

# JS15U1GD50-3

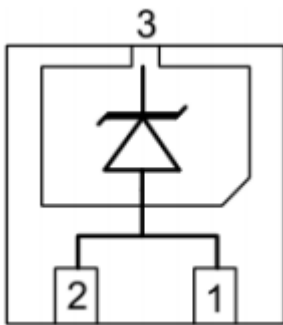
## 1-Line Uni-directional High Power TVS Diode



### Description

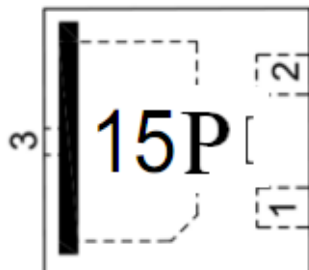
The JS15U1GD50-3 is a 15V Uni-directional TVS diode, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive data and power line. The JS15U1GD50-3 complies with the IEC 61000-4-2 (ESD) standard with  $\pm 30$  kV air and  $\pm 30$  kV contact discharge. It is assembled into an ultra-small lead-free DFN2020-3 package. The small size and high ESD surge protection make JS15U1GD50-3 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

15P:Device Marking Code

### Features

- \* 5900W peak pulse power (8/20 $\mu$ s)
- \* Low leakage:nA level
- \* Operating voltage: 15V
- \* Ultra low clamping voltage
- \* One power line protects
- \* Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
  - Air discharge:  $\pm 30$  kV
  - Contact discharge:  $\pm 30$  kV
  - IEC61000-4-5 (Lightning) 175A (8/20 $\mu$ 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
JS15U1GD50-3	3000/Tape & Reel	7 inch

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

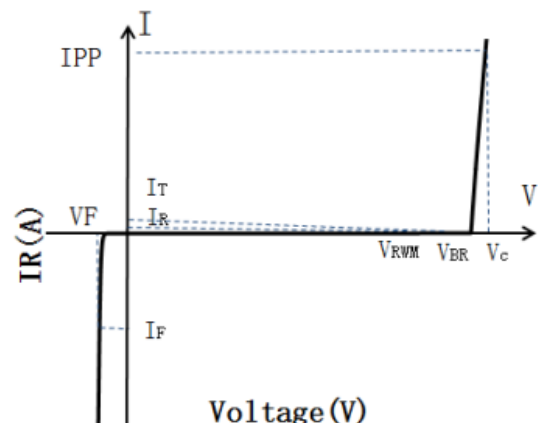
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 $\mu\text{s}$ )	Ppk	5900	W
Peak Pulse Current (8/20 $\mu\text{s}$ )	IPP	175	A
ESD per IEC 61000-4-2 (Air)	VESD	$\pm 30$	kV
ESD per IEC 61000-4-2 (Contact)		$\pm 30$	
Operating Temperature Range	TJ	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	Tstg	-55 to +150	$^{\circ}\text{C}$

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

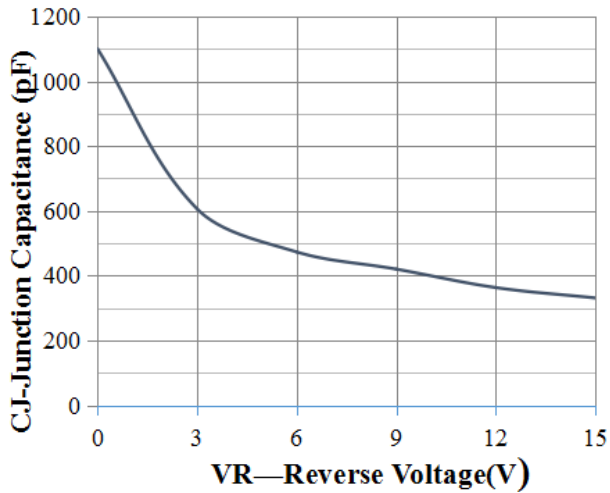
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	$V_{\text{RWM}}$				15.0	V
Breakdown Voltage	$V_{\text{BR}}$	$I_{\text{T}} = 1\text{mA}$	16		19	V
Reverse Leakage Current	$I_{\text{R}}$	$V_{\text{RWM}} = 15\text{V}$			20	$\mu\text{A}$
Clamping Voltage	$V_{\text{C}}$	$I_{\text{PP}} = 100\text{A}$ (8 x 20 $\mu\text{s}$ pulse)			27	V
Clamping Voltage	$V_{\text{C}}$	$I_{\text{PP}} = 175\text{A}$ (8 x 20 $\mu\text{s}$ pulse)			34	V
Junction Capacitance	$C_{\text{J}}$	$V_{\text{R}} = 0\text{V}$ , $f = 1\text{MHz}$		1100		pF

