

Low Capacitance ESD Protection -ESDSRVLC05-4

Description

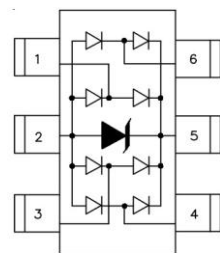
The ESDSRVLC05-4 has ultra low capacitance rail-to-rail diodes with an additional zener diode fabricated in a proprietary silicon avalanche technology to protect each I/O pin providing a high level of protection for electronic equipment that may experience destructive electrostatic discharges (ESD). 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 :1 pF typical
- Protection for 4 Lines
- For Low operating voltage application: 5V, 4.2V, 3.3V, 2.5V;
- Compatible with IEC 61000-4-2(ESD) :Air 15KV , Contact 8KV
- Compatible with IEC 61000-4-4(EFT) :40A ,5/50 nS
- Compatible with IEC 61000-4-5(Surge):24A ,8/20 uS - level 2 (line-GND)&Level 3 (Line-Line)

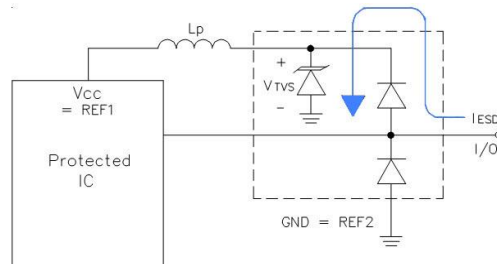
Applications

- USB Power and Data Line Protection
- 10/100/1000 Ethernet
- Video Graphics Cards
- SIM Ports
- ATM Interfaces
- Montors and Flat Panel Displays
- Digital Video Interface(DVI)
- IEEE 1394 Fire wire Ports

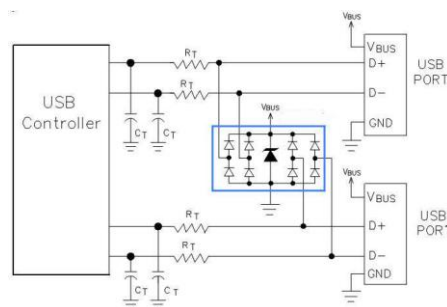


SOT-23 6L (Top View)

Schematic and PIN Configuration



Rail-to-Rail Protection



Dual USB Port Protection

Absolute Maximum Ratings

| Parameter | Symbol | Value | Units |
|----------------------------|------------------|--------------|-------|
| Peak Current (tp =8/20μ s) | P _{PK} | 350 | W |
| Peak Current (tp =8/20μ s) | I _{PP} | 12 | A |
| IEC61000-4-2 (Contact) | V _{ESD} | 8 | kV |
| IEC61000-4-2 (Air) | V _{ESD} | 15 | kV |
| Lead Soldering Temperature | T _L | 260 (10 sec) | ° C |
| Operating Temperature | T _J | -50 to 125 | ° C |
| Storage Temperature Range | T _{STG} | -50 to 150 | ° C |

Electrical Characteristics (T =25° C)

| Parameter | Symbol | Conditions | Min. | Typ. | Max. | Units |
|---------------------------|------------------|---|------|------|------|-------|
| Reverse Stand-off Voltage | V _{RWM} | pin 5 to 2 | | | 5 | V |
| Reverse Breakdown Voltage | V _{BR} | I _t = 1mA | 6 | | | V |
| Reverse Leakage Current | I _R | V _{RWM} =5.0V, T=25°C | | | 1 | μ A |
| Clamping Voltage | V _C | I _{PP} = 1A, t _p = 8/20μs | | | 12.5 | V |
| Clamping Voltage | V _C | I _{PP} =5A, t _p = 8/20μs | | | 17.5 | V |
| Junction Capacitance | C _J | V _R =0V, f = 1MHz | | 0.8 | | pF |

