

## General description

Unidirectional ElectroStatic Discharge (ESD) protection diode in a SOD523 plastic package designed to protect one transmission or data line from the damage caused by ESD and other transients

## Features and benefits

- Unidirectional ESD protection of one line
- Reverse stand-off voltage: 7.0V Max
- Low leakage current: nA Level
- Response time is typically < 1 ns
- Low clamping voltage:  $V_C = 12\text{ V @ } I_{PP} = 10\text{ A (TYP)}$
- ESD Protection: 30kV(air)/ 30kV(contact) ( IEC61000-4-2)
- Surge Protection: 10A ( IEC 61000-4-5 8/20  $\mu\text{s}$ )



SOD523

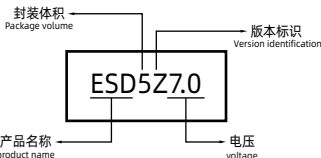
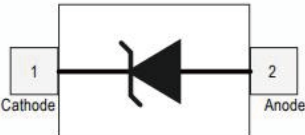
## Application information

- Cellular phones
- Portable devices
- Digital cameras
- Power supplies

## Ordering information

| Device   | Package | Reel Size | Qty(PCS) |
|----------|---------|-----------|----------|
| ESD5Z7.0 | SOD523  | 7 Inch    | 3000     |

## Ordering information

| Marking | Naming rule                                                                         | Graphic symbol                                                                       |
|---------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| ZH      |  |  |

## Maximum Ratings (T<sub>A</sub> = 25 °C, unless otherwise specified)

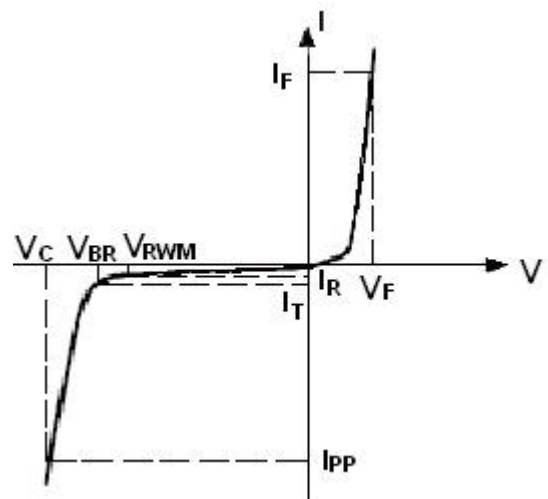
| Parameter                                         | Symbol           | Value       | Unit |
|---------------------------------------------------|------------------|-------------|------|
| Peak Pulse Power (tp = 8/20μs)                    | P <sub>PPM</sub> | 140         | W    |
| Peak Pulse Current(tp = 8/20μs)                   | I <sub>PPM</sub> | 10          | A    |
| Maximum lead temperature for soldering during 10s | T <sub>L</sub>   | 260         | °C   |
| Storage Temperature Range                         | T <sub>stg</sub> | -55 to +150 | °C   |
| Operating Temperature Range                       | T <sub>OP</sub>  | -40 to +125 | °C   |
| Maximum junction temperature                      | T <sub>j</sub>   | 150         | °C   |
| ESD voltage IEC 61000-4-2 (air discharge)         | V <sub>ESD</sub> | 30          | kV   |
| ESD voltage IEC 61000-4-2 (contact discharge)     | V <sub>ESD</sub> | 30          | kV   |

## Electrical Characteristics (T<sub>A</sub> = 25 °C, unless otherwise specified)

| Parameter                         | Symbol           | Min | Typ | Max | Unit | Condition                                    |
|-----------------------------------|------------------|-----|-----|-----|------|----------------------------------------------|
| Reverse Working Voltage           | V <sub>RWM</sub> | --  | --  | 7.0 | V    |                                              |
| Breakdown Voltage                 | V <sub>BR</sub>  | 7.5 | --  | 9.0 | V    | I <sub>T</sub> =1mA                          |
| Leakage Current I <sub>Leak</sub> | I <sub>R</sub>   | --  | --  | 100 | nA   | V <sub>RWM</sub> =7.0V                       |
| Clamping Voltage                  | V <sub>C</sub>   | --  | 12  | 14  | V    | I <sub>PP</sub> =10A, T <sub>p</sub> =8/20μs |
| Junction Capacitance              | C <sub>J</sub>   | --  | 70  | 90  | pF   | V <sub>R</sub> =0V, f=1MHz                   |
| Forward Voltage                   | V <sub>F</sub>   | 0.7 | 0.8 | 0.9 | V    | I <sub>F</sub> =10mA                         |

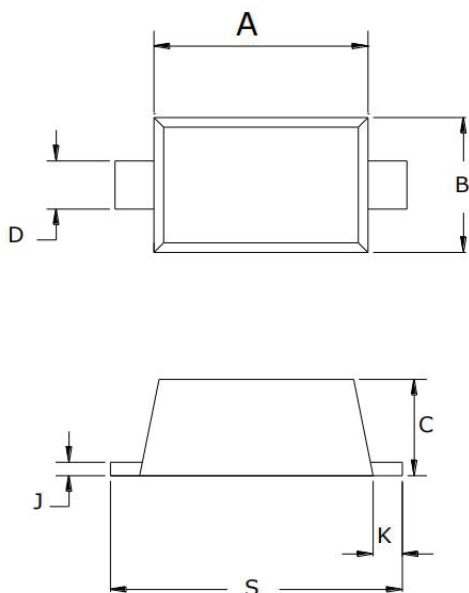
## Portion Electronics Parameter

| Symbol           | Parameter                                  |
|------------------|--------------------------------------------|
| I <sub>PPM</sub> | Maximum Reverse Peak Pulse Current         |
| V <sub>C</sub>   | Clamping Voltage @ I <sub>PP</sub>         |
| V <sub>RWM</sub> | Working Peak Reverse Voltage               |
| I <sub>R</sub>   | Reverse Leakage Current @ V <sub>RWM</sub> |
| I <sub>T</sub>   | Test Current                               |
| V <sub>BR</sub>  | Breakdown Voltage @ I <sub>T</sub>         |
| I <sub>F</sub>   | Forward Current                            |
| V <sub>F</sub>   | Forward Voltage @ I <sub>F</sub>           |



## Package Outline Dimensions

SOD523



| SYMBOL | MILLIMETERS |      |
|--------|-------------|------|
|        | MIN         | MAX  |
| A      | 1.10        | 1.30 |
| B      | 0.70        | 0.90 |
| C      | 0.50        | 0.70 |
| D      | 0.25        | 0.35 |
| J      | 0.07        | 0.20 |
| K      | 0.15        | 0.25 |
| S      | 1.50        | 1.70 |

## Soldering Footprint (mm)

