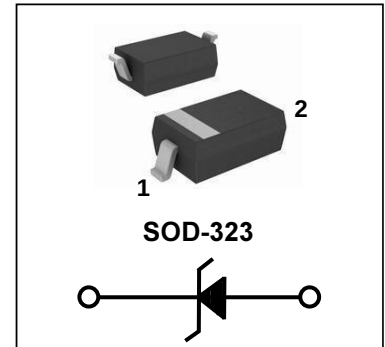


### Features

- 340 Watts Peak Pulse Power per Line ( $t_p = 8/20\mu s$ )
- Replacement for MLV (0805)
- Protects one I/O or power line
- Low Clamping Voltage
- Working Voltage: 18 V
- Low Leakage Current



### IEC COMPATIBILITY (EN61000-4)

- IEC 61000-4-2 (ESD)  $\pm 30kV$  (air),  $\pm 30kV$  (contact)
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 10A (8/20 $\mu s$ )

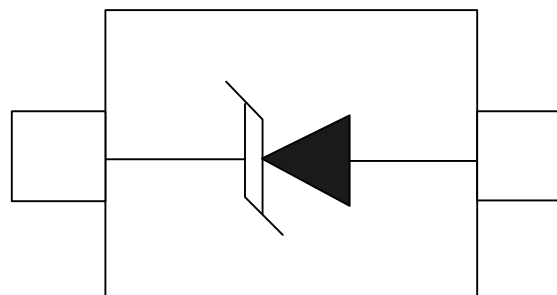
### Mechanical Characteristics

- JEDEC SOD-323 package
- Molding compound flammability rating: UL 94V-0
- Marking : Marking Code
- Packaging : Tape and Reel per EIA 481
- RoHS Compliant

### Applications

- Laptop Computers
- Cellular Phones
- Digital Cameras
- Personal Digital Assistants (PDAs)

### Schematic & PIN Configuration



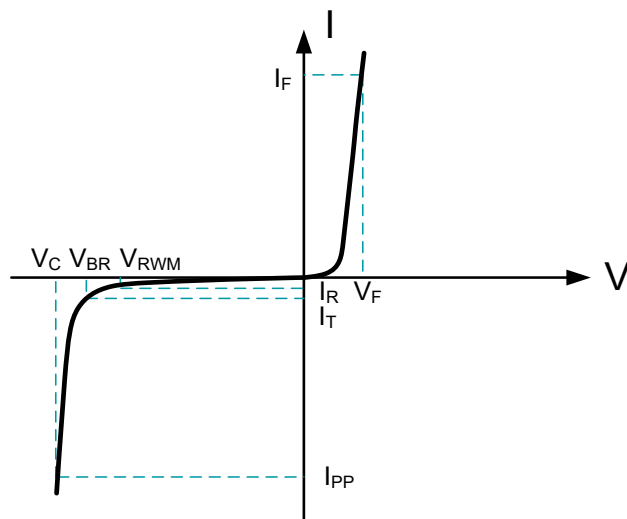
SOD-323 (Top View)

### Absolute Maximum Rating

| Rating                                                         | Symbol    | Value          | Units       |
|----------------------------------------------------------------|-----------|----------------|-------------|
| Peak Pulse Power ( $t_p = 8/20\mu s$ )                         | $P_{PP}$  | 340            | Watts       |
| Peak Pulse Current ( $t_p = 8/20\mu s$ ) (note1)               | $I_{pp}$  | 10             | A           |
| ESD per IEC 61000-4-2 (Air)<br>ESD per IEC 61000-4-2 (Contact) | $V_{ESD}$ | 30<br>30       | kV          |
| Lead Soldering Temperature                                     | $T_L$     | 260(10seconds) | $^{\circ}C$ |
| Junction Temperature                                           | $T_J$     | -55 to + 150   | $^{\circ}C$ |
| Storage Temperature                                            | $T_{stg}$ | -55 to + 150   | $^{\circ}C$ |

