

JE05U8RD90-9

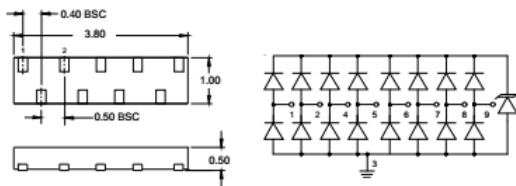
8-Line Uni-directional High Power TVS Diode



Description

The JE05U8RD90-9 is an ultra low capacitance TVS array, 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 JE05U8RD90-9 has an ultra-low capacitance with a typical value at 0.29pF, and complies with the IEC 61000-4-2 (ESD) standard with $\pm 15\text{kV}$ air and $\pm 8\text{kV}$ contact discharge. It is assembled into a 9-pin lead-free DFN package. The flow through style package allows for easy PCB layout and matched trace lengths necessary to maintain consistent impedance between high speed differential lines. The

Circuit Diagram



Dimensions and Circuit Diagram

Marking Diagram



Transparent top view

0508P:Device Marking Code

Features

- * 100W peak pulse power (8/20 μs)
- * Low leakage:nA level
- * Operating voltage: 5V
- * Ultra low clamping voltage
- * Eight power line protects
- * Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 15\text{kV}$
 - Contact discharge: $\pm 8\text{kV}$
 - IEC61000-4-5 (Lightning) 5A (8/20 μs)
- * RoHS Compliant
- * Package: DFN3810-9

Applications

- * Fast-charge battery chargers
- * Power management system
- * Cellular Handsets and Accessories
- * Personal Digital Assistants
- * Notebooks and Handhelds
- * Portable Instrumentation
- * Digital Cameras

Ordering Information

Part Number	Packaging	Reel Size
JE05U8RD90-10	3000/Tape & Reel	7 inch

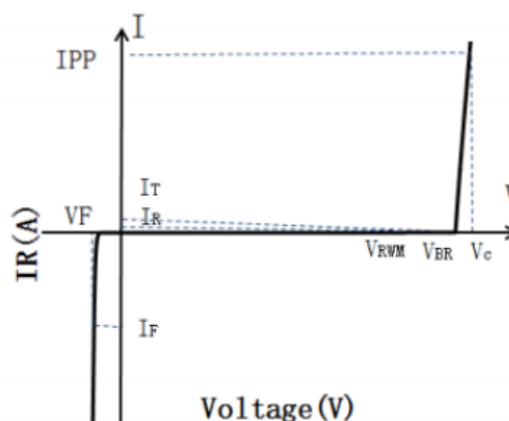
Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	Ppk	100	W
Peak Pulse Current (8/20 μs)	IPP	5	A
ESD per IEC 61000-4-2 (Air)	VESD	± 15	kV
ESD per IEC 61000-4-2 (Contact)		± 8	
Operating Temperature Range	TJ	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	Tstg	-55 to +150	$^{\circ}\text{C}$

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

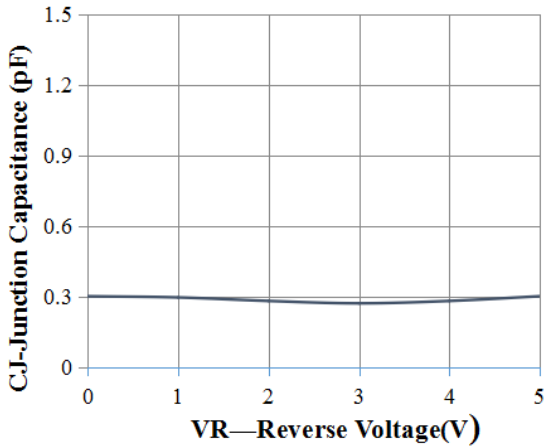
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}				5	V
Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	6			V
Reverse Leakage Current	I_R	$V_{RWM} = 5\text{V}$			0.5	μA
Clamping Voltage	V_C	$I_{PP} = 1\text{A}$ (8 x 20 μs pulse)			15	V
Clamping Voltage	V_C	$I_{PP} = 5\text{A}$ (8 x 20 μs pulse)			20	V
Junction Capacitance	C_J	$V_R = 0\text{V}, f = 1\text{MHz}$, any I/O pin to ground		0.29	0.35	pF

