JE05B2UD20-3

2-Line Bi-directional High Power TVS Diode

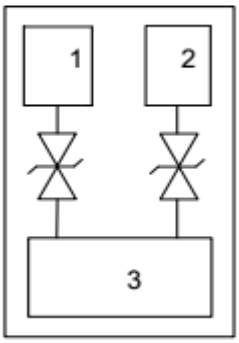
Description

The JE05B2UD20-3 is a 2-line 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 protecting voltage sensitive high-speed data lines. The JE05B2UD20-3 complies with the IEC 61000-4-2 (ESD) standard with ±15kV air and ±8kV 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 JE05B2UD20-3 an ideal choice to protect cell phone, digital video interfaces, high speed data ports, and many other portable applications.

Features

* 40W peak pulse power (8/20μs)
* Low leakage:nA level
* Low operating voltage: 5V
* Ultra low clamping voltage
* One power line protects
* Complies with following standards:
  – IEC 61000-4-2 (ESD) immunity test
    Air discharge: ±15kV
    Contact discharge: ±8kV
  – IEC61000-4-5 (Lightning) 2A (8/20μs)
* RoHS Compliant
* Package: DFN1006-3

Circuit Diagram

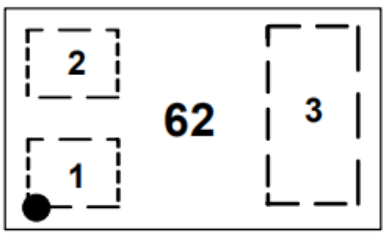


Circuit and Pin Schematic

Applications

* Cellular Handsets and Accessories
* Personal Digital Assistants
* Notebooks and Handhelds
* Portable Instrumentation
* Digital Cameras
* Peripherals
* Audio Players, Keypads, Side Keys, LCD
* USB 2.0

Marking Diagram



Transparent top view

62=Device Marking Code

Dot denotes Pin1

Ordering Information

Part Number	Packaging	Reel Size
JE05B2UD20-3	10000/Tape & Reel	7 inch

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

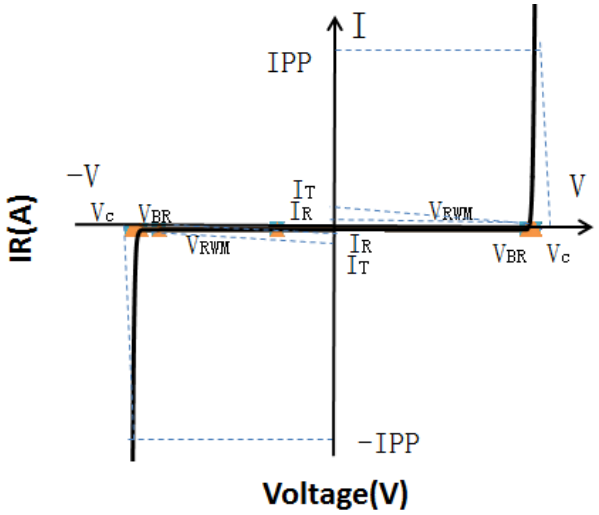
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	40	W
Peak Pulse Current (8/20μs)	IPP	2	A
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	VESD	±15 ±8	kV
Operating Temperature Range	TJ	−55to +125	°C
Storage Temperature Range	Tstg	−55 to +150	°C