### Electrical Parameters (T=25 $^{\circ}C$ )

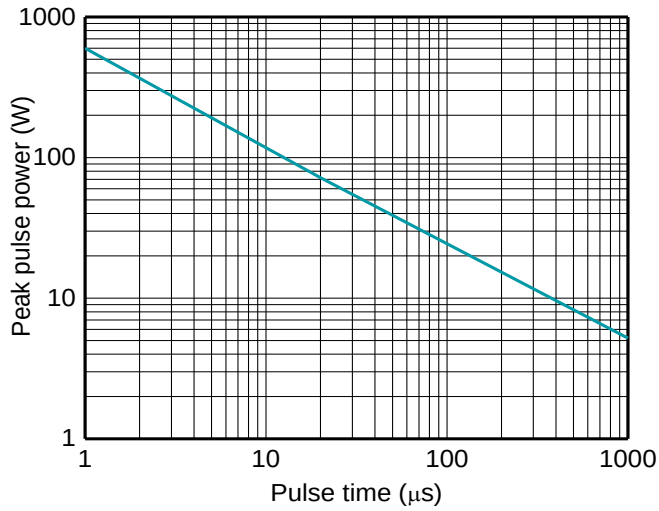
| Symbol    | Parameter                           |
|-----------|-------------------------------------|
| $I_{PP}$  | Reverse Peak Pulse Current          |
| $V_C$     | Clamping Voltage @ $I_{PP}$         |
| $V_{RWM}$ | Working Peak Reverse Voltage        |
| $I_R$     | Reverse Leakage Current @ $V_{RWM}$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



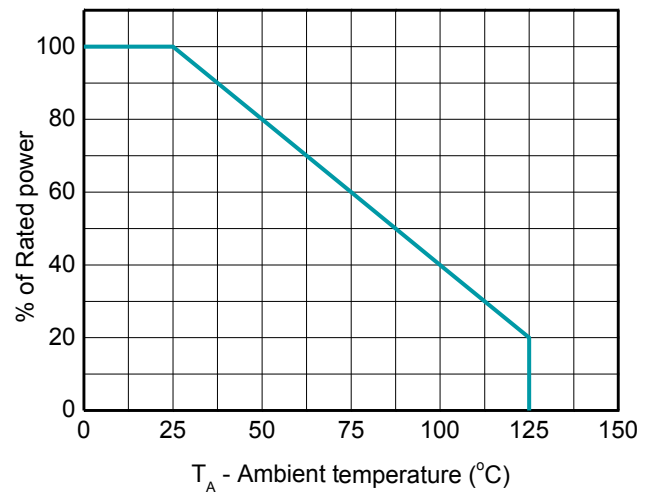
### Electrical Characteristics

| Parameter                 | Symbol    | Conditions                       | Min | Typical | Max | Units   |
|---------------------------|-----------|----------------------------------|-----|---------|-----|---------|
| Reverse Stand-Off Voltage | $V_{RWM}$ |                                  |     |         | 18  | V       |
| Reverse Breakdown Voltage | $V_{BR}$  | $I_T = 1mA$                      | 19  |         |     | V       |
| Reverse Leakage Current   | $I_R$     | $V_{RWM} = 18V, T = 25^{\circ}C$ |     |         | 0.1 | $\mu A$ |
| Peak Pulse Current        | $I_{PP}$  | $t_p = 8/20\mu s$                |     | 10      |     | A       |
| Clamping Voltage          | $V_C$     | $I_{PP} = 10A, t_p = 8/20\mu s$  |     | 34      |     | V       |
| Junction Capacitance      | $C_j$     | $V_R = 0V, f = 1MHz$             |     | 50      |     | pF      |

