



## DW18D-B-S ESD Protection Diode

### Feature

- Bi-directional ESD protection of one line
- 330Watts peak pulse power ( $t_p = 8/20\mu s$ )
- Working voltage: 18V
- Junction capacitance: 25pF(Typ)
- Low clamping voltage
- Low leakage current
- IEC 61000-4-2  $\pm 30kV$  contact  $\pm 30kV$  air
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 11A (8/20 $\mu s$ )

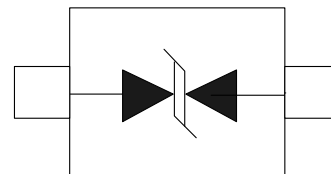
### Application

- Microprocessor based equipment
- Personal Digital Assistants (PDA's)
- Notebooks, Desktops, and Servers
- Portable Instrumentation
- Pagers Peripherals

### Mechanical Data

- Package:SOD-323
- Molding compound flammability rating: UL 94V-0
- RoHS/WEEE Compliant

### Circuit Diagram



### Ordering Information

| Part Number | Package | Marking                                                                             | Packing          | Reel Size |
|-------------|---------|-------------------------------------------------------------------------------------|------------------|-----------|
| DW18D-B-S   | SOD-323 |  | 3000 Tape & Reel | 7 inches  |



## Absolute Maximum Ratings ( $T_A=25^{\circ}\text{C}$ unless otherwise specified)

| Rating                                                         | Symbol    | Value                | Units              |
|----------------------------------------------------------------|-----------|----------------------|--------------------|
| Peak Pulse Power ( $t_p=8/20\mu\text{s}$ )                     | $P_{PP}$  | 330                  | Watts              |
| Peak Pulse Current ( $t_p=8/20\mu\text{s}$ ) (note1)           | $I_{pp}$  | 11                   | A                  |
| ESD per IEC 61000-4-2 (Air)<br>ESD per IEC 61000-4-2 (Contact) | $V_{ESD}$ | $\pm 30$<br>$\pm 30$ | kV                 |
| Lead Soldering Temperature                                     | $T_L$     | 260 (10seconds)      | $^{\circ}\text{C}$ |
| Junction Temperature                                           | $T_J$     | -55 to + 150         | $^{\circ}\text{C}$ |
| Storage Temperature                                            | $T_{stg}$ | -55 to + 150         | $^{\circ}\text{C}$ |

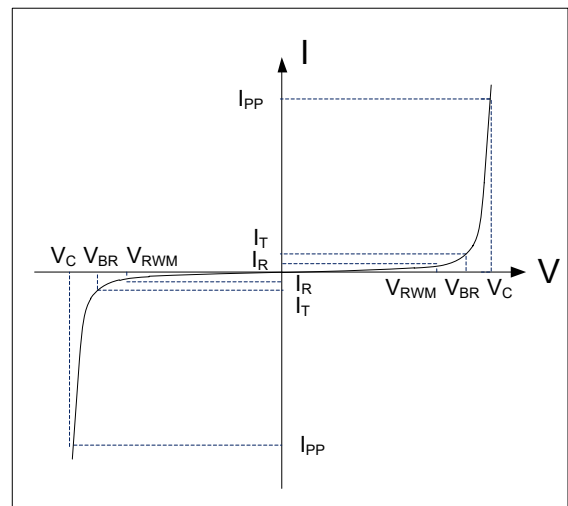
## Electrical Characteristics ( $T_A=25^{\circ}\text{C}$ unless otherwise specified)

| Parameter                 | Symbol    | Conditions                                 | Min  | Typical | Max | Units         |
|---------------------------|-----------|--------------------------------------------|------|---------|-----|---------------|
| Reverse Stand-Off Voltage | $V_{RWM}$ |                                            |      |         | 18  | V             |
| Reverse Breakdown Voltage | $V_{BR}$  | $I_T=1\text{mA}$                           | 19.8 |         |     | V             |
| Reverse Leakage Current   | $I_R$     | $V_{RWM}=18\text{V}, T=25^{\circ}\text{C}$ |      |         | 0.5 | $\mu\text{A}$ |
| Clamping Voltage          | $V_C$     | $I_{PP}=11\text{A}, t_p=8/20\mu\text{s}$   |      | 30      |     | V             |
| Junction Capacitance      | $C_j$     | $V_R = 0\text{V}, f = 1\text{MHz}$         |      | 25      |     | pF            |

## Electrical Parameters

| 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 @ $V_{RWM}$ |
| $V_{BR}$  | Breakdown Voltage @ $I_T$                   |
| $I_T$     | Test Current                                |

Note: 8/20 $\mu\text{s}$  pulse waveform.





