

## Features

- Fast Switching Speed: 50ns Maximum
- 400V High Reverse Breakdown Voltage Rating
- Low Capacitance: 2.5pF Maximum
- Surface Mount Package Ideally Suited for Automated Insertion
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

## Mechanical Data

- Case: SOD323
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed Over Alloy 42 Leadframe. Lead Free Plating. Solderable per MIL-STD-202, Method 208
- Weight: 0.005 grams (approximate)

SOD323



Top View

## Ordering Information (Note 4)

| Product     | Compliance | Marking | Reel Size (inches) | Tape Width (mm) | Quantity per Reel |
|-------------|------------|---------|--------------------|-----------------|-------------------|
| BAV5004WS-7 | AEC-Q101   | LY      | 7                  | 8               | 3,000/Tape & Reel |

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
  2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  4. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>

## Marking Information



LY = Product Type Marking Code  
 Line Denotes Cathode Side

## Maximum Ratings (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Characteristic                            | Symbol              | Value | Unit |
|-------------------------------------------|---------------------|-------|------|
| Repetitive Peak Reverse Voltage           | V <sub>RRM</sub>    | 400   | V    |
| Working Peak Reverse Voltage              | V <sub>RWM</sub>    | 350   | V    |
| DC Blocking Voltage                       | V <sub>R</sub>      | 247   | V    |
| RMS Reverse Voltage                       | V <sub>R(RMS)</sub> | 247   | V    |
| Forward Continuous Current (Note 5)       | I <sub>FM</sub>     | 300   | mA   |
| Peak Repetitive Forward Current (Note 5)  | I <sub>FRM</sub>    | 625   | mA   |
| Non-Repetitive Peak Forward Surge Current | I <sub>FSM</sub>    | 5.0   | A    |
|                                           |                     | 3.0   | A    |

## Thermal Characteristics

| Characteristic                                      | Symbol          | Value       | Unit                        |
|-----------------------------------------------------|-----------------|-------------|-----------------------------|
| Power Dissipation (Note 5) (See figure 1)           | $P_D$           | 200         | mW                          |
| Thermal Resistance Junction to Ambient Air (Note 5) | $R_{\theta JA}$ | 625         | $^{\circ}\text{C}/\text{W}$ |
| Operating and Storage Temperature Range             | $T_J, T_{STG}$  | -55 to +150 | $^{\circ}\text{C}$          |

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

| Characteristic                     | Symbol      | Min | Typ | Max                  | Unit                           | Test Condition                                                          |
|------------------------------------|-------------|-----|-----|----------------------|--------------------------------|-------------------------------------------------------------------------|
| Reverse Breakdown Voltage (Note 6) | $V_{(BR)R}$ | 400 | —   | —                    | V                              | $I_R = 150\mu\text{A}$                                                  |
| Forward Voltage                    | $V_F$       | —   | —   | 0.93<br>1.09<br>1.29 | V                              | $I_F = 20\text{mA}$<br>$I_F = 100\text{mA}$<br>$I_F = 200\text{mA}$     |
| Reverse Current (Note 6)           | $I_R$       | —   | —   | 1<br>100             | $\mu\text{A}$<br>$\mu\text{A}$ | $V_R = 240\text{V}$<br>$V_R = 240\text{V}, T_J = +150^{\circ}\text{C}$  |
| Total Capacitance                  | $C_T$       | —   | 0.9 | 2.5                  | pF                             | $V_R = 0\text{V}, f = 1.0\text{MHz}$                                    |
| Reverse Recovery Time              | $t_{rr}$    | —   | —   | 50                   | ns                             | $I_F = I_R = 30\text{mA}$ ,<br>$I_{rr} = 3.0\text{mA}, R_L = 100\Omega$ |

Notes: 5. Part mounted on FR-4 board with recommended pad layout, which can be found on our website at <http://www.diodes.com>.  
 6. Short duration pulse test used to minimize self-heating effect.

