



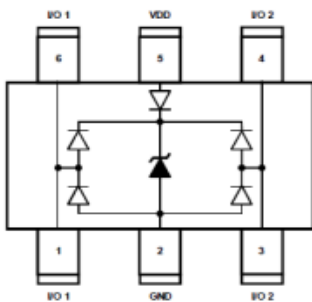
## Description

The JLE05URT5-6 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 JLE05URT5 -6 has an ultra-low capacitance with a typical value at 0.3pF, 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 6-pin lead-free SOT-563 package. The combination of small size, ultra low capacitance, and high ESD surge capability make it ideal for use in applications such as USB 3.0, multimedia, and other high speed ports.

## Features

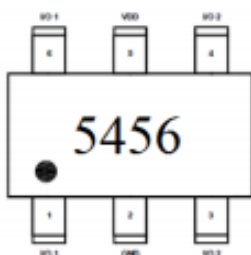
- \* 100W peak pulse power (8/20 $\mu\text{s}$ )
- \* Low leakage: nA level
- \* Operating voltage: 5V
- \* Ultra low clamping voltage
- \* Up to 4 data line and one power line protects
- \* Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge:  $\pm 30\text{kV}$
    - Contact discharge:  $\pm 30\text{kV}$
  - IEC61000-4-5 (Lightning) 5A (8/20 $\mu\text{s}$ )
- \* RoHS Compliant
- \* Package: SOT-563

## Circuit Diagram



Circuit and Pin Schematic

## Marking Diagram



Transparent top view

5456:Device Marking Code

## Applications

- \* USB 2.0 and USB 3.0 Ports
- \* USB OTG
- \* Digital Video Interface (DVI)
- \* Monitor and Flat Panel Displays
- \* Gigabit Ethernet
- \* IEEE 1394 Firewire Ports
- \* Consumer products (STB,DVD,DSC,DVC)

## Ordering Information

Part Number	Packaging	Reel Size
JLE05URT5-6	3000/Tape & Reel	7 inch



## JLE05URT5-6

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

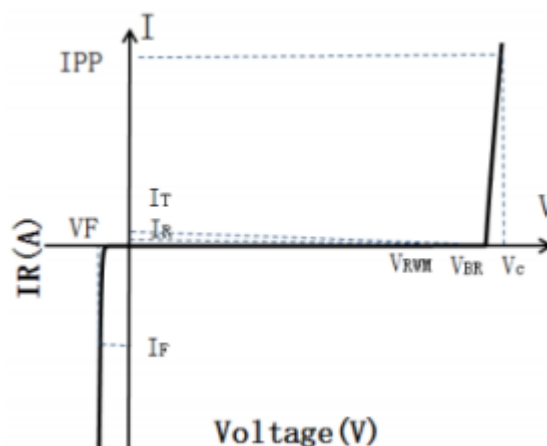
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 $\mu\text{s}$ )	Ppk	100	W
Peak Pulse Current (8/20 $\mu\text{s}$ )	IPP	5	A
ESD per IEC 61000-4-2 (Air)	VESD	$\pm 30$	kV
ESD per IEC 61000-4-2 (Contact)		$\pm 30$	
Operating Temperature Range	TJ	-55to +125	$^{\circ}\text{C}$
Storage Temperature Range	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	$V_{RWM}$	Any I/O pin to ground			5	V
Breakdown Voltage	$V_{BR}$	$I_T = 1\text{mA}$ , any I/O pin to ground	6			V
Reverse Leakage Current	$I_R$	$V_{RWM} = 5\text{V}$ , any I/O pin to ground			0.5	$\mu\text{A}$
Clamping Voltage	$V_C$	$I_{PP} = 1\text{A}$ (8 x 20 $\mu\text{s}$ pulse), any I/O pin to ground			15	V
Clamping Voltage	$V_C$	$I_{PP} = 5\text{A}$ (8 x 20 $\mu\text{s}$ pulse), any I/O pin to ground			20	V
Junction Capacitance	$C_J$	$V_R = 0\text{V}$ , $f = 1\text{MHz}$ , between I/O pins		0.3	0.4	pF
Junction Capacitance	$C_J$	$V_R = 0\text{V}$ , $f = 1\text{MHz}$ , any I/O pin to ground			0.8	pF

