

## SOD-323 Plastic-Encapsulate Diodes

### DESD3Z12C Bi-direction ESD Protection Diode

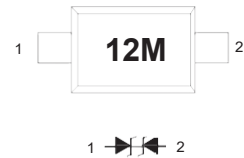
#### DESCRIPTION

Low capacitance bidirectional double ElectroStatic Discharge (ESD) protection diode in a small Surface-Mounted Device (SMD) plastic package designed to protect two data lines from the damage caused by ESD and other transients.

#### FEATURES

- Bi-directional ESD protection
- Low reverse stand-off voltage: 12V
- Low reverse clamping voltage
- Low leakage current
- Fast response time
- JESD22-A114-B ESD Rating of class 3B per human body model
- IEC 61000-4-2 Level 4 ESD protection

#### SOD-323



Top View  
Marking Code: "12M"  
Simplified outline SOD-323 and symbol

#### MAXIMUM RATINGS ( $T_a=25^{\circ}\text{C}$ unless otherwise noted )

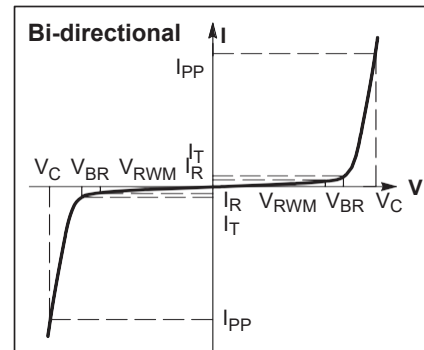
| Parameter                                                                                                                                    | Symbol                 | Limit      | Unit               |
|----------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------|--------------------|
| IEC 61000-4-2 ESD Voltage<br>Air Model<br>Contact Model<br>JESD22-A114-B ESD Voltage<br>Per Human Body Model<br>ESD Voltage<br>Machine Model | $V_{\text{ESD}}^{(1)}$ | $\pm 25$   | kV                 |
|                                                                                                                                              |                        | $\pm 25$   |                    |
|                                                                                                                                              |                        | $\pm 16$   |                    |
|                                                                                                                                              |                        | $\pm 0.4$  |                    |
| Peak Pulse Power                                                                                                                             | $P_{\text{PP}}^{(2)}$  | 360        | W                  |
| Peak Pulse Current                                                                                                                           | $I_{\text{PP}}^{(2)}$  | 11         | A                  |
| Lead Solder Temperature – Maximum (10 Second Duration)                                                                                       | $T_L$                  | 260        | $^{\circ}\text{C}$ |
| Junction Temperature                                                                                                                         | $T_j$                  | 150        | $^{\circ}\text{C}$ |
| Storage Temperature Range                                                                                                                    | $T_{\text{stg}}$       | -55 ~ +150 | $^{\circ}\text{C}$ |

(1).Device stressed with ten non-repetitive ESD pulses.

(2).Non-repetitive current pulse 8/20 $\mu\text{s}$  exponential decay waveform according to IEC61000-4-5.

## ELECTRICAL PARAMETER

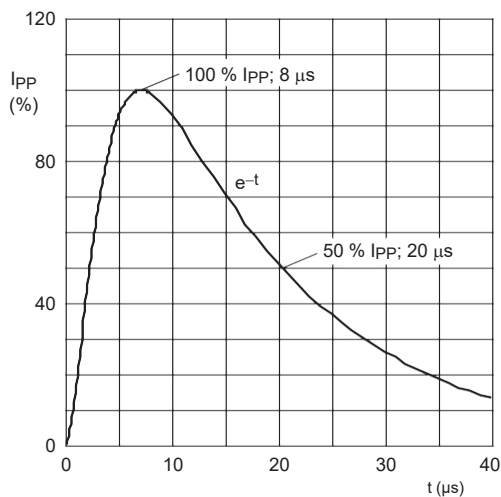
| Symbol    | Parameter                           |
|-----------|-------------------------------------|
| $V_C$     | Clamping Voltage @ $I_{PP}$         |
| $I_{PP}$  | Peak Pulse Current                  |
| $V_{BR}$  | Breakdown Voltage @ $I_T$           |
| $I_T$     | Test Current              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

