

Ultra Low Capacitance TVS Array

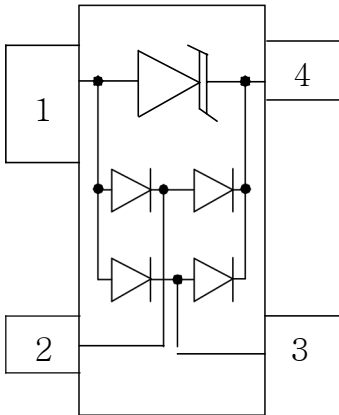
Description

The JESR05 is a 2-line ultra-low capacitance TVS diode 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 JESR05 has a very low capacitance with a typical value at 0.6pF, and complies with the IEC 61000-4-2 (ESD) standard with $\pm 20\text{kV}$ air and $\pm 15\text{kV}$ contact discharge. It is assembled into a 4-pin SOT-143 lead-free package. The small size, very low capacitance and high ESD surge protection make JESR05 an ideal choice to protect cell phone, digital video interfaces, high speed data ports, and many other portable applications.

Features

- * Uni-directional ESD protection of two lines
- * Low capacitance: 0.6pF(Max)
- * Low reverse stand-off voltage: 5V
- * Low reverse clamping voltage
- * Low leakage current
- * Fast response time
- * IEC 61000-4-2 Level ESD protection
- * RoHS Compliant

Circuit Diagram



Applications

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

Marking Diagram



Transparent top view

E5R= Device Marking Code
 Dot denotes Pin1

Ordering Information

Part Number	Packaging	Reel Size
JESR05	3000/Tape & Reel	7 inch

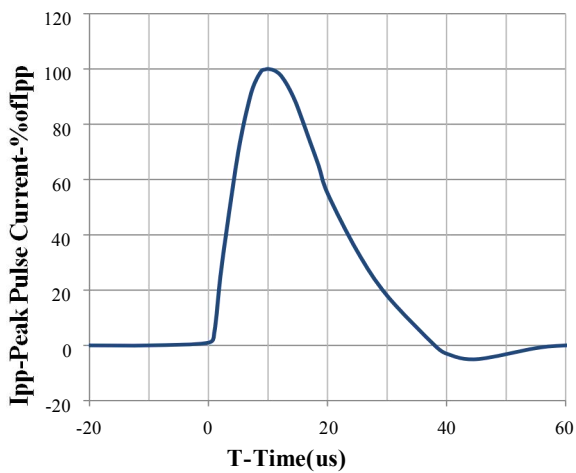
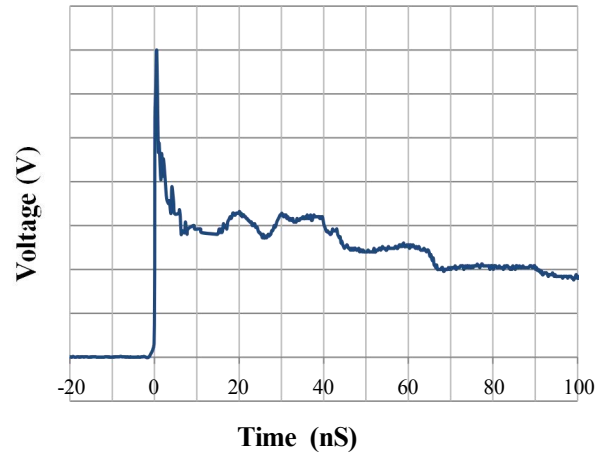
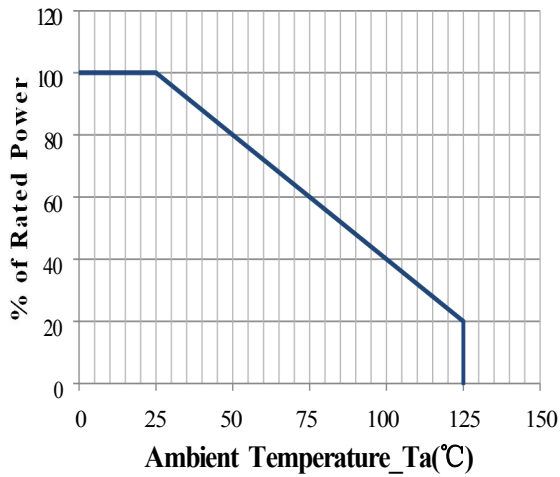
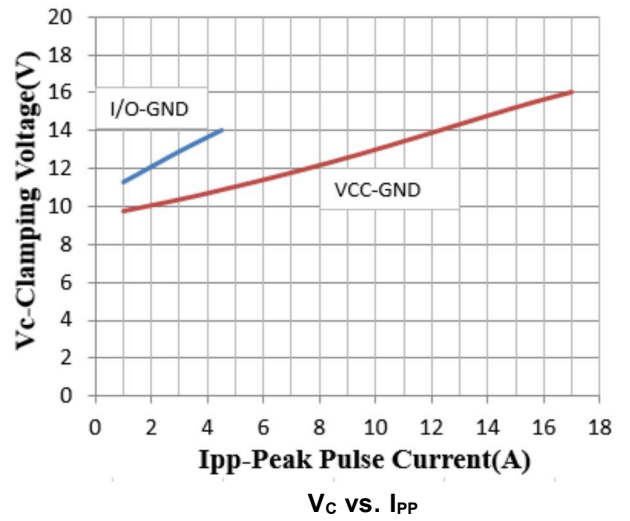
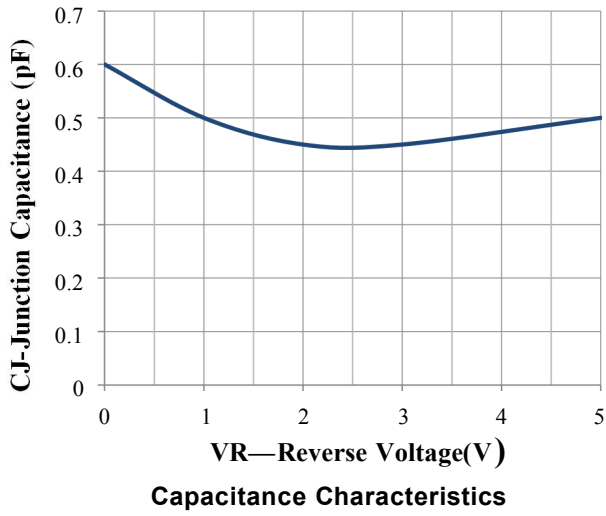
Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs , I/O-GND)	Ppk	50	W
Peak Pulse Power (8/20 μs , Vcc-GND)	Ppk	240	W
Peak Pulse Current (8/20 μs , I/O-GND)	IPP	4	A
Peak Pulse Current (8/20 μs , Vcc-GND)	IPP	15	A
ESD per IEC 61000-4-2 (Air)	$V_{\text{ESD}, \text{VDD}}$	± 20	kV
ESD per IEC 61000-4-2 (Contact)	$V_{\text{ESD}, \text{I/O}}$	± 15	
Operating Temperature Range	TJ	150	$^{\circ}\text{C}$
Storage Temperature Range	Tstg	-55 to +150	$^{\circ}\text{C}$

