



4-Line ESD Protection Diode Array

General description

The SRV05-4 is designed to protect I/O lines sensitive to capacitive load, such as USB 2.0, ethernet, Digital Video Interface (DVI) and so on, from damage due to ElectroStatic Discharge (ESD). It incorporates four pairs of ultra low capacitance rail-to-rail ESD protection diodes plus a Zener diode to provide protection to signal and supply components from ESD voltages up to 15 kV contact discharge. Protection is supply voltage independent due to the rail-to-rail diodes being connected to the Zener diode. The device is encapsulated in a small 6-lead SOT23-6L Surface-Mounted Device (SMD) plastic package.

Features and benefits

- . ESD Protect for 4 high-speed I/O channels
- . Provide ESD protection for each channel to
IEC 61000-4-2(ESD) $\pm 20\text{kV}(\text{air})$, $\pm 15\text{kV}(\text{contact})$
IEC 61000-4-5(Lightning)(8/20 μs) 4.0A(I/O-GND), 17.0A(V_{DD} -GND)
- . Low Working Voltage: 5.0V
- . Low Capacitance: 0.6pF (I/O-GND)
- . Low Clamping Voltage
- . Response time is typically < 1 ns
- . Array of surge rated diodes with internal equivalent TVS diodes
- . Small package saves board space
- . RoHS compliant

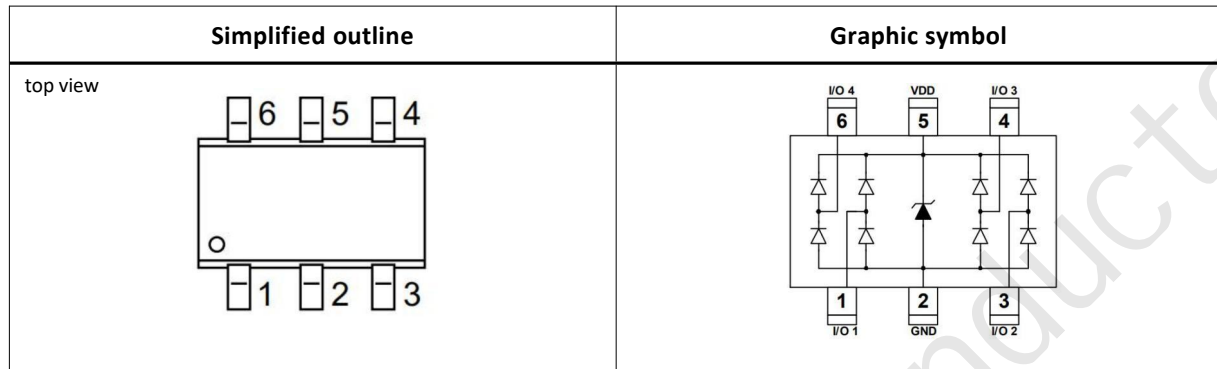
Application information

- . Video Graphics Cards
- . USB2.0 Power and Data lines protection
- . 10/100/1000 Ethernet
- . Notebooks and PC Computers
- . Monitors and Flat Panel Displays
- . Digital Video Interface(DVI)
- . IEEE 1394 Firewire Ports
- . SIM ports

