

Description

The SRV05-4 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 SRV05-4 has an ultra-low capacitance with a typical value at 0.7pF, and complies with the IEC 61000-4-2 (ESD) with $\pm 20\text{kV}$ air and $\pm 15\text{kV}$ contact discharge. It is assembled into a 6-Pin lead-free SOT23-6 package. The low capacitance array make it ideal for four high speed data and transmission line. This device is optimized for ESD protection of portable electronics.

Features

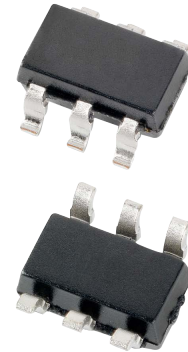
- Ultra low capacitance: 0.3pF typical (I/O to I/O)
- Ultra low leakage: nA level
- Operating voltage: 5V
- Low clamping voltage
- Up to four data lines and one power line protects
- JEDEC SOT23-6 package
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 20\text{kV}$
 - Contact discharge: $\pm 15\text{kV}$
 - IEC61000-4-5 (Lightning) 4.5A (8/20 μs)
- RoHS Compliant

Mechanical Characteristics

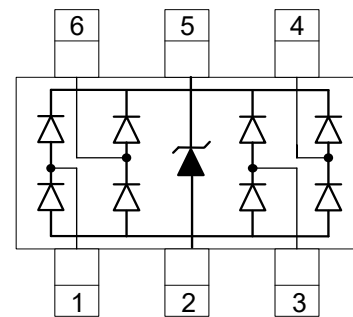
- Package: SOT23-6
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound.
- Terminal Connections: See Diagram Below
- Marking Information: See Below

Applications

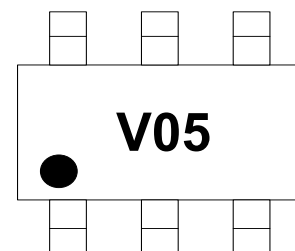
- USB 2.0 Power and Data lines protection
- Digital Visual Interface (DVI)
- Monitors and Flat Panel Displays
- Video Graphic Cards
- Notebook and PC Computers



SOT-23-6



Circuit diagram



V05 = Device Marking Code

Dot denotes Pin1

Marking (Top View)

Ordering Information

Part Number	Packaging	Reel Size
SRV05-4	3000/Tape & Reel	7 inch

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

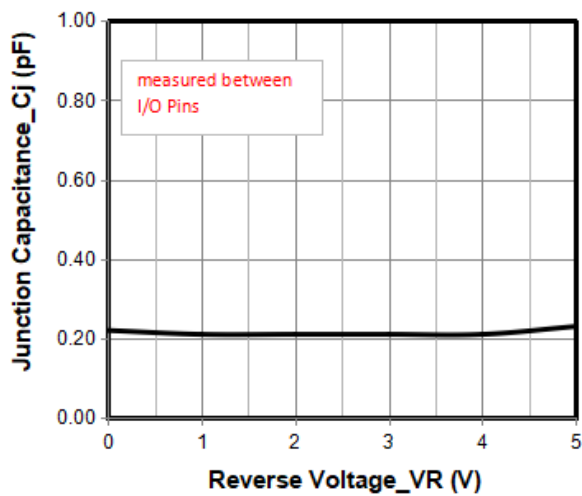
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	Ppk	60	W
Peak Pulse Current (8/20 μs)	I _{PP}	4.5	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V _{ESD}	± 20 ± 15	kV
Operating Temperature Range	T _J	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	T _{stg}	-55 to +150	$^{\circ}\text{C}$

