

### 1-Line, Ui-directional, Transient Voltage Suppressors

## Desicription

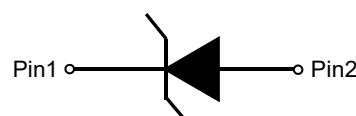
- ◆ This low-power TVS (Transient Voltage Suppressor) is mainly used for signal and power supply to protect the back-stage circuit from ESD(Electrostatic Discharge) and EFT(Electrical Fast Transients) and improve the reliability of the product, because its extremely small package is suitable for various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



SOD-323

## 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): $7.0\text{A}(8/20\mu\text{s})$
- ◆ Line capacitance: $30\text{pF}@1\text{MHz}$
- ◆ Very low reverse current: $I_R < 0.2\mu\text{A}(\text{typical})$
- ◆ Halogen free ,Lead free and RoHs



Circuit Diagram

## Application

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

## Order information

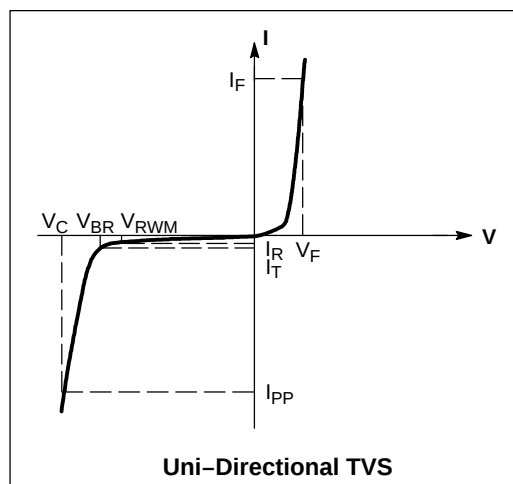
| Model       | Marking | Package | shipping       |
|-------------|---------|---------|----------------|
| ESD36A300TR | 36W     | SOD-323 | 3000/Tape&Reel |

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

| Parameter                 | Symbol                     | Conditions               | Min. | TYP. | Max. | Units   |
|---------------------------|----------------------------|--------------------------|------|------|------|---------|
| Reverse stand-off voltage | $V_{RWM}$                  |                          |      |      | 36.0 | V       |
| Reverse leakage current   | $I_R$<br>(PIN1 TO PIN2)    | $V_{RWM}=36.0V$          |      |      | 0.2  | $\mu A$ |
| Reveres breakdown voltage | $V_{BR}$<br>(PIN1 TO PIN2) | $I_T=1mA$                | 38.0 |      |      | V       |
| Peak pulse current        | $I_{PP}$                   | $V_{C\ Max} (8/20\mu s)$ | 5.0  | 7.0  |      | A       |
| Clamping voltage          | $V_C$<br>(PIN1 TO PIN2)    | $I_{PP}=1.0A(8/20\mu s)$ |      | 50.0 |      | V       |
|                           |                            | $I_{PP}=7.0A(8/20\mu s)$ |      |      | 62.0 | V       |
| Junction capacitance      | $C_J$                      | $V_R=0V\ f=1MHz$         |      | 30.0 | 80.0 | pF      |

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

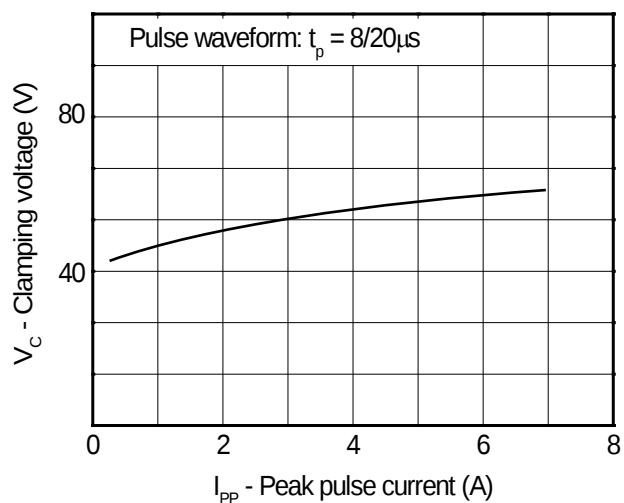
| Symbol    | Parameter                           |
|-----------|-------------------------------------|
| $V_{RWM}$ | Peak Reverse Working Voltage        |
| $I_R$     | Reverse Leakage Current @ $V_{RWM}$ |
| $V_{BR}$  | Breakdown Voltage @ $I_T$           |
| $I_T$     | Test Current                        |
| $I_{PP}$  | Maximum Reverse Peak Pulse Current  |
| $V_C$     | Clamping Voltage @ $I_{PP}$         |
| $I_F$     | Forward Current                     |
| $V_F$     | Forward Voltage @ $I_F$             |



