## Features

- High breakdown voltage
- Low turn-on voltage
- Guard ring construction for transient protection


SOD-523 top view

Schematic diagram


Marking and pin assignment

Pb-Free RoHS Halogen-Free

## Maximum Ratings @Ta=25℃

| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $V_{RRM}$ | Peak repetitive peak reverse voltage | 100 | V |
| $V_{RWM}$ | Working peak reverse voltage | | |
| $I_F$ | Forward Continuous Current | 150 | mA |
| $I_{FRM}$ | Repetitive peak forward current (Note 1)@ tp < 1.0s, Duty Cycle < 50% | 350 | mA |
| $I_{FSM}$ | Non-Repetitive Peak Forward Surge Current @t=8.3ms | 750 | mA |
| $P_D$ | Power Dissipation | 150 | mW |
| $R_{\theta JA}$ | Thermal Resistance Junction to Ambient | 667 | ℃/W |
| $T_J$ | Operating Junction Temperature Range | -40~ +125 | ℃ |
| $T_{STG}$ | Operating and Storage Temperature Range | -55~ +150 | ℃ |

## ELECTRICAL CHARACTERISTICS (Ta=25℃ unless otherwise specified)

| Symbol | Parameter | Condition | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| $V_R$ | Reverse breakdown voltage(Note 2) | $I_R$=100μA | 100 | -- | -- | V |
| $I_R$ | Reverse current | $V_{R1}$=1.5V | -- | -- | 0.3 | μA |
| | | $V_{R2}$=10V | -- | -- | 0.5 | |
| | | $V_{R3}$=50V | | | 1 | |
| | | $V_{R4}$=75V | -- | -- | 2 | |
| $V_F$ | Forward voltage | $I_{F1}$=0.1mA | -- | -- | 0.25 | V |
| | | $I_{F2}$=10mA | -- | -- | 0.45 | |
| | | $I_{F3}$=250mA | -- | -- | 1 | |
| $C_T$ | Capacitance between terminals | $V_R$=0, f=1MHz | -- | 20 | -- | pF |
| | | $V_R$=1V, f=1MHz | -- | 12 | -- | pF |

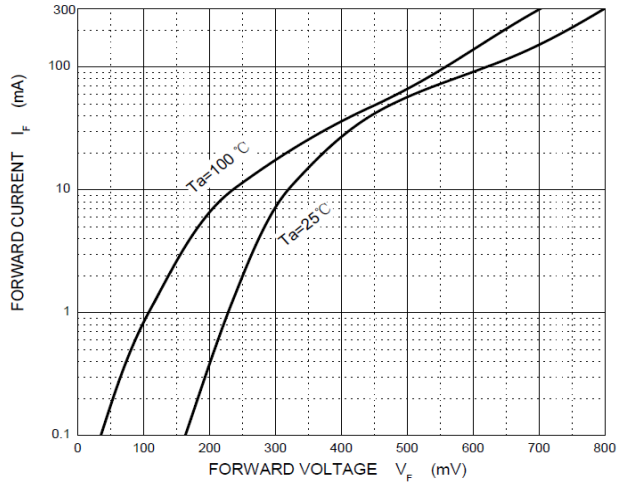
Notes: 1. Part mounted on FR-4 board with recommended pad layout.
2.Short duration pulse test used to minimize self-heating effect.

## Ordering Information (Example)

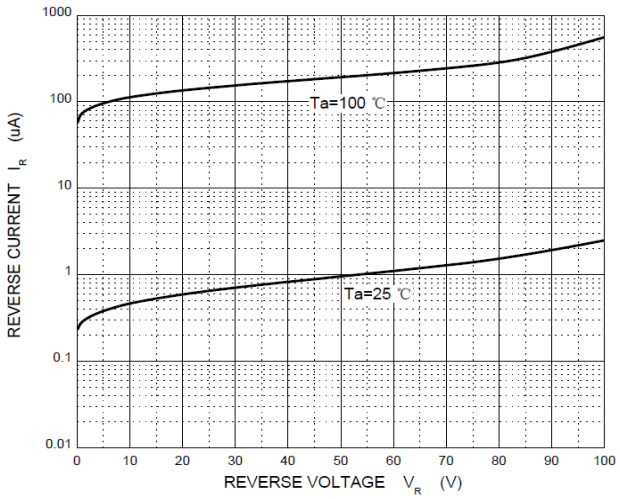
| Type | Package | Marking | Minimum Package(pcs) | Inner Box Quantity(pcs) | Outer Carton Quantity(pcs) | Delivery Mode |
|---|---|---|---|---|---|---|
| BAT46X | SOD-523 | S9 | 3,000 | 45,000 | 180,000 | 7"reel |

