

## Desicription

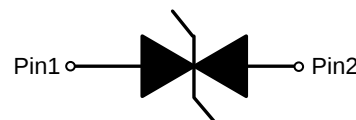
- ◆ This low-power TVS (Transient Voltage Suppressor) is mainly used for signal and power supply to protect the back-stage circuit from ESD(Electrostatic Discharge) and EFT(Electrical Fast Transients) and improve the reliability of the product, because its extremely small package is suitable for various portable devices and mobile electronic devices.



SOD-523

## Features

- ◆ IEC61000-4-2(ESD):  $\pm 30\text{KV}$  Max Air  
 $\pm 30\text{KV}$  Max Contact
- ◆ IEC61000-4-4(EFT):  $40\text{A}(5/50\text{ns})$
- ◆ IEC61000-4-5(Surge):  $30\text{A}(8/20\mu\text{s})$
- ◆ Line capacitance:  $60\text{pF}(\text{typical})@1\text{MHz}$
- ◆ Very low reverse current:  $I_R < 0.2\text{uA}(\text{typical})$
- ◆ Halogen free ,Lead free and RoHs



Circuit diagram

## Application

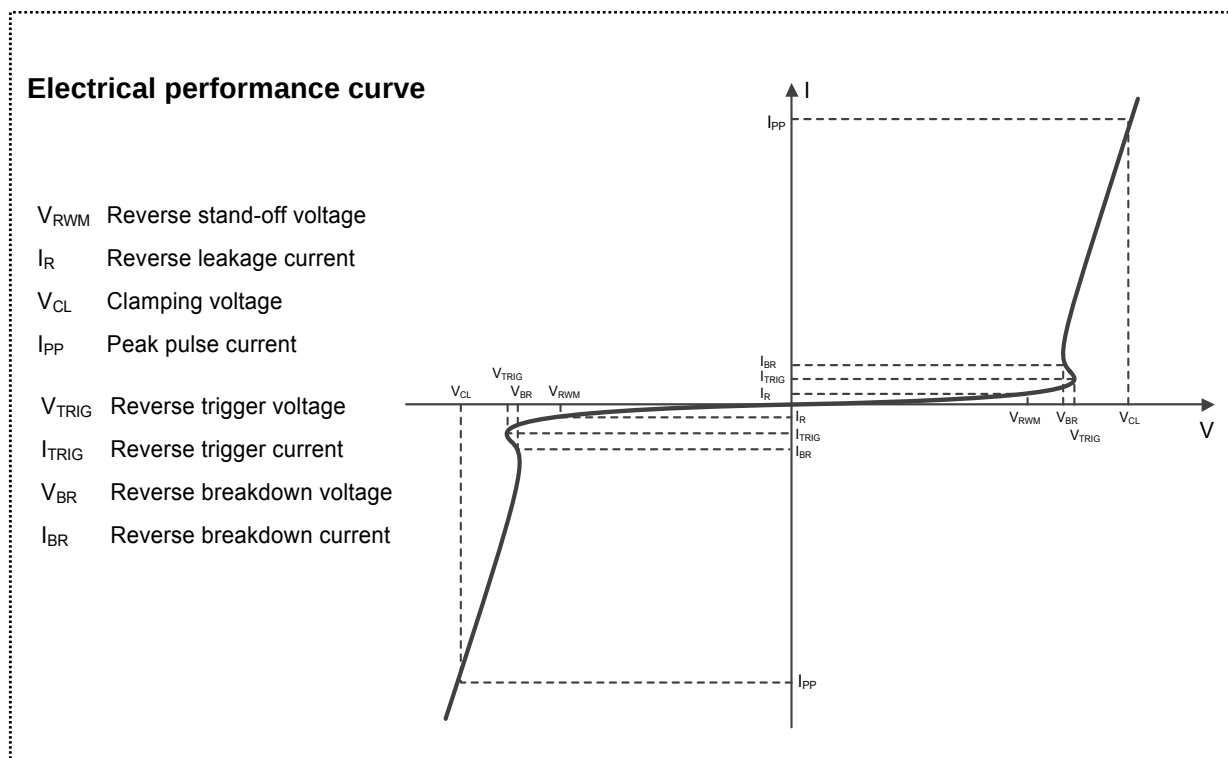
- ◆ Cellular phones
- ◆ Portable devices
- ◆ Digital cameras
- ◆ Player
- ◆ Smart home
- ◆ Robot

