

### Features

- ◆ Ultra low capacitance: 0.3pF typical (I/O to I/O)
- ◆ Ultra low leakage: nA level
- ◆ Low operating voltage: 5V
- ◆ Low clamping voltage
- ◆ Up to 4 data lines and one power line protects
- ◆ Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge: ±30kV
    - Contact discharge: ±25kV
  - IEC61000-4-4 (EFT) 40A (5/50ns)
  - IEC61000-4-5 (Lightning) : 3A(8/20µs)
- ◆ ROHS Compliant

### Ordering Information

| Part Number | Qty per Reel | Reel Size |
|-------------|--------------|-----------|
| TPSRV05LC   | 3000         | 7"        |

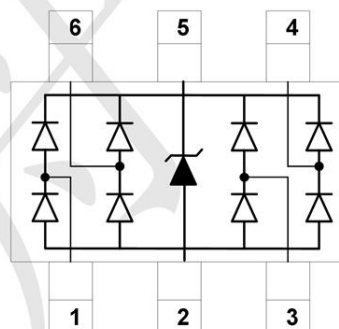
### Mechanical Characteristics

- ◆ Package: SOT23-6
- ◆ Lead Finish: Matte Tin
- ◆ Case Material: “Green” Molding Compound.
- ◆ UL Flammability Classification Rating 94V-0
- ◆ Moisture Sensitivity: Level 3 per J-STD-020

### Applications

- ◆ USB 2.0 and USB 3.0 Ports
- ◆ USB OTG
- ◆ Digital video interface(DVI)
- ◆ Monitor and Flat Panel Displays
- ◆ PCI Express and Serial SATA Ports
- ◆ Gigabit Ethernet
- ◆ IEEE 1394 firewire ports
- ◆ Consumer products (STB, DVD, DSC, DVC...)

### Dimensions and Pin Configuration



Circuit and Pin Schematic

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

| Parameter  | Symbol           | Value       | Unit |
|--|------------------|-------------|------|
| Peak Pulse Power (tp=8/20μs)                                   | PPP              | 60          | W    |
| Peak Pulse Current (tp=8/20μs)                                 | I <sub>PP</sub>  | 3           | A    |
| ESD per IEC 61000-4-2 (Air)<br>ESD per IEC 61000-4-2 (Contact) | V <sub>ESD</sub> | ±30<br>±25  | kV   |
| Operating Temperature Range                                    | T <sub>J</sub>   | -55 to +125 | °C   |
| Storage Temperature Range                                      | T <sub>stg</sub> | -55 to +150 | °C   |

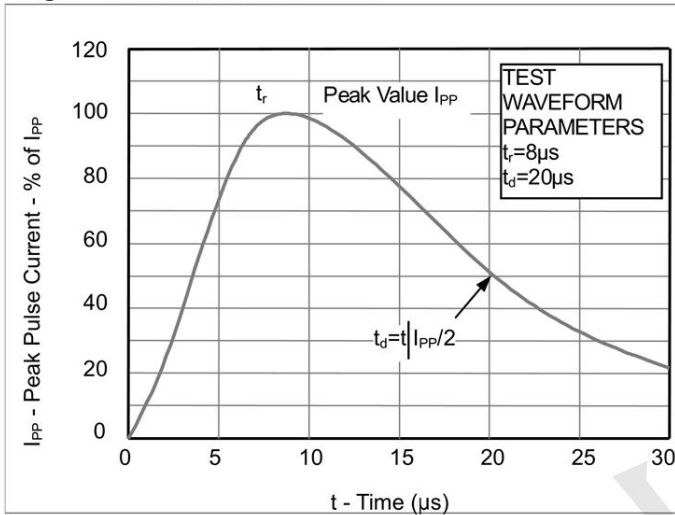
**Electrical Characteristics** (TA=25°C unless otherwise specified)

| Parameter               | Symbol           | Min | Typ | Max | Unit | Test Condition  |
|-------------------------|------------------|-----|-----|-----|------|---|
| Reverse Working Voltage | V <sub>RWM</sub> |     |     | 5   | V    | Any I/O pin to ground                                       |
| Breakdown Voltage       | V <sub>BR</sub>  | 6   |     |     | V    | I <sub>T</sub> = 1mA, any I/O pin to ground                 |
| Reverse Leakage Current | I <sub>R</sub>   |     |     | 0.5 | μA   | V <sub>RWM</sub> = 5V, any I/O pin to ground                |
| Clamping Voltage        | V <sub>C</sub>   |     |     | 15  | V    | I <sub>PP</sub> = 1A (8 x 20μs pulse) any I/O pin to ground |
| Clamping Voltage        | V <sub>C</sub>   |     |     | 20  | V    | I <sub>PP</sub> = 3A (8 x 20μs pulse) any I/O pin to ground |
| Junction Capacitance    | C <sub>J</sub>   |     | 0.3 | 0.4 | pF   | V <sub>R</sub> = 0V, f = 1MHz, between I/O pins             |
| Junction Capacitance    | C <sub>J</sub>   |     |     | 0.8 | pF   | V <sub>R</sub> = 0V, f = 1MHz, any I/O pin to ground        |

