# TPESD5Z5.0
# 1-Line Uni-directional TVS Diode

www.sot23.com.tw

## Features

- 150 Watts peak pulse power (tp = 8/20μs)
- Transient protection for high speed data lines to
- IEC 61000-4-2 (ESD) ±25kV (air), ±25kV (contact)
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- Protects One Power or I/O Port
- Low leakage current
- Low operating and clamping voltages
- Solid-state silicon avalanche technology

## 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

## Ordering Information

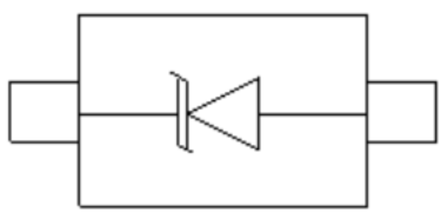
| Part Number | Qty per Reel | Reel Size |
|---|---|---|
| TPESD5Z5.0 | 3000 | 7″ |

## Applications

- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation
- Digital Cameras
- Peripherals
- Audio Players
- Keypads, Side Keys, LCD Displays, USB2.0

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## Dimensions and Pin Configuration



SOD-523 (Top View)

## Marking: N2 Or ZFx

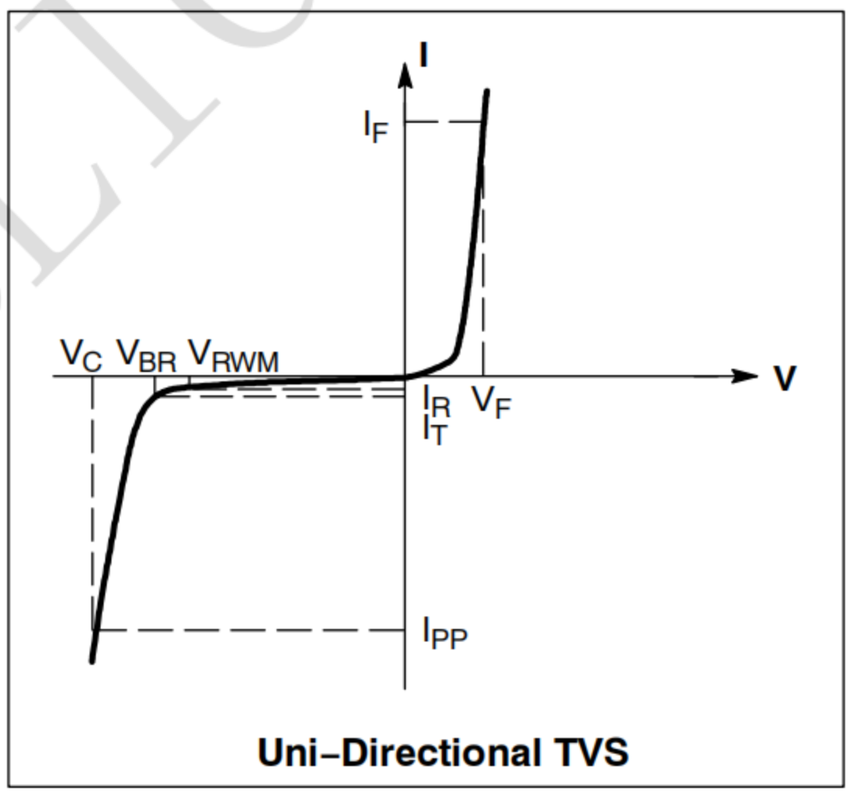
X=date code

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

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| ESD per IEC 61000−4−2 (Air)<br>ESD per IEC 61000−4−2 (Contact) | VESD | ±25<br>±25 | kV |
| Operating Temperature Range | TJ | −55 to +125 | °C |
| Storage Temperature Range | Tstg | −55 to +150 | °C |

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

| Symbol | Parameter |
|---|---|
| $I_{PP}$ | Maximum Reverse Peak Pulse Current |
| $V_C$ | Clamping Voltage @ $I_{PP}$ |
| $V_{RWM}$ | Working Peak Reverse Voltage |
| $I_R$ | Maximum Reverse Leakage Current @ $V_{RWM}$ |
| $V_{BR}$ | Breakdown Voltage @ $I_T$ |
| $I_T$ | Test Current |
| $I_F$ | Forward Current |
| $V_F$ | Forward Voltage @ $I_F$ |
| $P_{pk}$ | Peak Power Dissipation |
| C | Capacitance @ $V_R$ = 0 and f = 1.0 MHz |



