

## Features

- Low operating voltage: 7V
- Ultra low capacitance: 20pF
- Ultra low leakage: nA level
- Low clamping voltage
- -IEC 61000-4-2 (ESD) immunity test  
Air discharge:  $\pm 30\text{kV}$   
Contact discharge:  $\pm 30\text{kV}$
- -IEC61000-4-4 (EFT) 40A (5/50ns)
- 2-pin leadless package
- These are Pb-Free Devices
- Response Time is Typically  $< 1\text{ ns}$

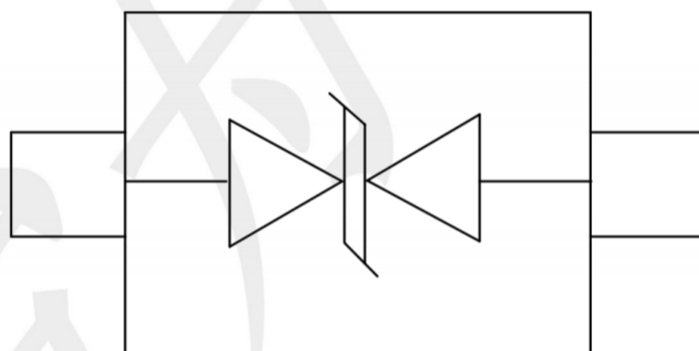
## Mechanical Characteristics

- Package: SOD523(0603)
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound
- Terminal Connections: See Diagram Below
- -IEC 61000-4-2 (ESD) immunity test

## Applications

- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation
- Peripherals

## Dimensions and Pin Configuration



**SOD523**

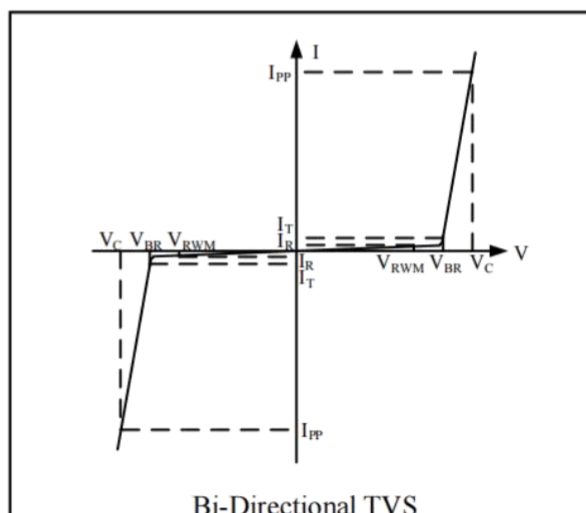
**Absolute Maximum Ratings**( $T_{amb}=25^{\circ}\text{C}$  unless otherwise specified)

| Parameter                                                      | Symbol | Value                | Unit               |
|----------------------------------------------------------------|--------|----------------------|--------------------|
| Peak Pulse Power (8/20 $\mu\text{s}$ )                         | Ppk    | 120                  | W                  |
| Peak Pulse Current (8/20 $\mu\text{s}$ )                       | Ipp    | 8                    | A                  |
| ESD per IEC 61000-4-2 (Air)<br>ESD per IEC 61000-4-2 (Contact) | VESD   | $\pm 30$<br>$\pm 30$ | KV                 |
| Operating Temperature Range                                    | TJ     | -55 to +125          | $^{\circ}\text{C}$ |
| Storage Temperature Range                                      | Tstg   | -55 to +150          | $^{\circ}\text{C}$ |

**Electrical Characteristics** ( $T_A=25^{\circ}\text{C}$  unless otherwise specified)

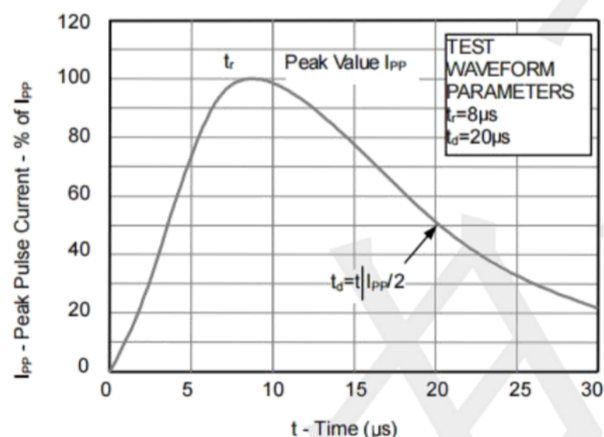
| Parameter               | Symbol | Min | Typ | Max | Unit          | Test Condition                                 |
|-------------------------|--------|-----|-----|-----|---------------|------------------------------------------------|
| Reverse Working Voltage | VRWM   | --  | --  | 7   | V             |                                                |
| Breakdown Voltage       | VBR    | 7.2 | 8   | 9.5 | V             | $I_T = 1\text{mA}$                             |
| Reverse Leakage Current | IR     | --  | --  | 0.1 | $\mu\text{A}$ | $VRWM=7\text{V}$                               |
| Clamping Voltage        | VC     | --  | 10  | --  | V             | $I_{pp}=1\text{A}$ (8x 20 $\mu\text{s}$ pulse) |
| Clamping Voltage        | VC     | --  | 11  | 15  | V             | $I_{pp}=8\text{A}$ (8x 20 $\mu\text{s}$ pulse) |
| Junction Capacitance    | CJ     | --  | 18  | 20  | pF            | $VR = 0\text{V}$ , $f = 1\text{MHz}$           |

