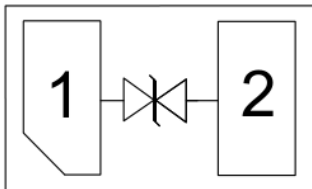


Description

The JS45B1GD20-2L is a bidirectional 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 JS45B1GD20-2L complies with the IEC 61000 -4-2 (ESD) standard with $\pm 30\text{kV}$ air and $\pm 30\text{kV}$ contact discharge. It is assembled into an ultra-small 1.0x0.6x0.5mm lead-free DFN package. The small size and high ESD surge protection make JS45B1GD20-2L an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

Circuit Diagram



Circuit Diagram

Marking Diagram



Transparent top view

45:Device Marking Code

Features

- * Ultra small package: 1.0x0.6x0.5mm
- * Protects one data or power line
- * Ultra low leakage: nA level
- * Operating voltage: 4.5V
- * Low clamping voltage
- * 2-pin leadless package
- * 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) 20A (8/20 μs)
- * RoHS Compliant
- Package: DFN1006-2 (1.0×0.6×0.5mm)

Applications

- * Cellular Handsets and Accessories
- * Personal Digital Assistants
- * Notebooks and Handhelds
- * Portable Instrumentation
- * Digital Cameras
- * Power Lines
- * Tablets

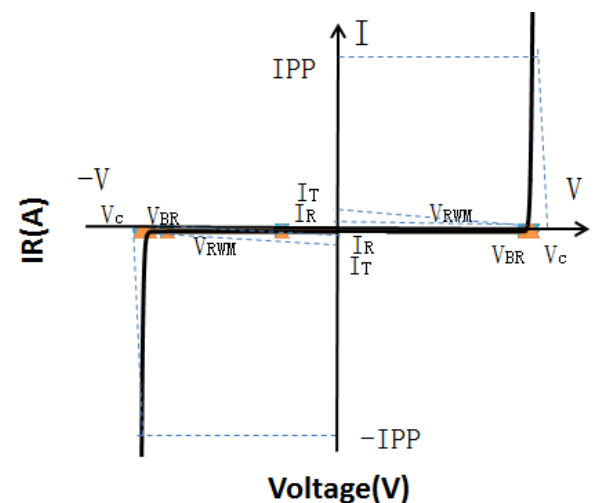
Ordering Information

Part Number	Packaging	Reel Size
JS45B1GD20-2L	10000/Tape & Reel	7 inch

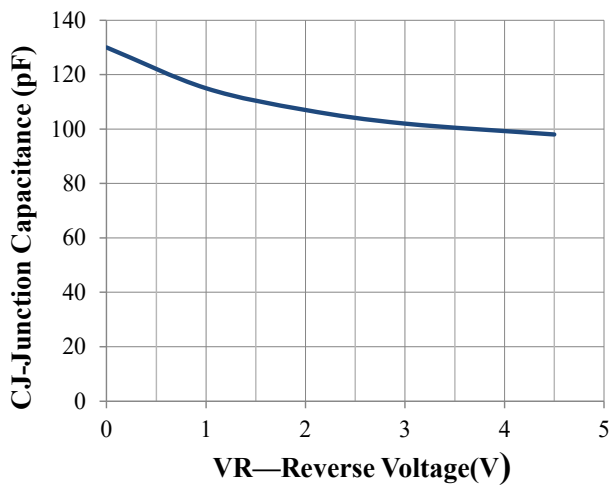
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	250	W
Peak Pulse Current (8/20μs)	IPP	20	A
ESD per IEC 61000-4-2 (Air)	VESD	±30	kV
ESD per IEC 61000-4-2 (Contact)		±30	
Operating Temperature Range	TJ	-55 to +125	°C
Storage Temperature Range	Tstg	-55 to +150	°C

