JS24U1GD51-3

1-Line Uni-directional TVS Diode

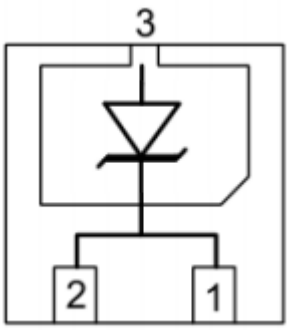
Description

The JS24U1GD51-3 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 JS24U1GD51-3 complies with the IEC 61000-4-2 (ESD) with ±30kV air and ±30kV 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.

Features

* 6800W peak pulse power (8/20μs)
* Ultra Low leakage:nA level
* Operating voltage: 24V
* 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) 220A (8/20μs)
* RoHS Compliant
* Package: DFN2020-3

Circuit Diagram

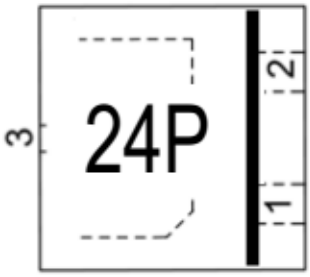


Circuit and Pin Schematic

Applications

* Power Management
* Industrial Application
* Power Supply Protection

Marking Diagram



Transparent top view

24P:Device Marking Code

Ordering Information

Part Number	Packaging	Reel Size
JS24U1GD51-3	3000/Tape & Reel	7 inch

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

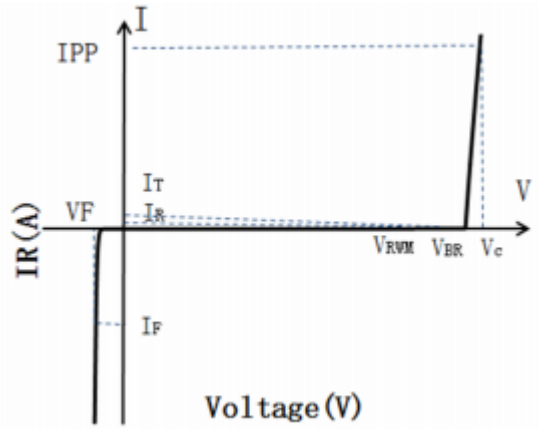
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	6800	W
Peak Pulse Current (8/20μs)	IPP	220	A
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	VESD	±30 ±30	kV
Operating Temperature Range	TJ	−55to +125	°C
Storage Temperature Range	Tstg	−55 to +150	°C

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

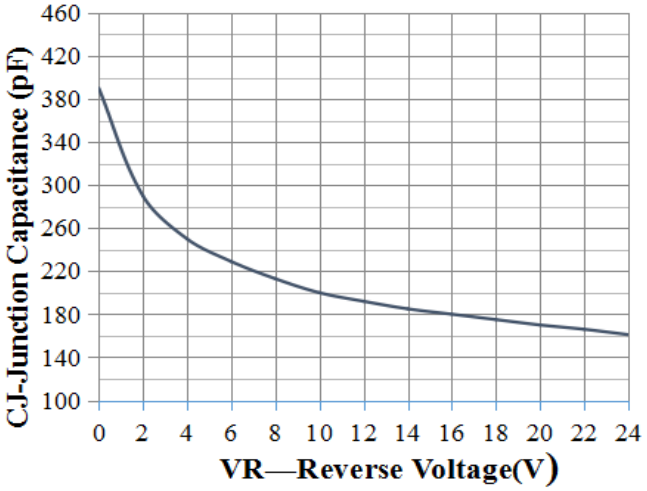
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}				24	V
Breakdown Voltage	V_{BR}	I_T = 1mA	25			V
Reverse Leakage Current	I_R	V_{RWM} = 24V			10	nA
Clamping Voltage	V_C	I_{PP} = 50A (8 x 20μs pulse)			26.5	V
Clamping Voltage	V_C	I_{PP} = 220A (8 x 20μs pulse)			31	V
Junction Capacitance	C_J	VR = 0V, f = 1MHz,)			390	pF

