BIDIRECTIONAL ESD PROTECTION DIODES

## Features

- 500 Watts Pesk Pulse Power per Line (tp = 8/20us)
- Protects One Power or I/O Port
- Low Clamping Voltage
- Ultra Low Capacitance: 1.0 pF Typical
- Bidirectional Configuretion

## Applications

- Ethernet - 10/100/1000 Base T
- Cellular Phones
- Handheld - Wireless Systems
- Personal Digital Assistant (PDA)
- USB Interface

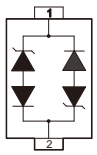
## Mechanical Characteristics

- SOD-323W package
- Packaging: Tape and Reel
- Marking : Marking Code
- RoHS Compliant

## PINNING

| PIN | DESCRIPTION |
|---|---|
| 1 | Cathode |
| 2 | Anode |

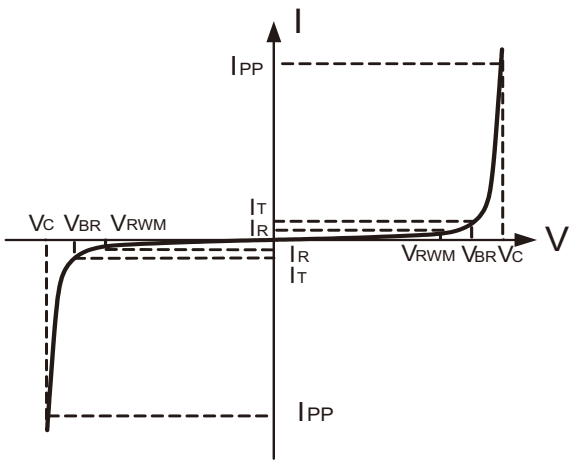
MECHANICAL DATA
▪Case: SOD-323W



BIDIRECTIONAL

## Electrical Parameters (T=25℃)

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



## Absolute Ratings

(Tamb=25°C )

| Absolute Maximum Rating | | | |
|---|---|---|---|
| **Rating** | **Symbol** | **Value** | **Units** |
| Peak Pulse Power（$t_p$ =8/20μs） | $P_{PP}$ | 500 | W |
| Peak Pulse Current（$t_p$ =8/20μs） | $I_{PP}$ | 20 | A |
| Operating Temperature | $T_J$ | -55 to +125 | °C |
| Storage Temperature | $T_{STG}$ | -55 to +150 | °C |

## Electrical Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.

| ESDBLC8V0D3 | | | | | | |
|---|---|---|---|---|---|---|
| **Parameter** | **Symbol** | **Conditions** | **Minimum** | **Typical** | **Maximum** | **Units** |
| Reverse Stand-Off Voltage | $V_{RWM}$ | | | | 8 | V |
| Reverse Breakdown Voltage | $V_{BR}$ | $I_T$=1mA | 8.5 | | 12 | V |
| Reverse Leakage Current | $I_R$ | $V_{RWM}$=8V ,T=25°C | | | 500 | nA |
| Clamping Voltage | $V_C$ | $I_{PP}$=20A,$t_p$=8/20us | | 21 | 25 | V |
| Dynamic Resistance[1,2] | $R_{DYN}$ | TLP=0.2/100ns | | 0.33 | | Ω |
| ESD Clamping Voltage[1] | $V_C$ | $I_{PP}$ = 4A<br>$t_p$ = 0.2/100ns | | 12 | | V |
| ESD Clamping Voltage[1] | $V_C$ | $I_{PP}$ = 16A<br>$t_p$ = 0.2/100ns | | 16 | | V |
| Junction Capacitance | $C_j$ | $V_R$ = 0V, f = 1MHz | | 1.0 | 1.5 | pF |

**Note**：1、TLP Setting：$t_p$ =100ns,$t_r$ =0.2ns, $I_{TLP}$ and $V_{TLP}$ sample window:$t_1$=70ns to $t_2$=90ns

2、Dynamic resistance calculated from $I_{PP}$=4A to $I_{PP}$=16A using “Best Fit”

