



## DWNC3D48V1B ESD Protection Diode

### Feature

- Bi-directional ESD protection of one line
- 1700Watts peak pulse power ( $t_p = 8/20\mu s$ )
- Working voltage: 48V
- Junction capacitance: 20pF(Typ)
- Low leakage current
- Low clamping voltage
- IEC 61000-4-2  $\pm 30kV$  contact  $\pm 30kV$  air
- IEC 61000-4-5 (Lightning) 18A ( $8/20\mu s$ )

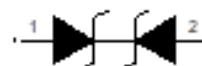
### Application

- Portable electronics
- Control & monitoring systems
- Servers, notebooks, and desktop PCs
- CAN bus protection
- Automotive application
- Cellular handsets and accessories

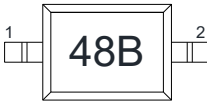
### Mechanical Data

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

### Circuit Diagram



### Ordering Information

| Part Number | Package | Marking                                                                             | Packing          | Reel Size |
|-------------|---------|-------------------------------------------------------------------------------------|------------------|-----------|
| DWNC3D48V1B | SOD-323 |  | 3000 Tape & Reel | 7 inches  |

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

| Parameter                                                          | Symbol    | Min. | Max.     | Unit               |
|--------------------------------------------------------------------|-----------|------|----------|--------------------|
| Peak pulse power ( $t_p=8/20\mu\text{s}$ )@ $25^{\circ}\text{C}$   | $P_{pk}$  | -    | 1700     | W                  |
| Peak pulse current ( $t_p=8/20\mu\text{s}$ )@ $25^{\circ}\text{C}$ | $I_{PP}$  |      | 18       | A                  |
| ESD (IEC61000-4-2 air discharge) @ $25^{\circ}\text{C}$            | $V_{ESD}$ | -    | $\pm 30$ | kV                 |
| ESD (IEC61000-4-2 contact discharge) @ $25^{\circ}\text{C}$        | $V_{ESD}$ | -    | $\pm 30$ | kV                 |
| Junction temperature                                               | $T_J$     | -    | 150      | $^{\circ}\text{C}$ |
| Operating temperature                                              | $T_{OP}$  | -40  | 125      | $^{\circ}\text{C}$ |
| Storage temperature                                                | $T_{STG}$ | -55  | 150      | $^{\circ}\text{C}$ |
| Lead temperature                                                   | $T_L$     | -    | 260      | $^{\circ}\text{C}$ |

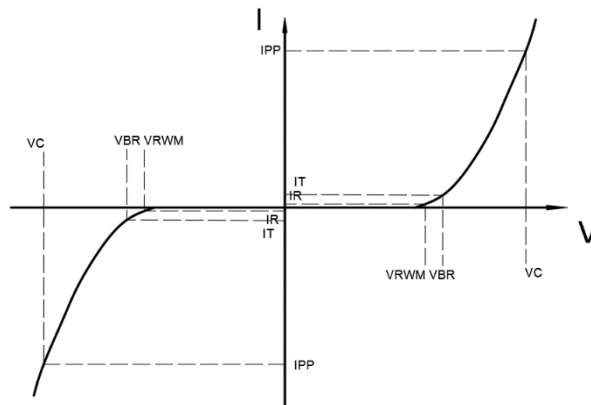
### Electrical Characteristics ( $T_A=25^{\circ}\text{C}$ unless otherwise specified)

| Parameter                 | Symbol    | Conditions                                  | Min. | Typ. | Max. | Units         |
|---------------------------|-----------|---------------------------------------------|------|------|------|---------------|
| Reverse Stand-off Voltage | $V_{RWM}$ |                                             |      |      | 48   | V             |
| Reverse Breakdown Voltage | $V_{BR}$  | $I_T=1\text{mA}$                            | 52   |      |      | V             |
| Reverse Leakage Current   | $I_R$     | $V_{RWM}=48\text{V}$                        |      |      | 1.0  | $\mu\text{A}$ |
| Clamping Voltage          | $V_C$     | $I_{PP}=1\text{A}$ ; $t_p=8/20\mu\text{s}$  |      | 60   | 65   | V             |
| Clamping Voltage          | $V_C$     | $I_{PP}=18\text{A}$ ; $t_p=8/20\mu\text{s}$ |      | 87   | 95   | V             |
| Junction Capacitance      | $C_J$     | $V_R=0\text{V}$ ; $f=1\text{MHz}$           |      | 20   | 30   | pF            |