| 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              |

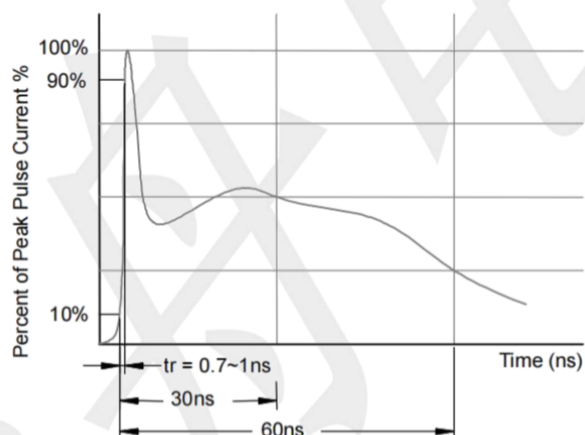


## Characteristic Curves

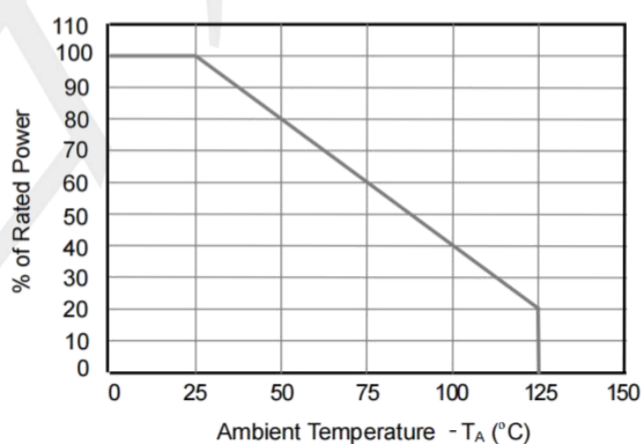
**Fig1. 8/20 $\mu$ s Pulse Waveform**



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

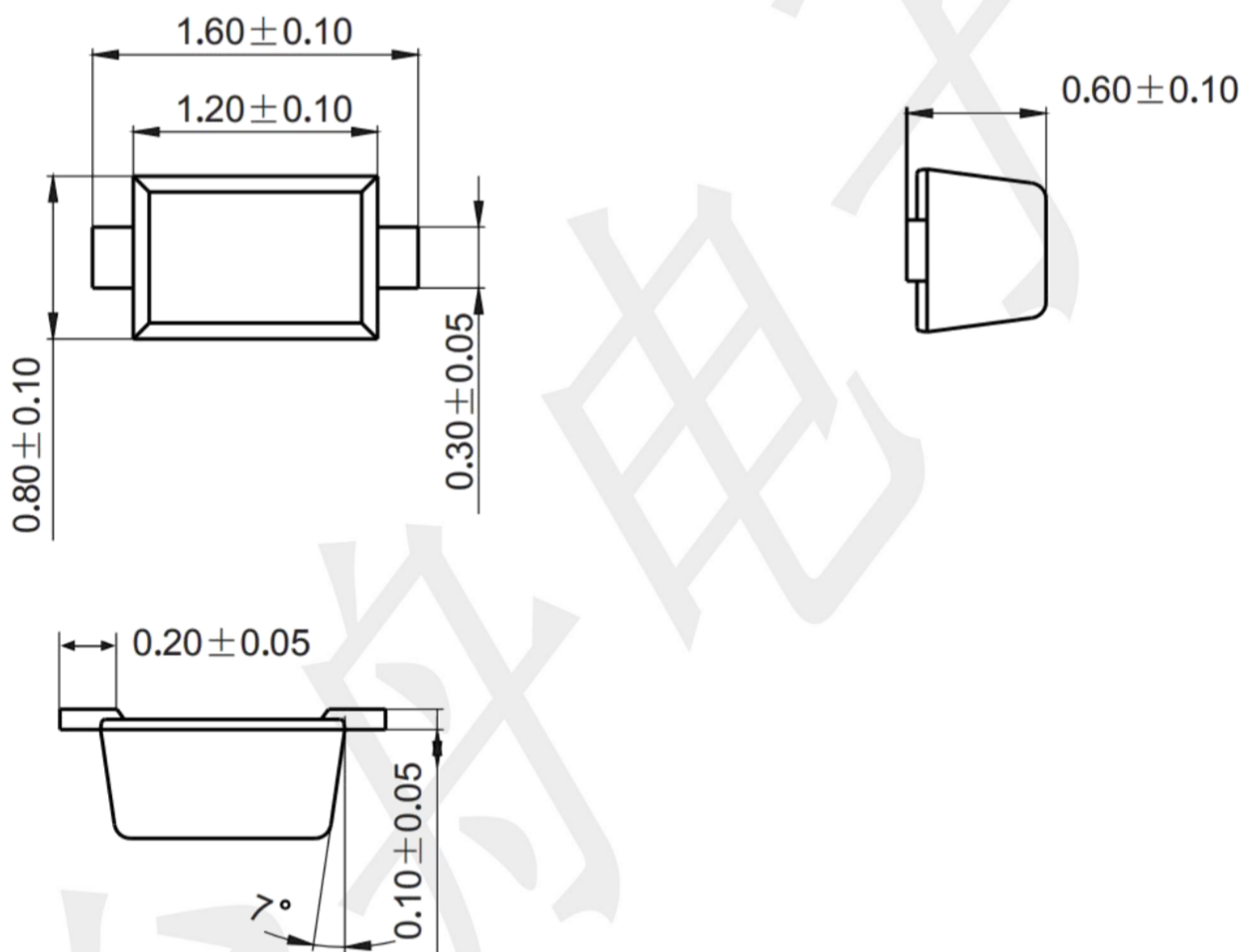


**Fig3. Power Derating Curve**



**Package Outline Dimensions (unit: mm)**

**SOD523 (0603)**



**Mounting Pad Layout (unit: mm)**

