JS45B1GD50-3

1-Line Bi-directional High Power TVS Diode

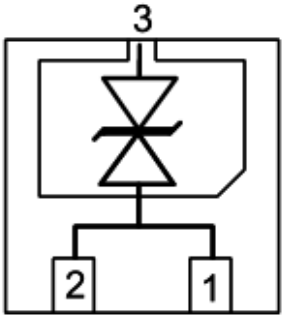
Description

The JS45B1GD50-3 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.. 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.

Features

* 5000W peak pulse power (8/20μs)
* Low leakage: nA level
* Operating voltage: 4.5V
* Ultra low clamping voltage
* One power line protects
* Complies with following standards:
  – IEC 61000-4-2 (ESD) immunity test
    Air discharge: ±30kV
    Contact discharge: ±30kV
  – IEC61000-4-5 (Lightning) 300A (8/20μs)
* RoHS Compliant
* Package: DFN2020-3

Circuit Diagram

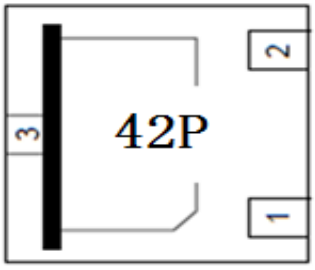


Transparent bottom view

Applications

* Power Management
* Industrial Application
* Power Supply Protection
* Many other portable devices

Marking Diagram



Transparent top view

42P:Device Marking Code
Dot denotes Pin1

Ordering Information

Part Number	Packaging	Reel Size
JS45B1GD50-3	3000/Tape & Reel	7 inch

Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

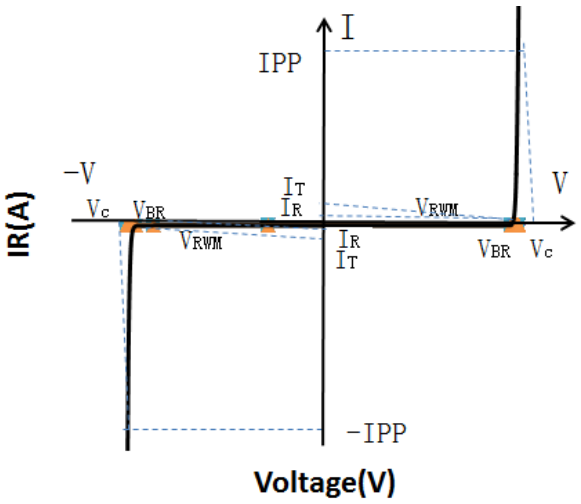
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	5000	W
Peak Pulse Current (8/20μs)	IPP	300	A
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	VESD	±30 ±30	kV
Operating Temperature Range	TJ	−55 to +125	°C
Storage Temperature Range	Tstg	−55 to +150	°C

Electrical Characteristics (T_A=25°C unless otherwise specified)

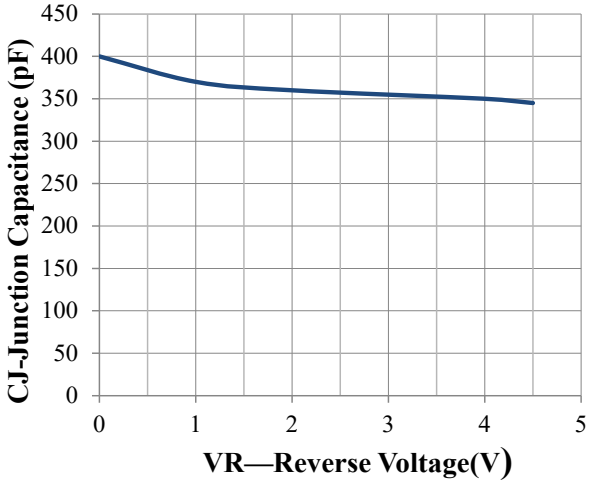
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}				4. 5	V
Breakdown Voltage	V_{BR}	I_T = 1mA	4.8			V
Reverse Leakage Current	I_R	V_{RWM} = 4.5V			3.0	μA
Clamping Voltage	Vc	I_{PP} = 100A (8 x 20μs pulse)			9.5	V
Clamping Voltage	Vc	I_{PP} = 300A (8 x 20μs pulse)			17.0	V
Junction Capacitance	C_J	VR = 0V, f = 1MHz		400	450	pF