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

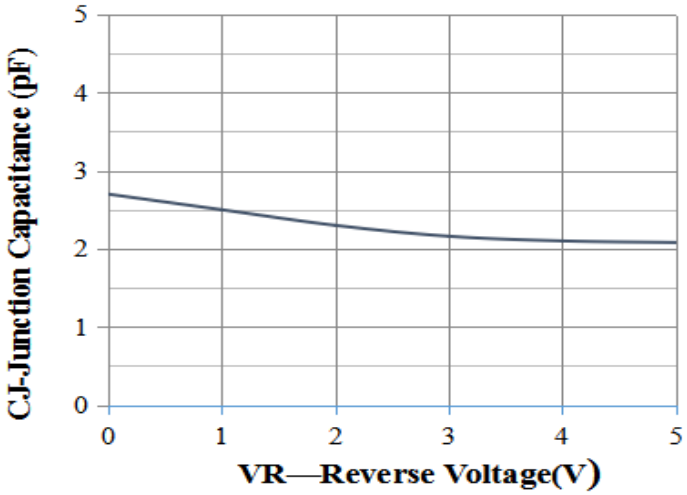
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}	Pin 1 or pin 2 to pin 3 and between pin 1 and pin 2			5	V
Breakdown Voltage	V_{BR}	I_T = 1mA,pin 1or pin 2 to pin 3 and between pin 1 and pin 2	6			V
Reverse Leakage Current	I_R	V_{RWM} = 5V,pin 1or pin 2 to pin 3 and between pin 1 and pin 2			0.2	uA
Clamping Voltage	V_C	I_{PP} = 2A (8 x 20μs pulse), pin 1 or pin 2 to pin 3 and between pin 1 and pin 2			12.5	V
Junction Capacitance	C_J	VR = 0V, f = 1MHz pin 1 or pin 2 to pin 3		2.5	3	pF

Portion Electronics Parameter

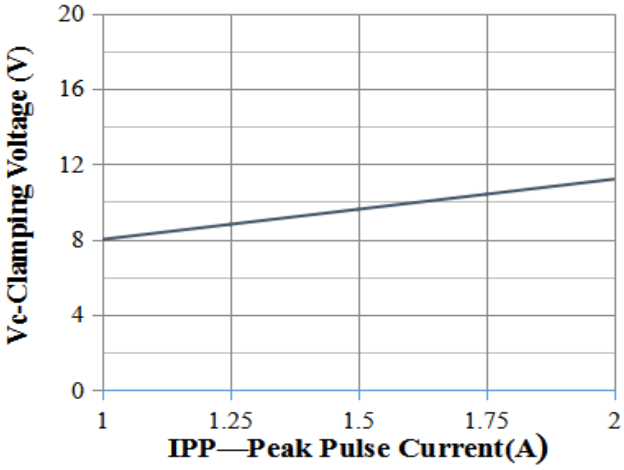
Symbol	Parameter
I_T	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
Vc	Clamping Voltage @Ic



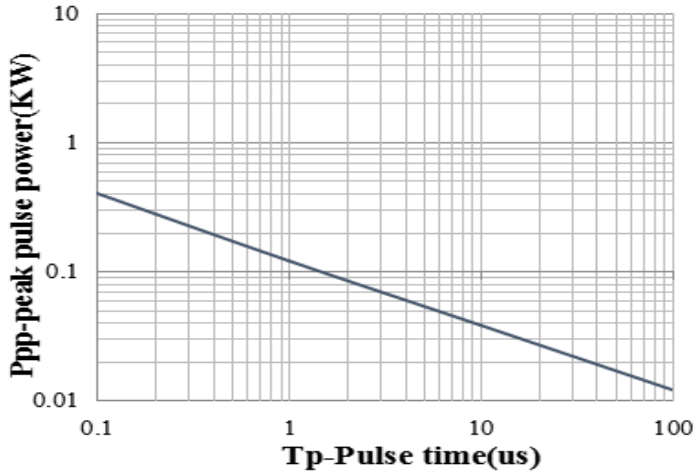
Typical Performance Characteristics (T_A=25°C unless otherwise Specified)



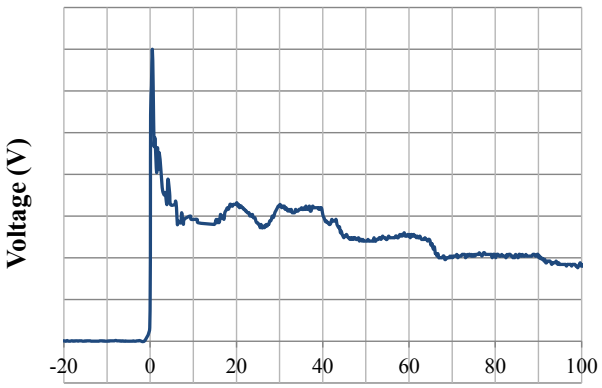
Junction Capacitance vs. Reverse Voltage



