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# SBR3M100SB

**3.0A SBR**
**SURFACE MOUNT SUPER BARRIER RECTIFIER**

## Product Summary (@ $T_A$ = +25°C)

| $V_{RRM}$ (V) | $I_O$ (A) | $V_{F\ (MAX)}$ (V) | $I_{R\ (MAX)}$ (µA) |
|---|---|---|---|
| 100 | 3 | 0.81 | 1 |

## Features

- Low Forward Voltage Drop
- Patented Interlocking Clip Design for High Surge Current Capacity
- Patented Super Barrier Rectifier SBR® Technology
- Soft, Fast Switching Capability
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please contact us or your local Diodes representative. https://www.diodes.com/quality/product-definitions/**

## Description

The SBR3M100SB is a single rectifier packaged in the low profile SMB package, offering very low forward voltage drop ($V_F$) and excellent low reverse leakage stability at high temperatures.

## Applications

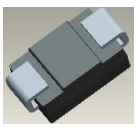
- DC-DC Converter
- AC-DC Rectifier
- Polarity Protection Diode
- Re-Circulating Diode
- Switching Diode
- Blocking Diode

## Mechanical Data

- Case: SMB
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Annealed over copper Lead-Frame. Solderable per MIL-STD-202, Method 208 e3
- Polarity: Cathode Band
- Weight: 0.093 grams (Approximate)



Top View



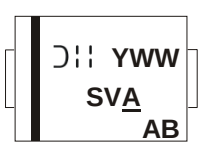
Bottom View

## Ordering Information (Note 4)

| Part Number | Case | Packaging |
|---|---|---|
| SBR3M100SB-13 | SMB | 3000/Tape & Reel |

Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
2. See https://www.diodes.com/quality/lead-free/ 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 https://www.diodes.com/design/support/packaging/diodes-packaging/.

## Marking Information




SV<u>A</u> = Product Type Marking Code
= Manufacturers' Code Marking
YWW = Date Code Marking
Y = Last Digit of Year (ex: 1 for 2021)
WW = Week Code (01 to 53)
AB = Foundry and Assembly Code

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## Maximum Ratings (@ $T_A$ = +25°C, unless otherwise specified.)

Single phase, half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | $V_{RRM}$<br>$V_{RWM}$<br>$V_{RM}$ | 100 | V |
| Average Rectified Output Current | $I_O$ | 3.0 | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms<br>Single Half Sine-Wave Superimposed on Rated Load | $I_{FSM}$ | 65 | A |

## Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Thermal Resistance Junction to Lead | $R_{\theta JL}$ | 25 | °C/W |
| Thermal Resistance Junction to Case (Note 5) | $R_{\theta JC}$ | 40 | |
| Thermal Resistance Junction to Ambient (Note 5) | $R_{\theta JA}$ | 70 | |
| Operating and Storage Temperature Range | $T_J$, $T_{STG}$ | -55 to +150 | °C |

## Electrical Characteristics (@ $T_A$ = +25°C, unless otherwise specified.)

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|---|---|---|---|---|---|---|
| Forward Voltage Drop | $V_F$ | —<br>— | 0.75<br>0.625 | 0.81<br>0.69 | V | $I_F$ = 3A, $T_J$ = +25°C<br>$I_F$ = 3A, $T_J$ = +125°C |
| Leakage Current (Note 6) | $I_R$ | —<br>— | 0.08<br>18 | 1<br>500 | µA<br>µA | $V_R$ = 100V, $T_J$ = +25°C<br>$V_R$ = 100V, $T_J$ = +125°C |

Notes: 5. Device mounted on FR-4 substrate, 1" x 1", 2oz, single-sided, PC boards with 0.56" x 0.73" copper pad. $T_A$ = +25ºC
6. Short duration pulse test used to minimize self-heating effect.


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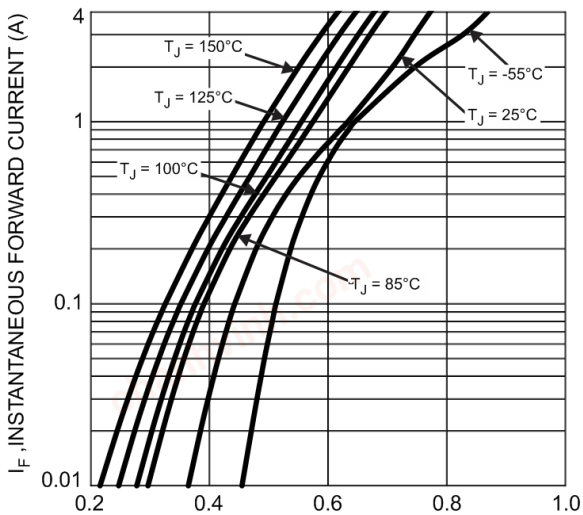



