



## JLS05BGD5-3

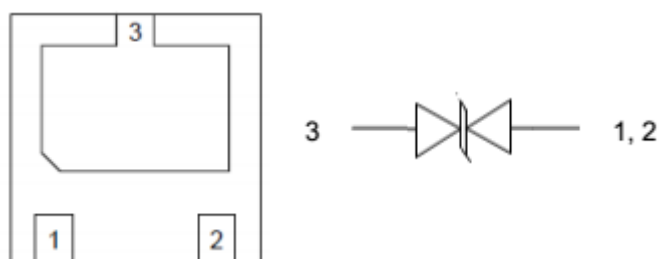
1-Line Bi-directional High Power TVS Diode

Jialan-Microelectronics

### Description

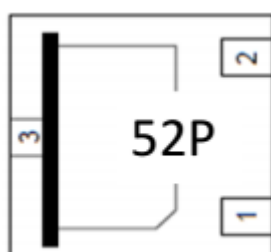
The JLS05BGD5-3 is a high power TVS, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive lines. The JLS05BGD5-3 complies with the IEC 61000-4-2 (ESD) with  $\pm 30\text{kV}$  air and  $\pm 30\text{kV}$  contact discharge. It is assembled into a 3-pin DFN2020-3 lead-free package. The leads 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 applications such as cellular phones, LCD displays, USB, and multi media card interfaces.

### Circuit Diagram



Circuit and Pin Schematic

### Marking Diagram



Transparent top view  
52P: Device Marking Code

### Features

- \* 6800W peak pulse power (8/20 $\mu\text{s}$ )
- \* Low leakage: nA
- \* Operating voltage: 5V
- \* 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) 310A (8/20 $\mu\text{s}$ )
- \* RoHS Compliant
- \* Package: DFN2020-3

### Applications

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

### Ordering Information

Part Number	Packaging	Reel Size
JLS05BGD5-3	3000/Tape & Reel	7 inch



## JLS05BGD5-3

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

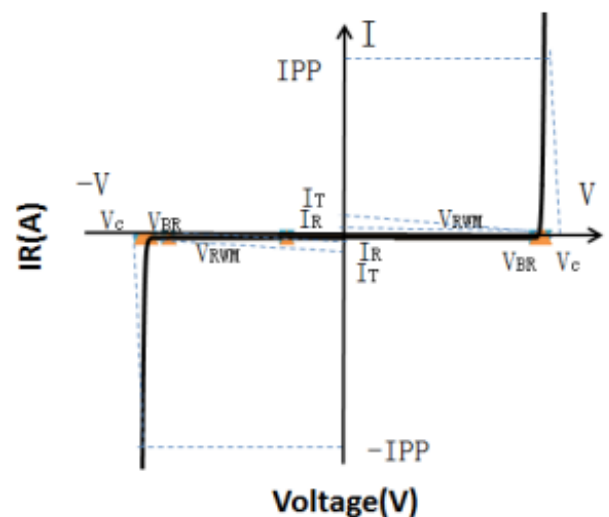
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 $\mu\text{s}$ )	Ppk	6800	W
Peak Pulse Current (8/20 $\mu\text{s}$ )	IPP	310	A
ESD per IEC 61000-4-2 (Air)	VESD	$\pm 30$	kV
ESD per IEC 61000-4-2 (Contact)		$\pm 30$	
Operating Temperature Range	TJ	-55to +125	$^{\circ}\text{C}$
Storage Temperature Range	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	$V_{\text{RWM}}$				5	V
Breakdown Voltage	$V_{\text{BR}}$	$I_{\text{T}} = 1\text{mA}$	6			V
Reverse Leakage Current	$I_{\text{R}}$	$V_{\text{RWM}} = 5\text{V}$			0.5	$\mu\text{A}$
Clamping Voltage	$V_{\text{C}}$	$I_{\text{PP}} = 50\text{A}$ (8 x 20 $\mu\text{s}$ pulse)			9	V
Clamping Voltage	$V_{\text{C}}$	$I_{\text{PP}} = 310\text{A}$ (8 x 20 $\mu\text{s}$ pulse)			22	V
Junction Capacitance	$C_{\text{J}}$	$V_{\text{R}} = 0\text{V}$ , $f = 1\text{MHz}$		530		pF