## Order information

| Model      | Marking | Package | shipping       |
|------------|---------|---------|----------------|
| ESD5B650TA | CC      | SOD523  | 3000/Tape&Reel |

**Electrical characteristic(T=25°C, unless otherwise specified)**

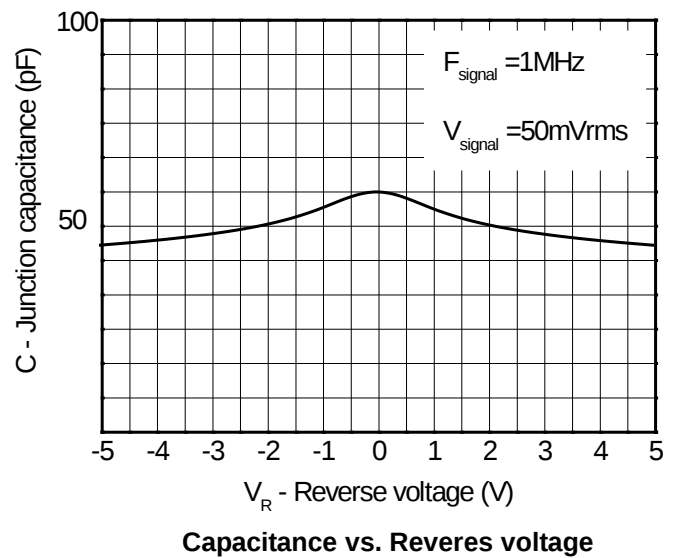
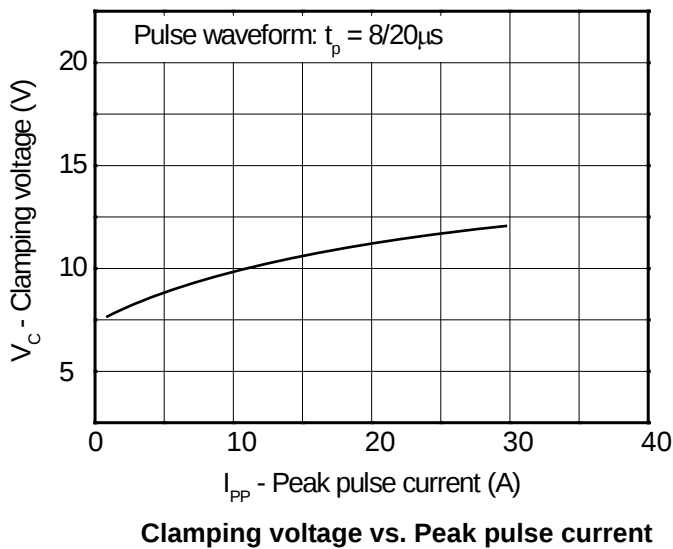
| Parameter                 | Symbol    | Conditions               | Min. | TYP. | Max.      | Units   |
|---------------------------|-----------|--------------------------|------|------|-----------|---------|
| Reverse stand-off voltage | $V_{RWM}$ |                          |      |      | $\pm 5.0$ | V       |
| Reverse leakage current   | $I_R$     | $V_{RWM}=5.0V$           |      |      | 0.2       | $\mu A$ |
| Reveres breakdown voltage | $V_{BR}$  | $I_T=1mA$                | 5.5  | 6.5  |           | V       |
| Clamping voltage          | $V_C$     | $I_{PP}=1A(8/20\mu s)$   |      | 7.5  |           | V       |
|                           |           | $I_{pp}= 30A(8/20\mu s)$ |      | 10.0 | 12.0      | V       |
| Junction capacitance      | $C_J$     | $V_R=0V f=1MHz$          |      | 60.0 | 70.0      | pF      |

