

### Features

- Low Forward Voltage Drop
- Guard Ring Construction for Transient Protection
- High Conductance
- Also Available in Lead Free Version



SOD-123 top view



Schematic diagram



Marking and pin assignment



Halogen-Free

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

| Symbol          | Parameter                                                   | Value         | Unit                   |
|-----------------|-------------------------------------------------------------|---------------|------------------------|
| $V_R$           | Reverse Voltage                                             | 40            | V                      |
| $V_{RRM}$       | Maximum recurrent peak reverse voltage                      |               |                        |
| $V_{RWM}$       | Working Peak Reverse Voltage                                |               |                        |
| $V_{R(RMS)}$    | RMS Reverse Voltage                                         | 28            |                        |
| $I_O$           | Average Rectified Output Current                            | 0.5           | A                      |
| $I_{FSM}$       | Non-repetitive Peak Forward Surge Current@ $t=8.3\text{ms}$ | 5.5           |                        |
| $P_D$           | Power Dissipation                                           | 500           | mW                     |
| $R_{\theta JA}$ | Thermal resistance junction to ambient air                  | 200           | $^{\circ}\text{C/W}$   |
| $T_J$           | Operating Junction Temperature Range                        | $-40\sim+125$ | $^{\circ}\text{C}$     |
| $T_{stg}$       | Operation Junction and Storage Temperature Range            | $-55\sim+150$ | $^{\circ}\text{C}$     |
| $dv/dt$         | Voltage rate of change                                      | 1000          | $\text{V}/\mu\text{s}$ |

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

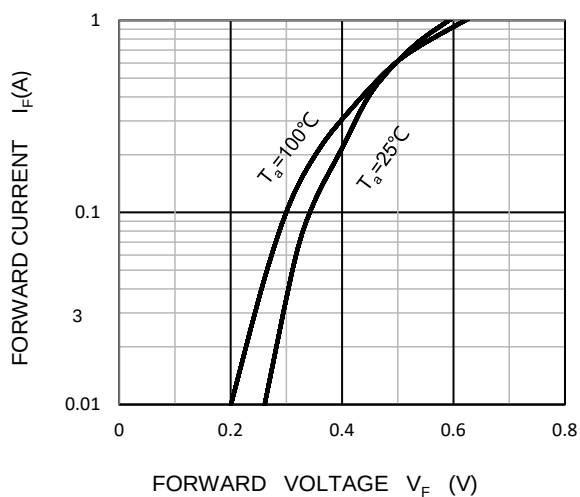
| Symbol     | Parameter                       | Condition                      | Min | Typ | Max  | Unit          |
|------------|---------------------------------|--------------------------------|-----|-----|------|---------------|
| $V_{(BR)}$ | Reverse voltage                 | $I_R=20\mu\text{A}$            | 40  | --  | --   | V             |
| $I_R$      | Reverse voltage leakage current | $V_R=20\text{V}$               | --  | --  | 10   | $\mu\text{A}$ |
|            |                                 | $V_R=40\text{V}$               | --  | --  | 20   |               |
| $V_F$      | Forward voltage                 | $I_F=0.5\text{A}$              | --  | --  | 0.51 | V             |
|            |                                 | $I_F=1.0\text{A}$              | --  | --  | 0.62 |               |
| $C_{tot}$  | Total capacitance               | $V_R=0\text{V}, f=1\text{MHz}$ | --  | --  | 170  | pF            |

### Ordering Information (Example)

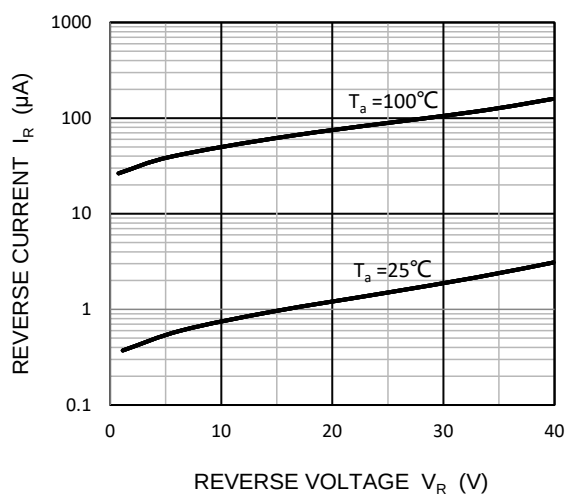
| Type   | Package | Marking | Minimum | Inner Box | Outer   | Delivery |
|--------|---------|---------|---------|-----------|---------|----------|
| B0540W | SOD-123 | SF      | 3,000   | 45,000    | 180,000 | 7" reel  |