Rating & Characteristic Curves

Figure 1- Power Derating Curve

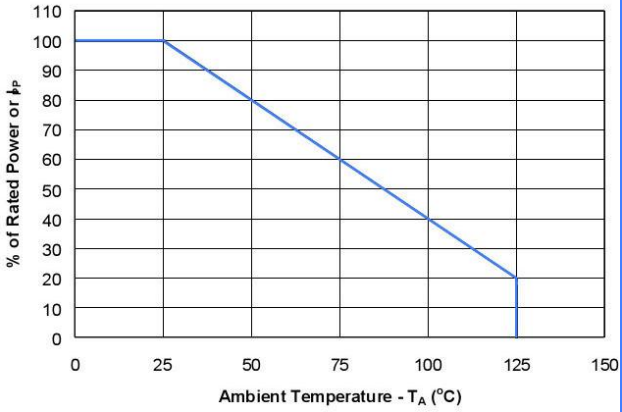


Figure 2- Clamping Voltage vs Current

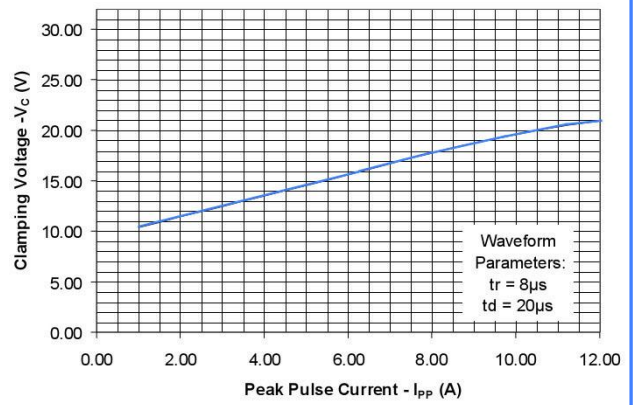


Figure 3- Typical Junction Capacitance

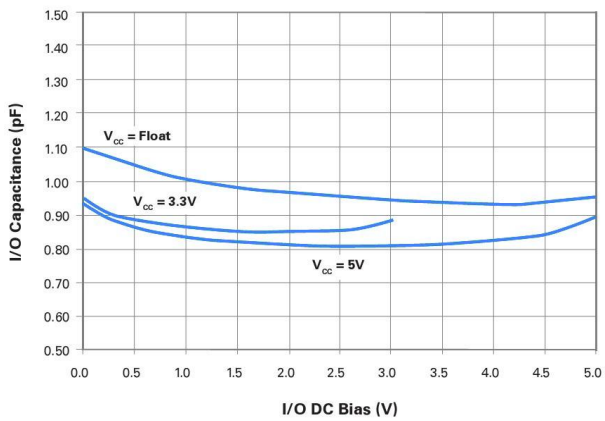


Figure 4- Pulse Waveform

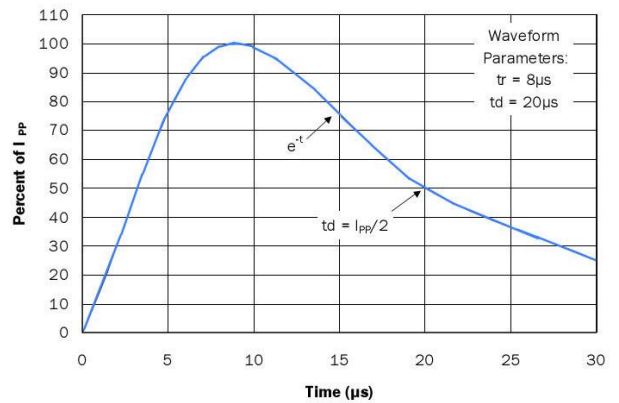


Figure 5- Peak Power Derating Curve

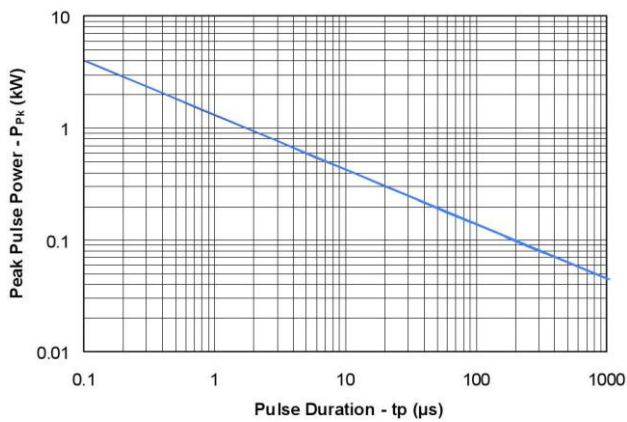
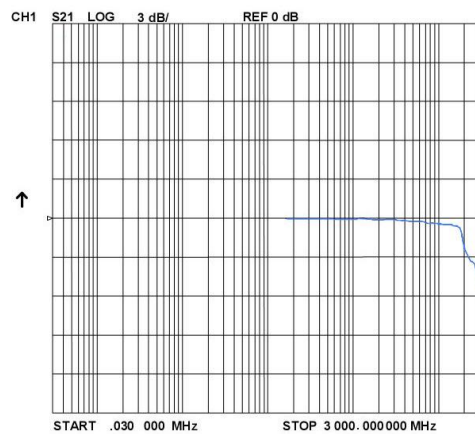
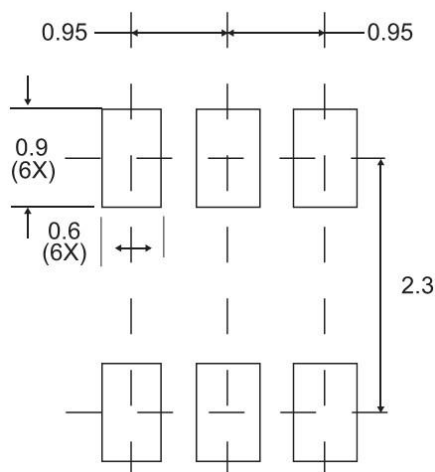
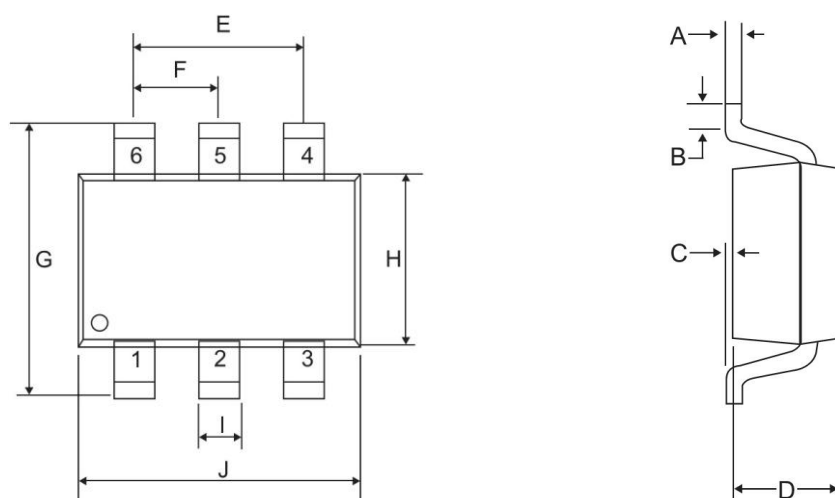


Figure 6- Insertion Loss



PACKAGE OUTLINE DIMENSIONS in inches (millimeters) SOT23-6L


| DIMENSIONS | | | | |
|------------|--------|-------|-------------|------|
| SYMBOL | INCHES | | MILLIMETERS | |
| | MIN | MAX | MIN | MAX |
| A | 0.004 | 0.007 | 0.11 | 0.19 |
| B | 0.016 | - | 0.40 | - |
| C | - | 0.004 | - | 0.10 |
| D | 0.039 | 0.047 | 1.00 | 1.20 |
| E | 0.074 | 0.075 | 1.88 | 1.92 |
| F | 0.037 | 0.038 | 0.93 | 0.97 |
| G | 0.102 | 0.118 | 2.60 | 3.00 |
| H | 0.059 | 0.067 | 1.50 | 1.70 |
| I | 0.016 | | 0.41 | |
| J | 0.110 | 0.118 | 2.80 | 3.00 |

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.