## Typical Operating Characteristics

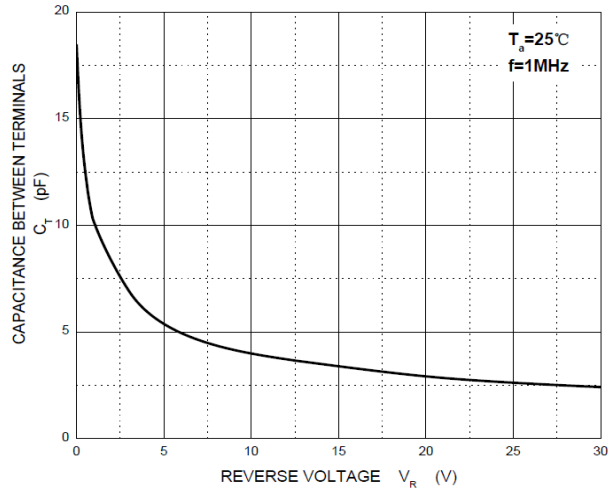
### Forward Characteristics



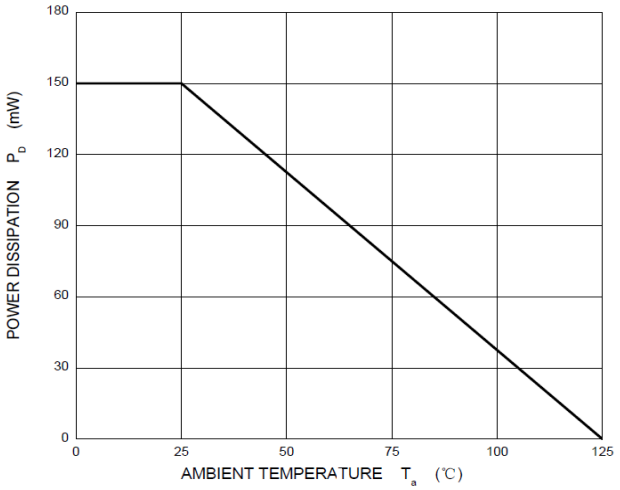

### Reverse Characteristics



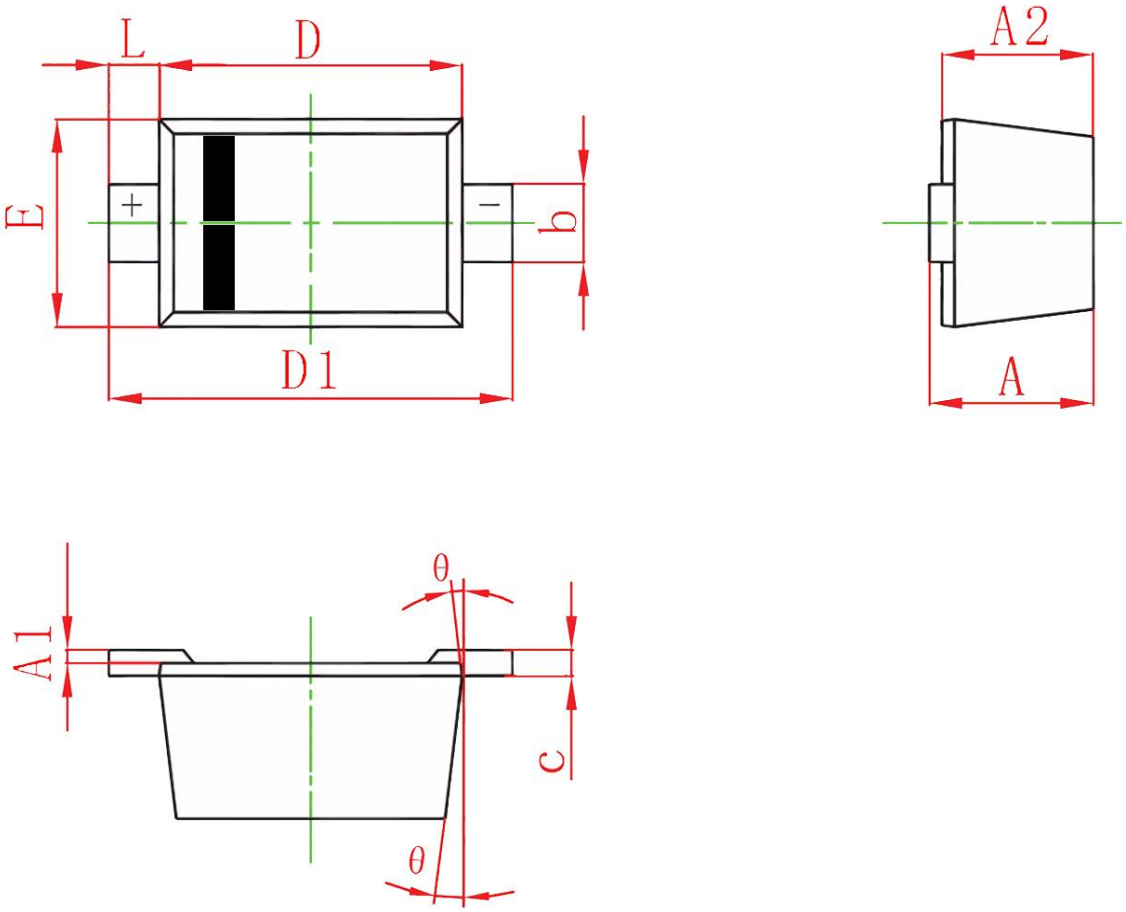

### Capacitance Characteristics




### Power Derating Curve



## SOD-523 Package information




| Symbol | Dimensions in Millimeters(mm) | | Dimensions In Inches | |
|---|---|---|---|---|
| | Min | Max | Min | Max |
| A | 0.510 | 0.770 | 0.020 | 0.030 |
| A1 | 0.010 | 0.070 | 0.000 | 0.003 |
| A2 | 0.500 | 0.700 | 0.020 | 0.028 |
| b | 0.250 | 0.350 | 0.010 | 0.014 |
| c | 0.080 | 0.150 | 0.003 | 0.006 |
| D | 1.100 | 1.300 | 0.043 | 0.051 |
| D1 | 1.500 | 1.700 | 0.059 | 0.067 |
| E | 0.750 | 0.850 | 0.030 | 0.033 |
| L | 0.200 REF | | 0.008 REF | |
| θ | 7°REF | | 7°REF | |