

## Features

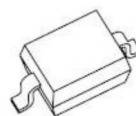
Bi-directional ESD protection of one line  
Reverse stand-off voltage: 3.3V  
Low reverse clamping voltage  
Low leakage current  
Fast response time  
IEC 61000-4-2 (ESD) immunity test :  
Air discharge:  $\pm 30\text{kV}$   
Contact discharge:  $\pm 30\text{kV}$

## Applications

Computers and peripherals  
High speed data lines  
Audio and video equipment  
Cellular handsets and accessories  
Subscriber identity module(SIM) card protection  
Portable electronics  
FireWire  
Other electronics equipments communi- cation systems

03B

SOD-323



## Absolute Maximum Rating

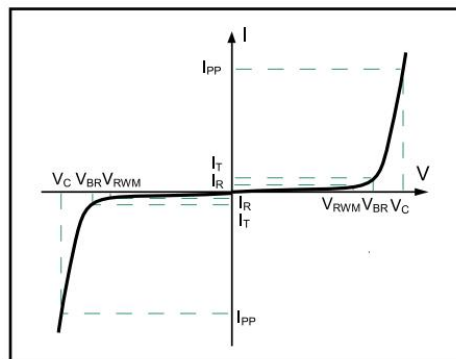
| Parameter                                | Symbol | Value       | Unit               |
|------------------------------------------|--------|-------------|--------------------|
| Peak Pulse Power (8/20 $\mu\text{s}$ )   | Ppk    | 350         | W                  |
| Peak Pulse Current (8/20 $\mu\text{s}$ ) | IPP    | 25          | A                  |
| ESD per IEC 61000-4-2 (Air)              | VESD   | $\pm 30$    | kV                 |
| ESD per IEC 61000-4-2 (Contact)          |        | $\pm 30$    |                    |
| Operating Temperature Range              | TJ     | -55to +125  | $^{\circ}\text{C}$ |
| Storage Temperature Range                | Tstg   | -55 to +150 | $^{\circ}\text{C}$ |

## Electrical Characteristics

| Parameter               | Symbol    | Test Condition                                     | Min | Typ | Max | Unit          |
|-------------------------|-----------|----------------------------------------------------|-----|-----|-----|---------------|
| Reverse Working Voltage | $V_{RWM}$ |                                                    |     |     | 3.3 | V             |
| Breakdown Voltage       | $V_{BR}$  | $I_T = 1\text{mA}$                                 | 3.4 |     | 5   | V             |
| Reverse Leakage Current | $I_R$     | $V_{RWM} = \pm 3.3\text{V}$                        |     |     | 0.5 | $\mu\text{A}$ |
| Clamping Voltage        | $V_C$     | $I_{PP} = 25\text{A}$ (8 x 20 $\mu\text{s}$ pulse) |     |     | 12  | V             |
| Junction Capacitance    | $C_j$     | $V_R = 0\text{V}$ , $f = 1\text{MHz}$              |     |     | 50  | pF            |

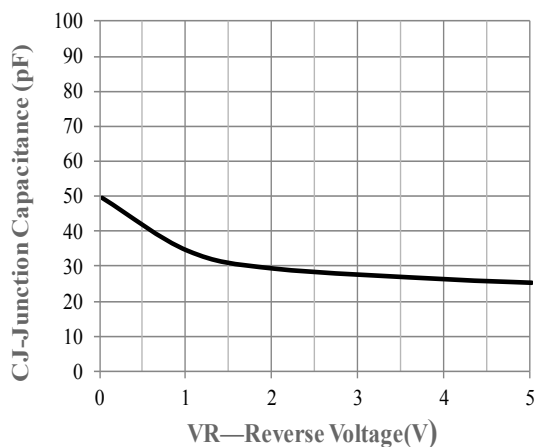
## ElectricalParameter

| Symbol    | Parameter                           |
|-----------|-------------------------------------|
| $I_T$     | Test Current                        |
| $I_{PP}$  | Maximum Reverse Peak Pulse Current  |
| $V_C$     | Clamping Voltage @ $I_C$            |
| $V_{BR}$  | Breakdown Voltage @ $I_T$           |
| $I_R$     | Reverse Leakage Current @ $V_{RWM}$ |
| $V_{RWM}$ | Reverse Standoff Voltage            |

