



## Features

- Forward Continuous Current:  $I_F=150\text{mA}$
- Power Dissipation of 500mw

## Package Marking and Ordering Information

| Product ID | Pack    | Marking | Qty(PCS) |
|------------|---------|---------|----------|
| BAT46W     | SOD-123 | S9      | 3000     |



SOD-123



## Maximum Ratings ( $T_a=25^{\circ}\text{C}$ unless otherwise noted)

| Parameter                                                                         | Symbol          | Limit    | Unit                 |
|-----------------------------------------------------------------------------------|-----------------|----------|----------------------|
| Peak repetitive peak reverse voltage                                              | $V_{RRM}$       | 100      | V                    |
| Working peak reverse voltage                                                      | $V_{RWM}$       |          |                      |
| Forward continuous current                                                        | $I_F$           | 150      | mA                   |
| Repetitive peak forward current (Note 1) @ $t_p < 1.0\text{s}$ , Duty Cycle < 50% | $I_{FRM}$       | 350      | mA                   |
| Non-repetitive Peak Forward surge current @ $t = 8.3\text{ms}$                    | $I_{FSM}$       | 750      | mA                   |
| Power dissipation                                                                 | $P_D$           | 500      | mW                   |
| Thermal resistance junction to ambient air                                        | $R_{\theta JA}$ | 200      | $^{\circ}\text{C/W}$ |
| Junction temperature                                                              | $T_j$           | 125      | $^{\circ}\text{C}$   |
| Storage temperature                                                               | $T_{STG}$       | -55~+150 | $^{\circ}\text{C}$   |

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

| Parameter                         | Symbol | Test Conditions                   | Min | Typ | Max  | Unit          |
|-----------------------------------|--------|-----------------------------------|-----|-----|------|---------------|
| Reverse breakdown voltage(Note 2) | $V_R$  | $I_R=100\mu\text{A}$              | 100 |     |      | V             |
| Reverse voltage leakage current   | $I_R$  | $V_{R1}=1.5\text{V}$              |     |     | 0.3  | $\mu\text{A}$ |
|                                   |        | $V_{R2}=10\text{V}$               |     |     | 0.5  |               |
|                                   |        | $V_{R3}=50\text{V}$               |     |     | 1    |               |
|                                   |        | $V_{R4}=75\text{V}$               |     |     | 2    |               |
| Forward voltage(Note 2)           | $V_F$  | $I_{F1}=0.1\text{mA}$             |     |     | 0.25 | V             |
|                                   |        | $I_{F2}=10\text{mA}$              |     |     | 0.45 |               |
|                                   |        | $I_{F3}=250\text{mA}$             |     |     | 1    |               |
| Diode capacitance                 | $C_T$  | $V_R=0$ , $f=1\text{MHz}$         |     | 20  |      | pF            |
|                                   |        | $V_R=1\text{V}$ , $f=1\text{MHz}$ |     | 12  |      |               |

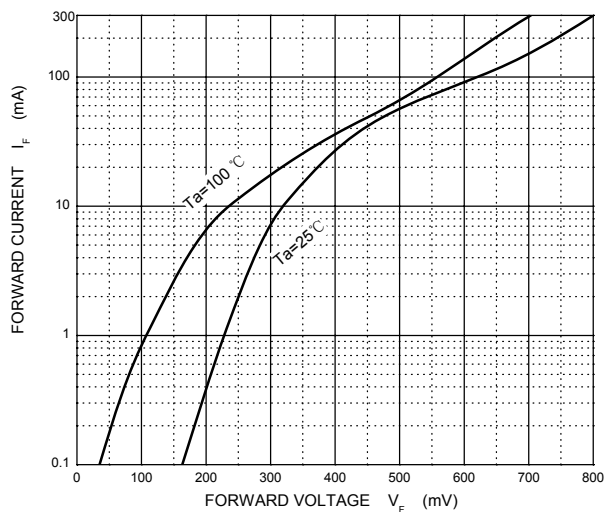
Notes: 1. Part mounted on FR-4 board with recommended pad layout.