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

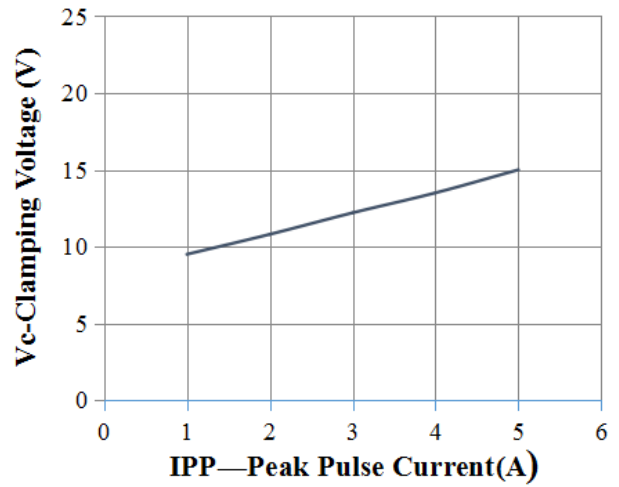


Portion Electronics Parameter

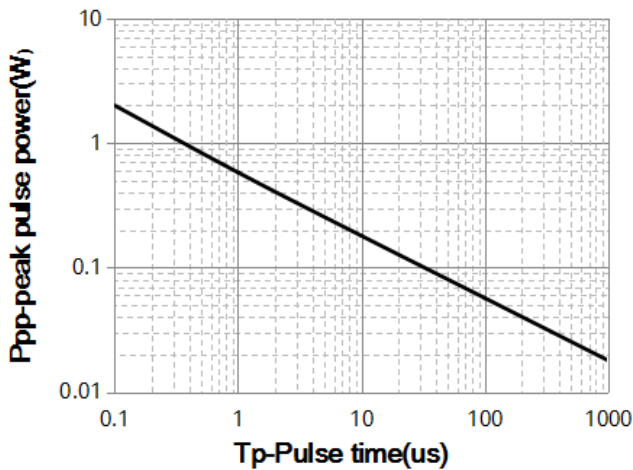
Typical Performance Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise Specified)



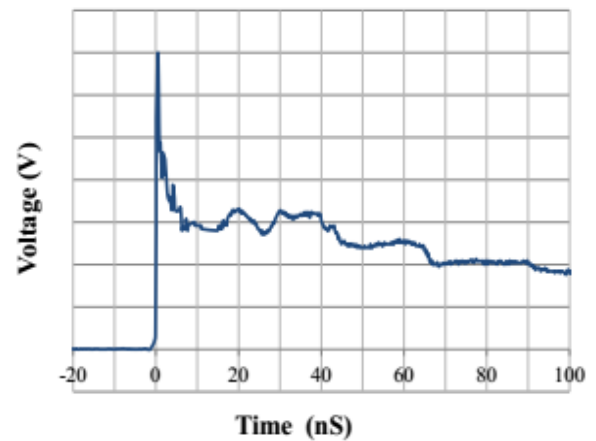
Junction Capacitance vs. Reverse Voltage