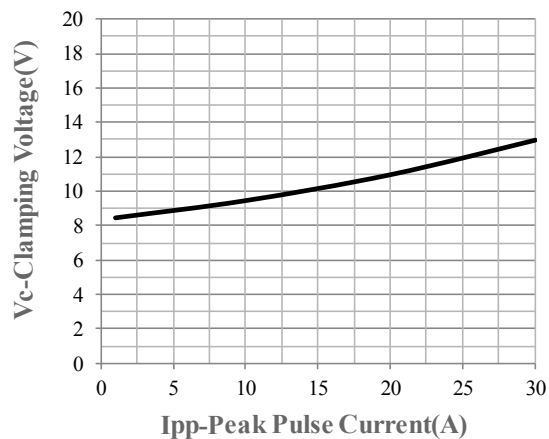




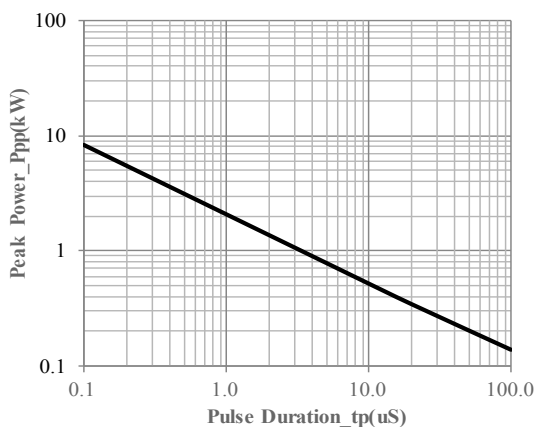
## RATING AND CHARACTERISTIC CURVES



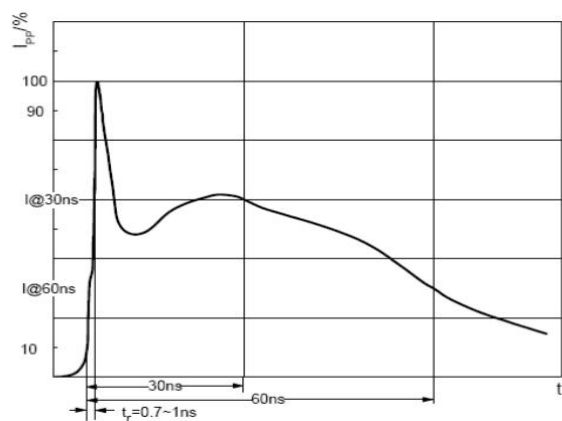
Junction Capacitance vs. Reverse Voltage