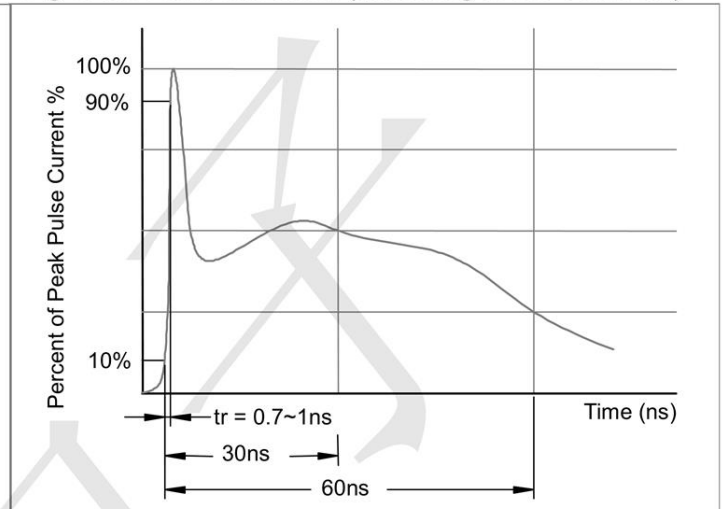
Note 1: I/O pins are Pin 1, 3, 4 and 6

**PROTECTION PRODUCTS**  
Typical characteristics

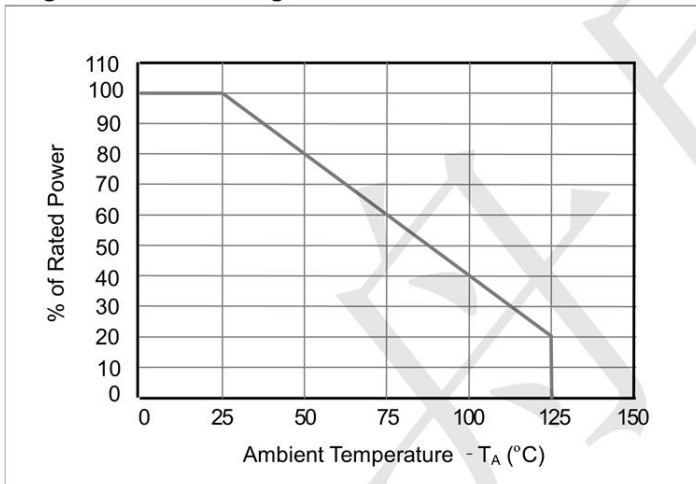
**Fig1. 8/20 $\mu$ s Pulse Waveform**



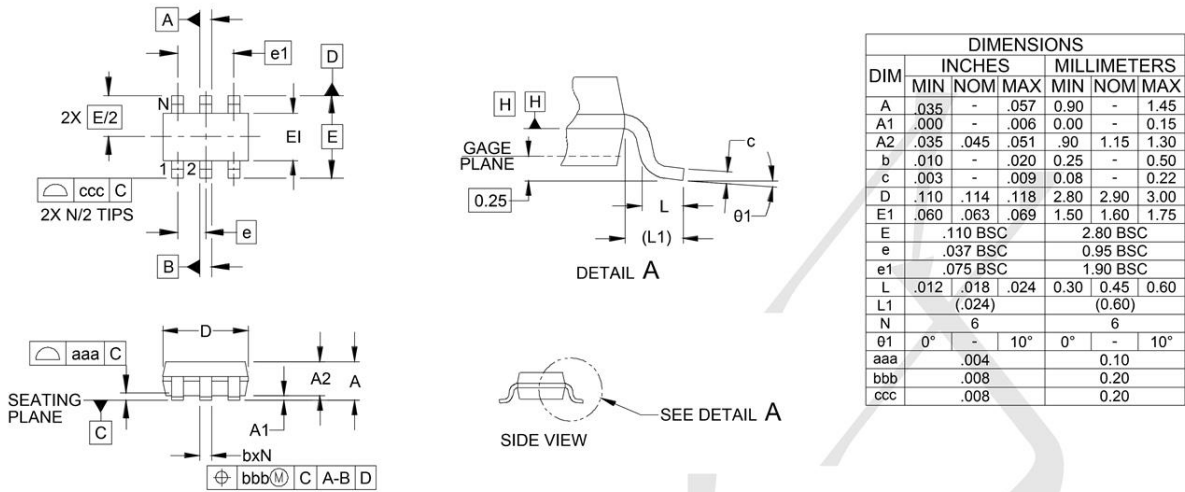
**Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)**



**Fig3. Power Derating Curve**



**Outline Drawing - SOT23-6**



**Land Pattern - SOT23-6**