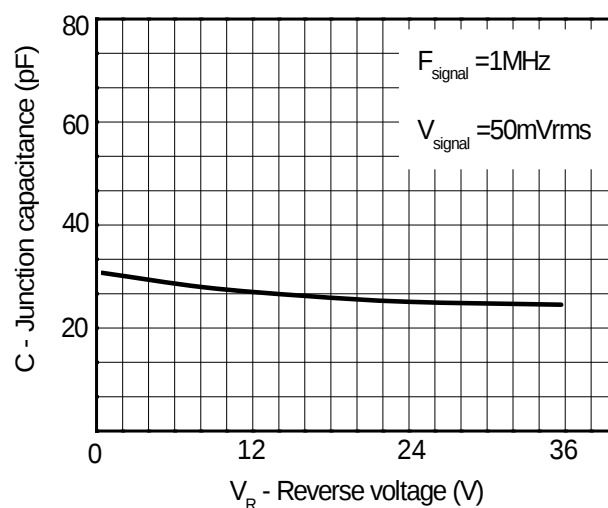
## Maximum Rating

| Rating                                | symbol    | value    | Units       |
|---------------------------------------|-----------|----------|-------------|
| Peak Pulse Current( $t_p=8/20\mu s$ ) | $I_{pp}$  | 7.0      | A           |
| ESD per IEC61000-4-2(Contact)         | $V_{ESD}$ | $\pm 30$ | KV          |
| ESD per IEC61000-4-2(Air)             |           | $\pm 30$ |             |
| Operating Temperature                 | $T_J$     | -50~125  | $^{\circ}C$ |
| Storage Temperature                   | $T_{STG}$ | -65~150  | $^{\circ}C$ |

