



## DWGB4510S3 ESD Protection Diode

### Feature

- Bi-directional ESD protection of one line
- 2500Watts peak pulse power ( $t_p = 8/20\mu s$ )
- Working voltage: 4.5V
- Junction capacitance: 330pF(Typ)
- Low clamping voltage
- Low leakage current
- IEC 61000-4-2  $\pm 30kV$  contact  $\pm 30kV$  air
- IEC 61000-4-5 (Lightning) 160A (8/20 $\mu s$ )

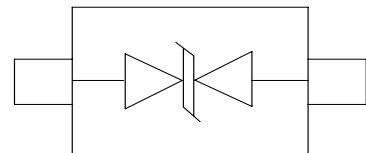
### Application

- Mobile Phones and Accessories
- Battery Protection
- USB VBus
- Power Line Protection
- Hand Held Portable Applications

### 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 |
|-------------|---------|-------------------------------------------------------------------------------------|------------------|-----------|
| DWGB4510S3  | SOD-323 |  | 3000 Tape & Reel | 7 inches  |



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

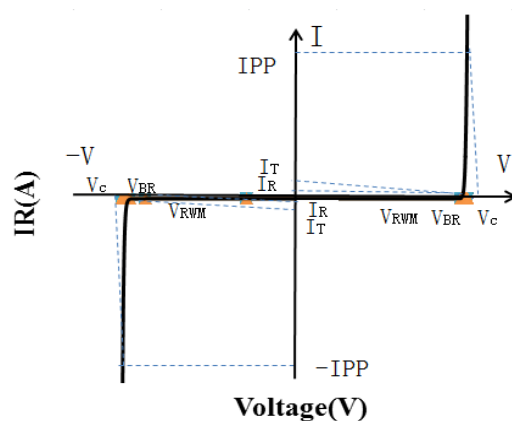
| Parameter                                                      | Symbol    | Value                | Unit               |
|----------------------------------------------------------------|-----------|----------------------|--------------------|
| Peak Pulse Power (8/20 $\mu\text{s}$ )                         | $P_{PK}$  | 2500                 | W                  |
| Peak Pulse Current (8/20 $\mu\text{s}$ )                       | $I_{PP}$  | 160                  | A                  |
| ESD per IEC 61000-4-2 (Air)<br>ESD per IEC 61000-4-2 (Contact) | $V_{ESD}$ | $\pm 30$<br>$\pm 30$ | kV                 |
| Operating Temperature Range                                    | $T_J$     | -55 to +125          | $^{\circ}\text{C}$ |
| Storage Temperature Range                                      | $T_{stg}$ | -55 to +150          | $^{\circ}\text{C}$ |

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

| Parameter               | Symbol    | Test Condition                                      | Min | Typ  | Max  | Unit          |
|-------------------------|-----------|-----------------------------------------------------|-----|------|------|---------------|
| Reverse Working Voltage | $V_{RWM}$ |                                                     |     |      | 4.5  | V             |
| Breakdown Voltage       | $V_{BR}$  | $I_T = 1\text{mA}$                                  | 4.8 |      |      | V             |
| Reverse Leakage Current | $I_R$     | $V_{RWM} = 4.5\text{V}$                             |     |      | 1.0  | $\mu\text{A}$ |
| Clamping Voltage        | $V_C$     | $I_{PP} = 100\text{A}$ (8 x 20 $\mu\text{s}$ pulse) |     | 11.0 |      | V             |
| Clamping Voltage        | $V_C$     | $I_{PP} = 160\text{A}$ (8 x 20 $\mu\text{s}$ pulse) |     |      | 14.5 | V             |
| Junction Capacitance    | $C_J$     | $V_R = 0\text{V}$ , $f = 1\text{MHz}$               |     | 330  | 400  | pF            |

