

## ESDSRV05-4

### Description

The ESDSRV05-4 has ultra low capacitance rail-to-rail diodes with an additional zener diode fabricated in a proprietary silicon avalanche technology to protect each I/O pin providing a high level of protection for electronic equipment that may experience destructive electrostatic discharges (ESD). These robust diodes can safely absorb repetitive ESD strikes at the maximum level (level 4) specified in the IEC 61000-4-2 international standard without performance degradation. Their very low loading capacitance also makes them ideal for protecting high speed signal pins such as HDMI,DVI,USB2.0, and IEEE 1394.

### Features

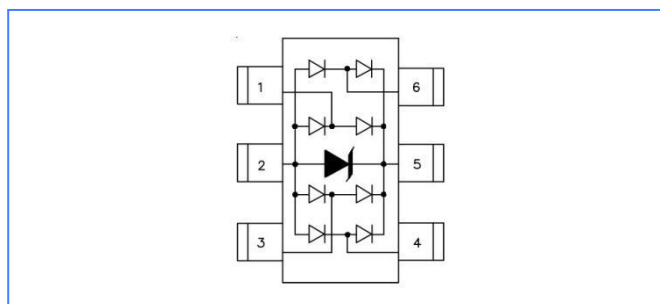
- Case :JEDEC SOT-23-6L package
- Low clamping voltage
- Small packaging options saves board space
- Low capacitance :3.5 pF typical
- Protection for 4 Lines
- Compatible with IEC 61000-4-2(ESD) :Air 30KV , Contact 30KV
- Compatible with IEC 61000-4-5(Surge):30A ,8/20 uS - level 2 (line-GND)&Level 3 (Line-Line)

### Applications

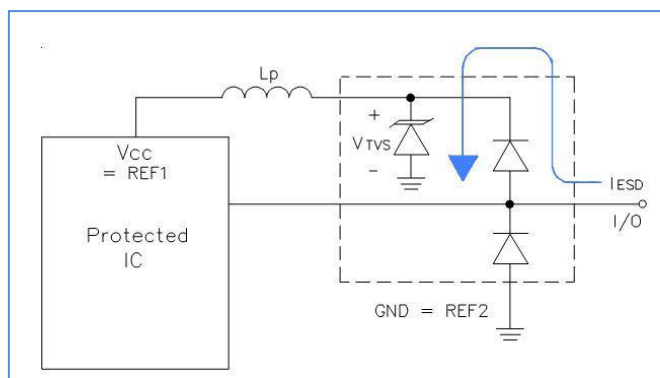
- USB Power and Data Line Protection
- 10/100 Ethernet
- Video Graphics Cards
- SIM Ports
- ATM Interfaces
- Montors and Flat Panel Displays
- Digital Video Interface(DVI)
- IEEE 1394 Fire wire Ports



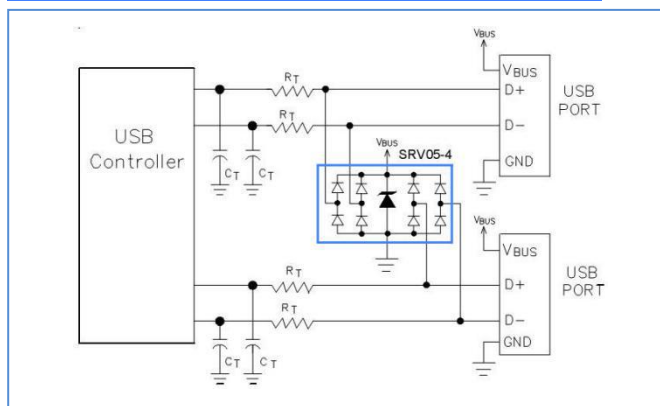
### Functional Diagram



### Rail-to-Rail Protection



### Dual USB Port Protection



**Absolute Maximum Ratings (T<sub>amb</sub>=25°C unless otherwise specified)**

Parameter	Symbol	Value	Units
Peak Current (t <sub>p</sub> =8/20 μ s)	P <sub>PK</sub>	450	W
Peak Current (t <sub>p</sub> =8/20 μ s)	I <sub>PP</sub>	30	A
IEC61000-4-2 (Contact)	V <sub>ESD</sub>	±30	KV
IEC61000-4-2 (Air)	V <sub>ESD</sub>	±30	KV
Lead Soldering Temperature	T <sub>L</sub>	260 (10 sec)	° C
Operating Temperature	T <sub>J</sub>	-50 to 125	° C
Storage Temperature Range	T <sub>STG</sub>	-50 to 150	° C

