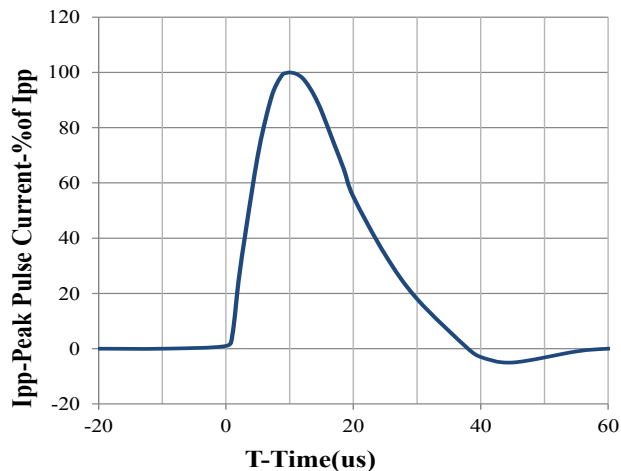
Peak Pulse Power vs. Pulse Time



IEC61000-4-2 Pulse Waveform



Power Derating Curve

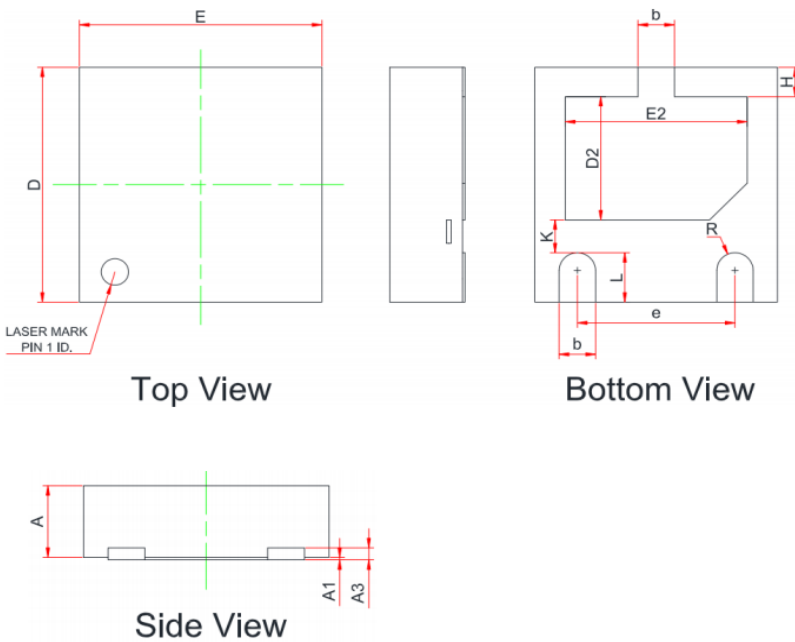


8 X 20us Pulse Waveform



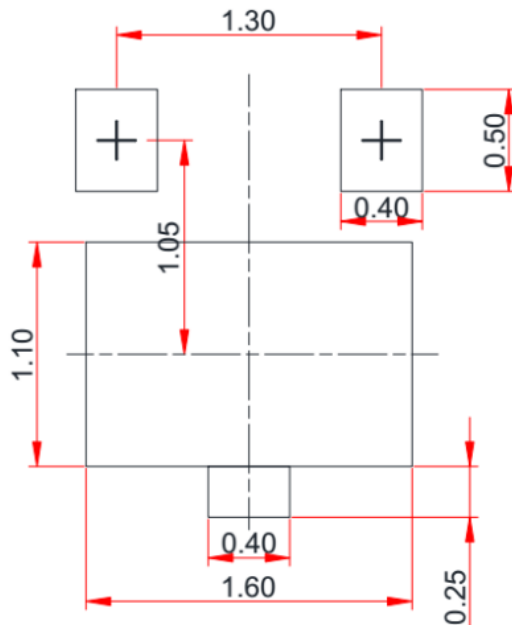
# JLS45BGD5-3L

## DFN2020-3 Package Outline Drawing (Dimensions in millimeters)



	MILLIMETERS		
	MIN	NOM	MAX
A	0.55	0.60	0.65
A1	0.00	0.02	0.05
A3	0.10REF.		
b	0.25	--	0.35
D	1.90	--	2.10
E	1.90	--	2.10
D2	0.95	--	1.15
E2	1.40	--	1.60
e	1.20		1.40
H	0.20	--	0.30
K	0.20		0.40
L	0.35	--	0.45
R	0.13	--	--

## Suggested Land Pattern



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