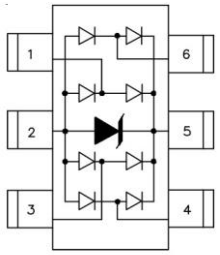
# ESDSRV05-4H

## Description

The ESDSRV05-4H 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 DVI,USB2.0, and IEEE 1394.



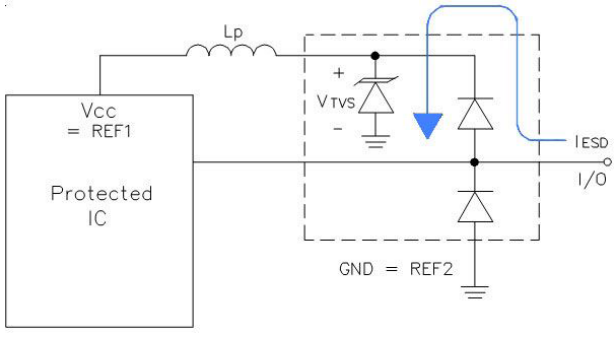
## Functional Diagram




## 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)

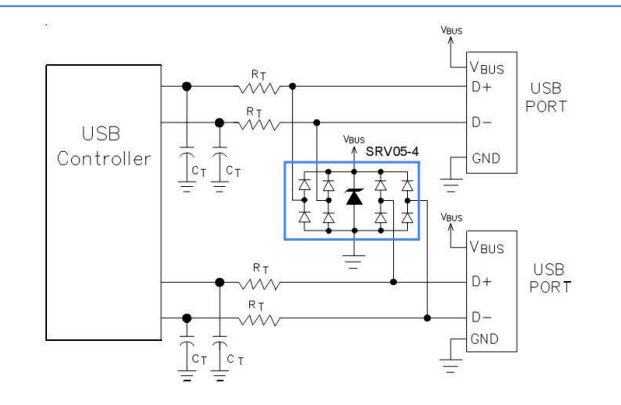
## Rail-to-Rail Protection




## 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

## Dual USB Port Protection



## Absolute Maximum Ratings(Tamb=25°C unless otherwise specified)

| Parameter | Symbol | Value | Units |
|---|---|---|---|
| Peak Pulse Power (8/20μs) | PPK | 450 | W |
| IEC61000-4-2 (Contact) | VESD | ±30 | kV |
| IEC61000-4-2 (Air) | VESD | ±30 | kV |
| Lead Soldering Temperature | TL | 260 (10 sec) | ° C |
| Operating Temperature | TJ | -50 to 125 | ° C |
| Storage Temperature Range | TSTG | -50 to 150 | ° C |

## Electrical Characteristics (TA = 25 °C unless otherwise noted)

| Parameter | Symbol | Conditions | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|---|
| Reverse Stand-off Voltage | VRWM | Any I/O pin to ground | | | 5 | V |
| Reverse Breakdown Voltage | VBR | It = 1mA<br>Any I/O pin to ground | 6 | | | V |
| Reverse Leakage Current | IR | VRWM =5.0V, T=25℃<br>Any I/O pin to ground | | | 1 | μA |
| Clamping Voltage | VC | IPP = 1A,<br>tP=8/20μs<br>Any I/O pin to ground | | 9 | 10 | V |
| | VC | IPP =20A,<br>tP=8/20μs<br>Any I/O pin to ground | | 19 | 20 | V |
| Junction Capacitance | CJ1 | VR=0V, f = 1MHz<br>Between I/0 pins | | 1.6 | 2.5 | pF |
| | CJ2 | VR=0V, f = 1MHz<br>Any I/O pin to ground | | 3.2 | 5 | pF |

## Characteristics Curves

Figure 1-Pulse Waveform

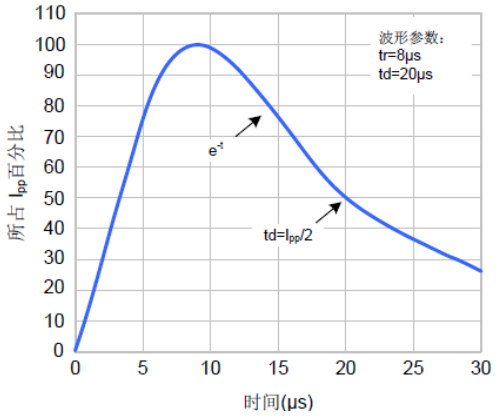



Figure 2- ESD Pulse Waveform
(according to IEC 61000-4-2)

