TECH PUBLIC
台舟电子

# TPESD5B5.0ST1G

**Bi -directional TVS Diode**

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## Features

- Protects one data or power line
- Ultra low leakage: nA level
- Low operating voltage: 5V
- Low clamping voltage
- Complies with following standards:
  - – IEC 61000-4-2 (ESD) immunity test
    - Air discharge: ±30kV
    - Contact discharge: ±30kV
  - – IEC61000-4-4 (EFT) 40A (5/50ns)
- RoHS Compliant

## Mechanical Characteristics

- Package: SOD-523
- Lead Finish: Matte Tin
- Case Material: “Green” Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminal Connections: See Diagram Below

## Applications

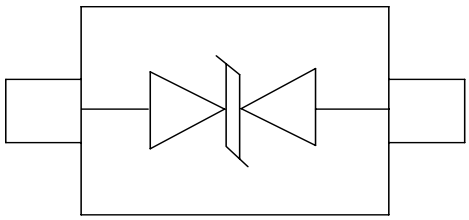
- Cellular Handsets & Accessories
- Digital Visual Interface (DVI)
- Display Port
- MDDI Ports
- USB Ports
- PCI Express
- Serial ATA

## Ordering Information

| Part Number | Qty per Reel | Reel Size |
|---|---|---|
| TPESD5B5.0ST1G | 3000 | 7″ |



## Dimensions and Pin Configuration



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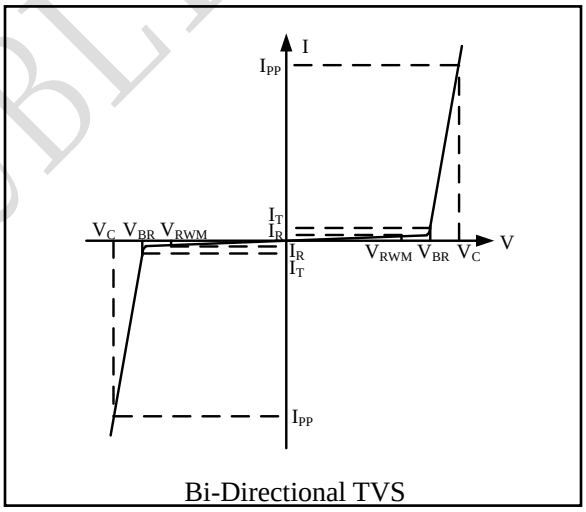
## Absolute Maximum Ratings (Tamb=25°C unless otherwise specified)

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Peak Pulse Current (8/20μs) | $I_{PP}$ | 7 | A |
| ESD per IEC 61000−4−2 (Air)<br>ESD per IEC 61000−4−2 (Contact) | $V_{ESD}$ | ±30<br>±30 | kV |
| Operating Temperature Range | $T_J$ | −55 to +125 | °C |
| Storage Temperature Range | Tstg | −55 to +150 | °C |

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

| 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

| Parameter | Symbol | Min | Typ | Max | Unit | Test Condition |
|---|---|---|---|---|---|---|
| Reverse Working Voltage | $V_{RWM}$ | | | 5 | V | |
| Breakdown Voltage | $V_{BR}$ | 6 | 7 | 9 | V | $I_T$ = 1mA |
| Reverse Leakage Current | $I_R$ | | | 0.2 | uA | $V_{RWM}$ = 5V |
| Clamping Voltage | $V_C$ | | | 7 | V | $I_{PP}$ = 1A (8 x 20μs pulse) |
| Clamping Voltage | $V_C$ | | | 9 | V | $I_{PP}$ = 7A (8 x 20□s pulse) |
| Junction Capacitance | $C_J$ | | 15 | | pF | VR = 0V, f = 1MHz |

