

# JE05U2RT10-3

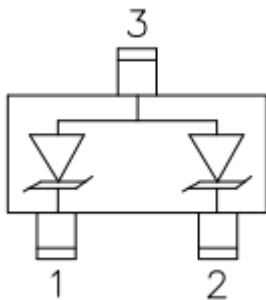
## 2-Line Ultra Low Capacitance Uni-directional TVS Diode



### Description

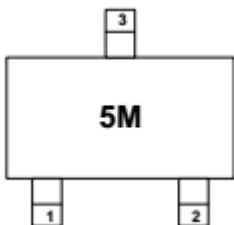
The JE05U2RT10-3 is a uni-directional TVS diode, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive data and power line. The JE05U2RT10-3 complies with the IEC 61000-4-2 (ESD) standard with  $\pm 25$  kV air and  $\pm 20$  kV contact discharge. It is assembled into an ultra-small lead-free SOT-23 package. The small size and high ESD surge protection make JE05U2RT10-3 an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

### Circuit Diagram



Circuit and Pin Schematic

### Marking Diagram



Transparent top view

5M:Device Marking Code

### Features

- \* 100W peak pulse power (8/20 $\mu$ s)
- \* Ultra low capacitance:0.3pF typical
- \* Low leakage: nA level
- \* Operating voltage: 5V
- \* Ultra low clamping voltage
- \* Two power line protects
- \* Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge:  $\pm 25$ kV
    - Contact discharge:  $\pm 20$ kV
  - IEC61000-4-5 (Lightning) 5A (8/20 $\mu$ s)
- \* RoHS Compliant
- \* Package: SOT-23

### Applications

- \* Cellular Handsets and Accessories
- \* Personal Digital Assistants
- \* Notebooks and Handhelds
- \* Digital Cameras
- \* Peripherals
- \* Audio Players
- \* Keypads, Side Keys, LCD Displays

### Ordering Information

Part Number	Packaging	Reel Size
JE05U2RT10-3	3000/Tape & Reel	7 inch

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

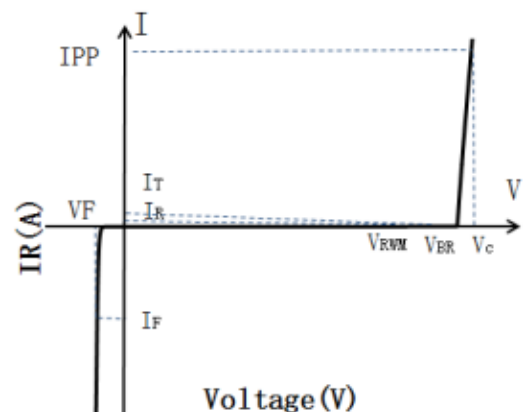
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 $\mu\text{s}$ )	Ppk	100	W
Peak Pulse Current (8/20 $\mu\text{s}$ )	IPP	5	A
ESD per IEC 61000-4-2 (Air)	VESD	$\pm 25$	kV
ESD per IEC 61000-4-2 (Contact)		$\pm 20$	
Operating Temperature Range	TJ	-55to +125	$^{\circ}\text{C}$
Storage Temperature Range	Tstg	-55 to +150	$^{\circ}\text{C}$

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

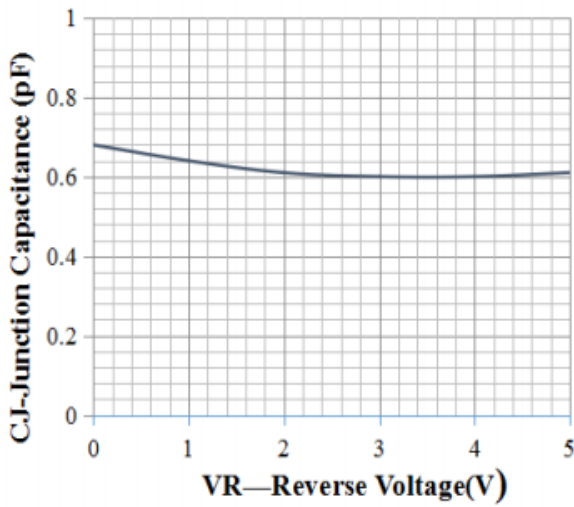
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	$V_{RWM}$				5	V
Breakdown Voltage	$V_{BR}$	$I_T = 1\text{mA}$	6			V
Reverse Leakage Current	$I_R$	$V_{RWM} = 5\text{V}$			0.5	$\mu\text{A}$
Clamping Voltage	$V_C$	$I_{PP} = 1\text{A}$ (8 x 20 $\mu\text{s}$ pulse)			15	V
Clamping Voltage	$V_C$	$I_{PP} = 5\text{A}$ (8 x 20 $\mu\text{s}$ pulse)			20	V
Junction Capacitance	$C_J$	$V_R = 0\text{V}$ , $f = 1\text{MHz}$ , between pin 1 and pin 2		0.3	0.4	pF
Junction Capacitance	$C_J$	$V_R = 0\text{V}$ , $f = 1\text{MHz}$ , pin 1 or pin 2 to pin 3			0.8	pF