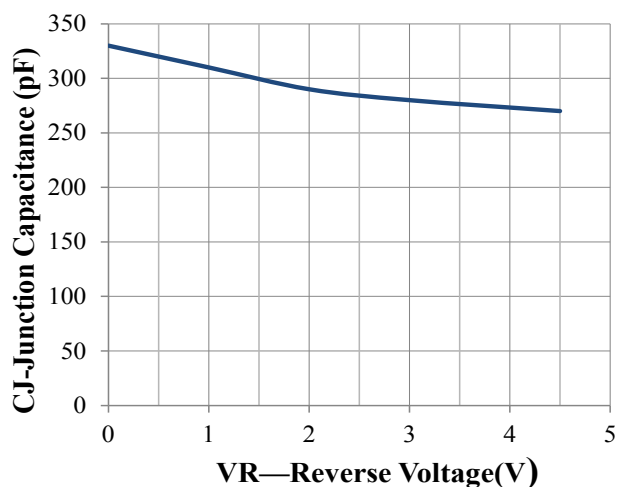
## Portion Electronics Parameter

| Symbol   | Parameter                          |
|----------|------------------------------------|
| $I_T$    | Test Current                       |
| $I_{PP}$ | Maximum Reverse Peak Pulse Current |
| $V_C$    | Clamping Voltage @ $I_C$           |

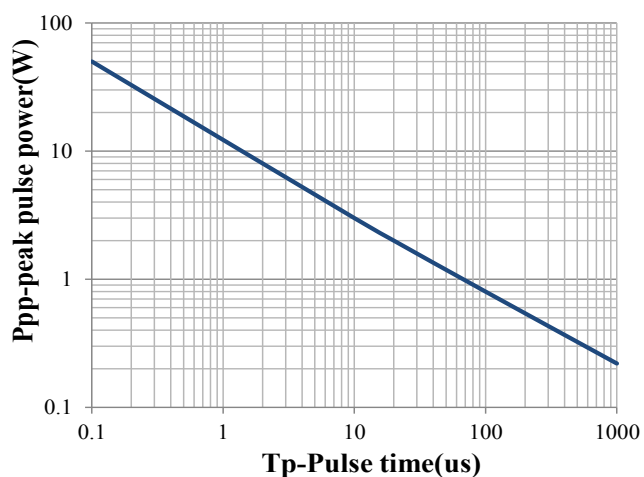




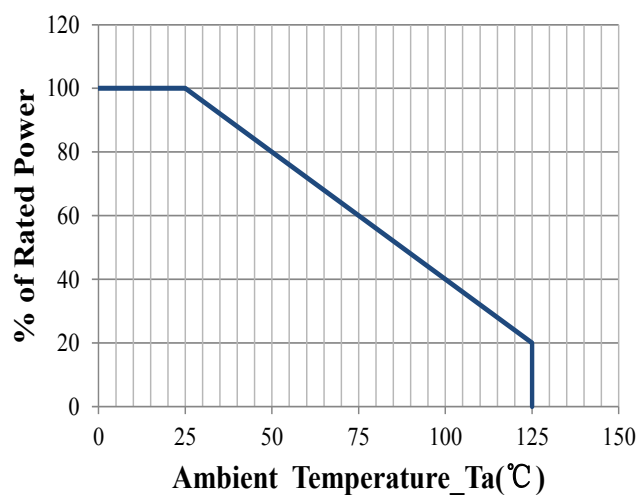
## Typical Characteristics



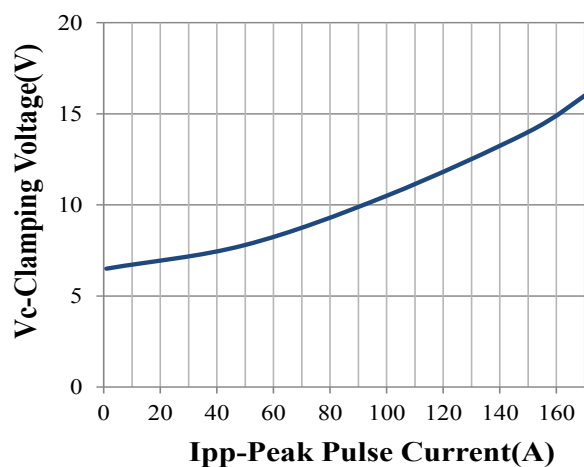
Junction Capacitance vs. Reverse Voltage