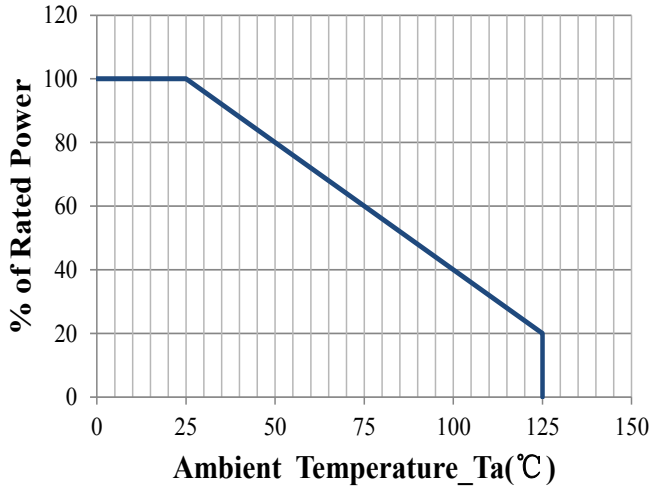
Clamping Voltage vs. Peak Pulse Current



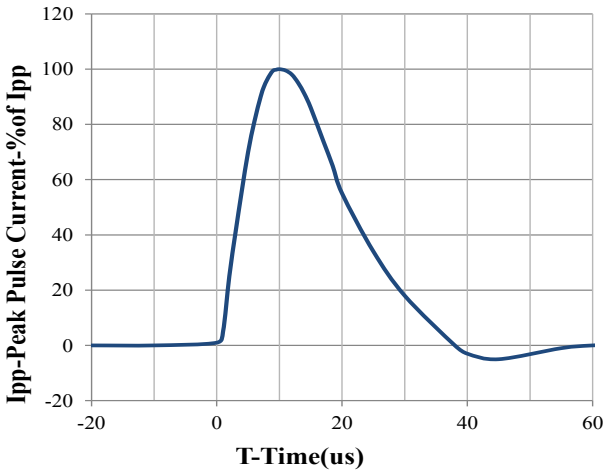
Peak Pulse Power vs. Pulse Time



IEC61000−4−2 Pulse Waveform

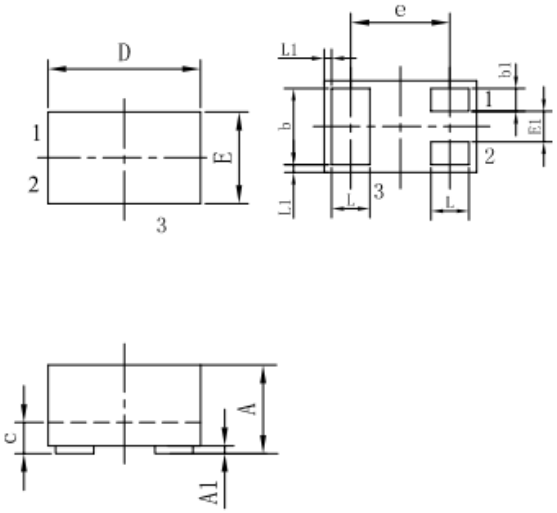


Power Derating Curve



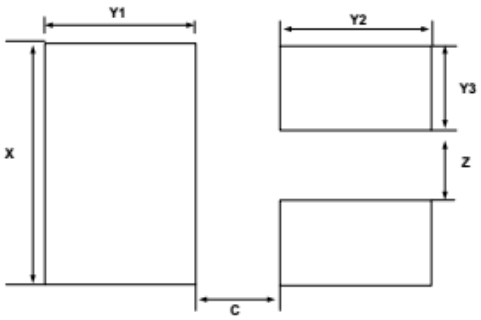
8 X 20us Pulse Waveform

DFN1006-3 Package Outline Drawing (Dimensions in millimeters)



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
b1	0.10	0.15	0.20	0.004	0.006	0.008
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
E1	0.15	0.20	0.25	0.006	0.008	0.010
L	0.20	0.25	0.30	0.008	0.010	0.012
L1	0.05 REF			0.0002 REF		

Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
C	0.25	0.010
X	0.65	0.024
Y1	0.50	0.020
Y2	0.50	0.020
Y3	0.25	0.010
Z	0.20	0.008

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