### Portion Electronics Parameter

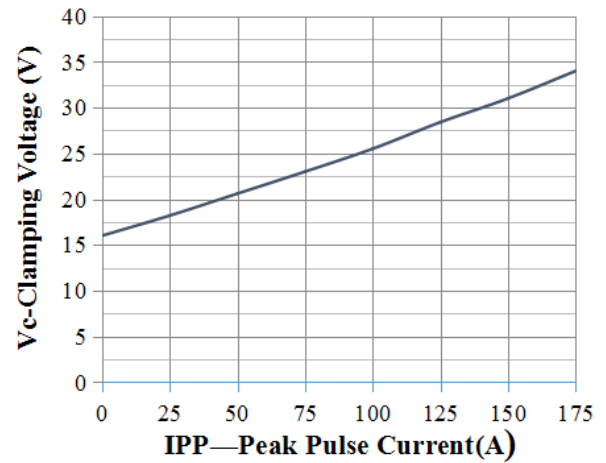
Symbol	Parameter
$I_{\text{T}}$	Test Current
$I_{\text{PP}}$	Maximum Reverse Peak Pulse Current
$V_{\text{C}}$	Clamping Voltage @ $I_{\text{C}}$



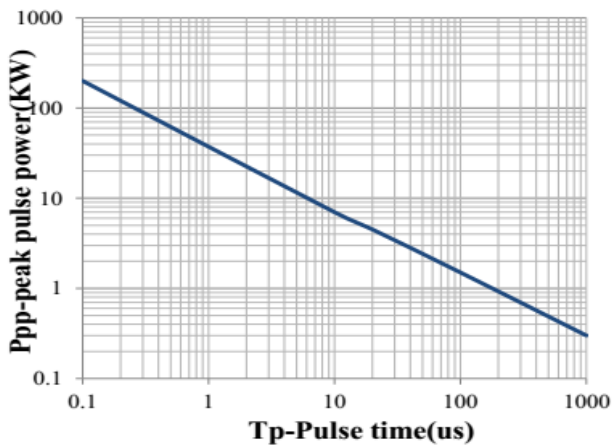
Typical Performance Characteristics ( $T_A=25^\circ\text{C}$  unless otherwise Specified)



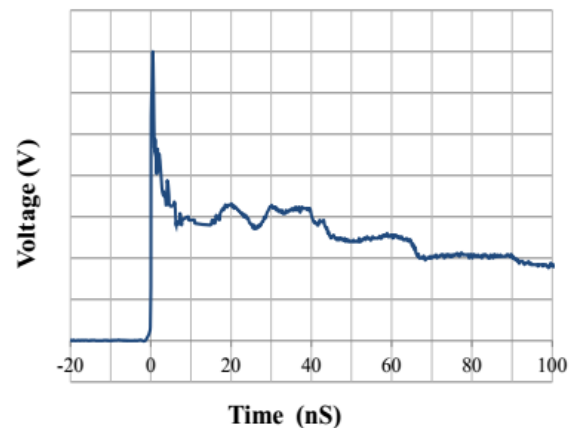
Junction Capacitance vs. Reverse Voltage