Portion Electronics Parameter

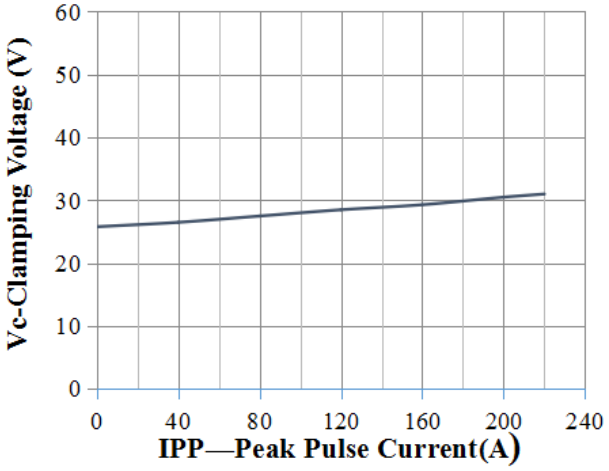
Symbol	Parameter
I_T	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
Vc	Clamping Voltage @Ic



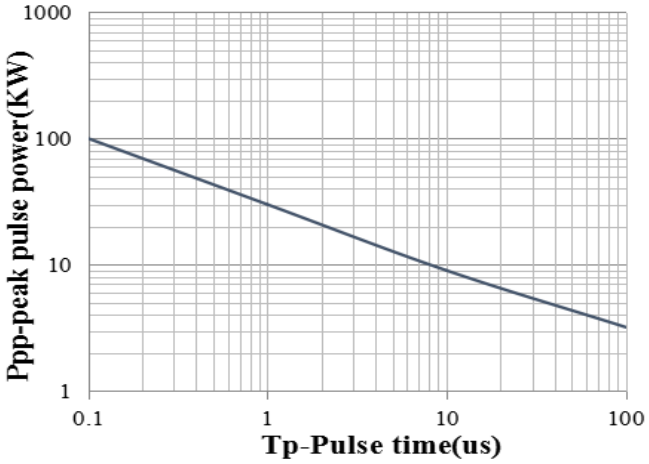
Typical Performance Characteristics (T_A=25°C unless otherwise Specified)



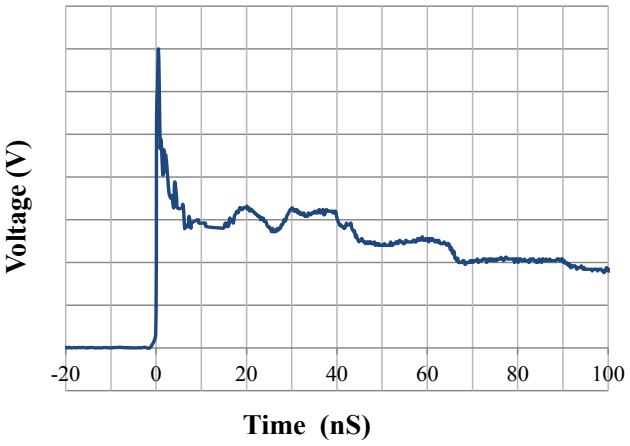
Junction Capacitance vs. Reverse Voltage