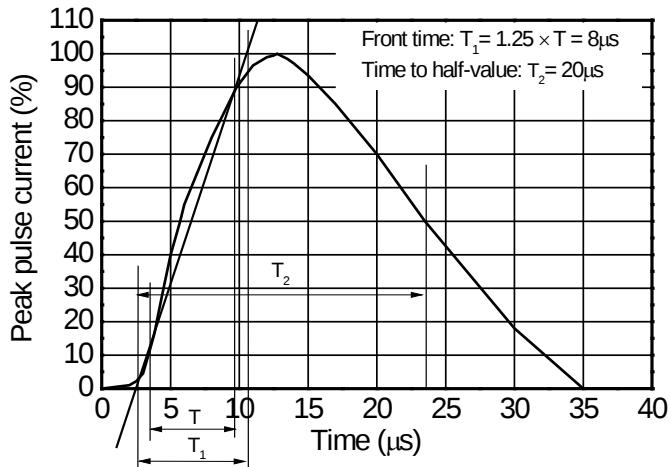
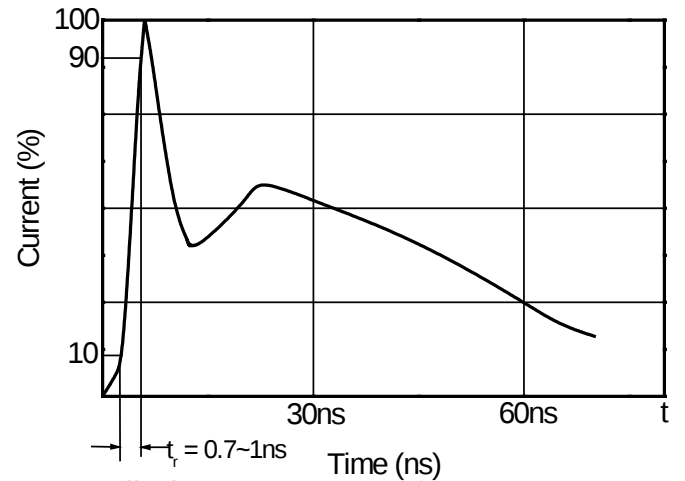
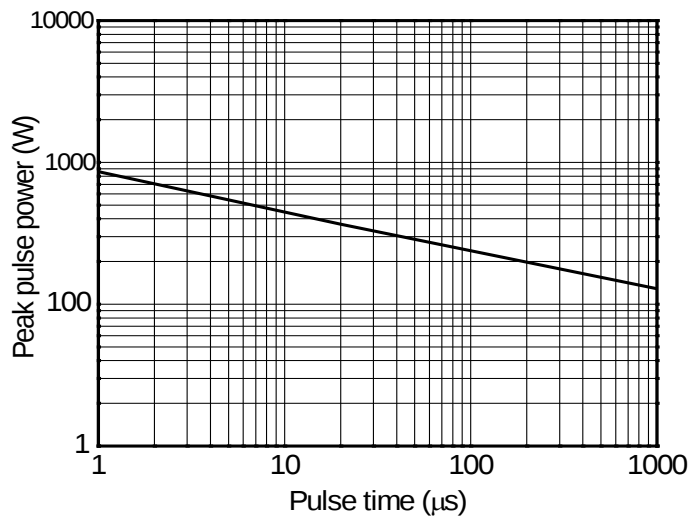
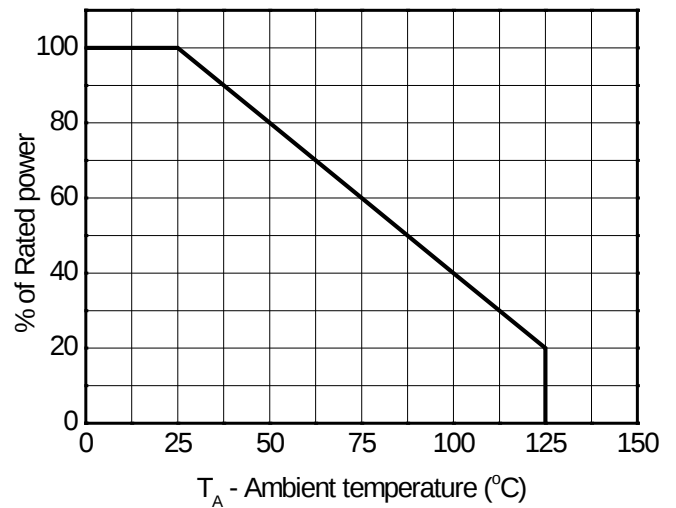
**Electrical characteristic(T=25°C, unless otherwise specified)**