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

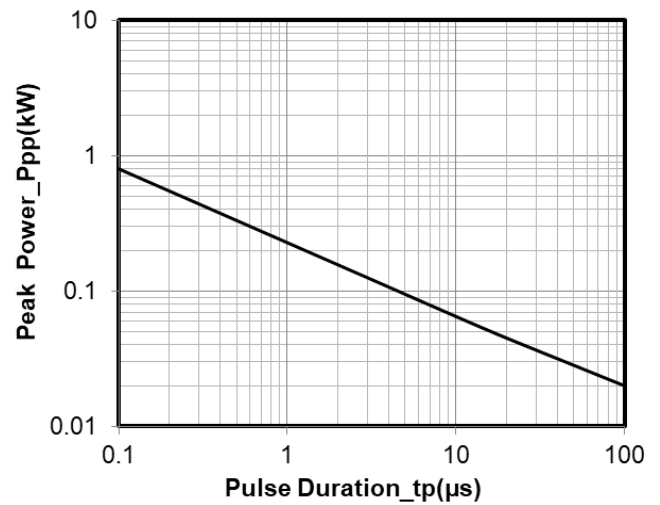
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V _{RWM}			5	V	Any I/O pin to ground
Breakdown Voltage	V _{BR}	6			V	I _T = 1mA, any I/O pin to ground
Reverse Leakage Current	I _R			0.5	μA	V _{RWM} = 5V, any I/O pin to ground
Forward Voltage	V _F		1.0	1.2	V	I _F = 15mA, ground to pin 1,3,4,5,6
Clamping Voltage	V _C		9	12	V	I _{PP} = 1A (8 x 20 μs pulse), any I/O pin to ground
Clamping Voltage	V _C		12	15	V	I _{PP} = 4.5A (8 x 20 μs pulse), any I/O pin to ground
Junction Capacitance	C _J		15	18	pF	I _{PP} = 17A (8 x 20 μs pulse), any V _{cc} pin 5 to ground
Clamping Voltage	V _C		0.3	0.4	pF	V _R = 0V, f = 1MHz, any I/O pin to I/O pin
Junction Capacitance	C _J		0.6	0.8	pF	V _R = 0V, f = 1MHz, any I/O pin to ground

Note 1: I/O pins are Pin 1, 3, 4 and 6.

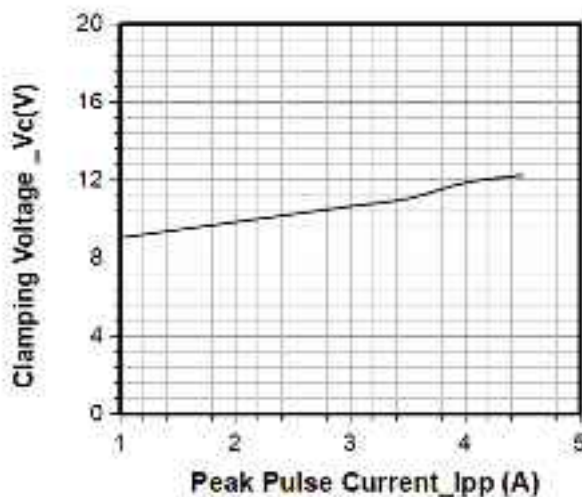
Typical Performance Characteristics (TA=25°C unless otherwise Specified)



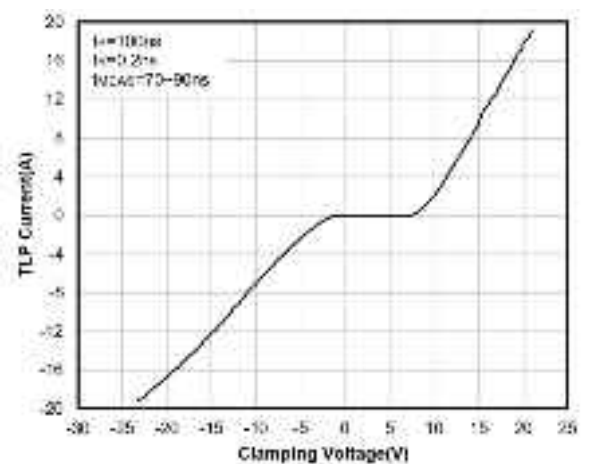
Junction Capacitance vs. Reverse Voltage