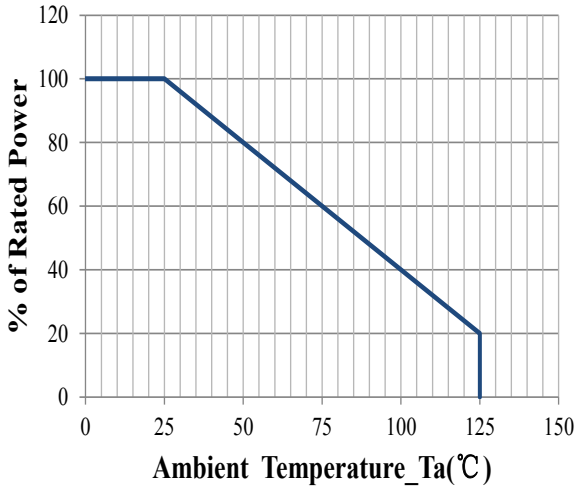
Clamping Voltage vs. Peak Pulse Current



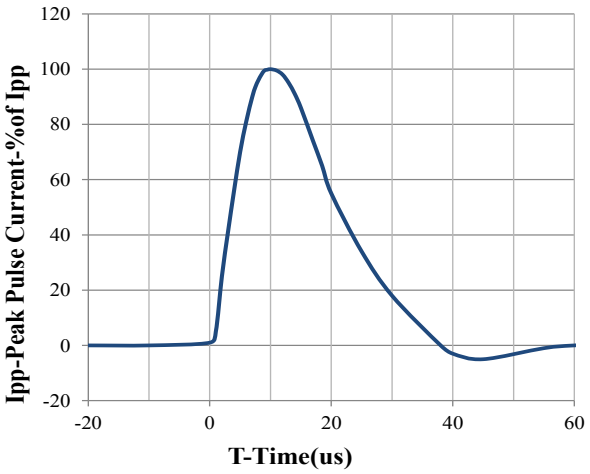
Peak Pulse Power vs. Pulse Time



IEC61000−4−2 Pulse Waveform

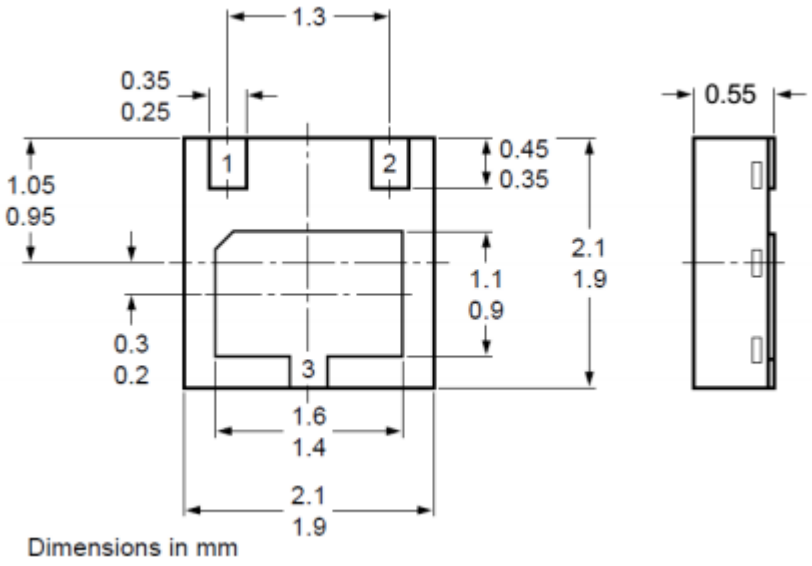


Power Derating Curve

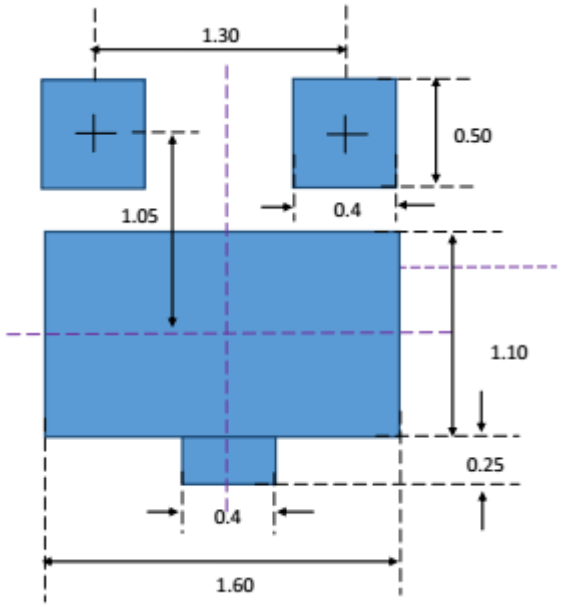


8 X 20us Pulse Waveform

DFN2020-3 Package Outline Drawing (Dimensions in millimeters)



Suggested Land Pattern



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