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V _{RWM}				4.5	V
Breakdown Voltage	V _{BR}	I _T = 1mA	5.0	6.0	7.0	V
Reverse Leakage Current	I _R	V _{RWM} = 4.5V			0.5	μA
Clamping Voltage	V _C	I _{PP} = 1A (8 x 20μs pulse)			9	V
Clamping Voltage	V _C	I _{PP} = 20A (8 x 20μs pulse)			12.5	V
Junction Capacitance	C _J	V _R = 0V, f = 1MHz		130	150	pF

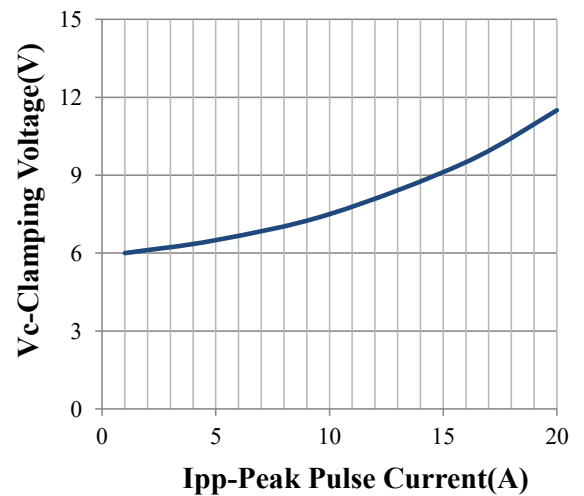
Symbol	Parameter
I _T	Test Current
I _{PP}	Maximum Reverse Peak Pulse Current
V _C	Clamping Voltage @I _C



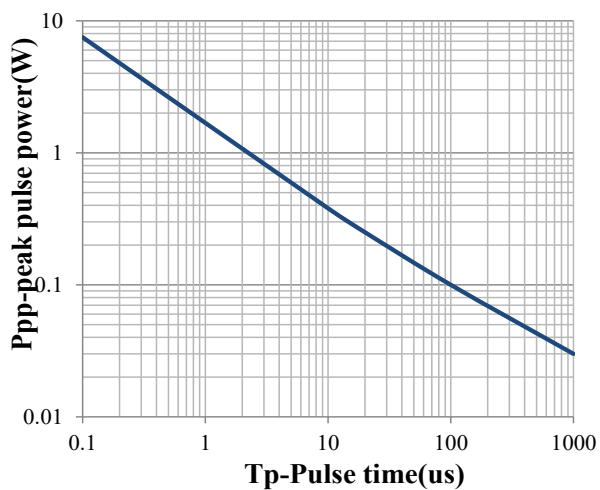
Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)



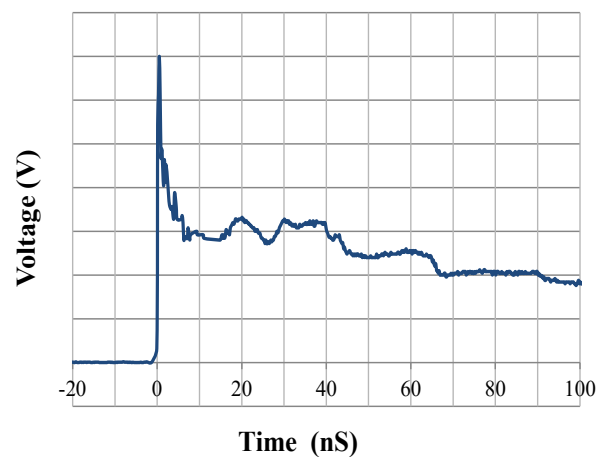
Junction Capacitance vs. Reverse Voltage