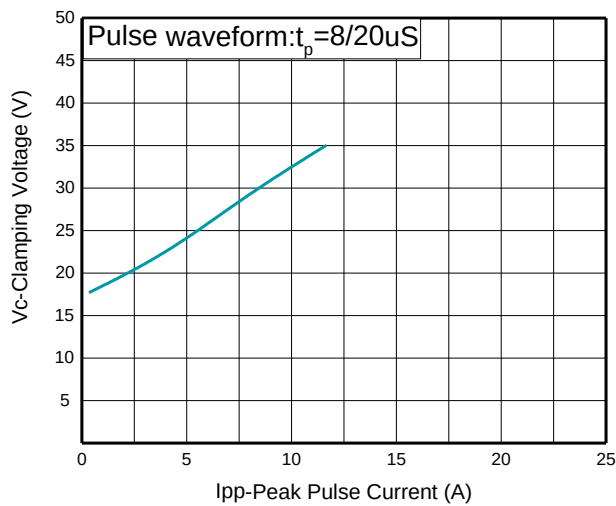
### Typical Characteristics



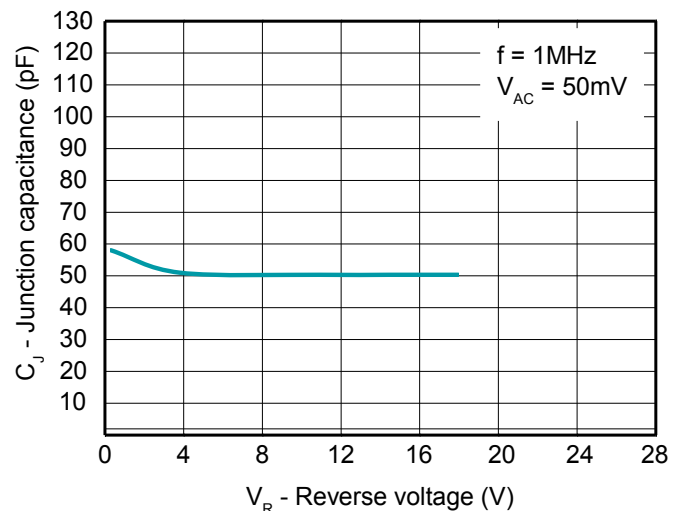
**Non-repetitive peak pulse power vs. Pulse time**



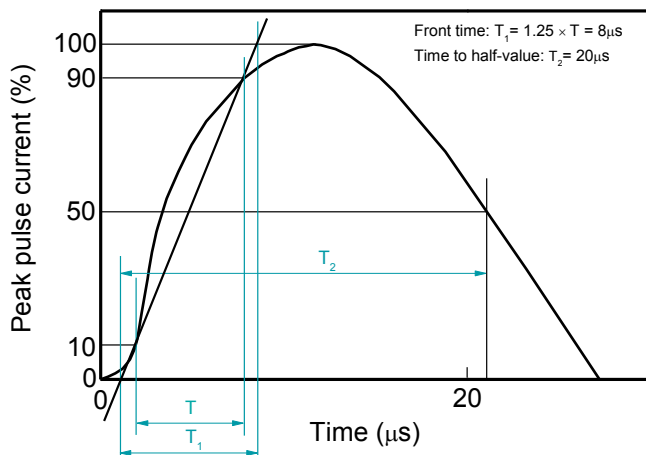
**Power derating vs. Ambient temperature**



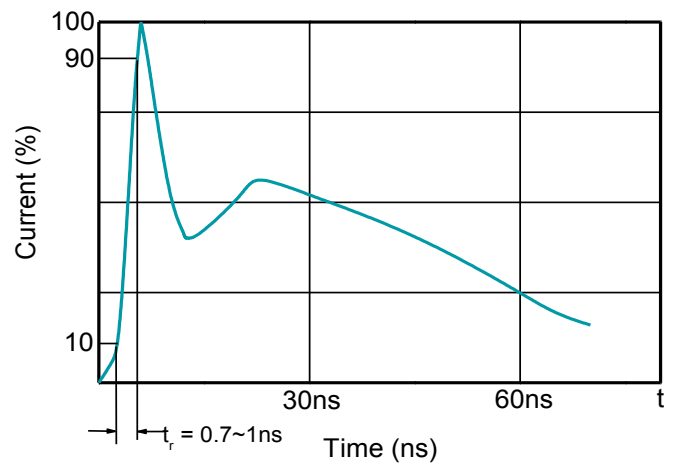
**Clamping voltage vs. Peak pulse current**



