JS45B1LD20-2

1-Line Bi-directional TVS Diode

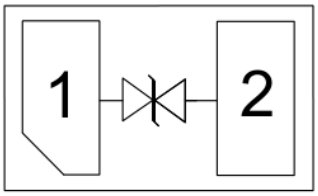
Description

The JS45B1LD20-2 is a bi-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 protect-ing voltage sensitive data and power line.The JS45B1LD20-2 complies with the IEC 61000-4-2 (ESD) standard with ±30kV air and ±30kV contact dis-charge.It is assembled into an ultra-small 1.0x0.6x0.5mm lead-free DFN package.The small size and high ESD surge protection make JS45B1LD20-2 an ideal choice to protectcell phone, digital cameras, audio players and many other portable applications.

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: ±30kV
  Contact discharge: ±30kV
  – IEC61000-4-5 (Lightning) 30A (8/20μs)
* RoHS Compliant

Circuit Diagram

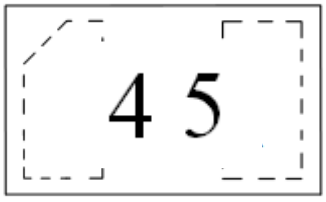


Circuit Diagram

Applications

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

Marking Diagram



Transparent top view

45:Device Marking Code

Ordering Information

Part Number	Packaging	Reel Size
JS45B1LD20-2	10000/Tape & Reel	7 inch

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

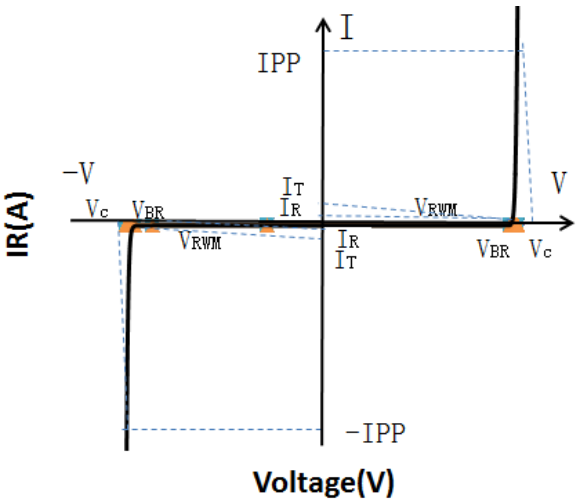
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	430	W
Peak Pulse Current (8/20μs)	IPP	30	A
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	VESD	±30 ±30	kV
Operating Temperature Range	TJ	−55 to +125	°C
Storage Temperature Range	Tstg	−55 to +150	°C

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

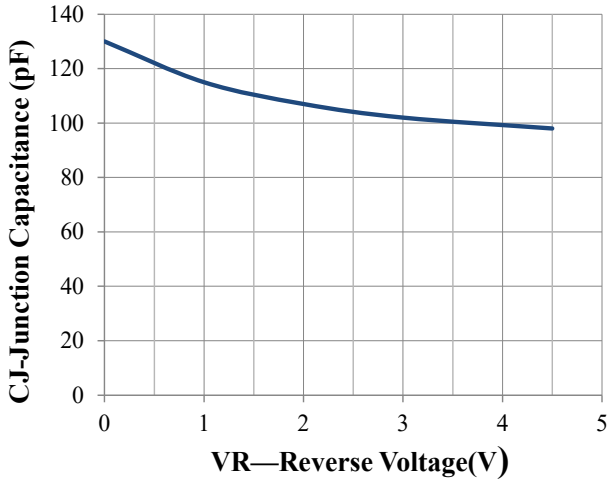
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}				4. 5	V
Breakdown Voltage	V_{BR}	I_T = 1mA	5.0	6.0	7.0	V
Reverse Leakage Current	I_R	V_{RWM} = 4. 5V			0.5	μA
Clamping Voltage	V_C	I_{PP} = 1A (8 x 20μs pulse)			6	V
Clamping Voltage	V_C	I_{PP} = 30A (8 x 20μs pulse)			14.5	V
Junction Capacitance	C_J	VR = 0V, f = 1MHz		130	150	pF

Portion Electronics Parameter

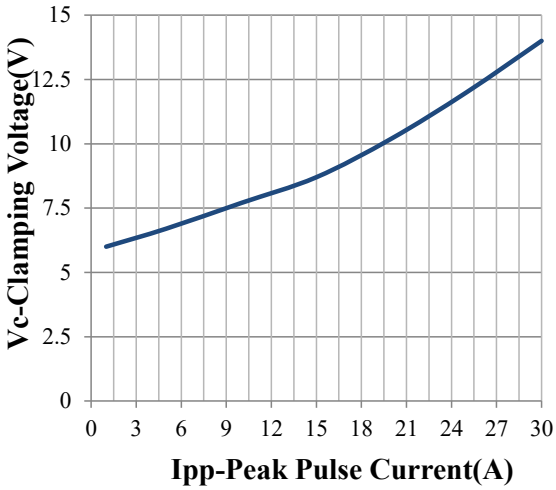
Symbol	Parameter
I_T	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
Vc	Clamping Voltage @Ic