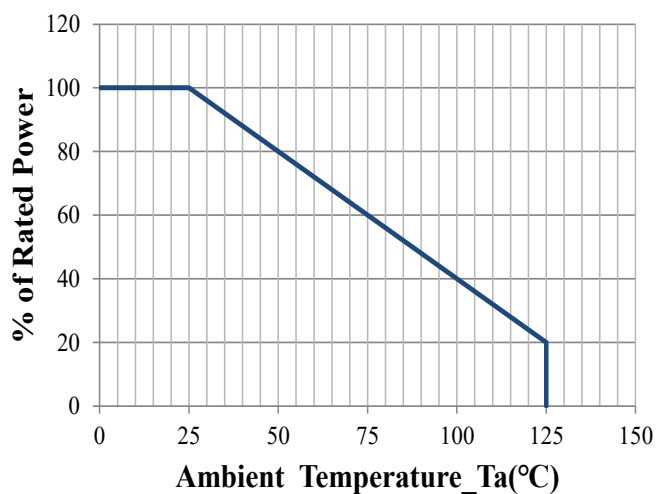
Clamping Voltage vs. Peak Pulse Current



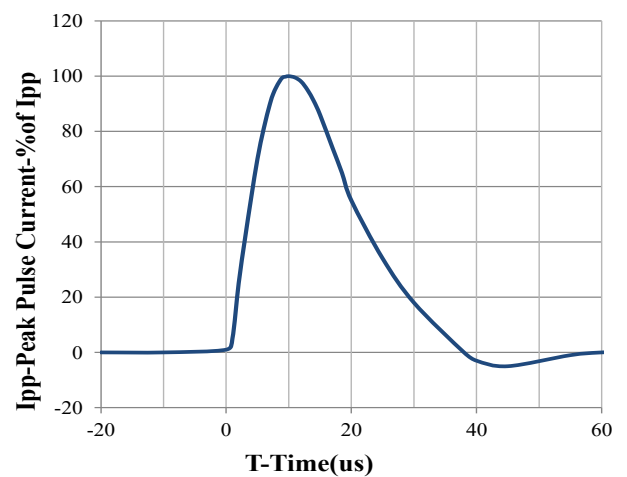
Peak Pulse Power vs. Pulse Time



IEC61000-4-2 Pulse Waveform

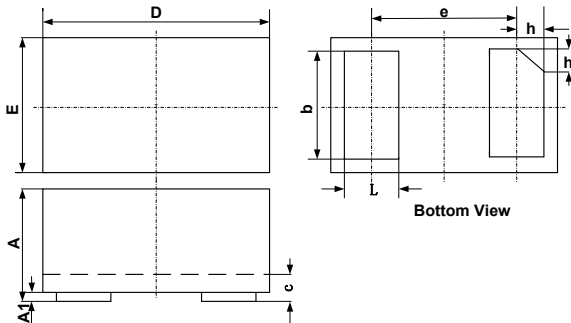


Power Derating Curve



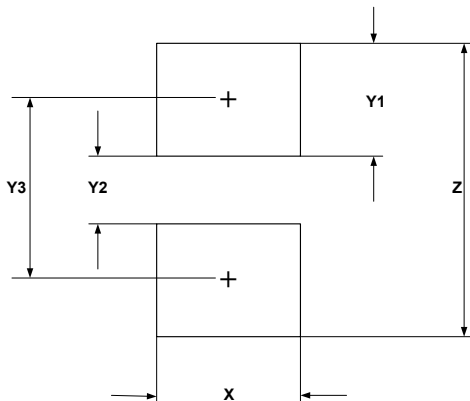
8 X 20us Pulse Waveform

DFN1006-2 Package Outline Drawing



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.45	0.50	0.55	0.018	0.020	0.022
A1	0.00	0.02	0.05	0.000	0.001	0.002
b	0.45	0.50	0.55	0.018	0.020	0.022
c	0.12	0.15	0.18	0.005	0.006	0.007
D	0.95	1.00	1.05	0.037	0.039	0.041
e	0.65 BSC			0.026 BSC		
E	0.55	0.60	0.65	0.022	0.024	0.026
L	0.20	0.25	0.30	0.008	0.010	0.012
h	0.07	0.12	0.17	0.003	0.005	0.007

Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
X	0.60	0.024
Y1	0.50	0.020
Y2	0.30	0.012
Y3	0.80	0.032
Z	1.30	0.052

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