ELECTRICAL CHARACTERISTICS (  $T_a=25^\circ\text{C}$  unless otherwise noted )

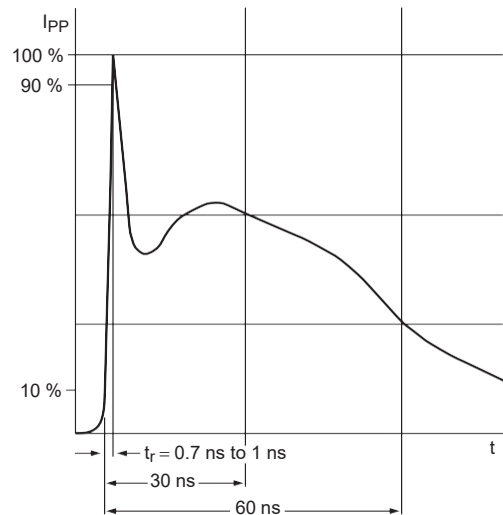
| Parameter                 | Symbol          | Test conditions                | Min  | Typ | Max  | Unit          |
|---------------------------|-----------------|--------------------------------|------|-----|------|---------------|
| Reverse stand off voltage | $V_{RWM}^{(1)}$ |                                |      |     | 12   | V             |
| Reverse leakage current   | $I_R$           | $V_{RWM}=12\text{V}$           |      |     | 1.0  | $\mu\text{A}$ |
| Breakdown voltage         | $V_{(BR)}$      | $I_T=1\text{mA}$               | 13.6 |     | 16.0 | V             |
| Clamping voltage          | $V_C^{(2)}$     | $I_{PP}=11\text{A}$            |      |     | 32   | V             |
| Junction capacitance      | $C_J$           | $V_R=0\text{V}, f=1\text{MHz}$ |      | 20  |      | pF            |

(1).Other voltages available upon request.

(2).Non-repetitive current pulse 8/20 $\mu\text{s}$  exponential decay waveform according to IEC61000-4-5



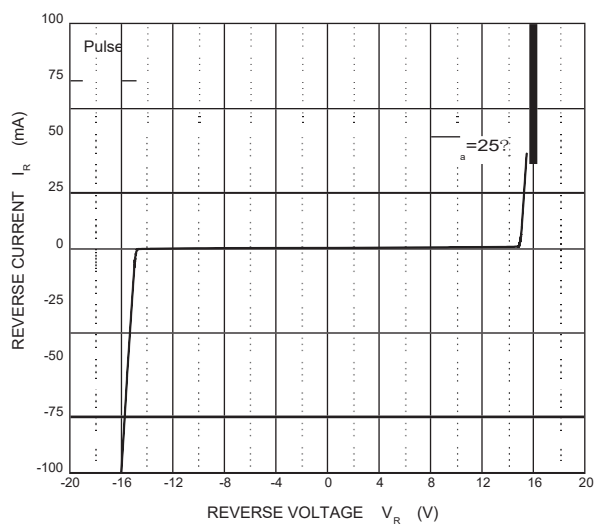
8/20  $\mu\text{s}$  pulse waveform according to IEC 61000-4-5



