

## ESDSR05AP

### Description

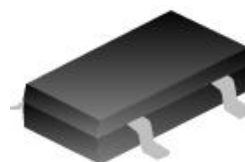
The ESDSR05AP consists of four, low capacitance steering diodes and a low voltage TVS diode that provide protection against ESD and lightning surge events. Each channel or I/O pin can safely absorb up to 5A ( $t_p=8/20 \mu s$ ) and repetitive ESD strikes above the maximum level (Level 4) specified in the IEC 61000-4-2 international standard without performance degradation. The low capacitance of the steering diode allows the designer to protect high speed data applications .

### Features

- Protection for 2 Lines
- Low capacitance
- Low clamping voltage
- Operating voltage: 5V
- Package: SOT-23
- Low clamping voltage
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
  - Air discharge:  $\pm 15kV$
  - Contact discharge:  $\pm 8kV$

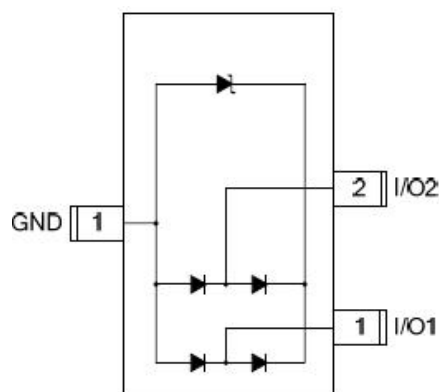
### Applications

- USB 2.0
- 10/100/1000 Ethernet
- HDMI
- VGA
- DVI



SOT-23

### Functional Diagram



SOT-23-3L(Top view)

### Absolute Maximum Ratings( $T_{amb}=25^{\circ}C$ unless otherwise specified)

| Parameter                         | Symbol    | Value        | Unit        |
|-----------------------------------|-----------|--------------|-------------|
| Peak Pulse Power (8/20 $\mu s$ )  | $P_{PP}$  | 150          | Watts       |
| Peak Current ( $t_p=8/20 \mu s$ ) | $I_{pp}$  | 5            | A           |
| ESD per IEC 61000-4-2 (Air)       | $V_{ESD}$ | $\pm 15$     | KV          |
| ESD per IEC 61000-4-2 (Contact)   |           | $\pm 8$      | KV          |
| Lead Soldering Temperature        | TL        | 260 (10 sec) | $^{\circ}C$ |
| Operating Temperature Range       | $T_J$     | -55 to +125  | $^{\circ}C$ |
| Storage Temperature Range         | $T_{STJ}$ | -55 to +150  | $^{\circ}C$ |

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

| Parameter                 | Symbol    | Conditions                                  | Min. | Typ. | Max. | Units   |
|---------------------------|-----------|---------------------------------------------|------|------|------|---------|
| Reverse Stand-off Voltage | $V_{RWM}$ |                                             |      | 5    |      | V       |
| Reverse Breakdown Voltage | $V_{BR}$  | $I_R = 1mA$                                 | 6    |      |      | V       |
| Reverse Leakage Current   | $I_R$     | $V_R = V_{RWM}$                             |      |      | 1    | $\mu A$ |
| Clamping Voltage          | $V_C$     | $I_{PP}=1A, TP=8/20\mu s$                   |      | 8.5  | 12   | V       |
| Junction Capacitance      | $C_{J1}$  | $V_R=0V, f = 1MHz$<br>Between I/O pins      |      | 0.6  | 0.7  | pF      |
|                           | $C_{J2}$  | $V_R=0V, f = 1MHz$<br>Any I/O pin to ground |      | 1.2  | 1.4  | pF      |