## Typical Performance Characteristics ($T_A$=25°C unless otherwise Specified)

**Fig1. 8/20μs Pulse Waveform**

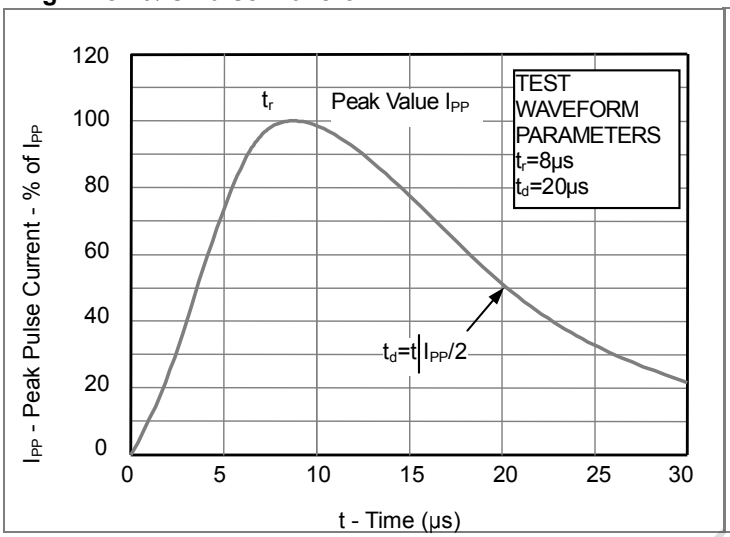



**Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)**

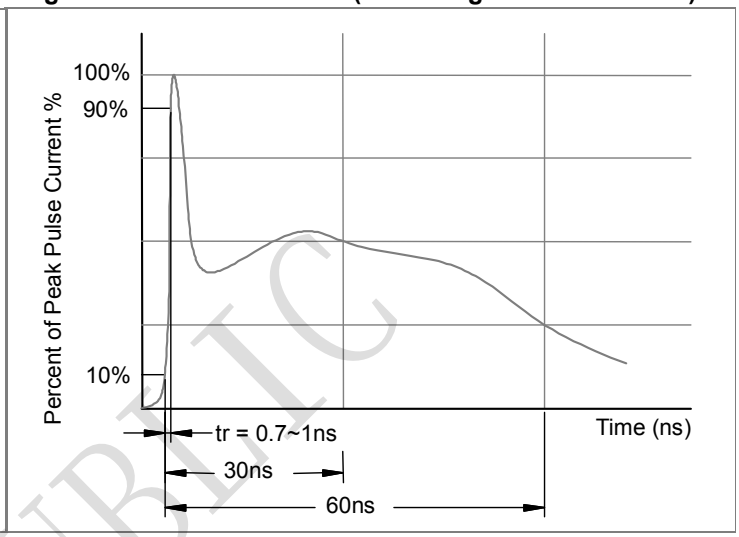
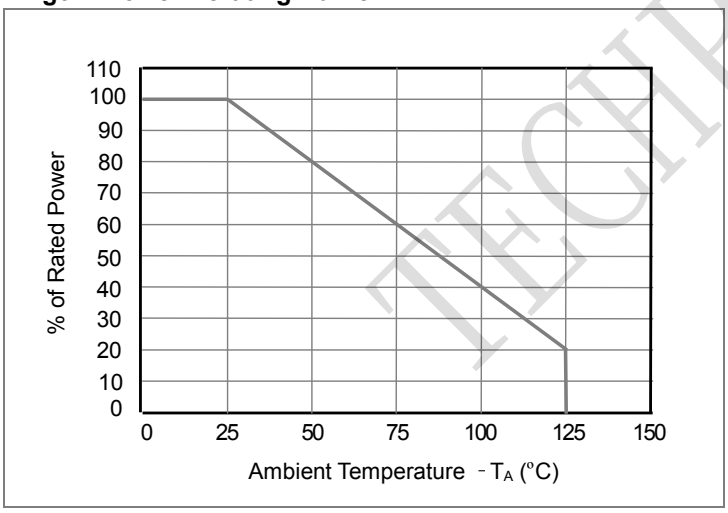
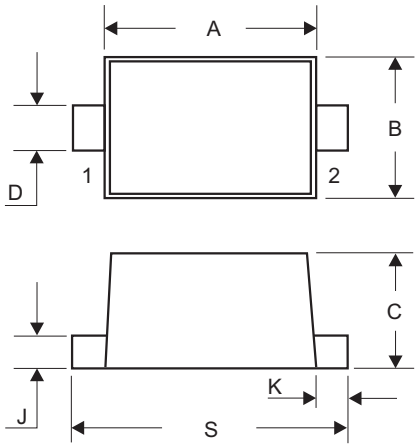



**Fig3. Power Derating Curve**



## Outline Drawing - SOD-523

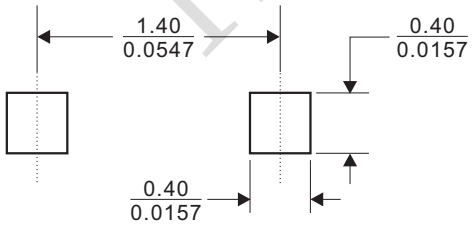
SOD-523




| DIM | Millimeters | | Inches | |
|---|---|---|---|---|
| | Min | Max | Min | Max |
| A | 1.10 | 1.30 | 0.043 | 0.051 |
| B | 0.70 | 0.90 | 0.028 | 0.035 |
| C | 0.50 | 0.70 | 0.020 | 0.028 |
| D | 0.25 | 0.35 | 0.010 | 0.014 |
| J | 0.07 | 0.20 | 0.0028 | 0.0079 |
| K | 0.15 | 0.25 | 0.006 | 0.010 |
| S | 1.50 | 1.70 | 0.059 | 0.067 |

## Land Pattern - SOD-523

**Recommended Mounting Pad Layout**




Dimensions in ( millimeters / inches )