
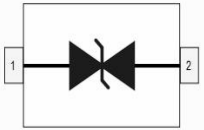




1-Line Bidirectional ESD Protection Diode

SOD323

Schematic & Pin configuration

| Simplified outline | Graphic symbol |
|---|--|
|  |  |

General description

These surge protection diodes are designed for applications requiring transient overvoltage protection capability. They are intended for use in voltage and ESD sensitive equipment such as computers, printers, business machines, communication systems, medical equipment and other applications. These devices are ideal for situations where board space is at a premium.

Features and benefits

- Bidirectional ESD protection of one line
- Reverse stand-off voltage: 3.3V Max
- Femtofarad capacitance: $C_j = 30\text{pF}$ (Typ)
- Complies with following standards: IEC 61000-4-2 (ESD) immunity test
 Air discharge: $\pm 30\text{KV}$, Contact discharge: $\pm 30\text{KV}$
 --IEC61000-4-5 (Lightning) 20A (8/20 μs)
- RoHS Compliant

Application information

- Cell Phone Handsets and Accessories
- Microprocessor based equipment
- Personal Digital Assistants (PDA's)
- Notebooks, Desktops, and Servers

Ordering information

| Device | Package | Packaging | Reel Size |
|--------|---------|------------------|-----------|
| SD03CS | SOD323 | 3000/Tape & Reel | 7 Inch |

Maximum Ratings ($T_{OP} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)

| Parameter | Symbol | Value | Unit |
|---|-----------|-------------|--------------------|
| Peak Pulse Power ($t_p = 8/20\text{ }\mu\text{s}$) | P_{PPM} | 160 | W |
| Peak Pulse Current($t_p = 8/20\text{ }\mu\text{s}$) | I_{PPM} | 20 | A |
| ESD voltage IEC 61000-4-2 (air discharge) | V_{ESD} | 30 | kV |
| ESD voltage IEC 61000-4-2 (contact discharge) | V_{ESD} | 30 | kV |
| Maximum lead temperature for soldering during 10s | T_L | 260 | $^{\circ}\text{C}$ |
| Storage Temperature Range | T_{stg} | -55 to +150 | $^{\circ}\text{C}$ |
| Operating Temperature Range | T_{OP} | -40 to +125 | $^{\circ}\text{C}$ |

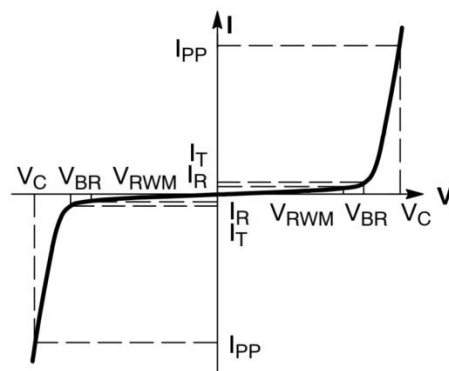
Electrical Characteristics ($T_{OP} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)

| Parameter | Symbol | Min | Typ | Max | Unit | Condition |
|----------------------------|-----------|-----|------|------|---------------|--|
| Reverse Working Voltage | V_{RWM} | -- | -- | 3.3 | V | |
| Breakdown Voltage | V_{BR} | 3.6 | 4.5 | 5.5 | V | $I_T=1\text{mA}$ |
| Leakage Current I_{Leak} | I_R | -- | -- | 0.2 | μA | $V_{RWM}=3.3\text{V}$ |
| Clamping Voltage | V_C | -- | 5.5 | 6.5 | V | $I_{PP}=1\text{A}, t_p=8/20\mu\text{s}$ |
| Clamping Voltage | V_C | -- | 7.0 | 8.0 | V | $I_{PP}=20\text{A}, t_p=8/20\mu\text{s}$ |
| Dynamic Resistance | R_{DYN} | | 0.1 | | Ω | $TLP=0.2/100\text{ns}$ |
| Junction Capacitance | C_J | -- | 30.0 | 40.0 | pF | $V_R=0\text{V}, f=1\text{MHz}$ |

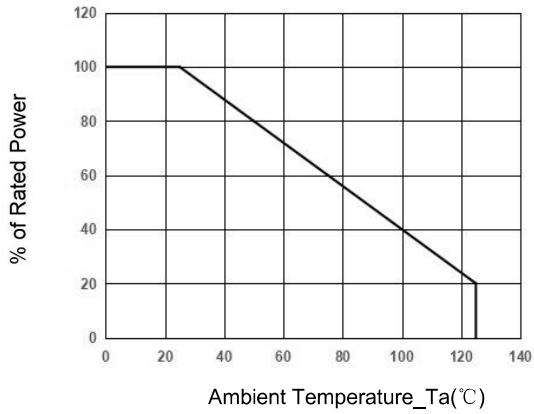
Note: TLP Setting: $t_p=100\text{ns}$, $t_r=0.2\text{ns}$, ITLP and VTLP sample window: $t_1=70\text{ns}$ to $t_2=90\text{ns}$.