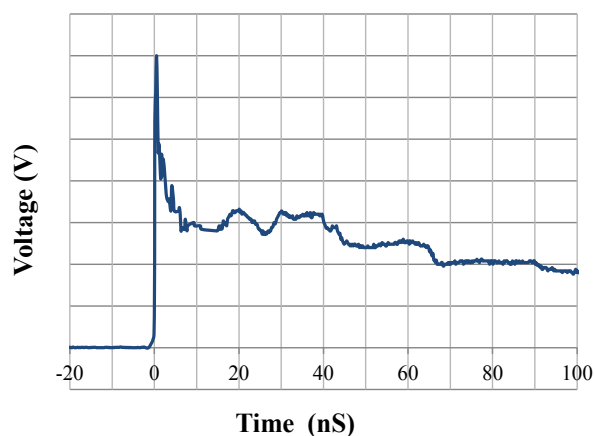
Peak Pulse Power vs. Pulse Time



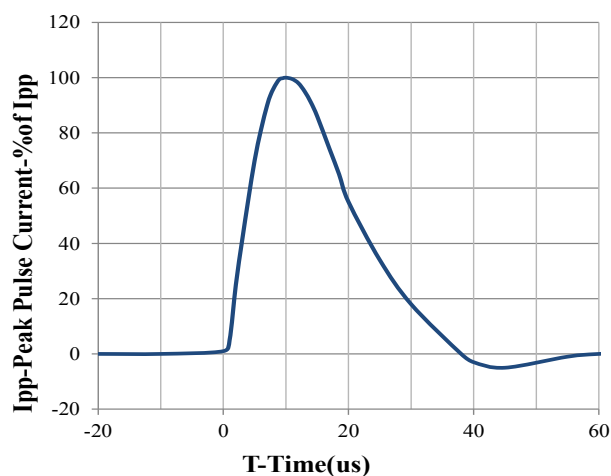
Power Derating Curve



Clamping Voltage vs. Peak Pulse Current



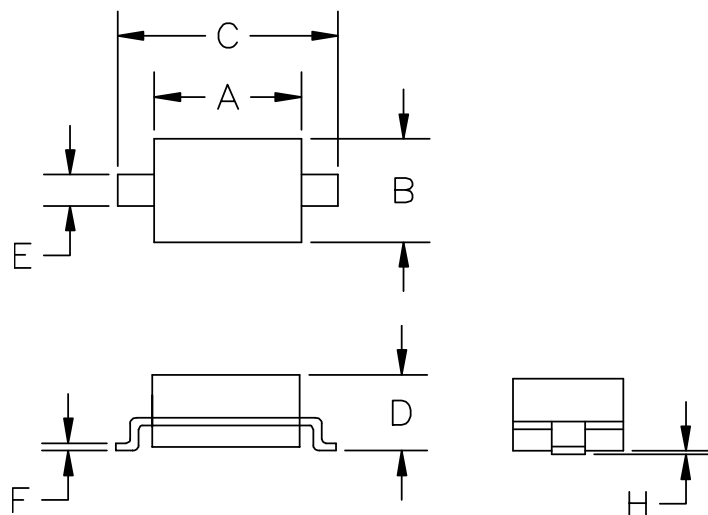
IEC61000-4-2 Pulse Waveform



8 X 20us Pulse Waveform



## SOD-323 Package Outline Drawing



| SYM | DIMENSIONS  |      |        |       |
|-----|-------------|------|--------|-------|
|     | MILLIMETERS |      | INCHES |       |
|     | MIN         | MAX  | MIN    | MAX   |
| A   | 1.50        | 1.80 | 0.060  | 0.071 |
| B   | 1.20        | 1.40 | 0.045  | 0.054 |
| C   | 2.30        | 2.70 | 0.090  | 0.107 |
| D   | -           | 1.10 | -      | 0.043 |
| E   | 0.30        | 0.40 | 0.012  | 0.016 |
| F   | 0.10        | 0.25 | 0.004  | 0.010 |
| H   | -           | 0.10 | -      | 0.004 |