### Portion Electronics Parameter

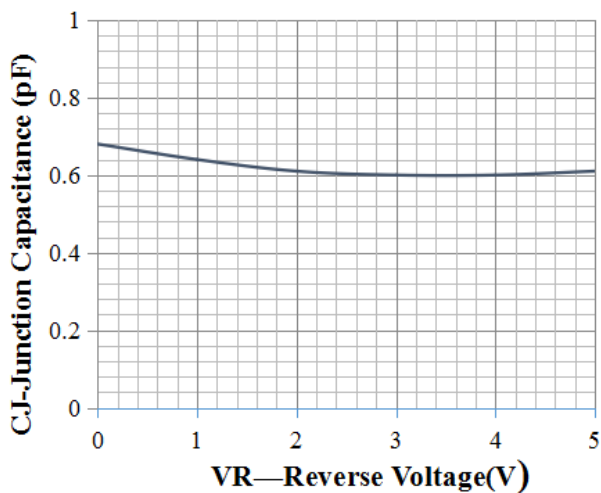
Symbol	Parameter
$I_T$	Test Current
$I_{PP}$	Maximum Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_C$



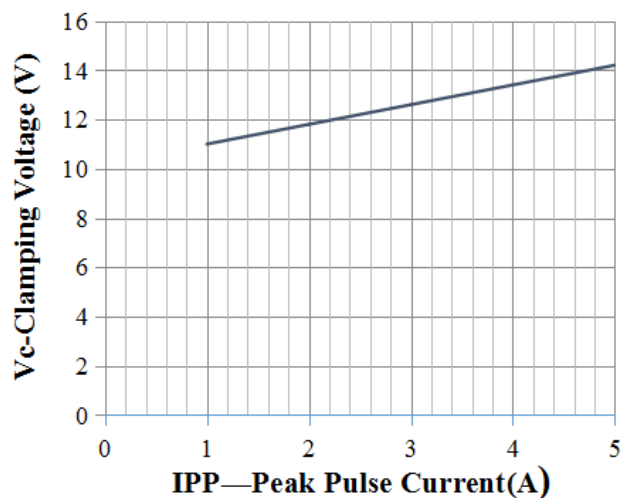


# JLE05URT5-6

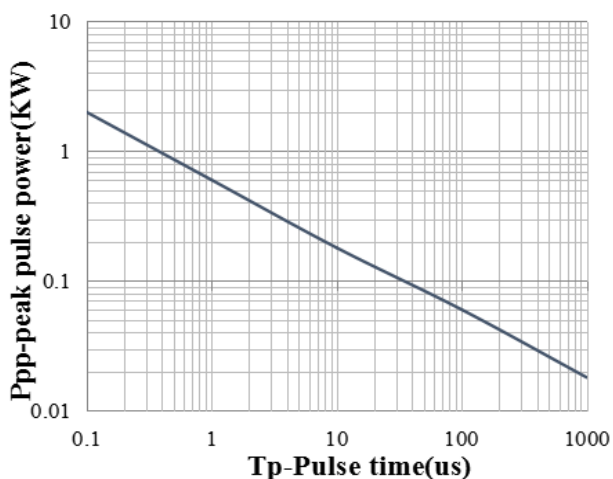
## Typical Performance Characteristics ( $T_A=25^\circ\text{C}$ unless otherwise Specified)



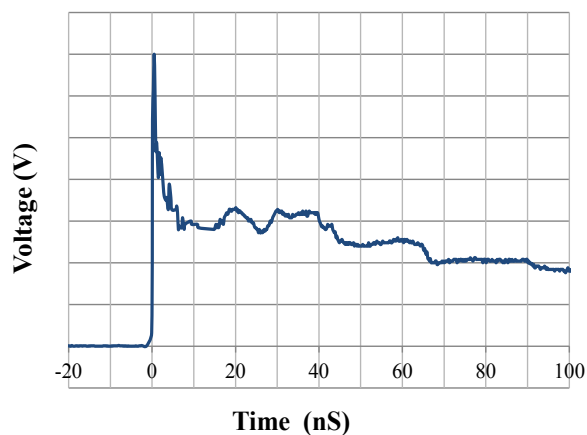
Junction Capacitance vs. Reverse Voltage