Uni−Directional TVS

| Parameter | Symbol | Min | Typ | Max | Unit | Test Condition |
|---|---|---|---|---|---|---|
| Reverse Working Voltage | VRWM | | | 5 | V | |
| Breakdown Voltage | VBR | 6 | | | V | IT = 1mA |
| Reverse Leakage Current | IR | | | 0.2 | uA | VRWM = 5V |
| Clamping Voltage | VC | | | 9 | V | IPP = 1A (8 x 20μs pulse) |
| Clamping Voltage | VC | | | 15 | V | IPP = 10A (8 x 20□s pulse) |
| Junction Capacitance | CJ | | | 100 | pF | VR = 0V, f = 1MHz |

# Characteristic Curves

**Fig1. 8/20μs Pulse Waveform**

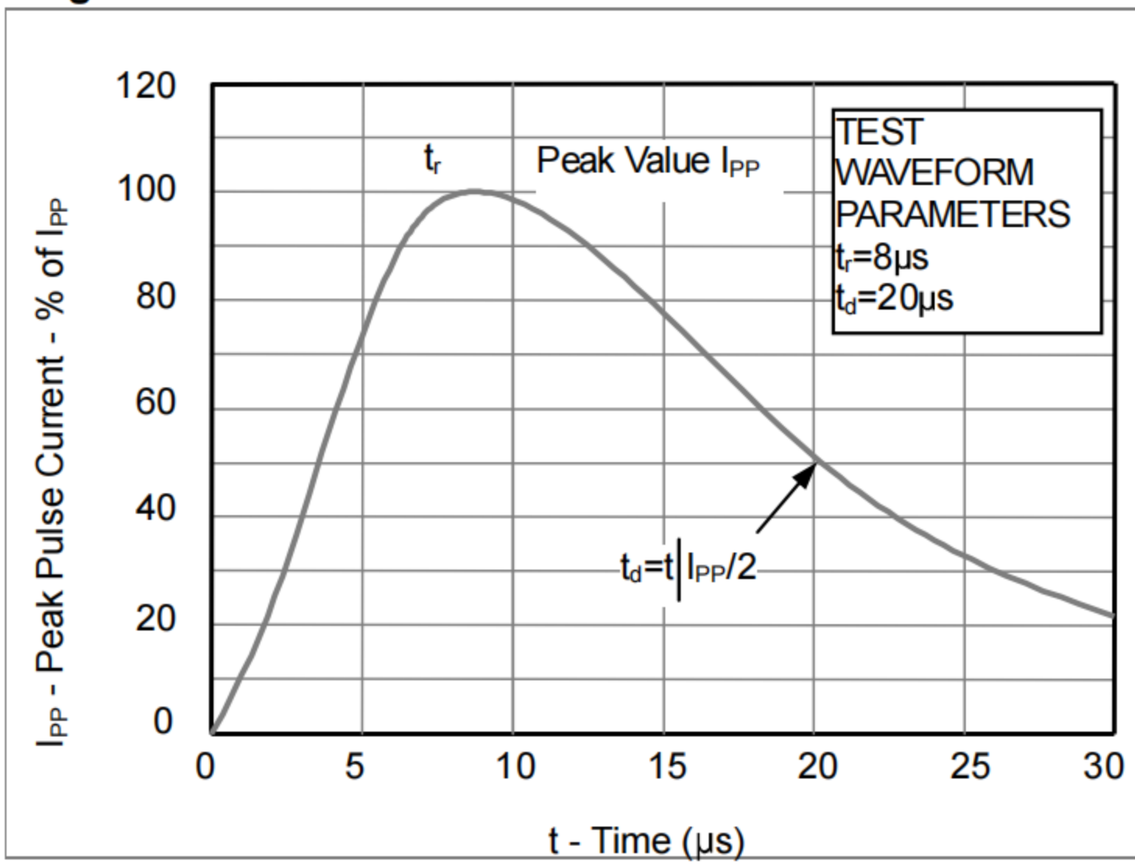



**Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)**

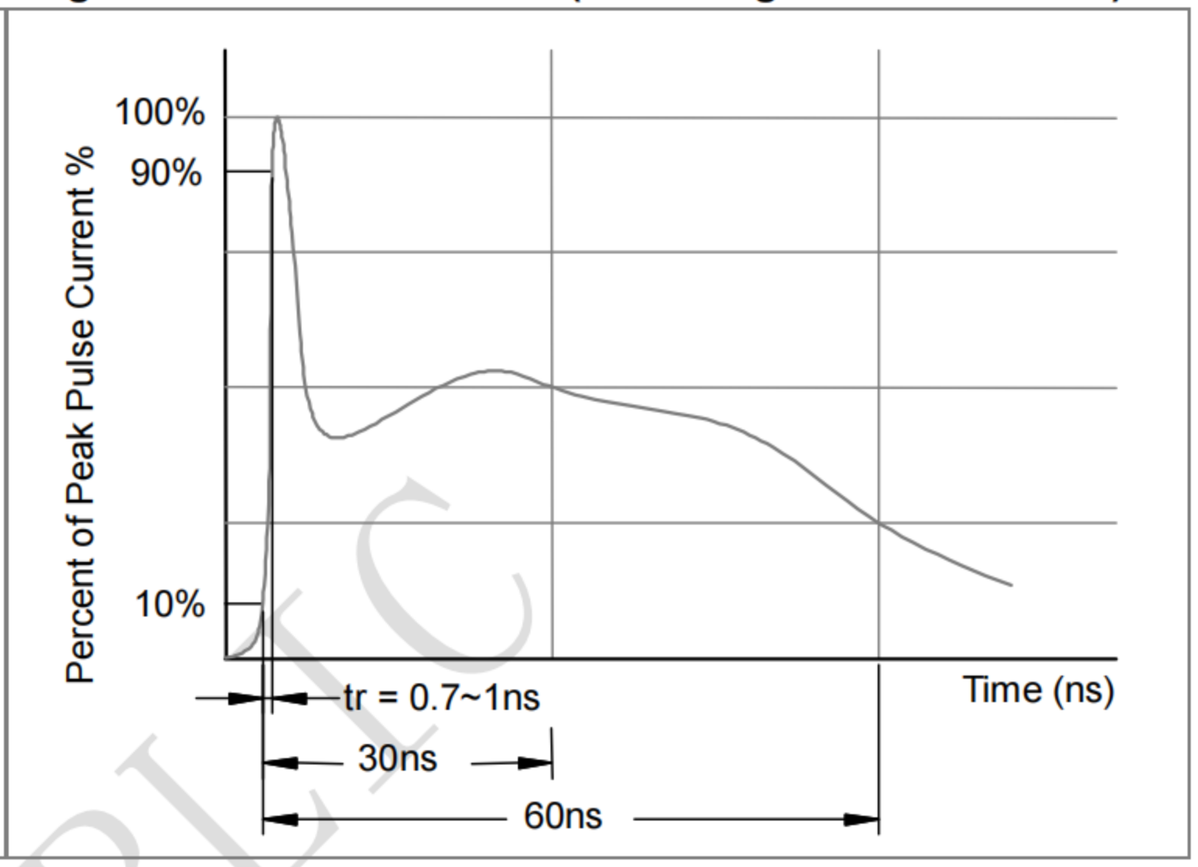
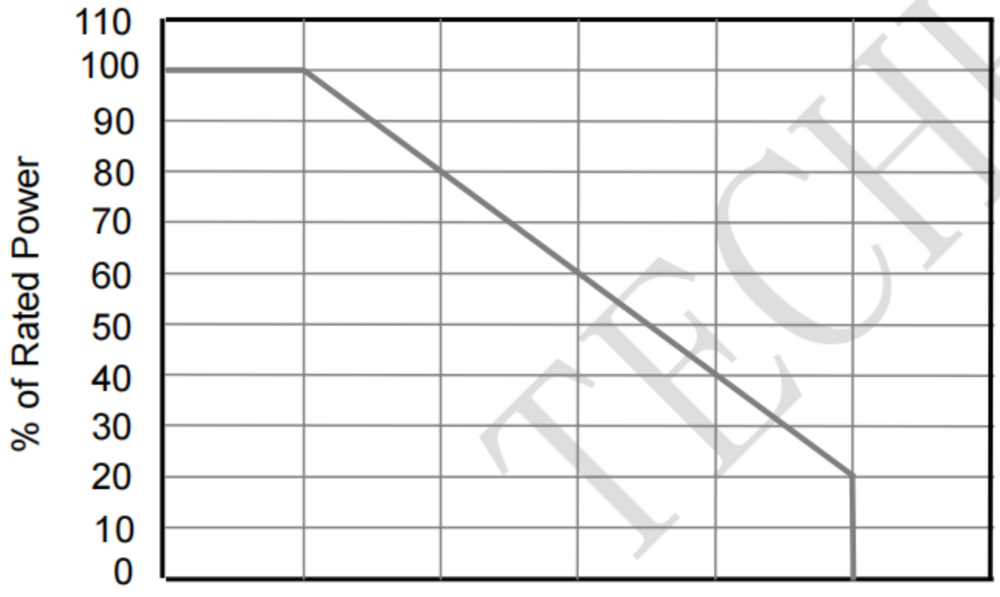
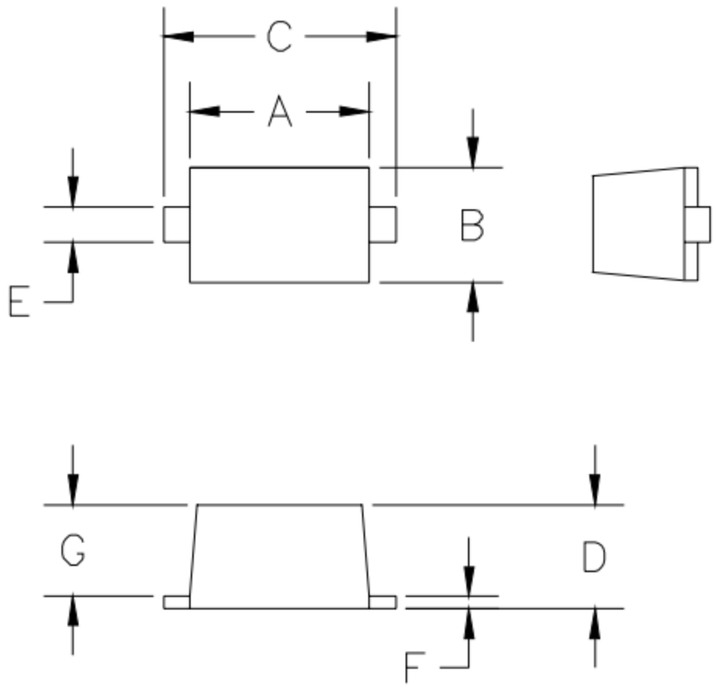