## Maximum Rating

| Rating                                 | symbol    | value    | Units       |
|----------------------------------------|-----------|----------|-------------|
| Peak Pulse Current( $t_p=8/20\mu s$ )  | $I_{pp}$  | 30.0     | A           |
| Peak pulse power ( $t_p = 8/20\mu s$ ) | $P_{pk}$  | 360      | W           |
| ESD per IEC61000-4-2(Contact)          | $V_{ESD}$ | $\pm 30$ | KV          |
| ESD per IEC61000-4-2(Air)              |           | $\pm 30$ |             |
| Operating Temperature                  | $T_J$     | -55~125  | $^{\circ}C$ |
| Storage Temperature                    | $T_{STG}$ | -55~155  | $^{\circ}C$ |

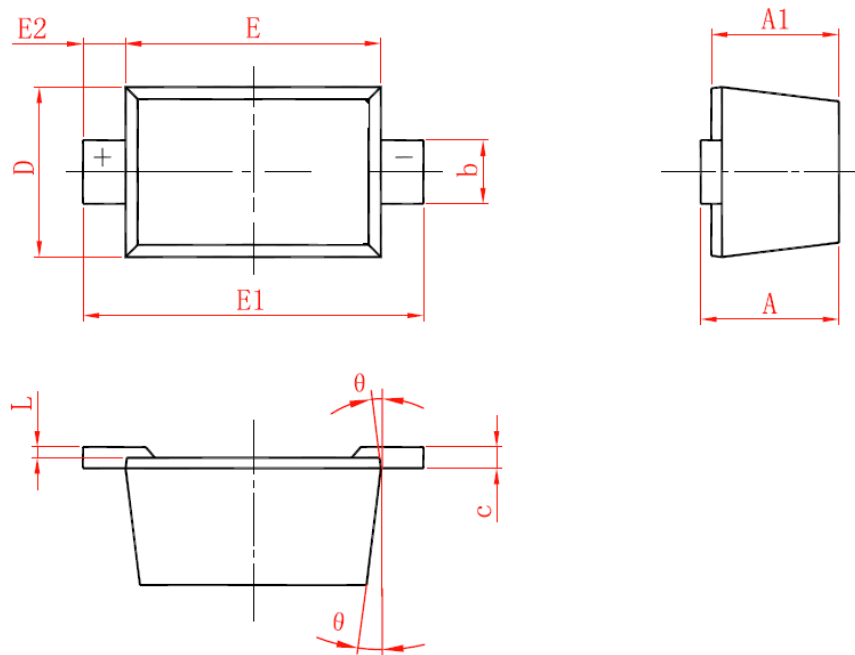
## Typical characteristic




**8/20μs waveform per IEC61000-4-5**

**Contact discharge current waveform per IEC61000-4-2**

**Non-repetitive peak pulse power vs. Pulse time**

**Power derating vs. Ambient temperature**

### Dimension outline Unit:mm

#### SOD-523



| Symbol | Dimensions in millimeter |       |       |
|--------|--------------------------|-------|-------|
|        | Min.                     | Typ.  | Max.  |
| A      | 0.500                    | 0.600 | 0.750 |
| A1     | 0.500                    | 0.600 | 0.700 |
| b      | 0.250                    | 0.300 | 0.350 |
| c      | 0.080                    | 0.115 | 0.150 |
| D      | 0.700                    | 0.800 | 0.900 |
| E      | 1.100                    | 1.200 | 1.300 |
| E1     | 1.500                    | 1.600 | 1.700 |
| E2     | 0.200 Ref                |       |       |
| L      | 0.010                    | 0.040 | 0.070 |
| θ      | 7° Ref                   |       |       |

### Recommended Mounting Pad Layout Unit:mm