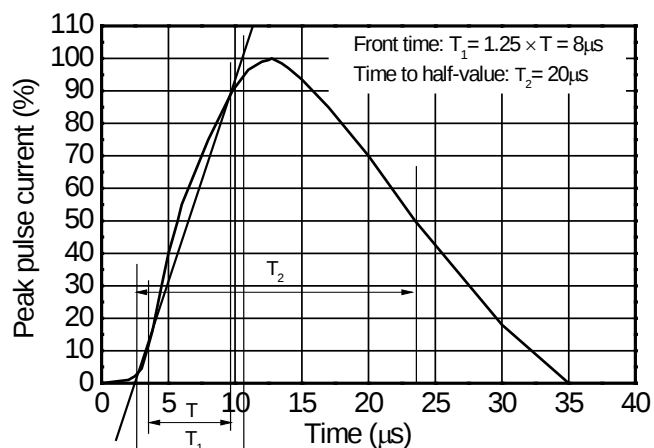
## Typical characteristic



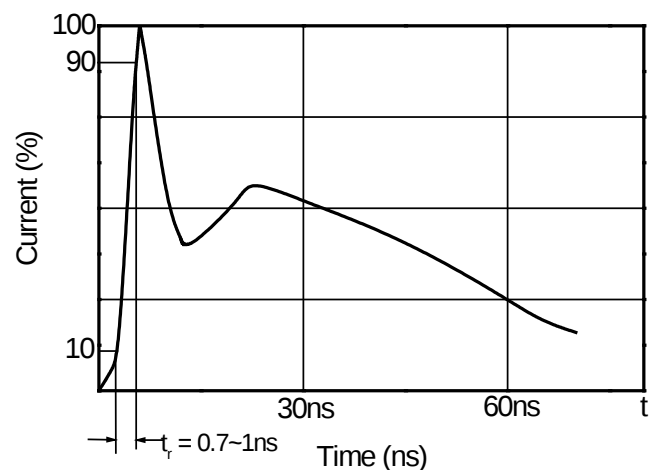
Clamping voltage vs. Peak pulse current



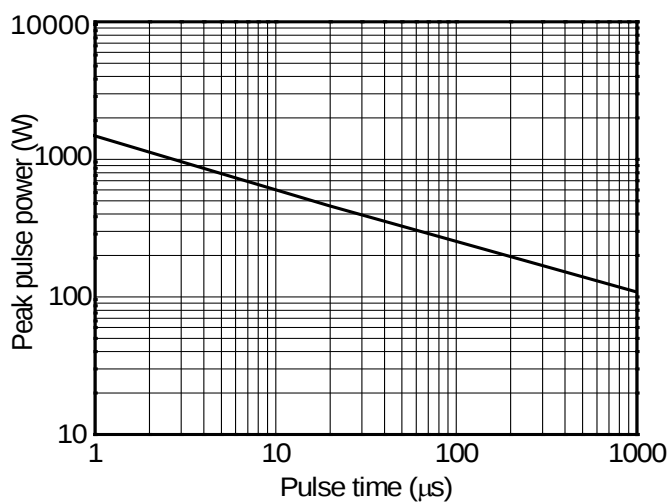
Capacitance vs. Reverse voltage



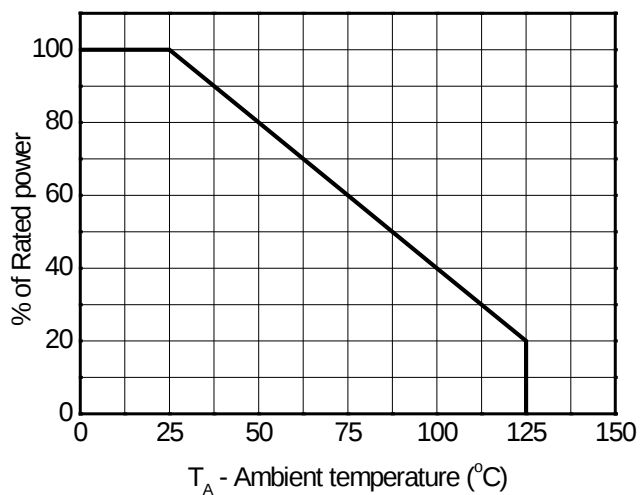
8/20μs waveform per IEC61000-4-5



Contact discharge current waveform per IEC61000-4-2



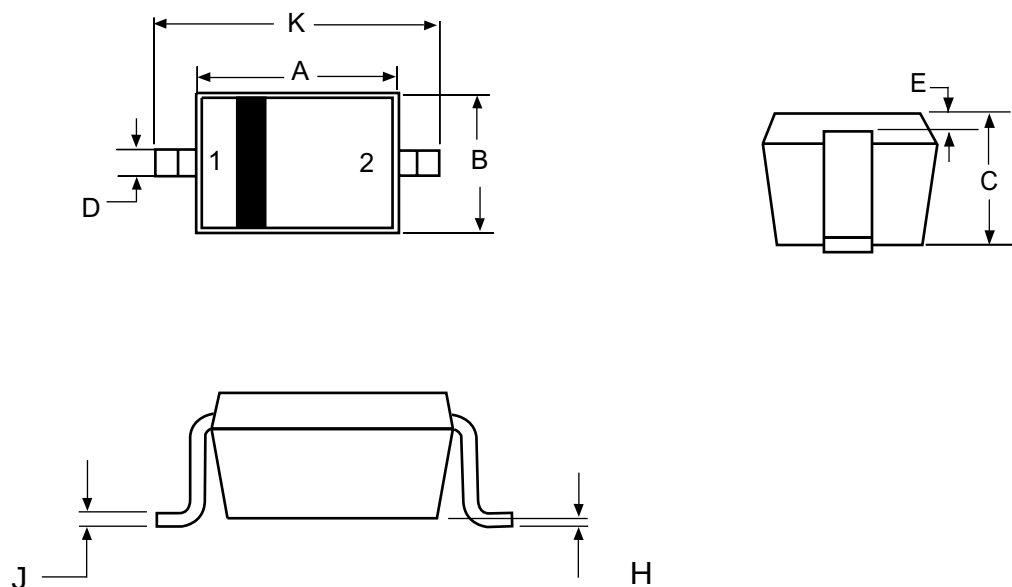
Non-repetitive peak pulse power vs. Pulse time



Power derating vs. Ambient temperature

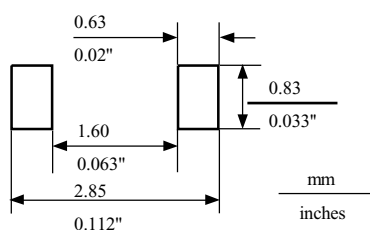
## Package outline dimensions

## SOD-323



| Symbol | Millimeter |       | Inches    |        |
|--------|------------|-------|-----------|--------|
|        | Min.       | Max.  | Min.      | Max.   |
| A      | 1.60       | 1.80  | 0.063     | 0.071  |
| B      | 1.15       | 1.35  | 0.045     | 0.053  |
| C      | 0.80       | 1.00  | 0.031     | 0.039  |
| D      | 0.25       | 0.40  | 0.010     | 0.016  |
| E      | 0.15 REF   |       | 0.006 REF |        |
| H      | 0.00       | 0.10  | 0.000     | 0.004  |
| J      | 0.089      | 0.177 | 0.0035    | 0.0070 |
| K      | 2.30       | 2.70  | 0.091     | 0.106  |

## Recommend land pattern (Unit: mm)



Note: This land pattern is for your reference only. Actual pad layouts may vary depending on application.