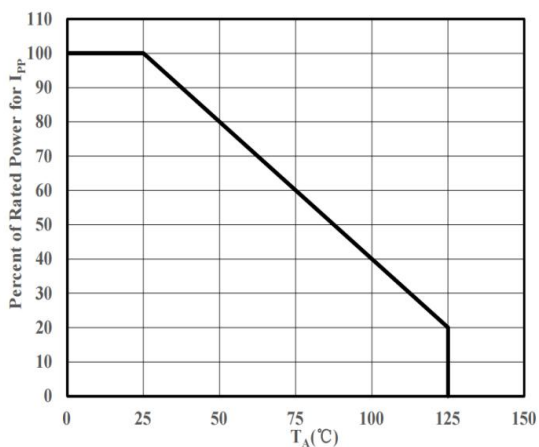
Clamping Voltage vs. Peak Pulse Current



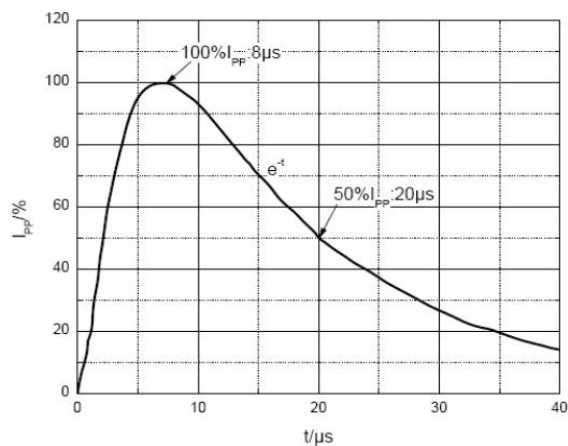
Peak Pulse Power vs. Pulse Time



ESD pulse waveform according to IEC61000-4-2



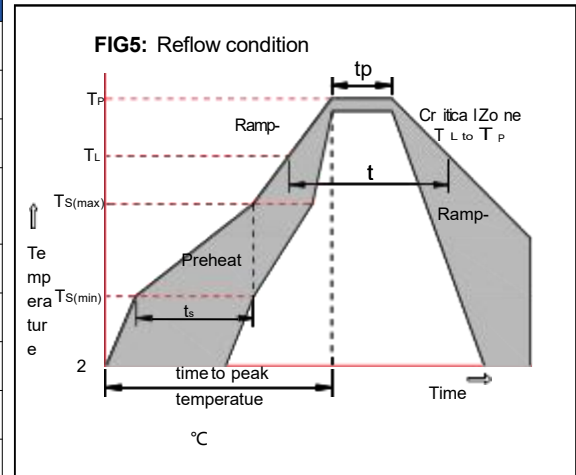
Power Derating Curve



8/20μs pulse waveform according to IEC 61000-4-5

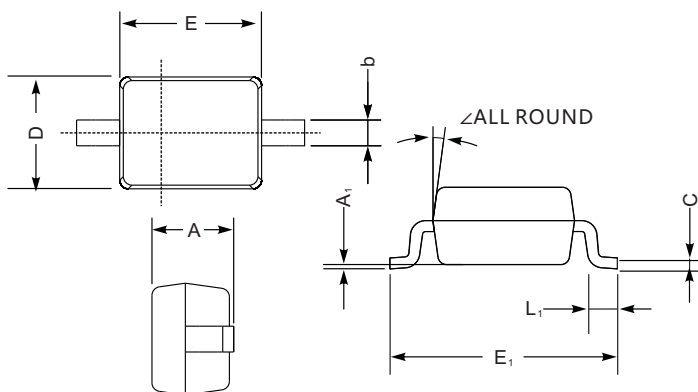
## Soldering parameters

| Reflow Condition                                        |                                   | Pb-Free assembly<br>(see as below) |
|---------------------------------------------------------|-----------------------------------|------------------------------------|
| Pre Heat                                                | -Temperature Min ( $T_{s(min)}$ ) | +150°C                             |
|                                                         | -Temperature Max( $T_{s(max)}$ )  | +200°C                             |
|                                                         | -Time (Min to Max) (ts)           | 60-180 secs.                       |
| Average ramp up rate (Liquid us Temp ( $T_L$ ) to peak) |                                   | 3°C/sec. Max                       |
| $T_{s(max)}$ to $T_L$ - Ramp-up Rate                    |                                   | 3°C/sec. Max                       |
| Reflow                                                  | -Temperature( $T_L$ )(Liquid us)  | +217°C                             |
|                                                         | -Temperature( $t_L$ )             | 60-150 secs.                       |
| Peak Temp ( $T_P$ )                                     |                                   | +260(+0/-5)°C                      |
| Time within 5°C of actual Peak Temp ( $t_p$ )           |                                   | 30 secs. Max                       |
| Ramp-down Rate                                          |                                   | 6°C/sec. Max                       |
| Time 25°C to Peak Temp ( $T_P$ )                        |                                   | 8 min. Max                         |
| Do not exceed                                           |                                   | +260°C                             |