**Fig3. Power Derating Curve**




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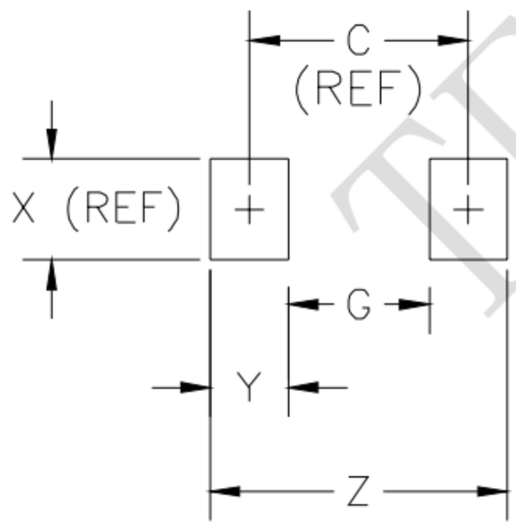
## SOD-523 Package Outline Drawing




| DIMENSIONS | | | | | |
|---|---|---|---|---|---|
| DIMN | INCHES | | MM [1] | | NOTE |
| | MIN | MAX | MIN | MAX | |
| A | .043 | .051 | 1.10 | 1.30 | – |
| B | .028 | .035 | 0.70 | 0.90 | – |
| C | .059 | .067 | 1.50 | 1.70 | – |
| D | .020 | .028 | 0.50 | 0.70 | – |
| E | .010 | .014 | 0.25 | 0.35 | – |
| F | .004 | .008 | 0.10 | 0.20 | – |
| G | .020 | .028 | 0.50 | 0.70 | – |

[1] CONTROLLING DIMENSION: MILLIMETERS

## Suggested Land Pattern




| DIMENSIONS | | | | | |
|---|---|---|---|---|---|
| DIMN | INCHES | | MM [1] | | NOTE |
| | MIN | MAX | MIN | MAX | |
| C | – | .067 | – | 1.70 | REF |
| G | – | .043 | – | 1.10 | – |
| X | – | .031 | – | 0.80 | REF |
| Y | – | .024 | – | 0.60 | – |
| Z | – | .091 | – | 2.30 | – |

[1] CONTROLLING DIMENSION: MILLIMETERS

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