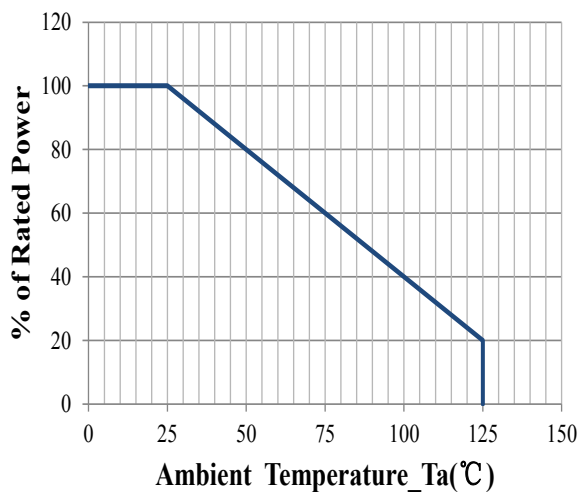
Clamping Voltage vs. Peak Pulse Current



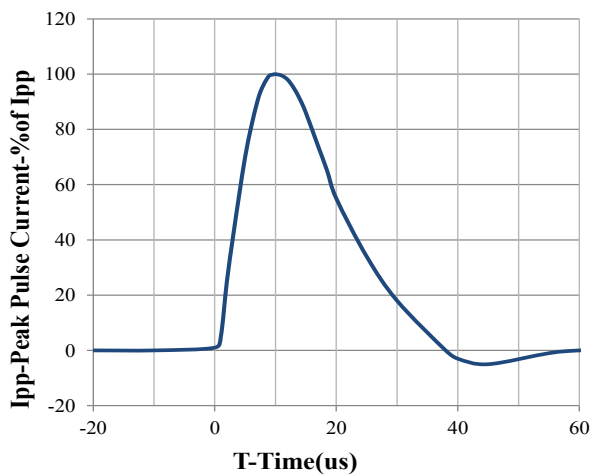
Peak Pulse Power vs. Pulse Time



IEC61000-4-2 Pulse Waveform



Power Derating Curve

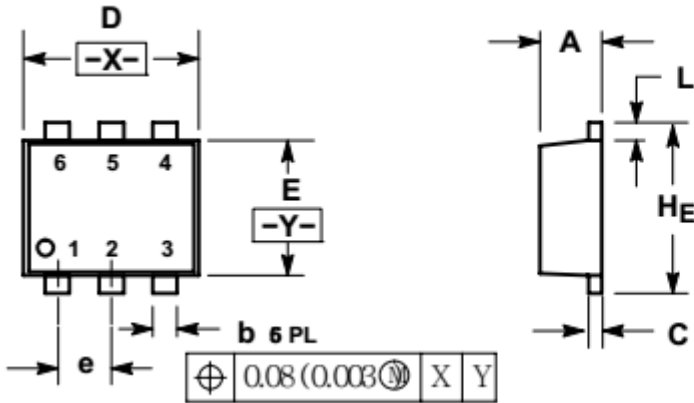


8 X 20us Pulse Waveform



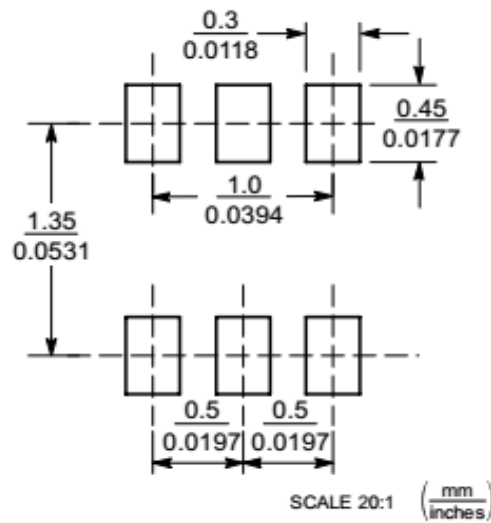
# JLE05URT5-6

## SOT-563 Package Outline Drawing (Dimensions in millimeters)



DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.50	0.55	0.60	0.020	0.021	0.023
b	0.17	0.22	0.27	0.007	0.009	0.011
C	0.08	0.12	0.18	0.003	0.005	0.007
D	1.50	1.60	1.70	0.059	0.062	0.066
E	1.10	1.20	1.30	0.043	0.047	0.051
e	0.5 BSC			0.02 BSC		
L	0.10	0.20	0.30	0.004	0.008	0.012
H <sub>E</sub>	1.50	1.60	1.70	0.059	0.062	0.066

## Suggested Land Pattern



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