**Electrical Characteristics (T<sub>A</sub> = 25 °C unless otherwise noted)**

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	V <sub>RWM</sub>	Any I/O pin to ground			5	V
Reverse Breakdown Voltage	V <sub>BR</sub>	I <sub>t</sub> = 1mA Any I/O pin to ground	6			V
Reverse Leakage Current	I <sub>R</sub>	V <sub>RWM</sub> =5.0V, T=25°C Any I/O pin to ground			1	μ A
Clamping Voltage	V <sub>C</sub>	I <sub>PP</sub> = 1A, t <sub>p</sub> =8/20μs Any I/O pin to ground		7.4	9.0	V
	V <sub>C</sub>	I <sub>PP</sub> = 5A, t <sub>p</sub> =8/20μs Any I/O pin to ground		8.2	10.0	V
	V <sub>C</sub>	I <sub>PP</sub> =30A, t <sub>p</sub> =8/20μs Any I/O pin to ground		10.4	12.0	V
Junction Capacitance	C <sub>J1</sub>	V <sub>R</sub> =0V, f = 1MHz Between I/O pins		2	3	pF
	C <sub>J2</sub>	V <sub>R</sub> =0V, f = 1MHz Any I/O pin to ground		3.5	5	pF

Characteristics Curves

Figure 1- Power Derating Curve

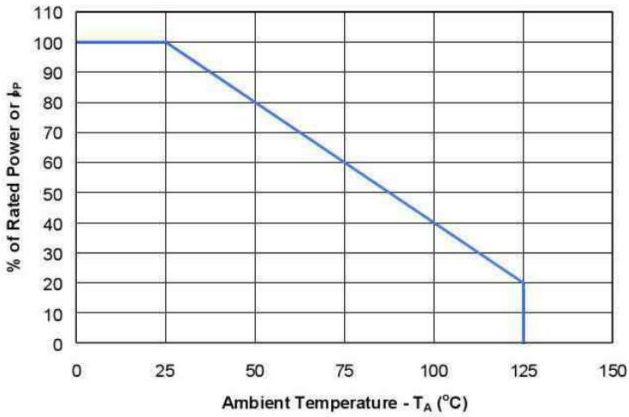


Figure 2-Clamping Voltage Vs current

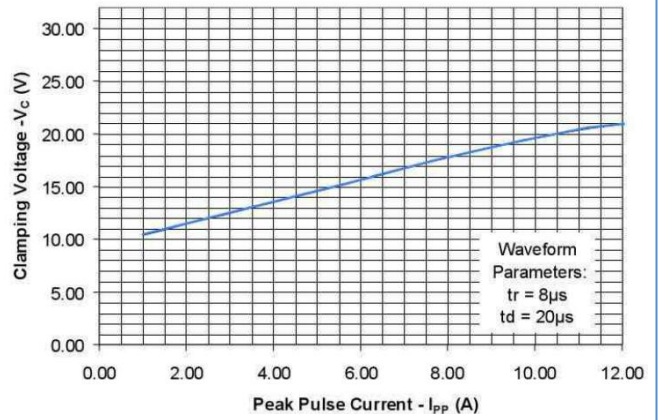


Figure 3- Typical Junction Capacitance

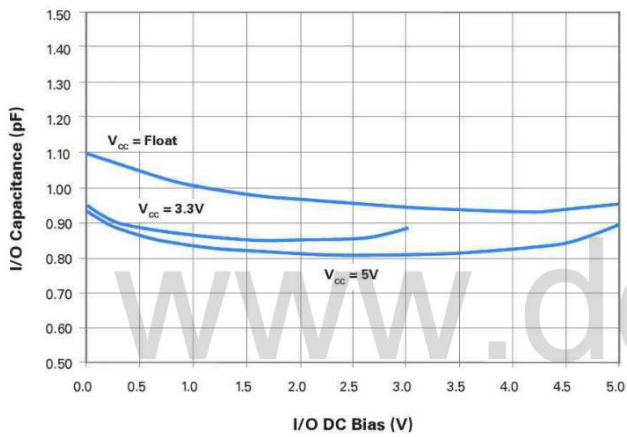


Figure4-pulse waveform

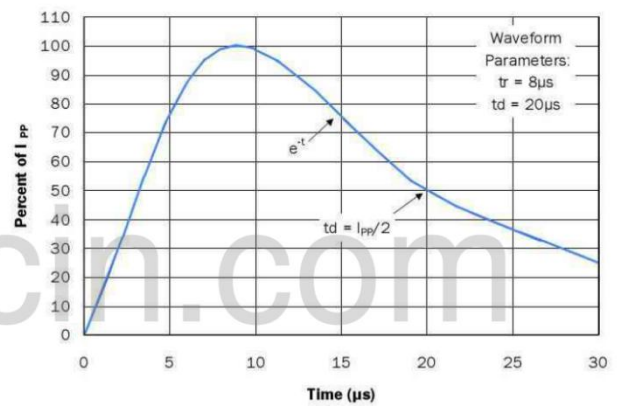


Figure 5- Peak Power Derating Curve

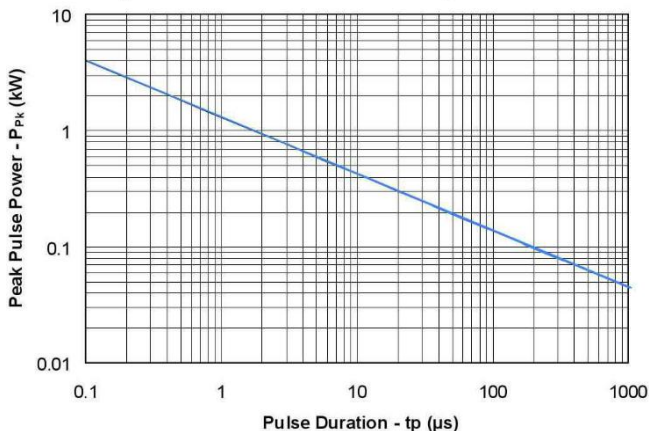
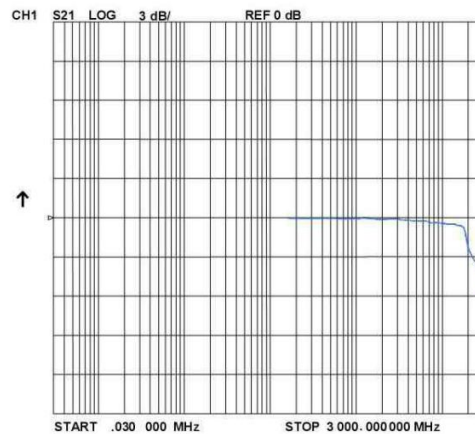
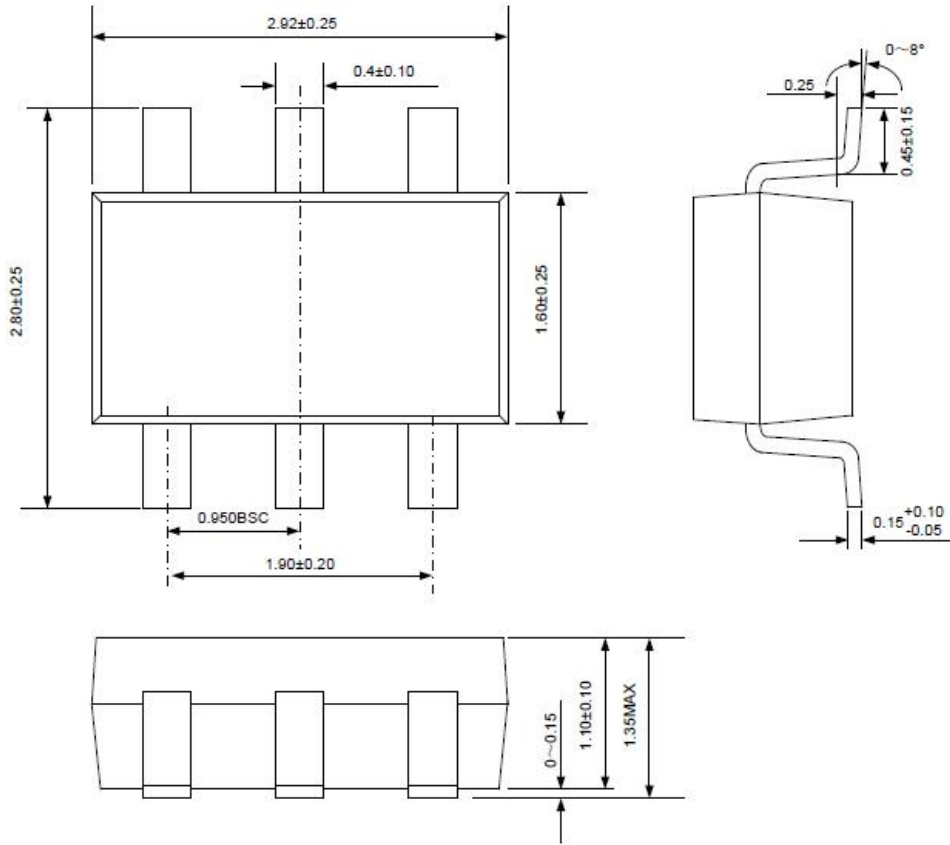


Figure 6 -Insertion loss



**PACKAGE OUTLINE DIMENSIONS in millimeters:SOT23-6L**



**Disclaimer**

Specifications are subject to change without notice.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.

Users should verify actual device performance in their specific applications.