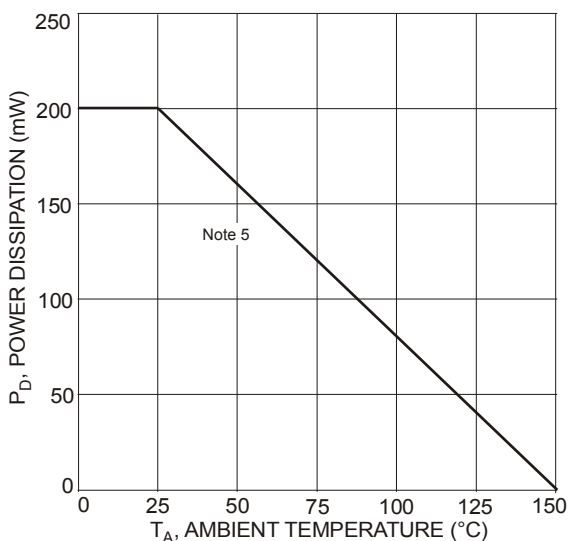


Fig. 1 Power Derating Curve

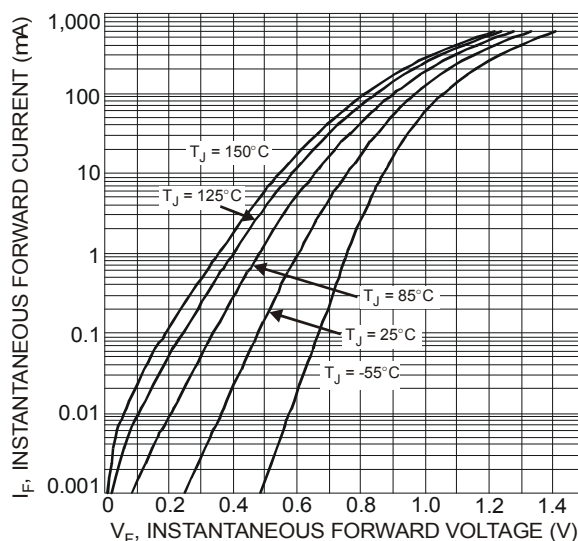


Fig. 2 Typical Forward Characteristics

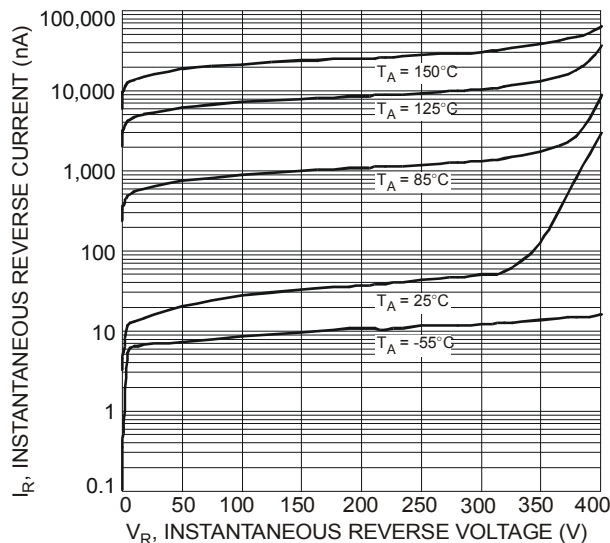


Fig. 3 Typical Reverse Characteristics

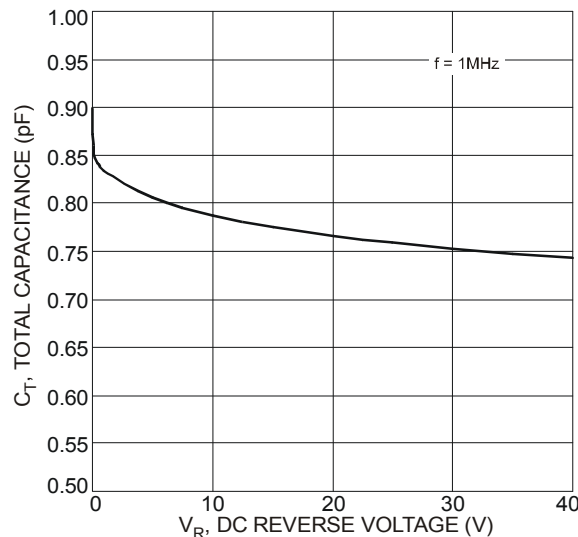
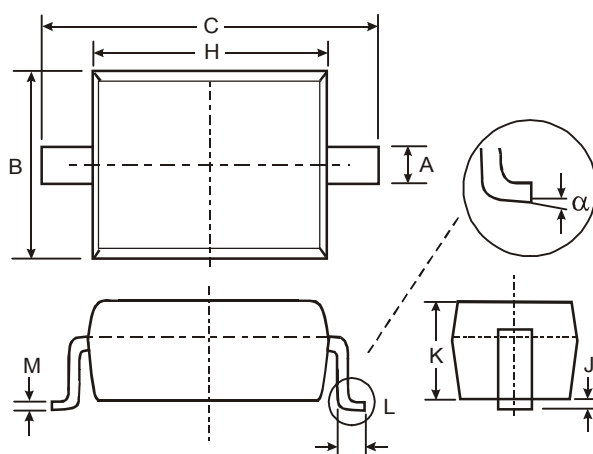


Fig. 4 Typical Total Capacitance vs. Reverse Voltage

## Package Outline Dimensions

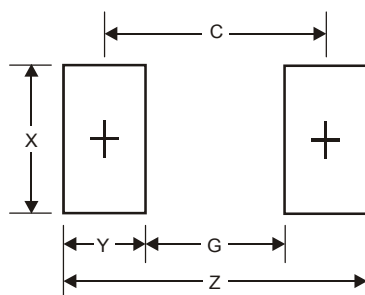
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



| SOD323               |      |      |
|----------------------|------|------|
| Dim                  | Min  | Max  |
| A                    | 0.25 | 0.35 |
| B                    | 1.20 | 1.40 |
| C                    | 2.30 | 2.70 |
| H                    | 1.60 | 1.80 |
| J                    | 0.00 | 0.10 |
| K                    | 1.0  | 1.1  |
| L                    | 0.20 | 0.40 |
| M                    | 0.10 | 0.15 |
| $\alpha$             | 0°   | 8°   |
| All Dimensions in mm |      |      |

## Suggested Pad Layout

Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



| Dimensions | Value (in mm) |
|------------|---------------|
| Z          | 3.75          |
| G          | 1.05          |
| X          | 0.65          |
| Y          | 1.35          |
| C          | 2.40          |

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**Наши контакты:**

**Телефон:** +7 812 627 14 35

**Электронная почта:** [sales@st-electron.ru](mailto:sales@st-electron.ru)

**Адрес:** 198099, Санкт-Петербург,  
Промышленная ул, дом № 19, литера Н,  
помещение 100-Н Офис 331