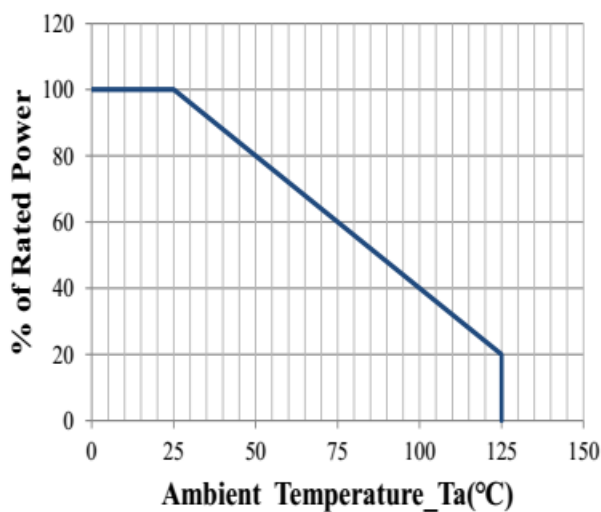
Clamping Voltage vs. Peak Pulse Current



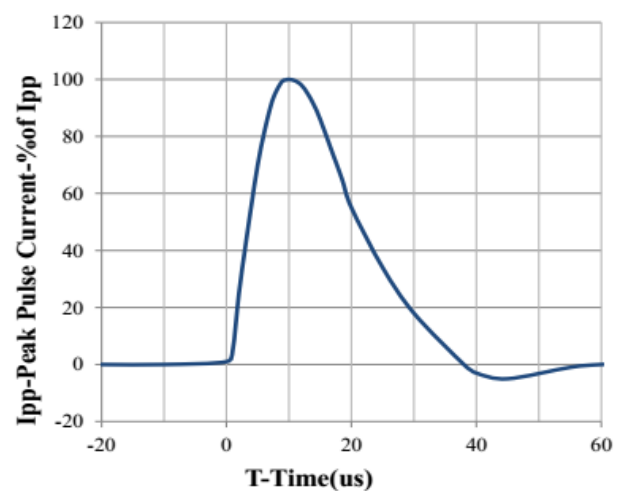
Peak Pulse Power vs. Pulse Time



IEC61000-4-2 Pulse Waveform

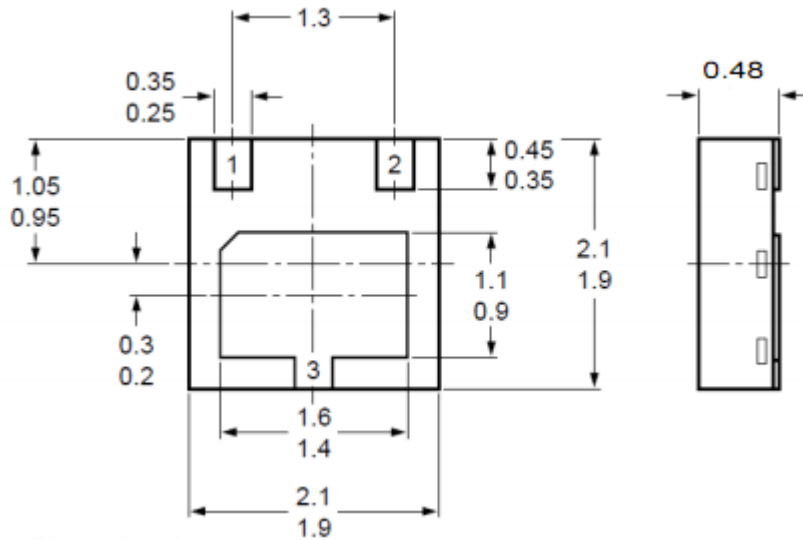


Power Derating Curve

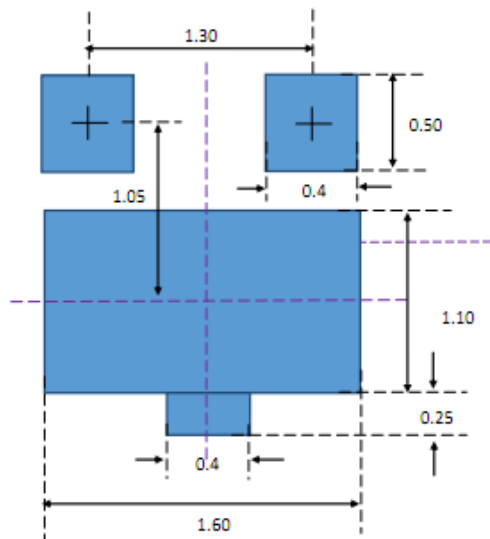


8 X 20us Pulse Waveform

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



## Suggested Land Pattern



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