Portion Electronics Parameter

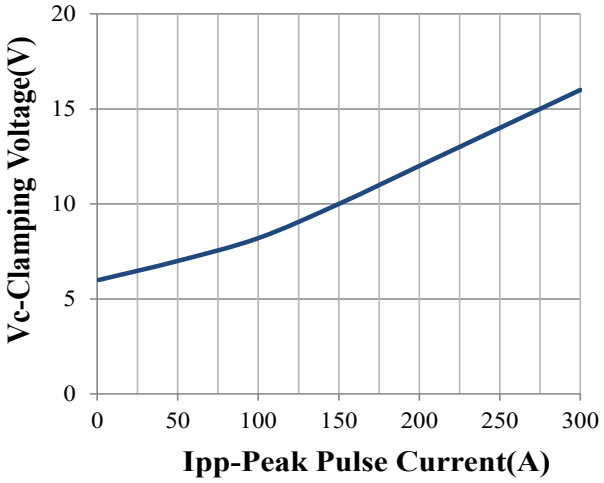
Symbol	Parameter
I_T	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
Vc	Clamping Voltage @Ic



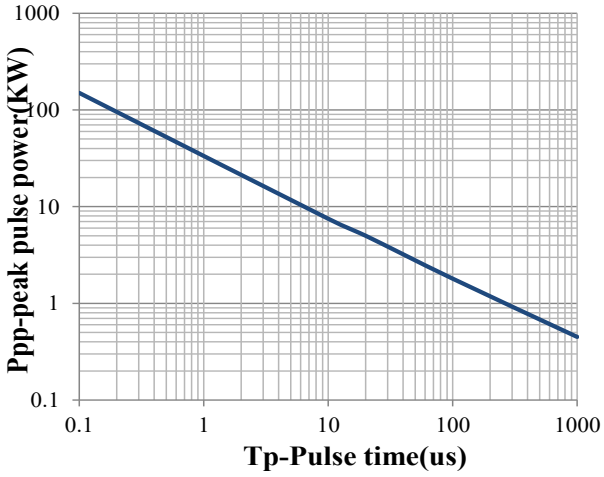
Typical Performance Characteristics (T_A=25°C unless otherwise Specified)



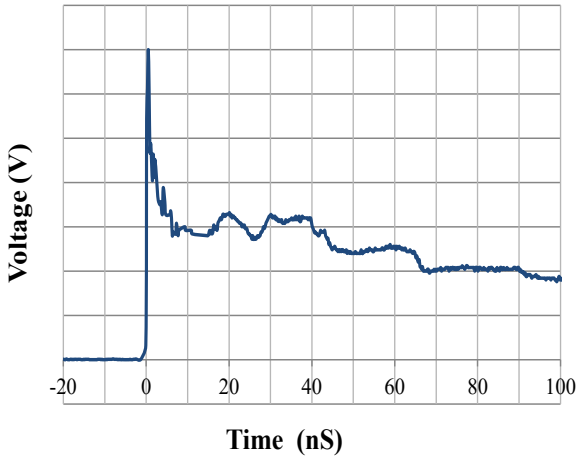
Junction Capacitance vs. Reverse Voltage