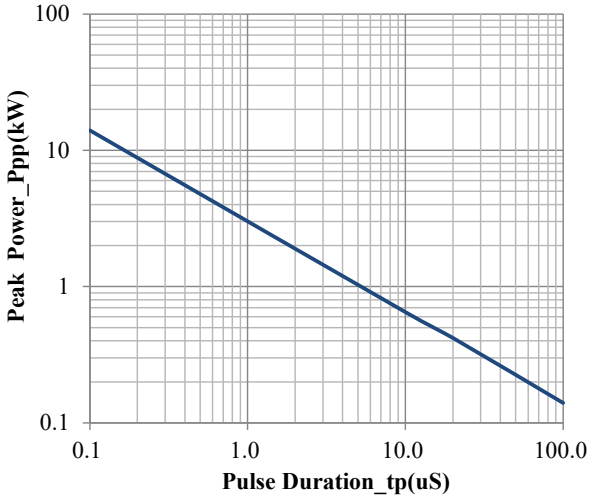
Typical Performance Characteristics (T_A=25°C unless otherwise Specified)



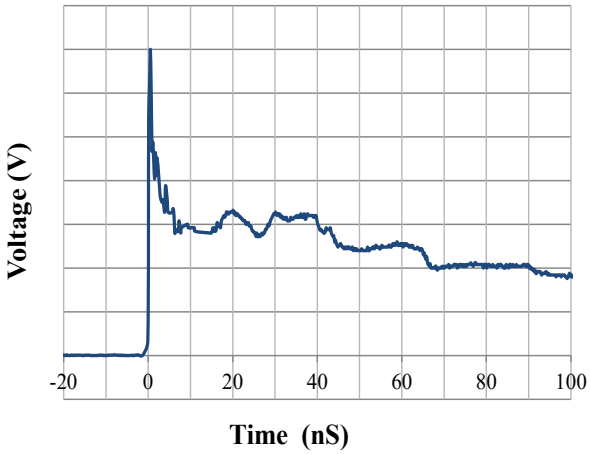
Junction Capacitance vs. Reverse Voltage