Portion Electronics Parameter

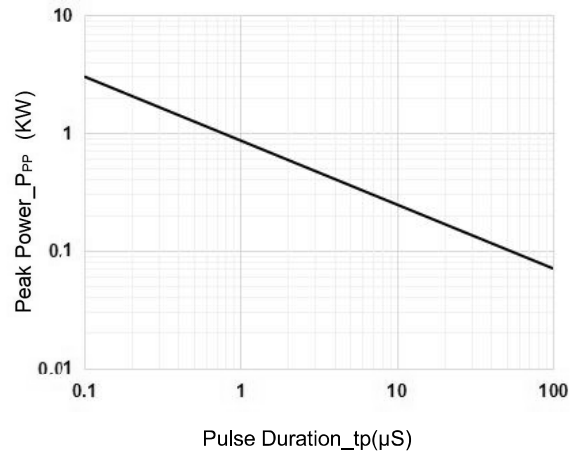
| Symbol | Parameter |
|-----------|---|
| I_{PP} | Maximum Reverse Peak Pulse Current |
| V_C | Clamping Voltage @ I_{PP} |
| V_{RWM} | Working Peak Reverse Voltage |
| I_R | Maximum Reverse Leakage Current @ V_{RWM} |
| I_T | Test Current |
| V_{BR} | VBR Breakdown Voltage @ I_T |



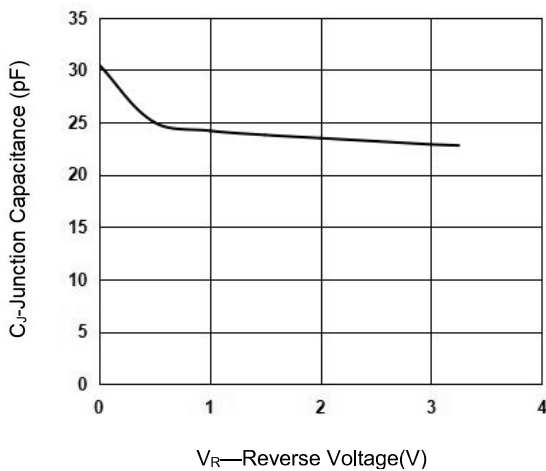
Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)



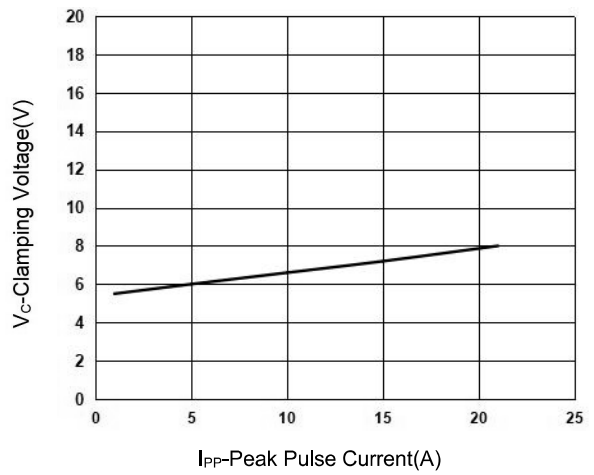
Power Derating Curve



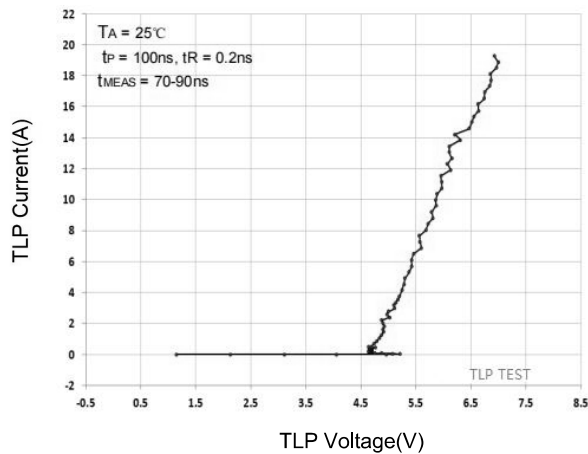
Peak Pulse Power vs. Pulse Time



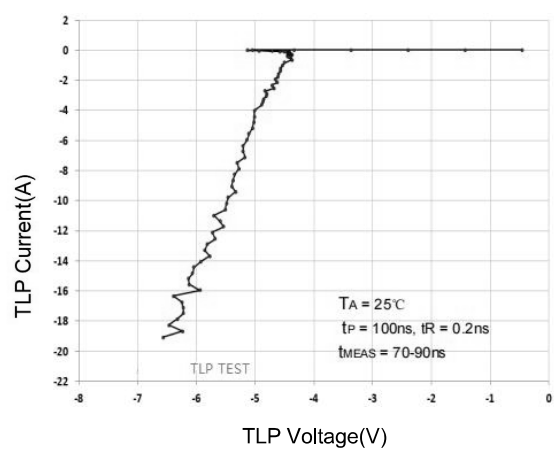
Junction Capacitance vs. Reverse Voltage



Clamping Voltage vs. Peak Pulse Current



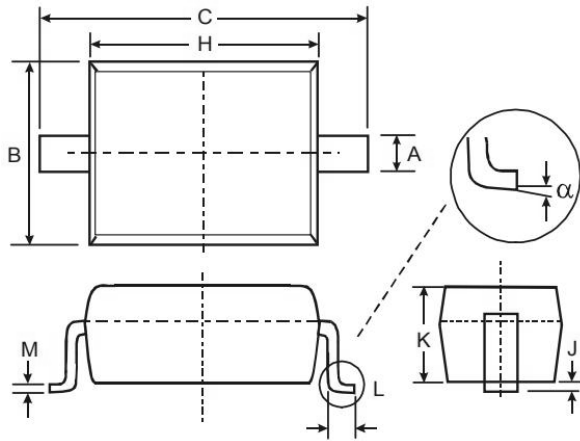
TLP Measurement Curve



TLP Measurement Curve

Package Outline Dimensions

SOD323



| SYMBOL | MILLIMETERS | |
|--------|-------------|------|
| | MIN | MAX |
| A | 0.25 | 0.35 |
| B | 1.20 | 1.40 |
| C | 2.40 | 2.70 |
| H | 1.60 | 1.80 |
| J | 0.01 | 0.15 |
| K | 0.80 | 1.00 |
| L | 0.20 | 0.40 |
| M | 0.08 | 0.15 |
| α | 0° | 8° |