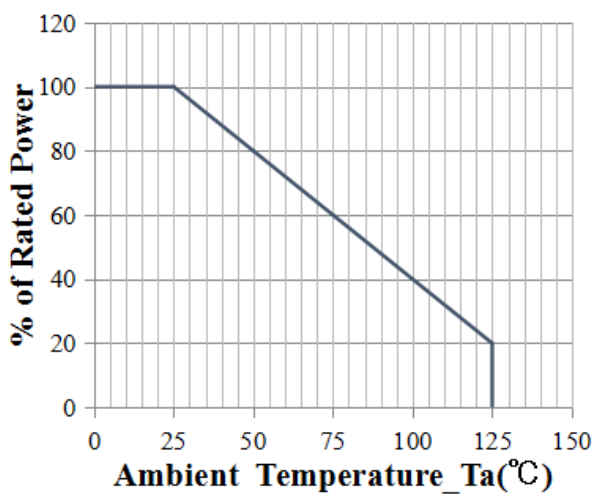
Clamping Voltage vs. Peak Pulse Current



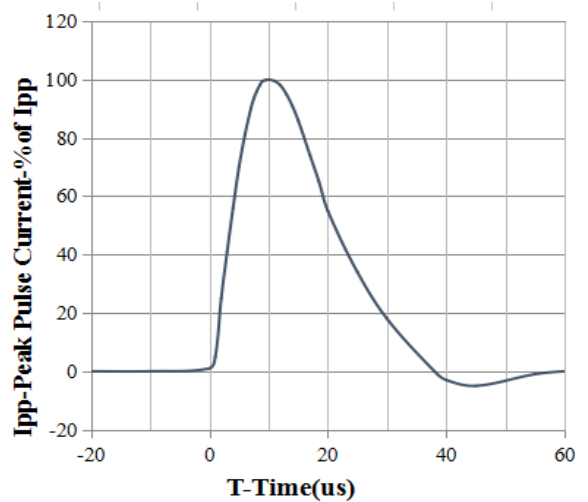
Peak Pulse Power vs. Pulse Time



IEC61000-4-2 Pulse Waveform

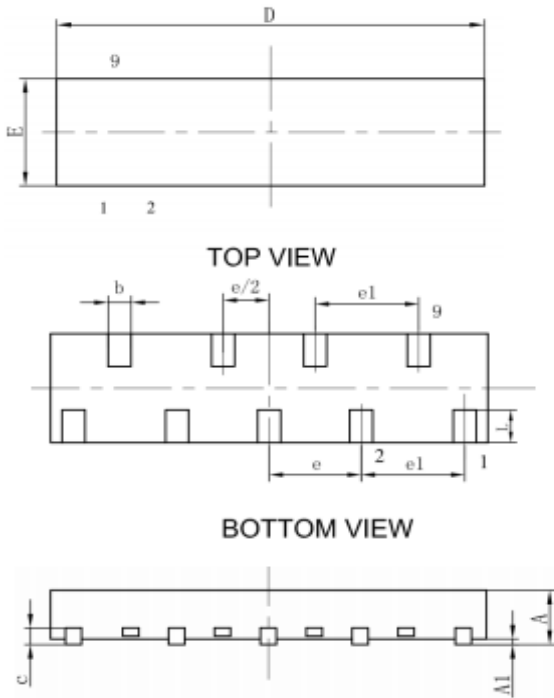


Power Derating Curve



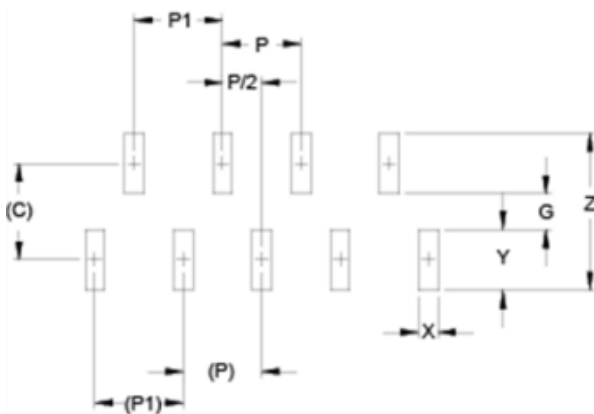
8 X 20us Pulse Waveform

DFN3810-9 Package Outline Drawing (Dimensions in millimeters)



SYM	MILLIMETERS		
	MIN	NOM	MAX
A	0.45	0.50	0.55
A1	—	0.02	0.05
b	0.15	0.20	0.25
c	0.10	0.15	0.20
D	3.70	3.80	3.90
e	0.80BSC		
e1	0.90BSC		
E	0.90	1.00	1.10
L	0.20	0.30	0.40

Suggested Land Pattern



DIMENSIONS	
DIM	MILLIMETERS
C	(0.95)
G	0.35
P	0.80
P1	0.90
X	0.20
Y	0.60
Z	1.55

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