



1-Line Bidirectional ESD Protection Diode

General description

The ESD3Z5.0C is designed to protect voltage sensitive components from ESD and transient voltage events. Excellent clamping capability, low leakage, and fast response time, make these parts ideal for ESD protection on designs where board space is at a premium.

Features and benefits

- . Bidirectional ESD protection of one line
- . Reverse stand-off voltage: 5.0V Max
- . Low leakage current: nA Level
- . Response time is typically < 1 ns
- . Low clamping voltage: $V_C < 12\text{ V @ } I_{PP} = 10\text{ A}$
- . ESD Protection: 30kV(air)/ 30kV(contact) (IEC61000-4-2)
- . RoHS compliant


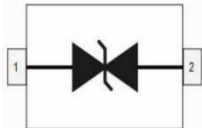
Application information

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

Ordering information

| Device | Package | Marking | Packaging |
|-----------|---------|---------|------------------|
| ESD3Z5.0C | SOD323 | 3M | 3000/Tape & Reel |

Schematic & Pin configuration

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

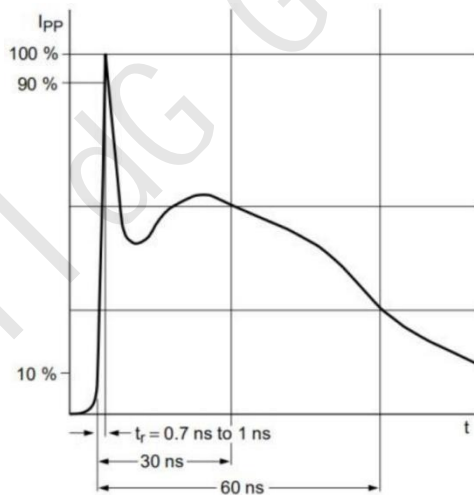
Maximum Ratings ($T_{OP} = 25 \text{ } ^\circ\text{C}$, unless otherwise specified)

| Parameter | Symbol | Value | Unit |
|--|-----------|-------------|------------------|
| Peak Pulse Power ($t_p = 8/20 \text{ } \mu\text{s}$) | P_{PPM} | 120 | W |
| Peak Pulse Current ($t_p = 8/20 \text{ } \mu\text{s}$) | I_{PPM} | 10 | 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 | $^\circ\text{C}$ |

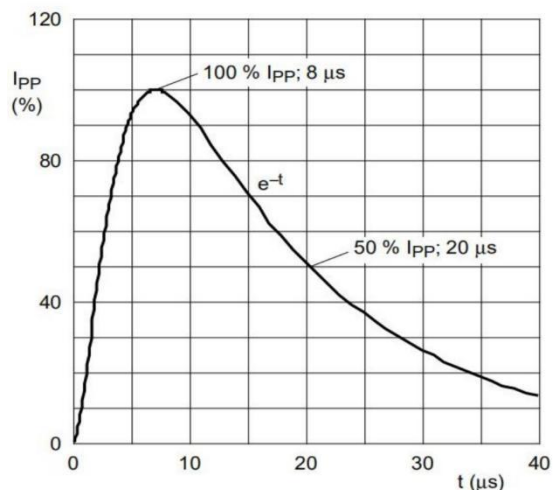
Electrical Characteristics ($T_{OP} = 25 \text{ } ^\circ\text{C}$, unless otherwise specified)

| Parameter | Symbol | Min | Typ | Max | Unit | Condition |
|----------------------------|-----------|-----|-----|------|------|--|
| Reverse Working Voltage | V_{RWM} | -- | -- | 5.0 | V | |
| Breakdown Voltage | V_{BR} | 5.8 | -- | 8.5 | V | $I_T=1\text{mA}$ |
| Leakage Current I_{Leak} | I_R | -- | -- | 100 | nA | $V_{RWM}=5.0\text{V}$ |
| Clamping Voltage | V_C | -- | -- | 8.5 | V | $I_{PP}=1\text{A}, T_p=8/20\mu\text{s}$ |
| | | -- | -- | 12.0 | | $I_{PP}=10\text{A}, T_p=8/20\mu\text{s}$ |
| Junction Capacitance | C_J | -- | 18 | 25 | pF | $V_R=0\text{V}, f=1\text{MHz}$ |

Typical Electrical and Thermal Characteristics (Curves)



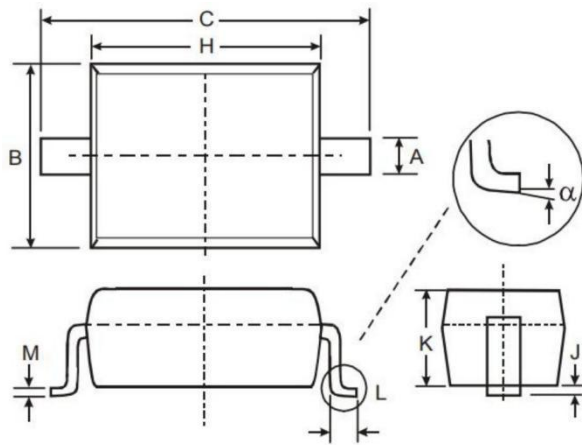
IEC61000-4-2 Waveform



IEC 61000-4-5 Waveform(8/20 μs pulse)

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 |
| “ | 0° | 8° |

Soldering Footprint (mm)