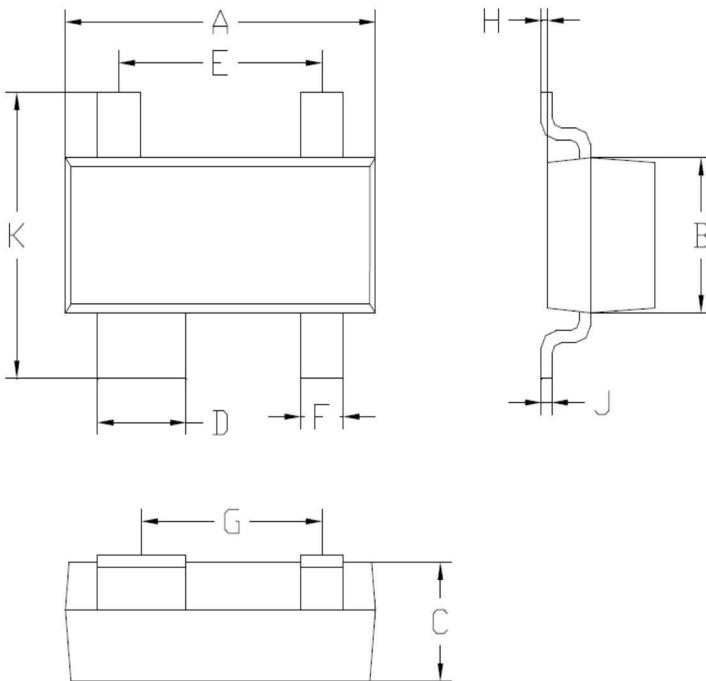
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}	I/O-GND			5	V
Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$, I/O-GND	6	7.0	9	V
Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$, VCC-GND	6	7.2	9	
Reverse Leakage Current	I_R	$V_{\text{RWM}} = 5\text{V}$			1	μA
Clamping Voltage	V_C	IPP = 4A (8 x 20 μs pulse), I/O-GND		14.0	16.0	V
Clamping Voltage	V_C	IPP = 15A (8 x 20 μs pulse), VCC-GND		15.0	17.0	V
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$, I/O-I/O		0.3	0.5	pF
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$, I/O-GND		0.6	0.9	pF

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

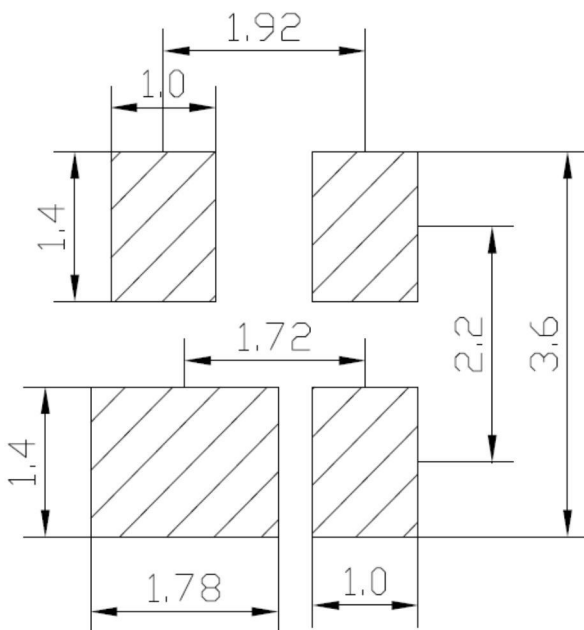


SOT-143 Package Outline Drawing



SOT-143		
Dim	Min	Max
A	2.70	3.10
B	1.10	1.50
C	0.9	1.1
D	0.78	0.88
E	1.80	2.00
F	0.37	0.43
G	1.59	1.79
H	0.02	0.1
J	0.05	0.15
K	2.20	2.60
ALL Dimensions in mm		

SOLDERING FOOTPRINT



Unit : mm