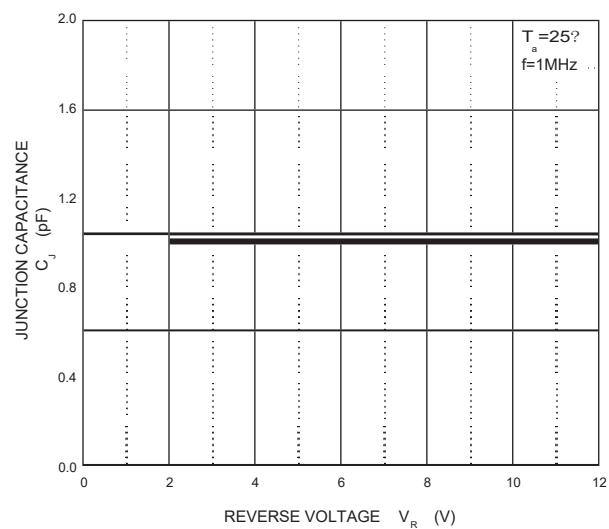
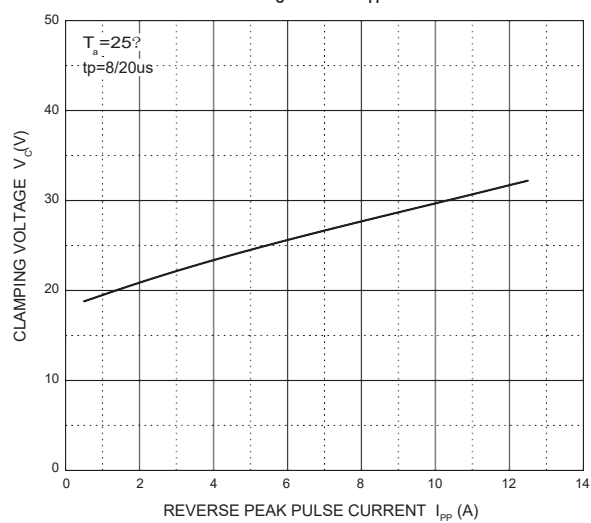
ESD pulse waveform according to IEC 61000-4-2

## TYPICAL CHARACTERISTICS

Reverse Characteristics



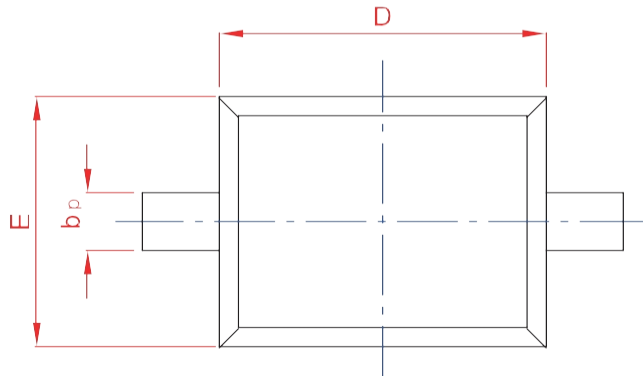
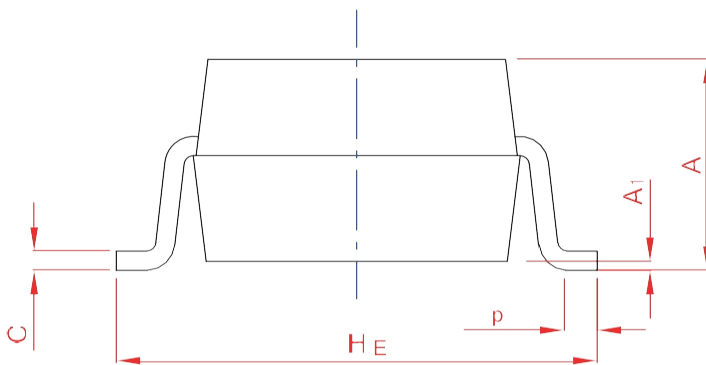
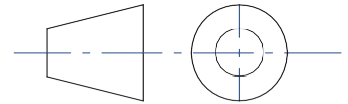
Capacitance Characteristics

 $V_C$  —  $I_{PP}$ 

## PACKAGE OUTLINE

Plastic surface mounted package; 2 leads

SOD-323



| UNIT | A            | b <sub>p</sub> | C            | D            | E            | H <sub>E</sub> | A <sub>1</sub> | L <sub>p</sub> |
|------|--------------|----------------|--------------|--------------|--------------|----------------|----------------|----------------|
| mm   | 1.20<br>0.90 | 0.40<br>0.25   | 0.15<br>0.10 | 1.80<br>1.60 | 1.35<br>1.15 | 2.80<br>2.30   | 0.10<br>0.01   | 0.50<br>0.20   |