**Capacitance vs. Reverse voltage**



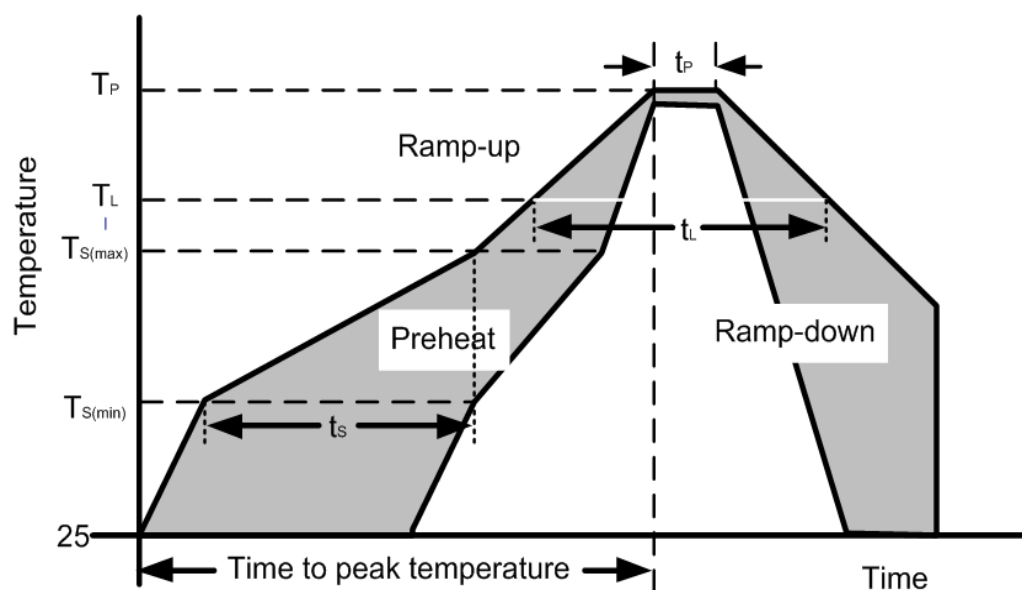
**8/20μs waveform per IEC61000-4-5**



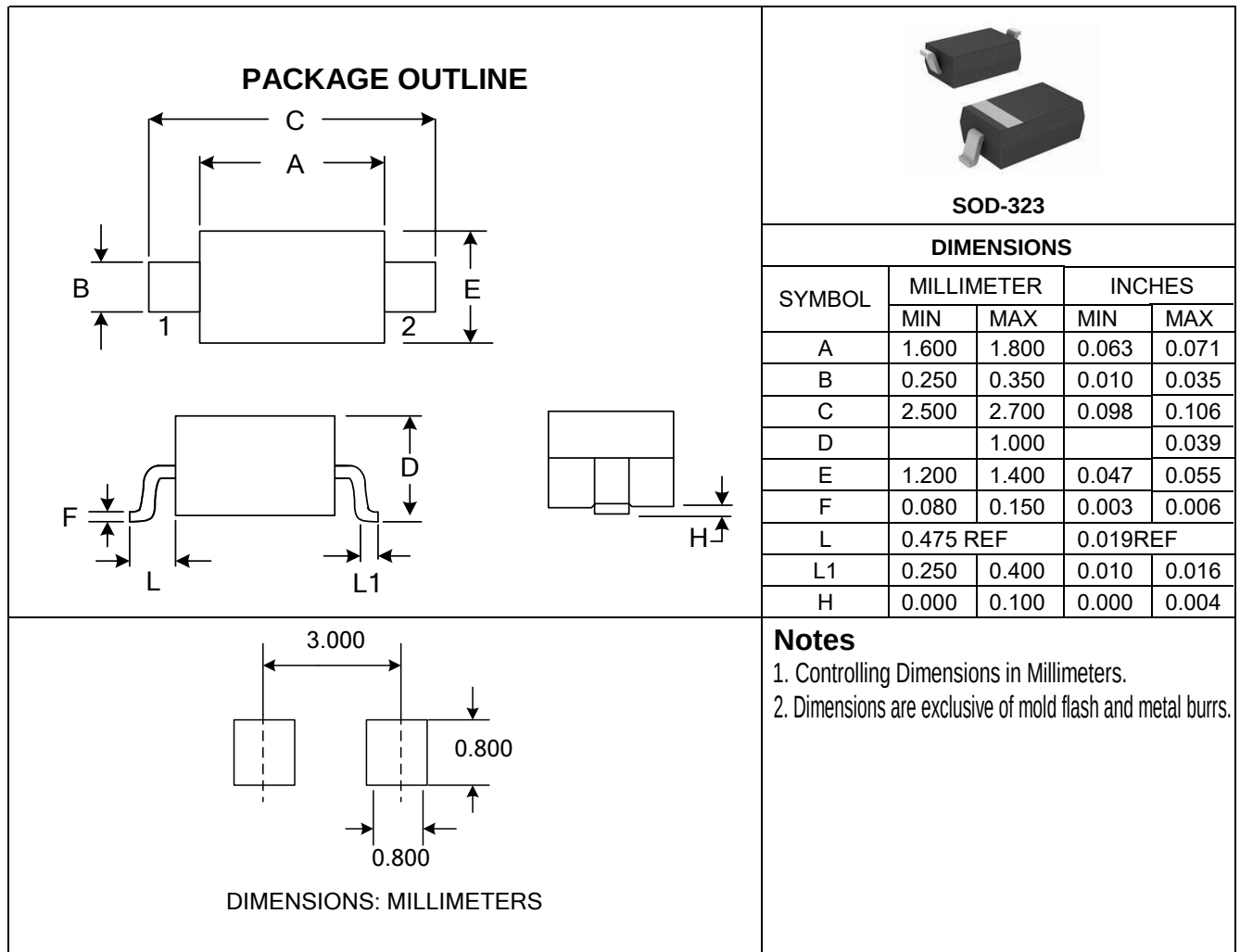
**Contact discharge current waveform per IEC61000-4-2**

## Soldering Parameters

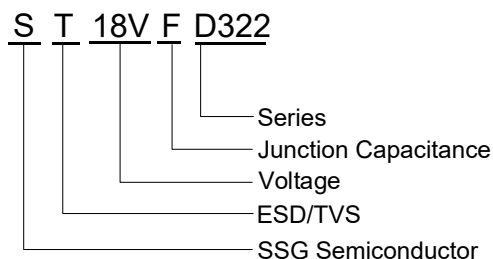
| Reflow Condition                                       |                                  | Pb – Free assembly |
|--------------------------------------------------------|----------------------------------|--------------------|
| Pre Heat                                               | Temperature Min ( $T_{S(min)}$ ) | 150°C              |
|                                                        | Temperature Max ( $T_{S(max)}$ ) | 200°C              |
|                                                        | Time (min to max) ( $t_s$ )      | 60 – 190 secs      |
| Average ramp up rate (Liquidus Temp) ( $T_L$ ) to peak |                                  | 5°C/second max     |
| $T_{S(max)}$ to $T_L$ —Ramp-up Rate                    |                                  | 5°C/second max     |
| Reflow                                                 | Temperature ( $T_L$ ) (Liquidus) | 217°C              |
|                                                        | Temperature ( $t_L$ )            | 60 – 150 seconds   |
| Peak Temperature ( $T_P$ )                             |                                  | 260+0/-5 °C        |
| Time within actual peak Temperature ( $t_p$ )          |                                  | 20 – 40 seconds    |
| Ramp-down Rate                                         |                                  | 5°C/second max     |
| Time 25°C to peak Temperature ( $T_P$ )                |                                  | 8 minutes Max.     |
| Do not exceed                                          |                                  | 280°C              |



### Outline Drawing – SOD-323



### Part Numbering System



| Device     | Package | Shipping       | MarKing   | Parameter                            |
|------------|---------|----------------|-----------|--------------------------------------|
| ST18VFD322 | SOD-323 | 3000/Tape&Reel | <b>18</b> | 18 = Product Code<br>* = Device Code |