## Typical Characteristics

Figure 1: Peak Pulse Power vs. Pulse Time

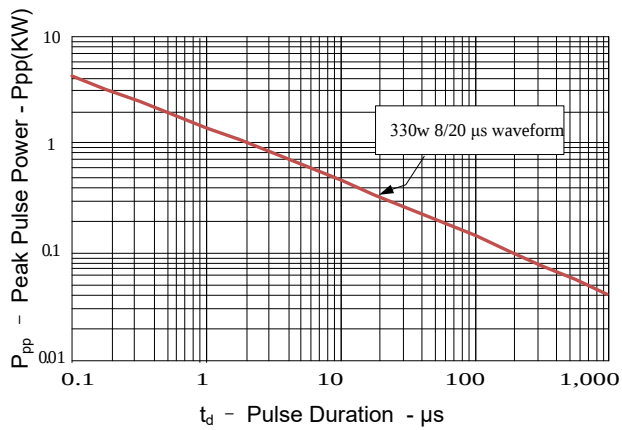


Figure 2: Power Derating Curve

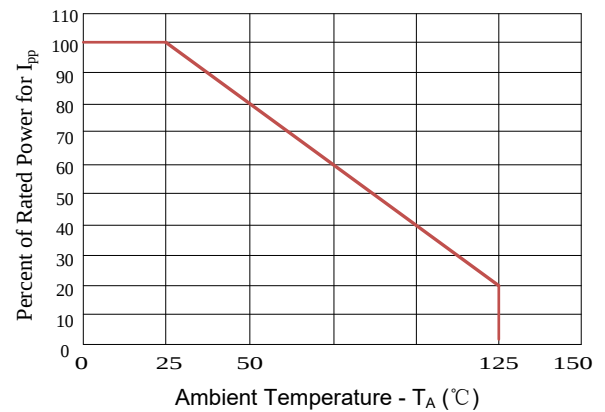


Figure3: Pulse Waveform

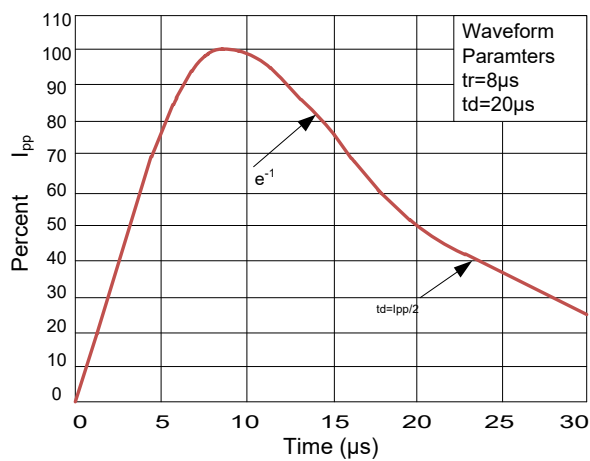
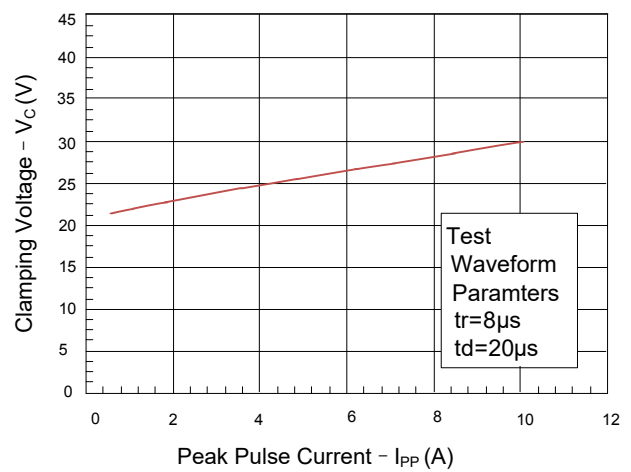
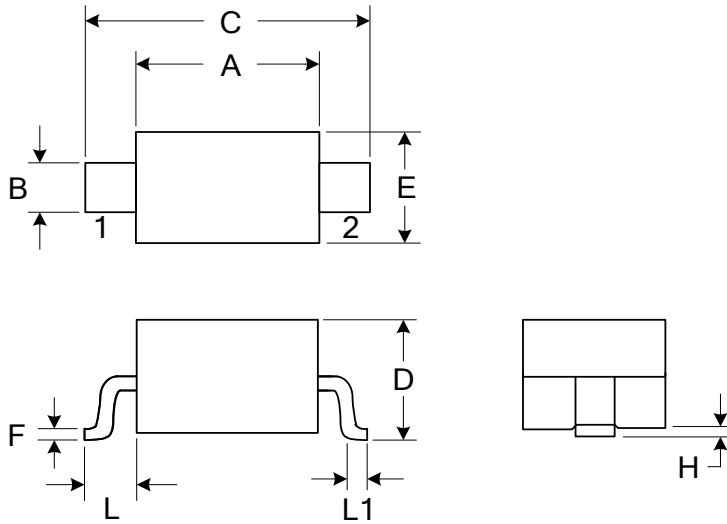


Figure 4: Clamping Voltage vs. Ipp





## Outline Drawing – SOD-323



| DIMENSIONS |            |       |          |       |
|------------|------------|-------|----------|-------|
| SYMBOL     | MILLIMETER |       | INCHES   |       |
|            | MIN        | MAX   | MIN      | MAX   |
| A          | 1.600      | 1.800 | 0.063    | 0.071 |
| B          | 0.250      | 0.350 | 0.010    | 0.014 |
| C          | 2.500      | 2.700 | 0.098    | 0.106 |
| D          |            | 1.000 |          | 0.039 |
| E          | 1.200      | 1.400 | 0.047    | 0.055 |
| F          | 0.080      | 0.150 | 0.003    | 0.006 |
| L          | 0.475 REF  |       | 0.019REF |       |
| L1         | 0.250      | 0.400 | 0.010    | 0.016 |
| H          | 0.000      | 0.100 | 0.000    | 0.004 |