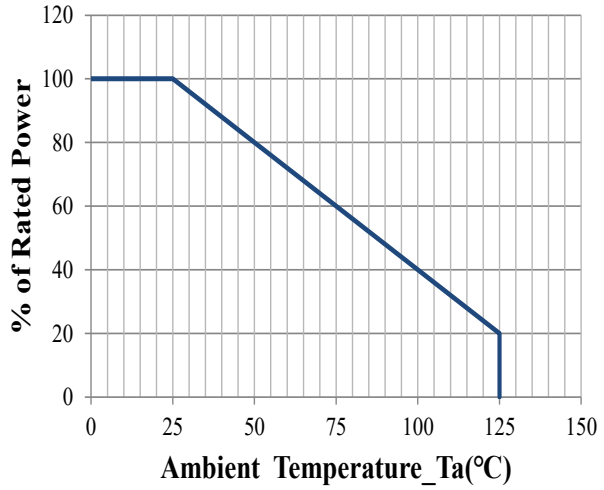
Clamping Voltage vs. Peak Pulse Current



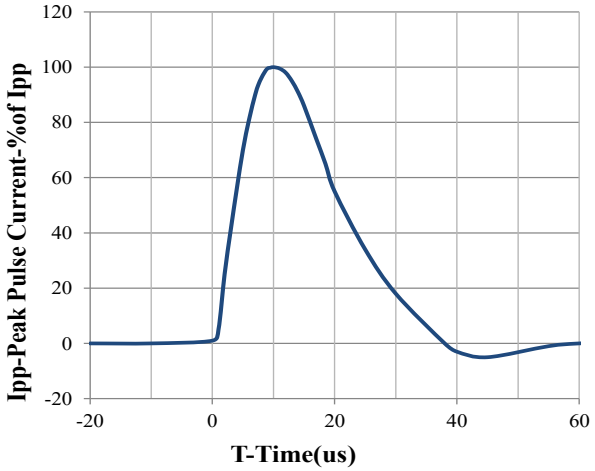
Peak Pulse Power vs. Pulse Time



IEC61000−4−2 Pulse Waveform

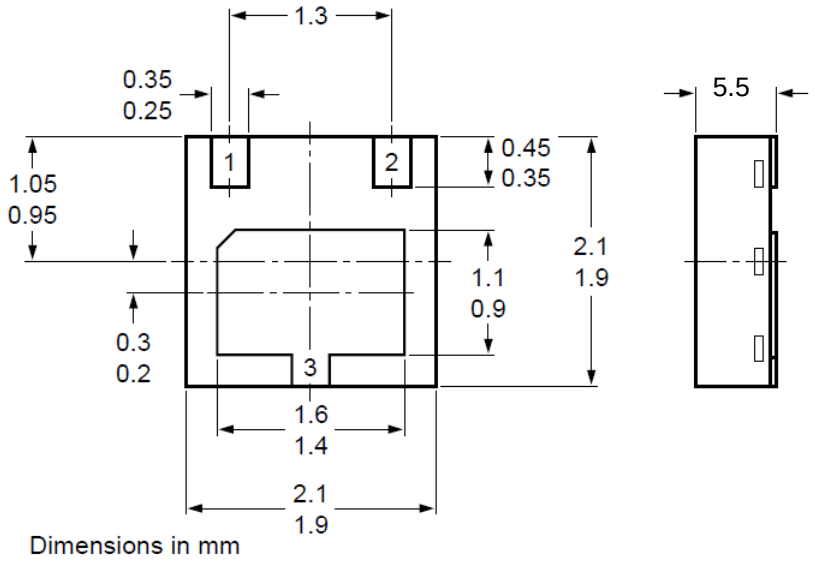


Power Derating Curve

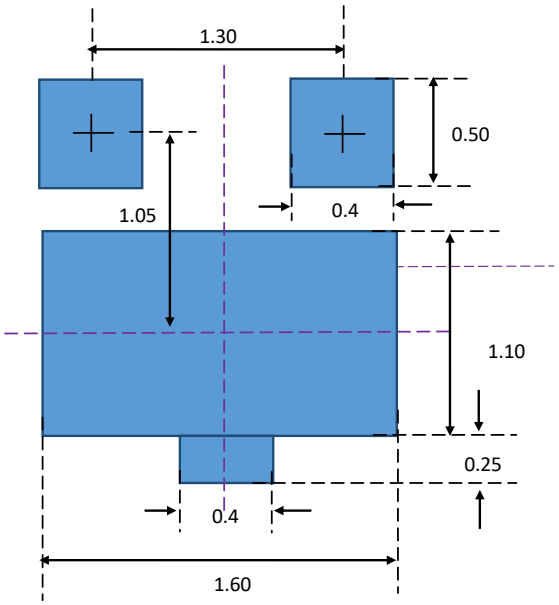


8 X 20us Pulse Waveform

DFN2020-3 Package Outline Drawing



Suggested Land Pattern



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