2. Short duration pulse test used to minimize self-heating effect.

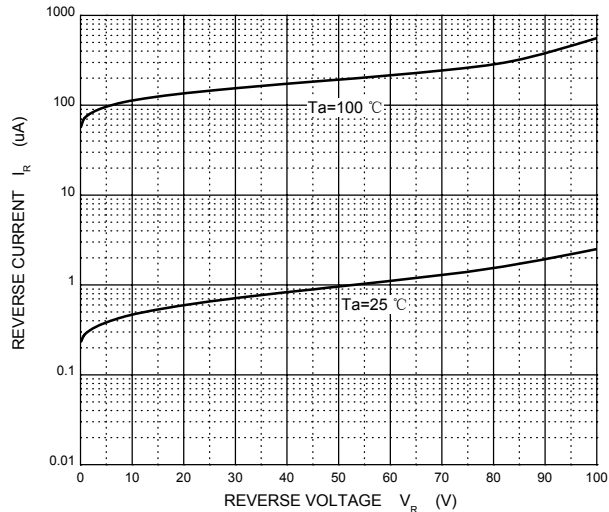


## Typical Characteristics

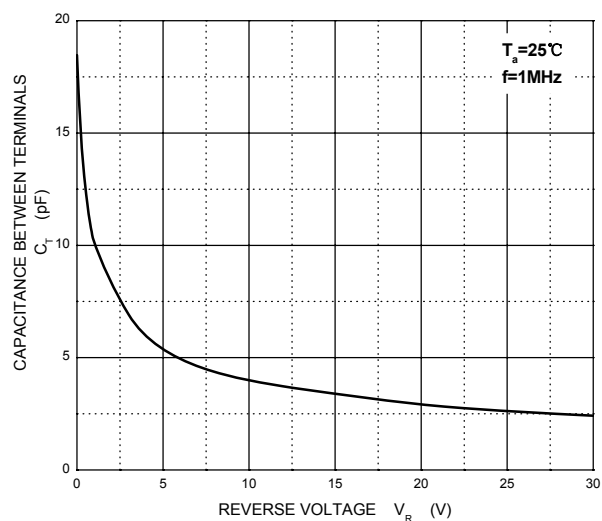
### Forward Characteristics



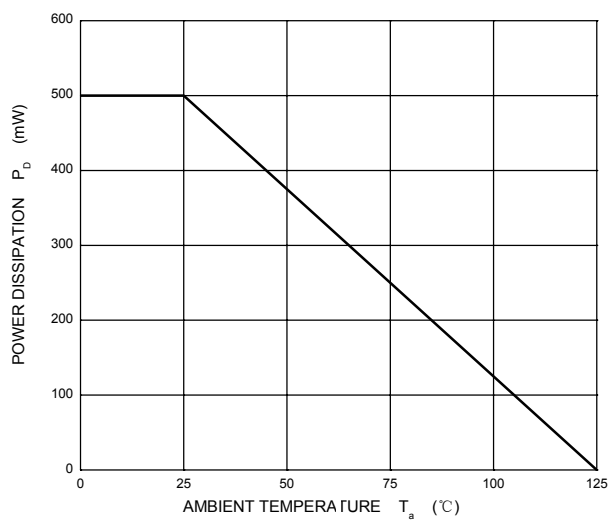
### Reverse Characteristics



### Capacitance Characteristics

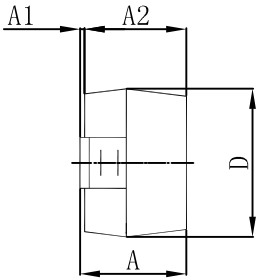
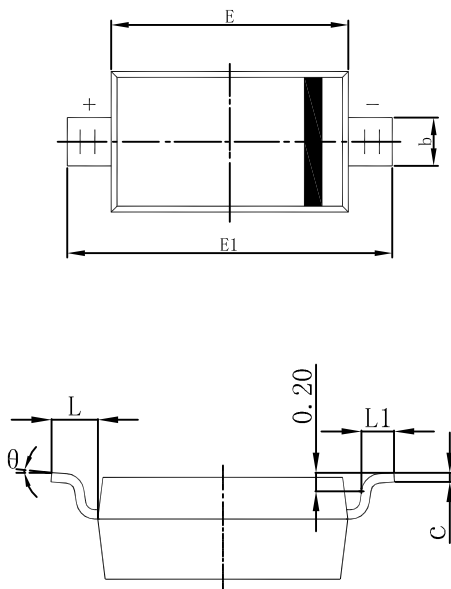


### Power Derating Curve

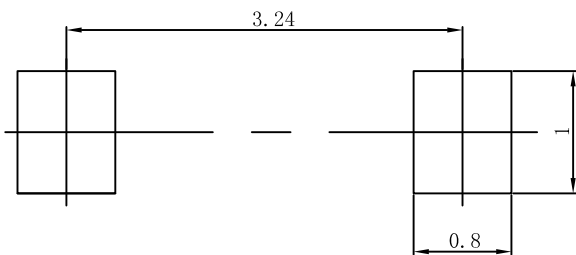




SOD-123 Package Outline Dimensions



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min                       | Max   | Min                  | Max   |
| A      | 1.050                     | 1.250 | 0.041                | 0.049 |
| A1     | 0.000                     | 0.100 | 0.000                | 0.004 |
| A2     | 1.050                     | 1.150 | 0.041                | 0.045 |
| b      | 0.450                     | 0.650 | 0.018                | 0.026 |
| c      | 0.080                     | 0.150 | 0.003                | 0.006 |
| D      | 1.500                     | 1.700 | 0.059                | 0.067 |
| E      | 2.600                     | 2.800 | 0.102                | 0.110 |
| E1     | 3.550                     | 3.850 | 0.140                | 0.152 |
| L      | 0.500 REF                 |       | 0.020 REF            |       |
| L1     | 0.250                     | 0.450 | 0.010                | 0.018 |
| θ      | 0°                        | 8°    | 0°                   | 8°    |



**Note:**  
1.Controlling dimension:in millimeters.  
2.General tolerance:± 0.05mm.  
3.The pad layout is for reference purposes only.



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