**Portion Electronics Parameter**

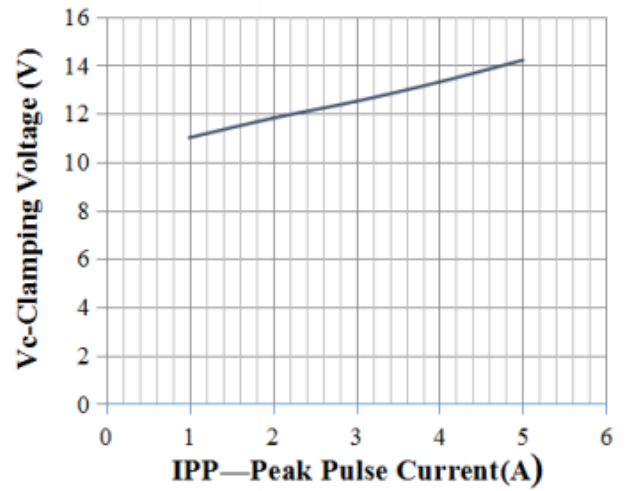
Symbol	Parameter
$I_T$	Test Current
$I_{PP}$	Maximum Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_C$



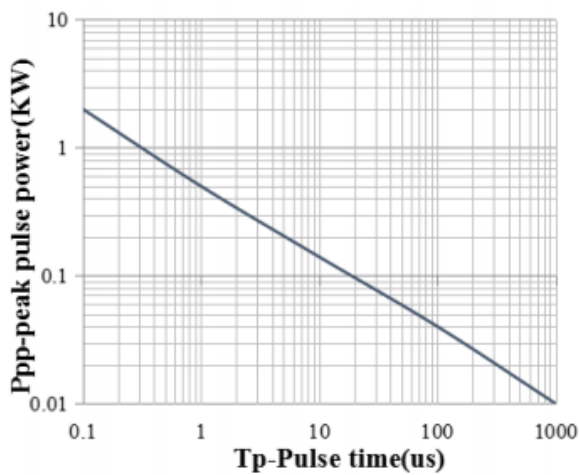
Typical Performance Characteristics ( $T_A=25^{\circ}\text{C}$  unless otherwise Specified)



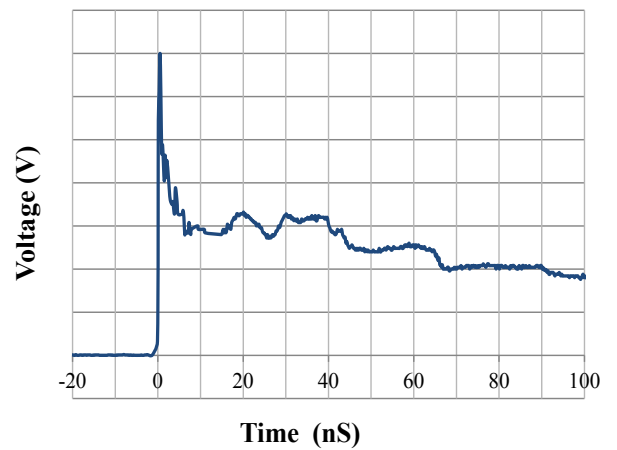
Junction Capacitance vs. Reverse Voltage