### Portion Electronics Parameter

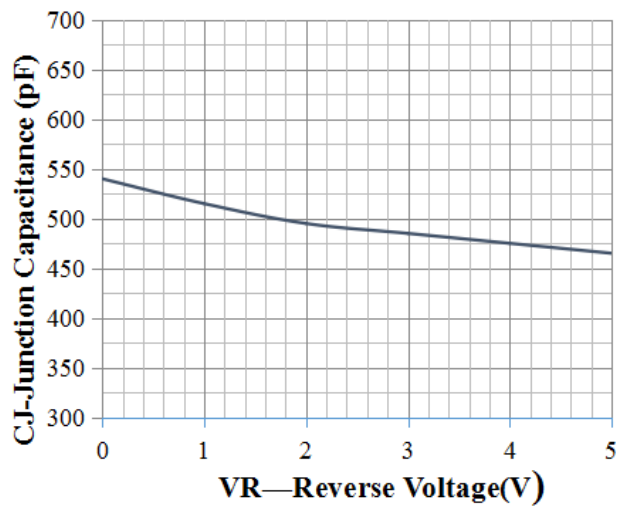
Symbol	Parameter
$I_{\text{T}}$	Test Current
$I_{\text{PP}}$	Maximum Reverse Peak Pulse Current
$V_{\text{C}}$	Clamping Voltage @ $I_{\text{C}}$



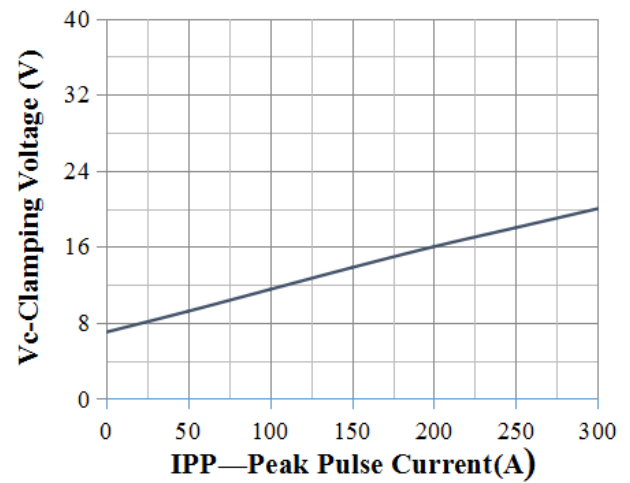


## JLS05BGD5-3

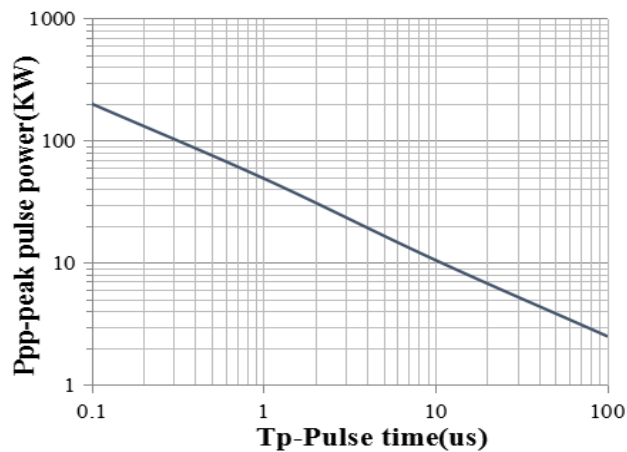
### Typical Performance Characteristics ( $T_A=25^{\circ}\text{C}$ unless otherwise Specified)



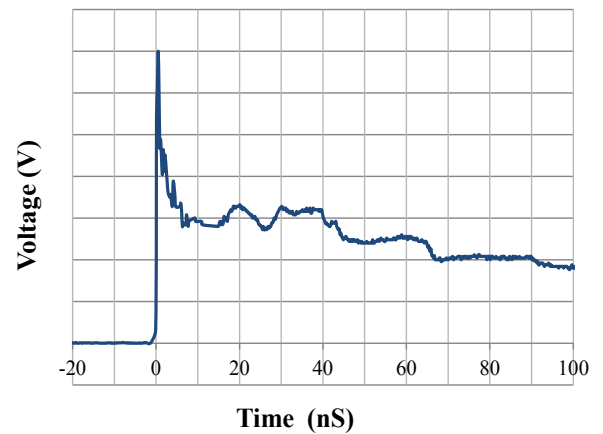
Junction Capacitance vs. Reverse Voltage