## Characteristics Curves

Figure 1- IPP VS VCC

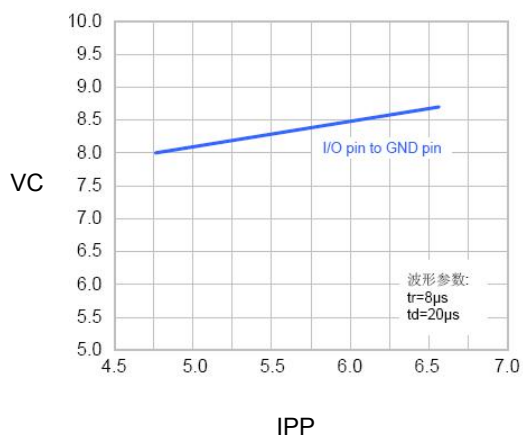


Figure 2-Pulse Derating Curve

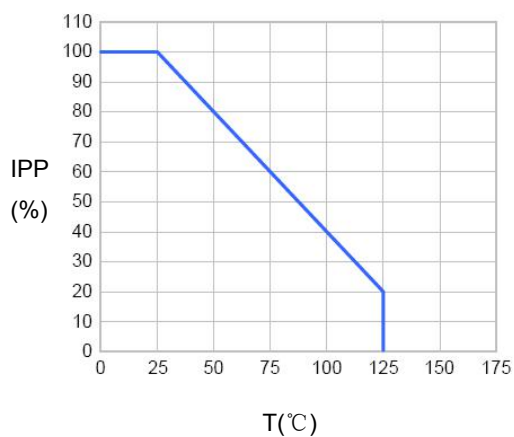


Figure3- Typical variation of  $C_{in}$  VS.  $V_{in}$

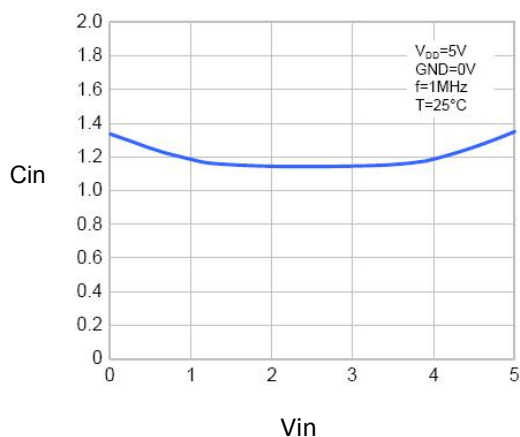
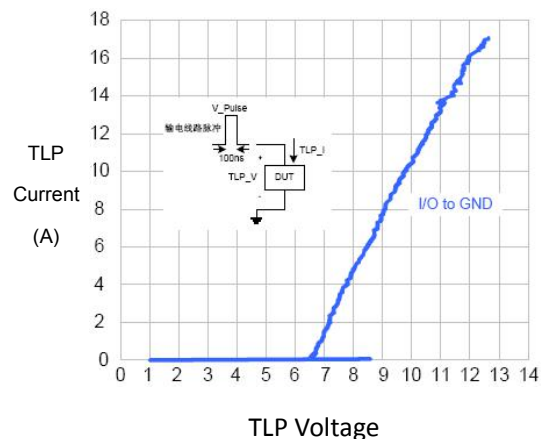
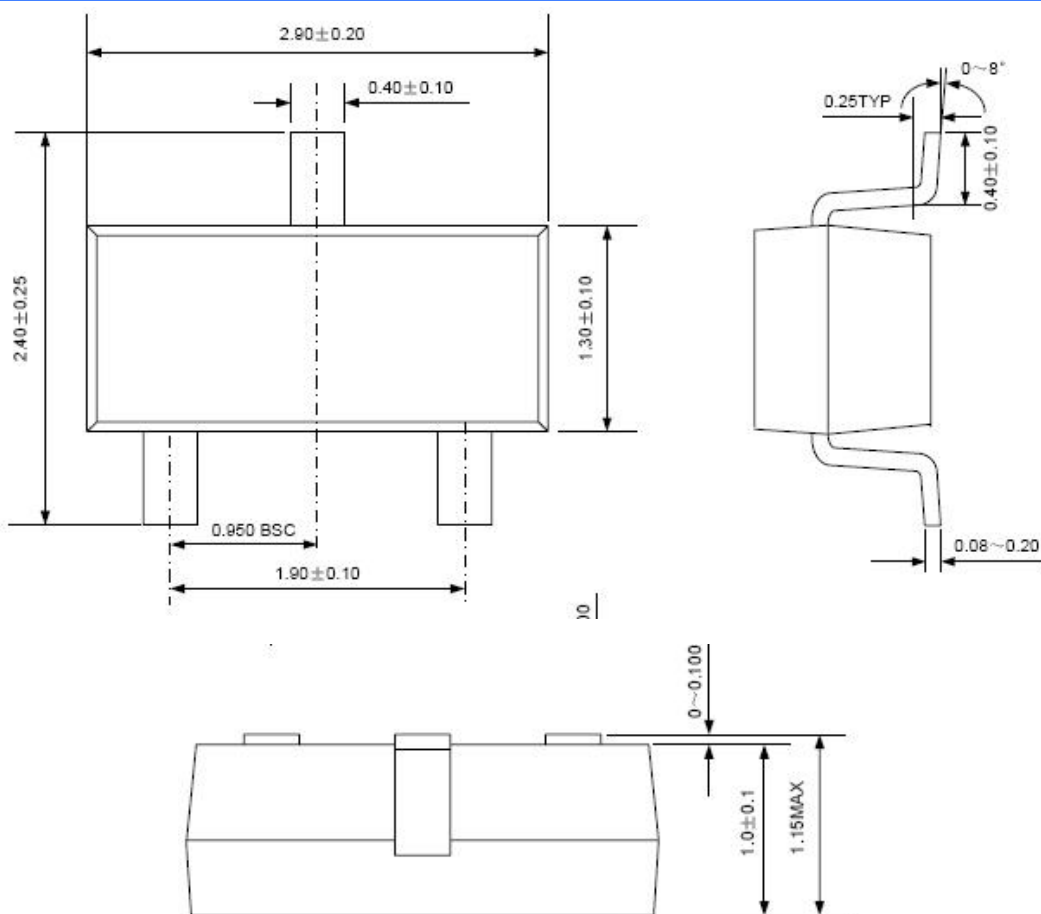


Figure4- Transmission Line pulsing(TLP)



## PACKAGE OUTLINE DIMENSIONS in millimeters (inches) :SOT-23



## 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.