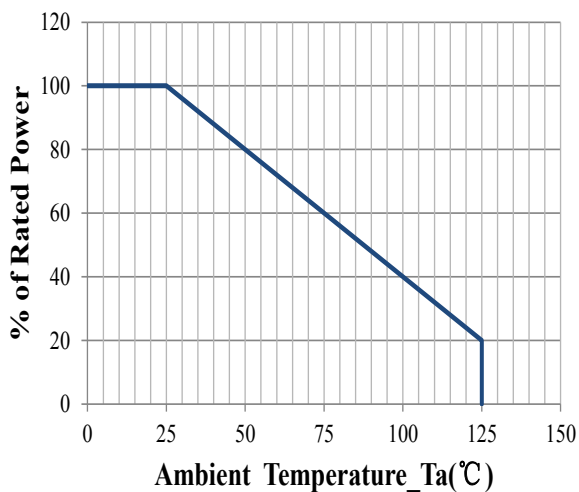
Clamping Voltage vs. Peak Pulse Current



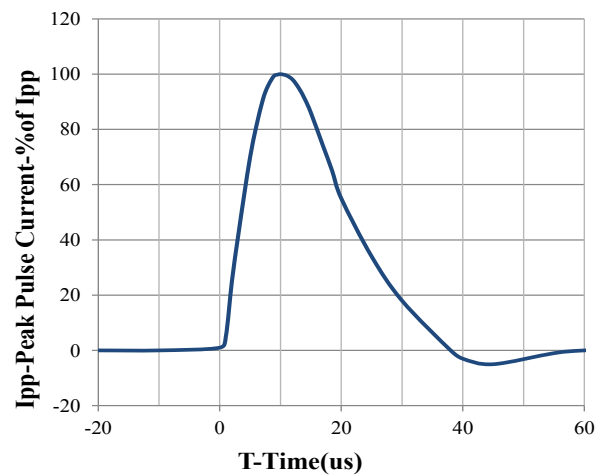
Peak Pulse Power vs. Pulse Time



IEC61000-4-2 Pulse Waveform

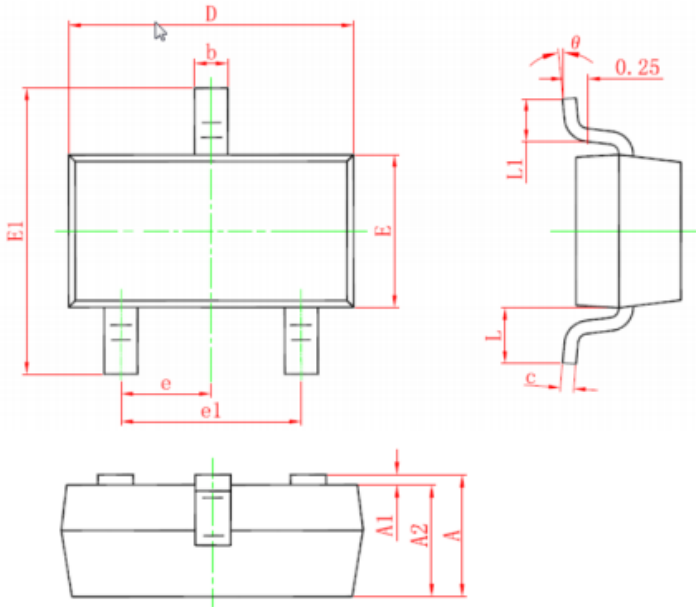


Power Derating Curve



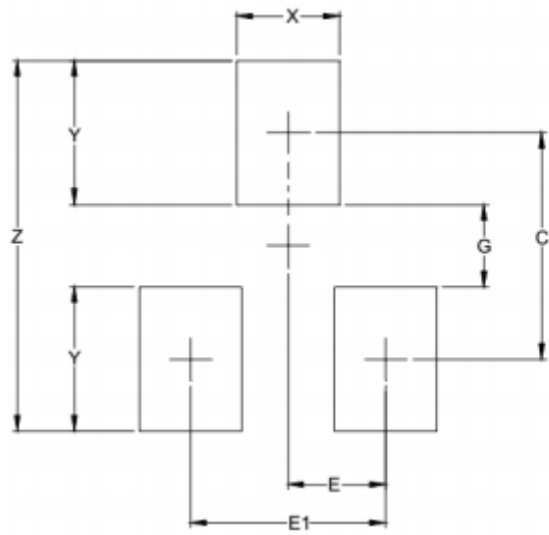
8 X 20us Pulse Waveform

SOT-23 Package Outline Drawing (Dimensions in millimeters)



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.90	--	1.15	0.035	--	0.045
A1	0.00	--	0.10	0.000	--	0.004
A2	0.90	--	1.05	0.035	--	0.041
b	0.30	--	0.50	0.012	--	0.020
c	0.08	--	0.15	0.003	--	0.006
D	2.80	--	3.00	0.110	--	0.118
E	1.20	--	1.40	0.047	--	0.055
E1	2.25	--	2.25	0.089	--	0.100
e	0.95TYP			0.037TYP		
e1	1.80	--	2.00	0.071	--	0.079
L	0.55REF			0.022REF		
L1	0.30	--	0.50	0.012	--	0.020
Θ	0°	--	8°	0°	--	8°

Suggested Land Pattern



SYM	DIMENSIONS	
	INCHES	MILLIMETERS
C	(.087)	(2.20)
E	.037	0.95
E1	.075	1.90
G	.031	0.80
X	.039	1.00
Y	.055	1.40
Z	.141	3.60

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