# TPESD852DBZR

## 2 -L ine bi -directional TVS Diode

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## Features

- Low operating voltage: 36V
- Ultra low capacitance: 4pF
- Ultra low leakage: nA level
- Low clamping voltage
- –IEC 61000-4-2 (ESD) immunity test
  Air discharge: ±25kV
  Contact discharge: ±20kV
  –IEC61000-4-4 (EFT) 40A (5/50ns)
- 3-pin leadless package
- These are Pb−Free Devices
- Response Time is Typically < 1 ns

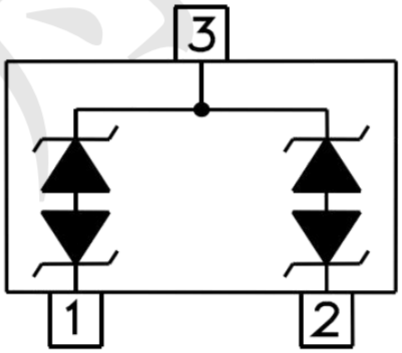
## Mechanical Characteristics

- Package: SOT-23
- Lead Finish: Matte Tin
- Case Material: “Green” Molding Compound
- Terminal Connections: See Diagram Below
- -IEC 61000-4-2 (ESD) immunity test

## Applications

- Industrial Controls
- Personal Digital Assistants
- Notebooks and Handhelds
- CAN Bus Protection
- Automotive Appllcatrons

## Dimensions and Pin Configuration




**SOT-23**

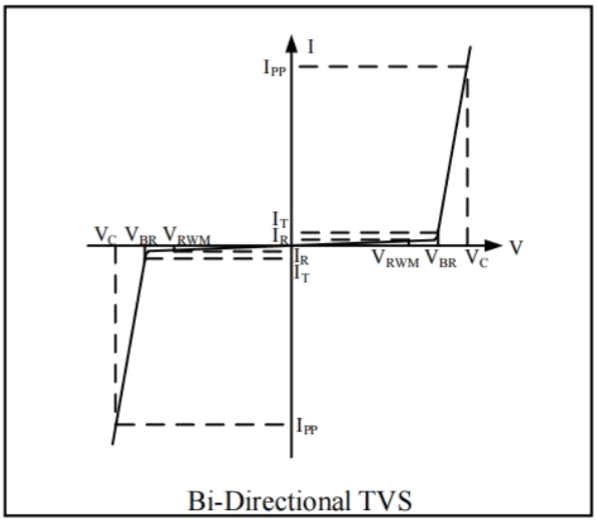
## Absolute Maximum Ratings(Tamb=25°C unless otherwise specified)

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Peak Pulse Power (8/20μs) | Ppk | 180 | W |
| IEC 61000−4−2 Spec Current at 60 ns (A) | Ipp | 3 | A |
| ESD per IEC 61000−4−2 (Air)<br>ESD per IEC 61000−4−2 (Contact) | VESD | ±25<br>±20 | KV |
| Operating Temperature Range | TJ | −55 to +125 | °C |
| Storage Temperature Range | Tstg | −55 to +150 | °C |

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

| Parameter | Symbol | Min | Typ | Max | Unit | Test Condition |
|---|---|---|---|---|---|---|
| Reverse Working Voltage | VRWM | -- | -- | 36 | V | |
| Breakdown Voltage | VBR | 38 | -- | 44 | V | IT= 1mA |
| Reverse Leakage Current | IR | -- | -- | 0.1 | uA | VRWM=36V |
| Clamping Voltage | VC | -- | 45 | 51 | V | Ipp=1A(8x 20us pulse) |
| Clamping Voltage | VC | -- | 64 | 72 | V | Ipp=3A(8x 20us pulse) |
| Junction Capacitance | CJ | -- | 10 | -- | pF | VR =0V, f =1MHz,Pin1,2 to Pin3 |
| Junction Capacitance | CJ | -- | 3 | 6 | pF | VR =0V, f =1MHz,Pin1, to Pin2 |

| Symbol | Parameter |
|---|---|
| $V_{RWM}$ | Nominal Reverse Working Voltage |
| $I_R$ | Reverse Leakage Current @ $V_{RWM}$ |
| $V_{BR}$ | Reverse Breakdown Voltage @ $I_T$ |
| $I_T$ | Test Current for Reverse Breakdown |
| $V_C$ | Clamping Voltage @ $I_{PP}$ |
| $I_{PP}$ | Maximum Peak Pulse Current |
| $C_{ESD}$ | Parasitic Capacitance |
| $V_R$ | Reverse Voltage |
| f | Small Signal Frequency |