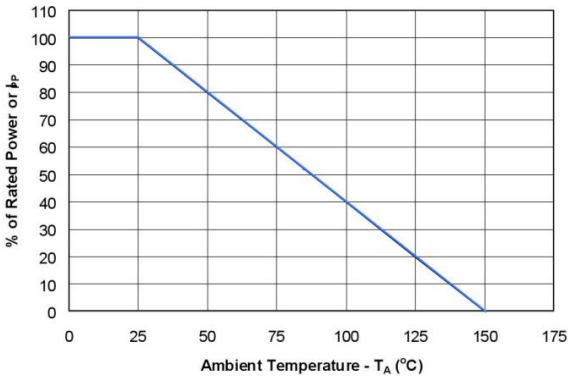
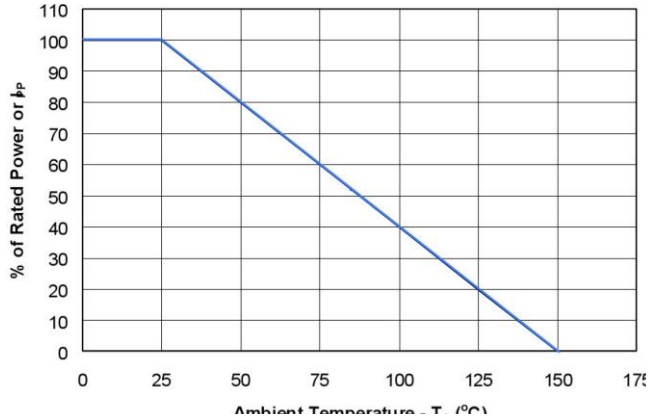
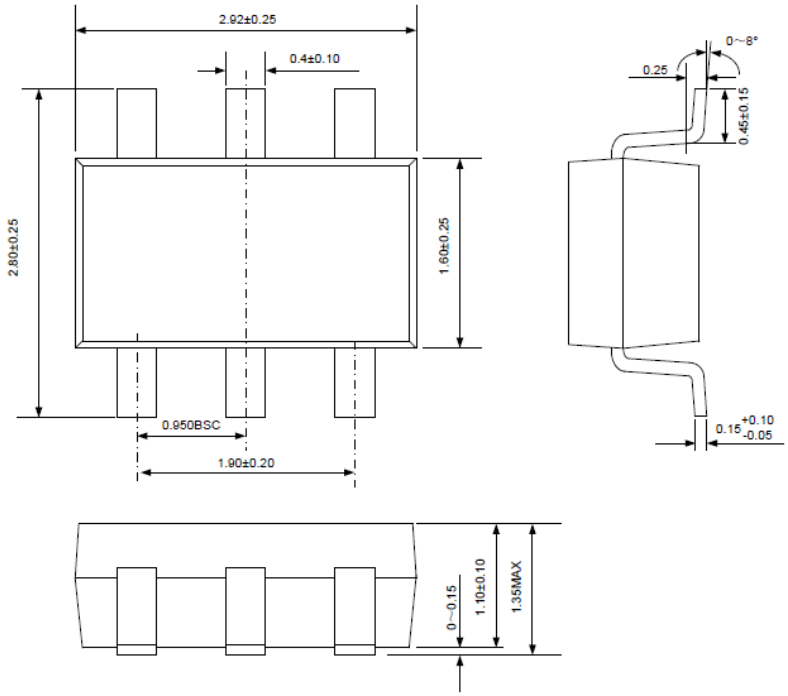



Figure 3- Power Derating Curve




## ACKAGE 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.

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SMF78CA ESD5V0D5B P6SMB6.8CA ESD3V3D5 SMAJ54CA SMCJ58CA SMAJ5.0CA SMAJ13CA
SMBJ5.0CA SMBJ51CA ESD0524P SM8S33CA SMBJ48CA 5.0SMDJ90CA