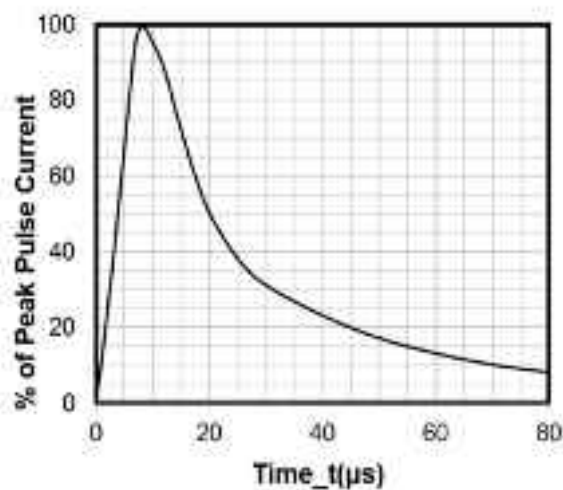
Peak Pulse Power vs. Pulse Time



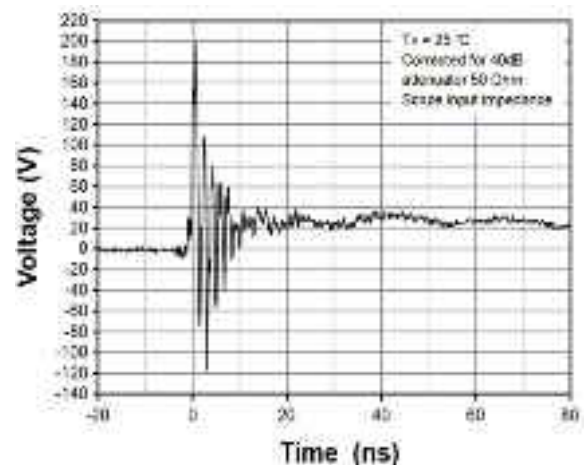
Clamping Voltage vs. Peak Pulse Current



TLP Curve



8 X 20μs Pulse Waveform

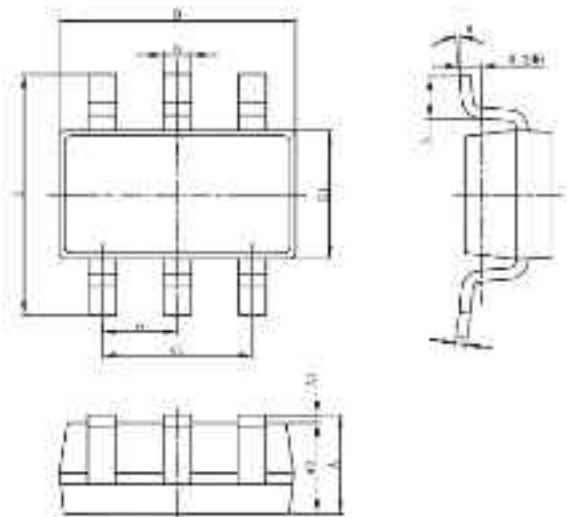


Note: Data is taken with a 10x attenuator

ESD Clamping Voltage

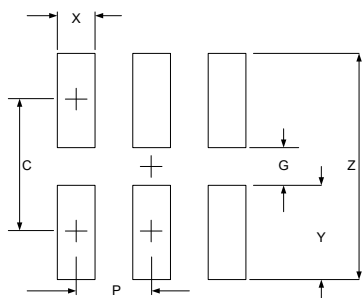
8 kV Contact per IEC61000-4-2

SOT23-6 Package Outline Drawing



SYM	DIMENSIONS			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	0.090	1.450	0.0035	0.057
A1	0.000	0.150	0.000	0.006
A2	0.090	1.300	0.035	0.051
b	0.250	0.500	0.010	0.020
c	0.100	0.200	0.004	0.008
D	2.800	3.100	0.110	0.122
E1	1.500	1.750	0.060	0.069
E	2.650	3.000	0.104	0.120
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
C	2.50	0.098
G	1.40	0.055
P	0.95	0.037
X	0.60	0.024
Y	1.10	0.043
Z	3.60	0.141