Bi-Directional TVS



VR =0V, f =1MHz,Pin1 to Pin2

## Characteristic Curves

**Fig1. 8/20μs Pulse Waveform**

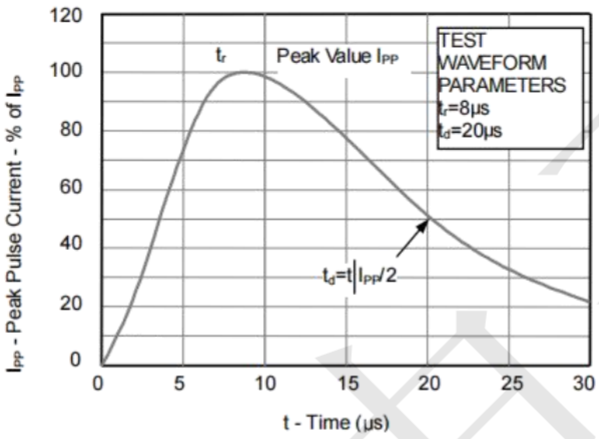



**Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)**

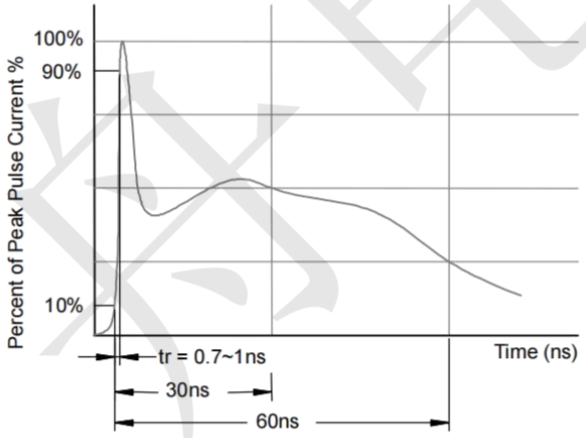
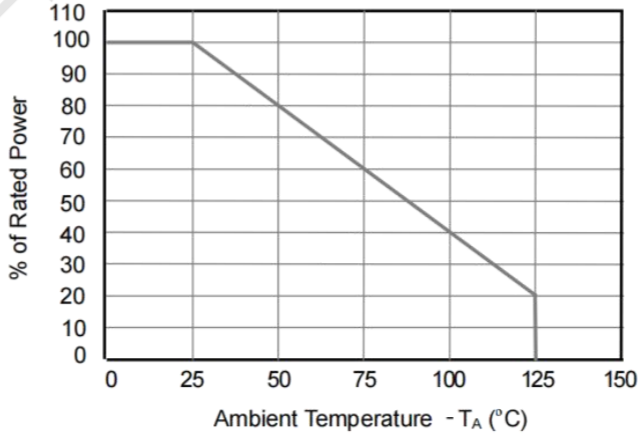
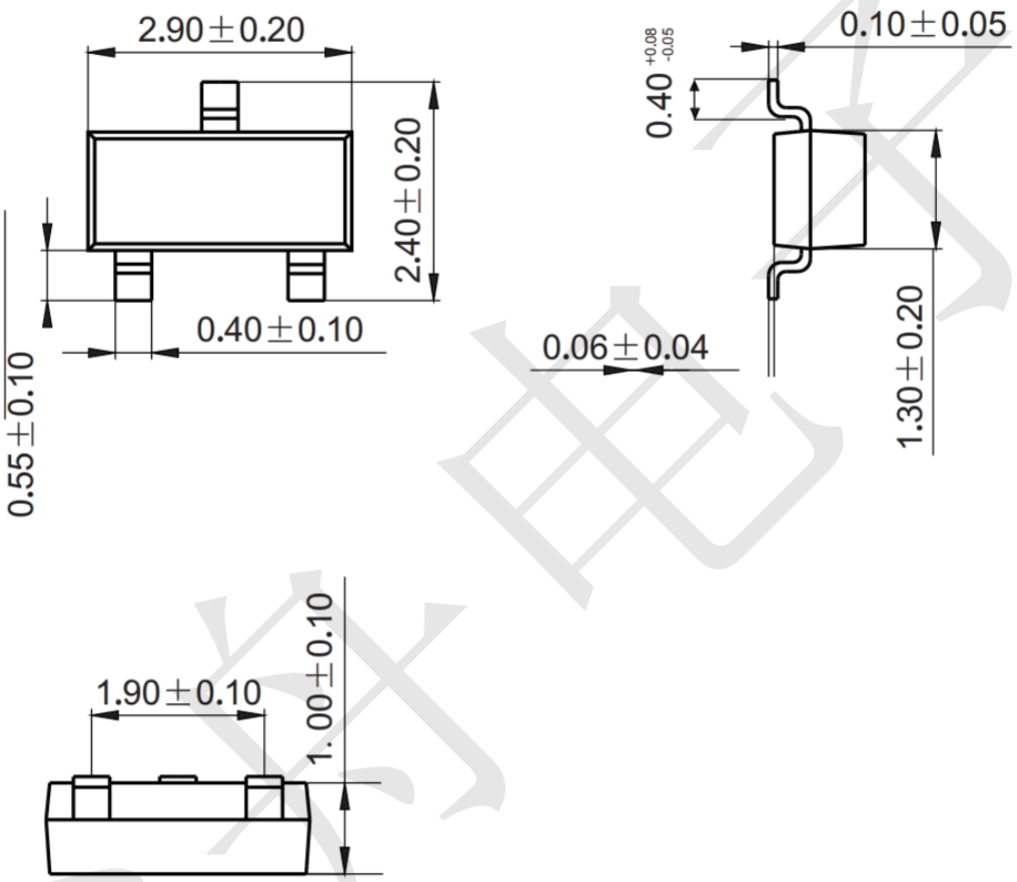



**Fig3. Power Derating Curve**



## Package Outline Dimensions (unit: mm)

### SOT-23




## Mounting Pad Layout (unit: mm)