Ordering information

Device	Package	Marking	Packaging
SRV05-4	SOT23-6L	V05	3000/Tape & Reel

Schematic & Pin configuration



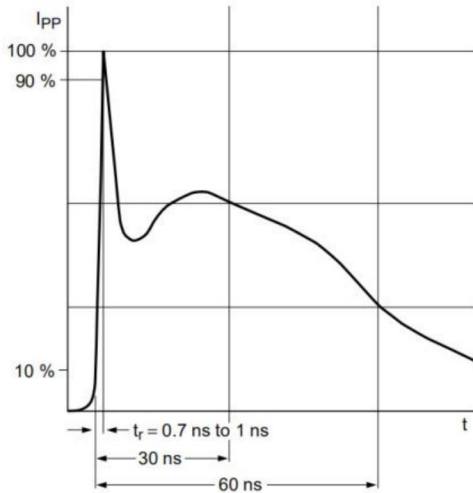
Maximum Ratings ($T_{OP} = 25 \text{ } ^\circ\text{C}$, unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power ($T_p = 8/20\mu\text{s}$)	P_{PPM}	55	W
Rated Peak Pulse Current ($T_p = 8/20\mu\text{s}$)	I_{PPM}	4	A
ESD voltage IEC 61000-4-2 (air discharge)	V_{ESD}	20	kV
ESD voltage IEC 61000-4-2 (contact discharge)	V_{ESD}	15	kV
Maximum lead temperature for soldering during 10s	T_L	260	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to +150	$^\circ\text{C}$
Operating Temperature Range	T_{OP}	-40 to +125	$^\circ\text{C}$

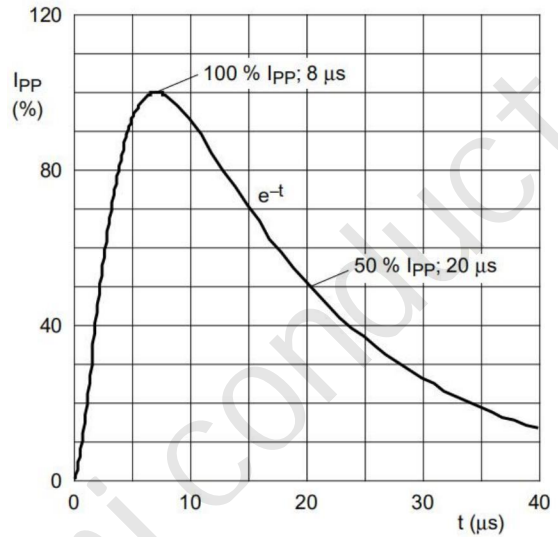
Electrical Characteristics ($T_{OP} = 25 \text{ } ^\circ\text{C}$, unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Condition
Reverse Working Voltage	V_{RWM}	--	--	5.0	V	
Breakdown Voltage	V_{BR}	6	--	8.5	V	$I_f = 1\text{mA}$
Leakage Current I_{Leak}	I_R	--	--	100	nA	$V_{RWM} = 5\text{V}$
Clamping Voltage (I/O-GND)	V_C	--	--	13.0	V	$I_{PP} = 4\text{A}, T_p = 8/20\mu\text{s}$
Clamping Voltage (V_{DD} -GND)	V_C	--	--	17.0	V	$I_{PP} = 17\text{A}, T_p = 8/20\mu\text{s}$
Junction Capacitance	C_j	--	0.3	0.4	pF	$V_R = 0\text{V}, f = 1\text{MHz}$ I/O to I/O
Junction Capacitance	C_j	--	0.6	0.7	pF	$V_R = 0\text{V}, f = 1\text{MHz}$ I/O to GND

Typical Characteristics

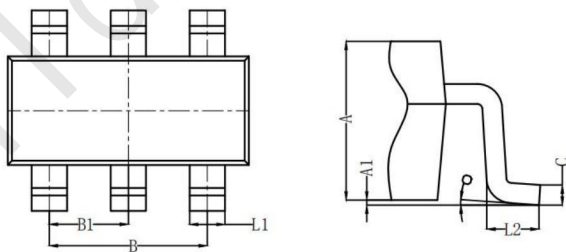


IEC61000-4-2 Waveform



IEC 61000-4-5 Waveform(8/20µs pulse)

Package Outline Dimensions (SOT23-6L)



Symbol	Dimensions In Millimet	
	Min	Max
A	1.050	1.150
A1	0.000	0.100
L1	0.300	0.500
C	0.100	0.200
D	2.810	3.030
E	1.500	1.700
E1	2.650	2.950
B	1.800	2.000
B1	0.950typ	
L2	0.300	0.600
O	0.	8.

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