Fig.1 Peak Pulse Power vs. Pulse Time

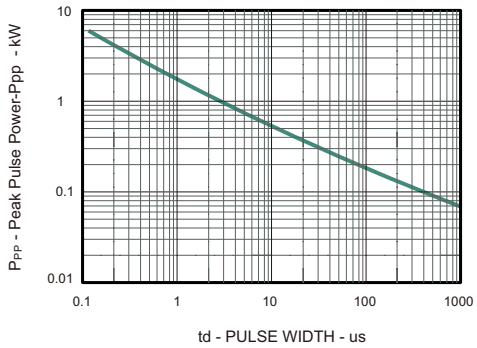



Fig.2 Forward Current Derating Curve

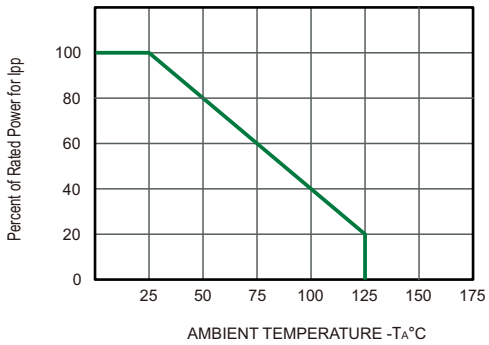



Fig.3 Clamping voltage vs Ipp

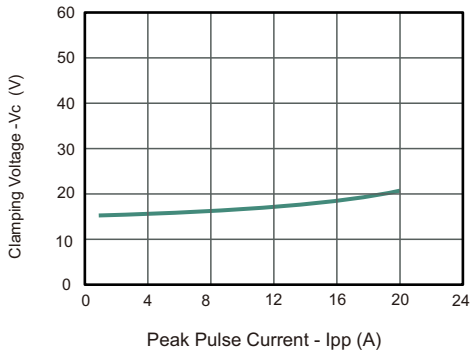



Fig.4 Normalized Junction Capacition vs,Reverse Voltage

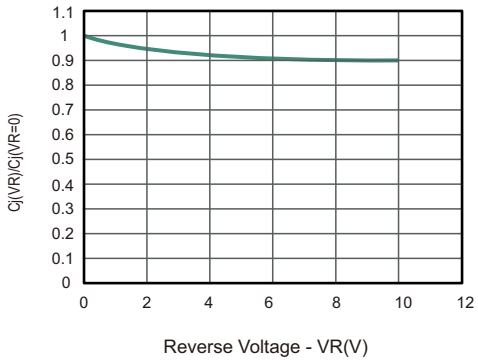



Figure 5: TLP Positive I - V Curve

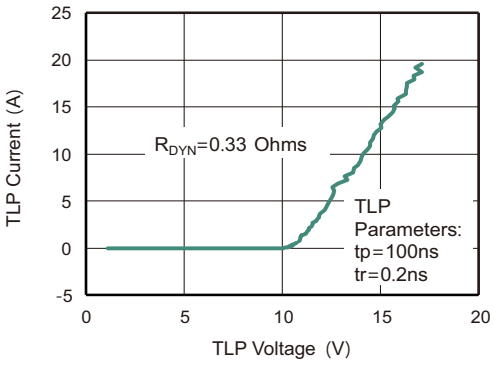
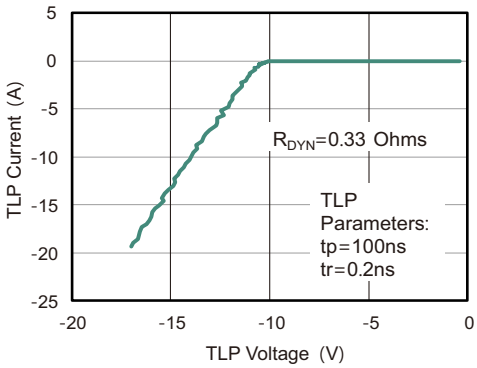


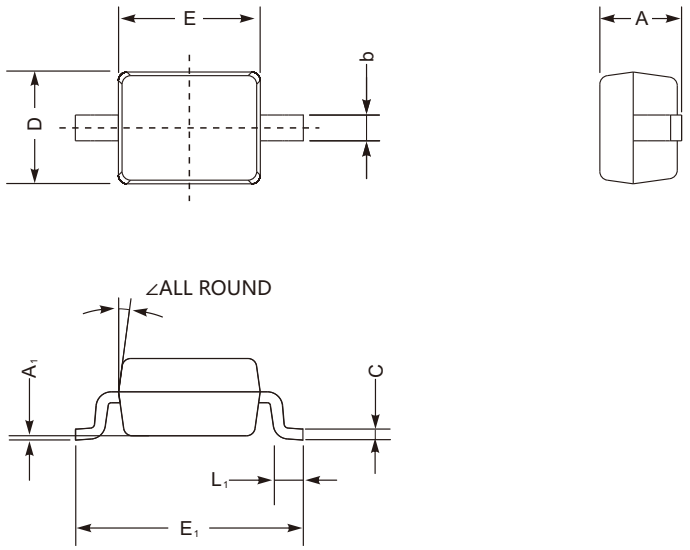

Figure 6: TLP Negative I - V Curve



## PACKAGE OUTLINE

**Plastic surface mounted package; 2 leads**

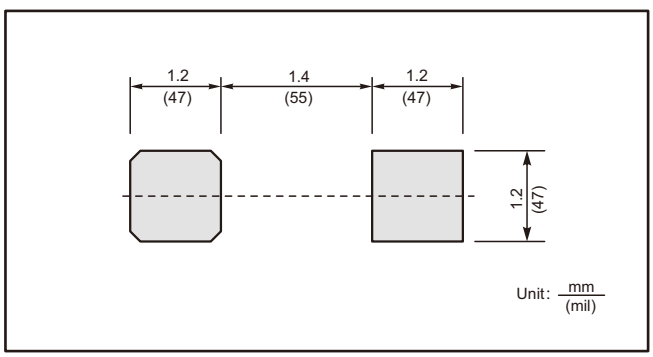
SOD-323W




SOD-323W mechanical data

| UNIT | | A | C | D | E | $E_1$ | b | $L_1$ | $A_1$ | ∠ |
|---|---|---|---|---|---|---|---|---|---|---|
| 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 | — | |

### The recommended mounting pad size




### Marking

| Type number | Marking code |
|---|---|
| ESDBLC8V0D3 | 8L |

# 文件履历表

| 序号 | 制/修订日期 | 生效日期 | 版次 | 修订内容 | 变更原因 | 制/修订人 | 备注 |
|---|---|---|---|---|---|---|---|
| 01 | 2022.4.19 | 2022.4.19 | Rev 1.1 | 初版制定 | / | 陶倩 | |
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