### Typical Operating Characteristics

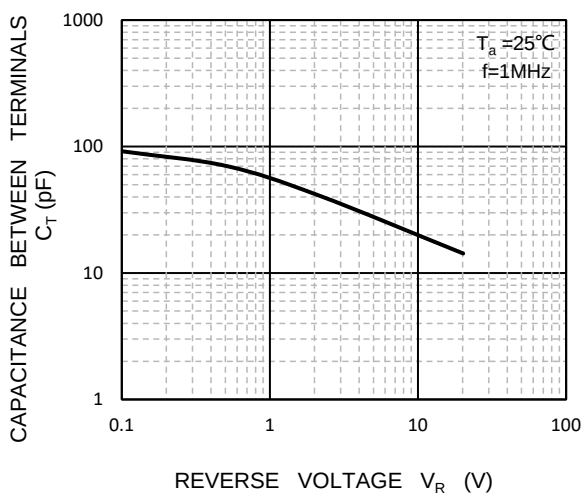
Forward Characteristics



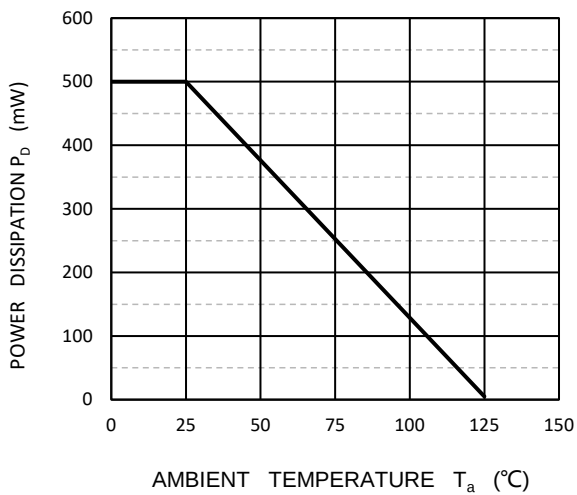
Reverse Characteristics

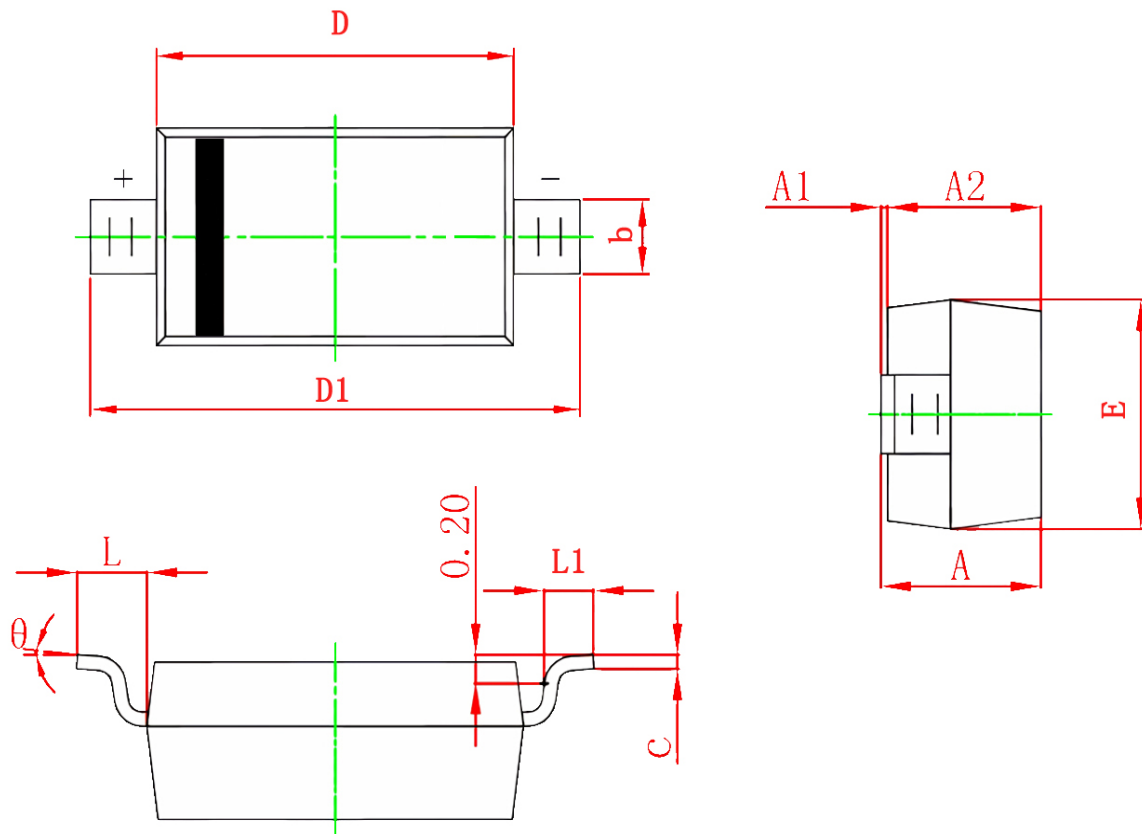


Capacitance Characteristics



Power Derating Curve



**SOD-123 Package information**


| Symbol   | Dimensions in Millimeters(mm) |       | 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        | 2.600                         | 2.800 | 0.102                | 0.110 |
| D1       | 3.550                         | 3.850 | 0.140                | 0.152 |
| E        | 1.500                         | 1.700 | 0.059                | 0.067 |
| L        | 0.500 REF                     |       | 0.020 REF            |       |
| L1       | 0.250                         | 0.450 | 0.010                | 0.018 |
| $\theta$ | 0°                            | 8°    | 0°                   | 8°    |