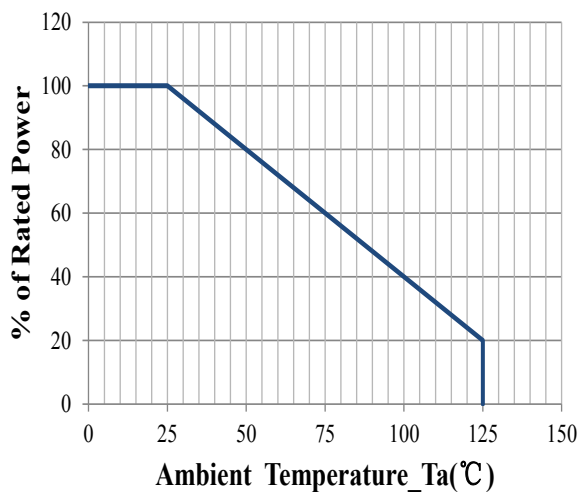
Clamping Voltage vs. Peak Pulse Current



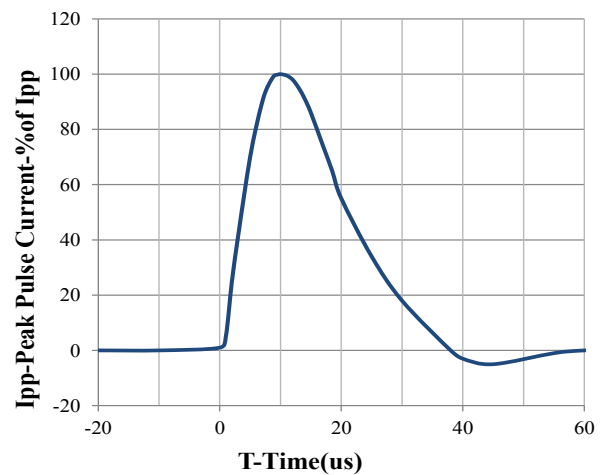
Peak Pulse Power vs. Pulse Time



IEC61000-4-2 Pulse Waveform



Power Derating Curve

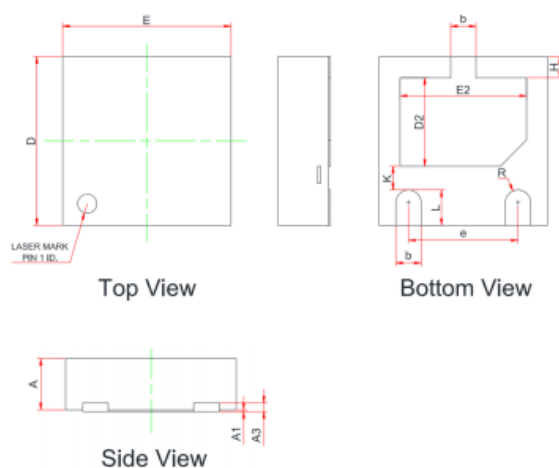


8 X 20us Pulse Waveform



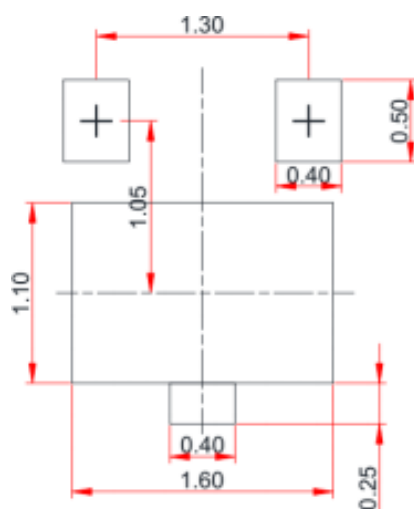
## JLS05BGD5-3

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



SYM	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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