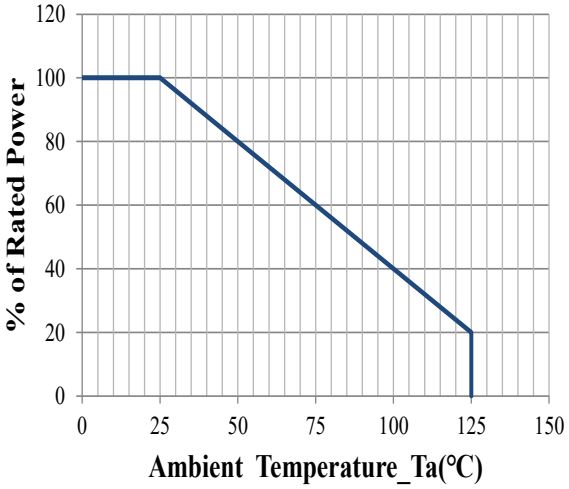
Clamping Voltage vs. Peak Pulse Current



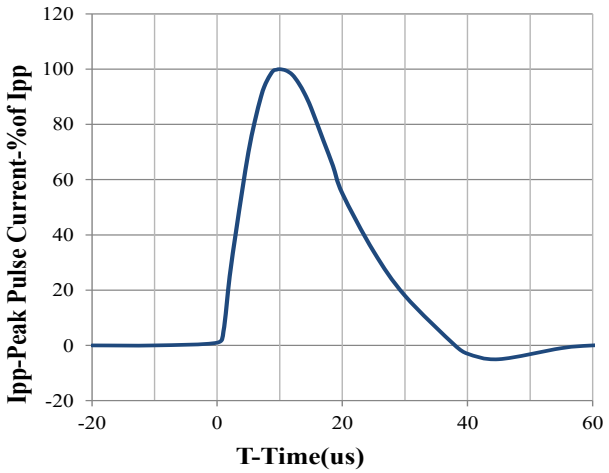
Peak Pulse Power vs. Pulse Time



IEC61000−4−2 Pulse Waveform

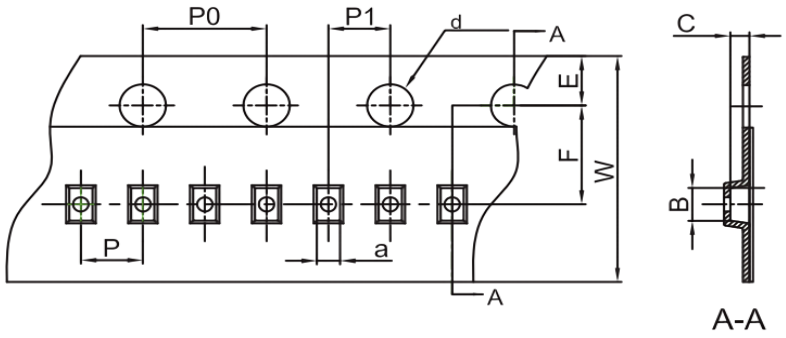


Power Derating Curve



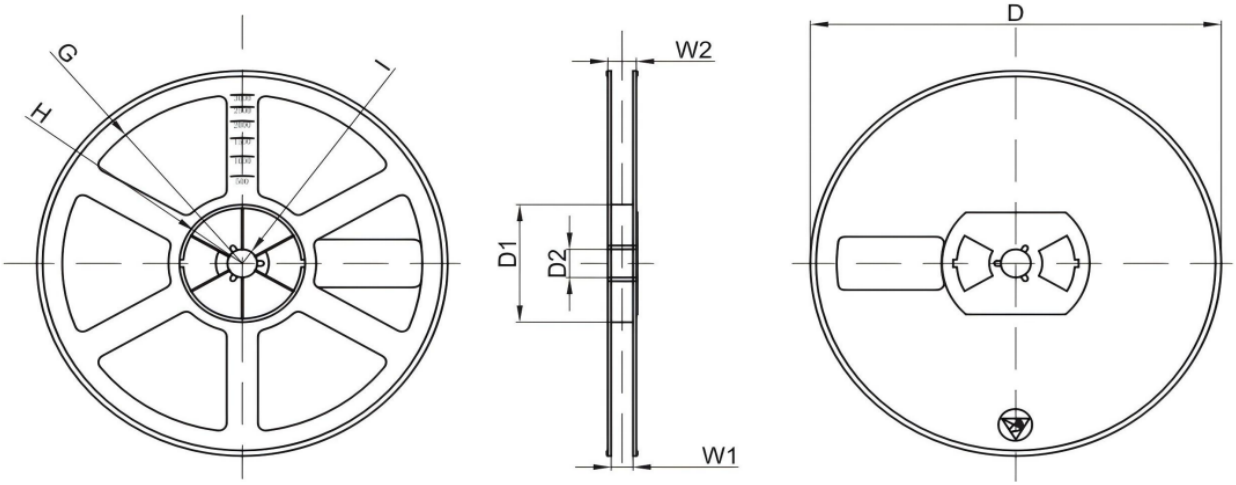
8 X 20us Pulse Waveform

DFN1006 Embossed Carrier Tape



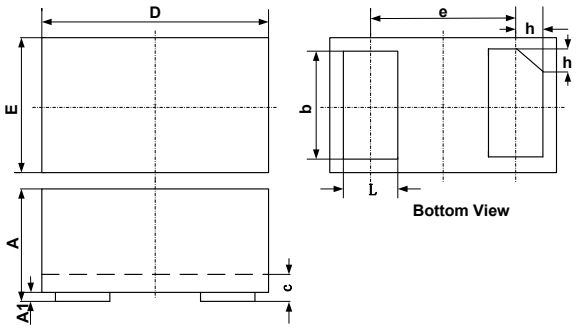
Dimensions are in millimeter										
Pkg type	a	B	C	d	E	F	P0	P	P1	W
DFN1006	0.66	1.15	0.66	Ø1.50	1.75	3.50	4.00	2.00	2.00	8.00

DFN1006 Reel



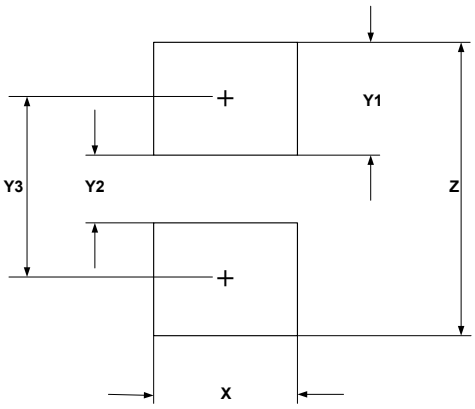
Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Ø178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30

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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