## Portion Electronics Parameter

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



## Typical Characteristic

Figure1: Clamping Voltage vs. Peak Pulse Current

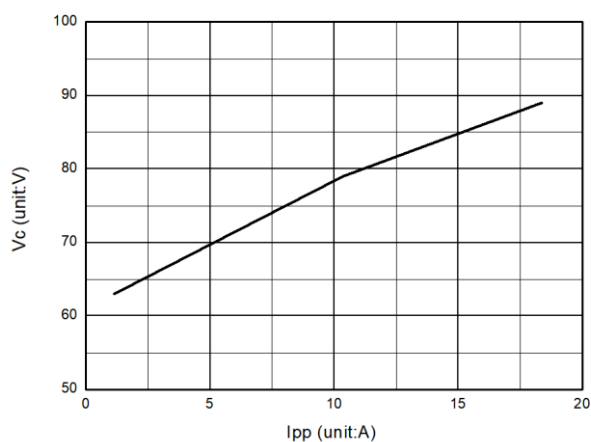


Figure3: 8 X 20us Pulse Waveform

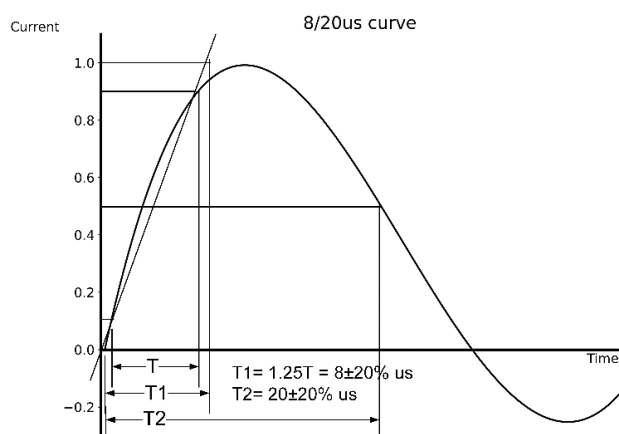


Figure2: Junction Capacitance vs. Reverse Voltage

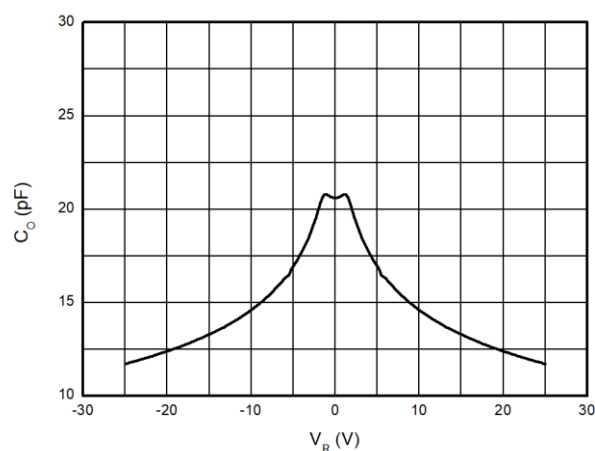
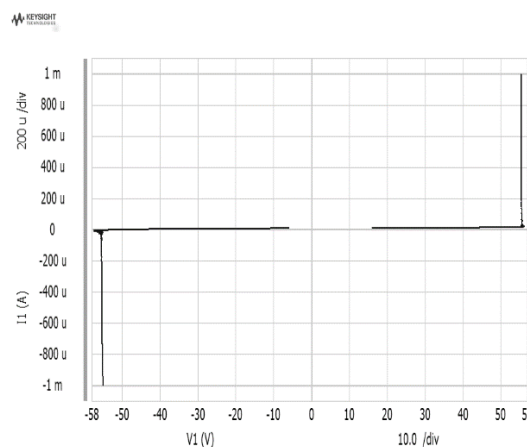
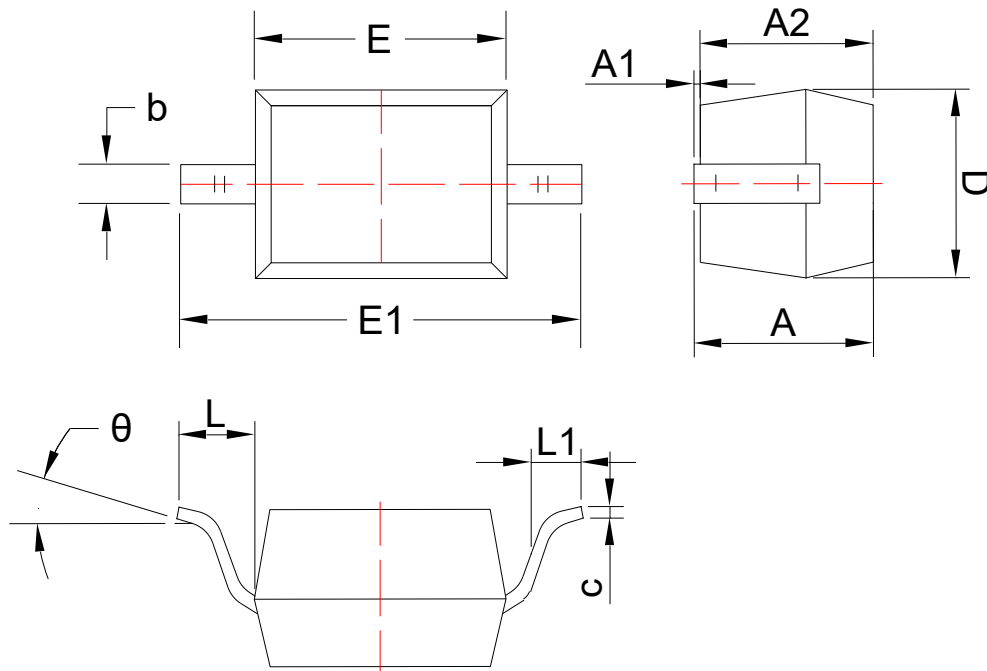


Figure4: I-V Curve





## SOD-323 Package Outline Drawing



| Symbol   | Dimensions in Millimeters |      |
|----------|---------------------------|------|
|          | Min.                      | Max. |
| A        | 0.80                      | 1.00 |
| A1       | 0.00                      | 0.14 |
| A2       | 0.66                      | 0.97 |
| b        | 0.25                      | 0.35 |
| c        | 0.08                      | 0.18 |
| D        | 1.20                      | 1.40 |
| E        | 1.55                      | 1.80 |
| E1       | 2.50                      | 2.80 |
| L        | 0.475REF                  |      |
| L1       | 0.25                      | 0.40 |
| $\theta$ | 0°                        | 8°   |