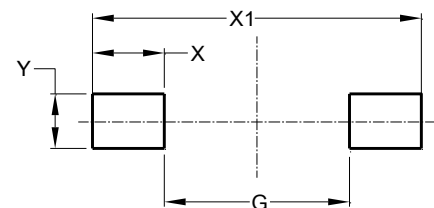
## Package Dimensions & Suggested Pad Layout

### SOD323



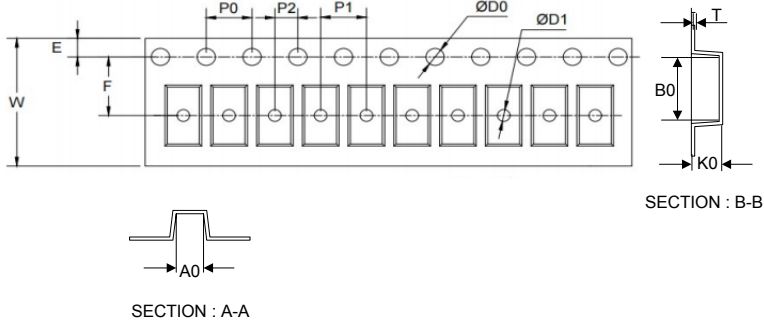
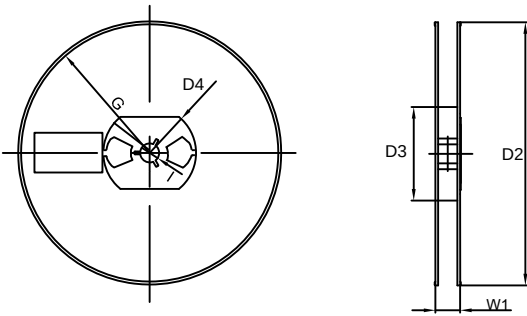
SOD-323 mechanical data

| UNIT |     | A   | C    | D   | E   | E <sub>1</sub> | b    | L <sub>1</sub> | A <sub>1</sub> | ∠  |
|------|-----|-----|------|-----|-----|----------------|------|----------------|----------------|----|
| mm   | max | 1.1 | 0.15 | 1.4 | 1.8 | 2.75           | 0.4  | 0.45           | 0.2            | 9° |
|      | min | 0.8 | 0.08 | 1.2 | 1.4 | 2.55           | 0.25 | 0.2            | —              |    |
| mil  | max | 43  | 5.9  | 55  | 70  | 108            | 16   | 16             | 8              |    |
|      | min | 32  | 3.1  | 47  | 63  | 100            | 9.8  | 7.9            | —              |    |



| Dimensions | Value (in mm) |
|------------|---------------|
| G          | 1.40          |
| X          | 1.20          |
| X1         | 3.80          |
| Y          | 1.00          |

## Tape & reel specification

| Tape                                                                                |  | Symbol            | Dimension (mm) |
|-------------------------------------------------------------------------------------|--|-------------------|----------------|
|    |  | P0                | 4.00±0.20      |
|                                                                                     |  | P1                | 4.00±0.20      |
|                                                                                     |  | P2                | 2.00±0.20      |
|                                                                                     |  | D0                | 1.55±0.20      |
|                                                                                     |  | D1                | 1.00±0.20      |
|                                                                                     |  | E                 | 1.55±0.25      |
|                                                                                     |  | F                 | 3.60±0.20      |
|                                                                                     |  | W                 | 8.00±0.20      |
|                                                                                     |  | A0                | 2.00±0.20      |
|                                                                                     |  | B0                | 3.25±0.20      |
|                                                                                     |  | K0                | 1.35±0.20      |
|                                                                                     |  | T                 | 0.23±0.10      |
|                                                                                     |  | D2                | 177.0±5.0      |
|                                                                                     |  | D3                | 55Min.         |
|                                                                                     |  | D4                | R24.6±2.0      |
| 7" Reel                                                                             |  | G                 | R82.0±2.0      |
|  |  | I                 | 13.0±2.0       |
|                                                                                     |  | W1                | 10.20±3.0      |
|                                                                                     |  | Quantity: 3000PCS |                |