Fig. 1 Typical Forward Characteristics

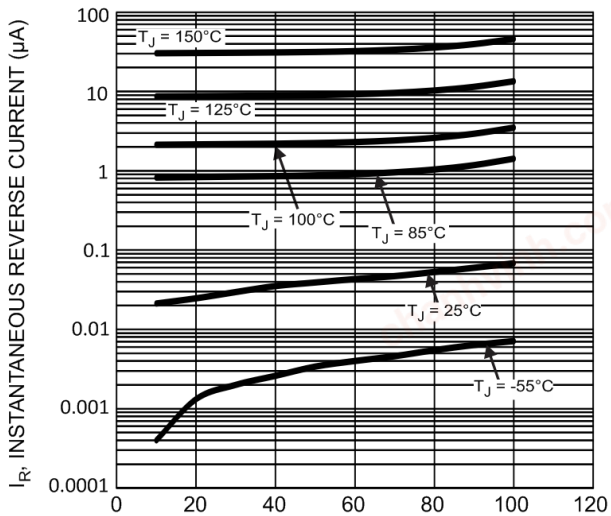



Fig. 2 Typical Forward Characteristics

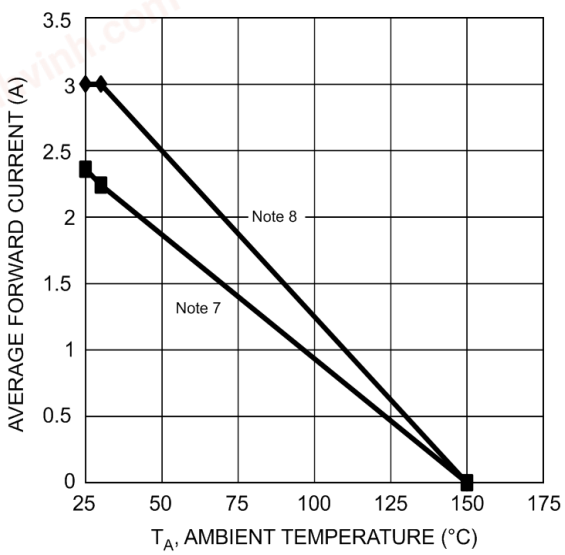



Fig. 3 Forward Current Derating Curve

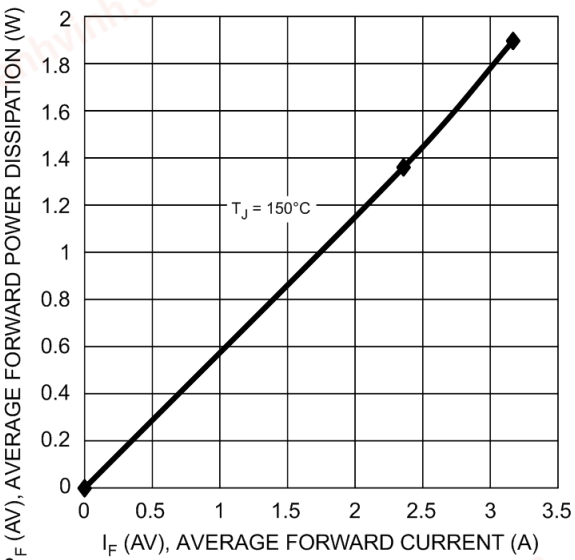



Fig. 4 Forward Power Dissipation

Notes: 7. Device mounted on FR-4 substrate, 1"*1", 2oz, single-sided, PC boards with 0.1"*0.15" copper pad.
8. Device mounted on FR-4 substrate, 1"*1", 2oz, single-sided, PC boards with 0.56"*0.73" copper pad.


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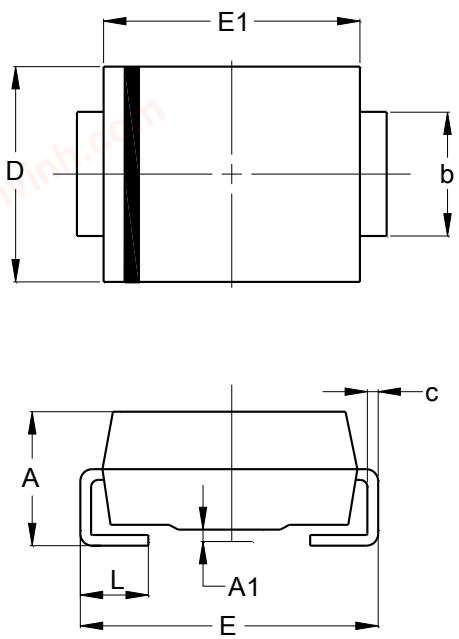
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## Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.

**SMB**

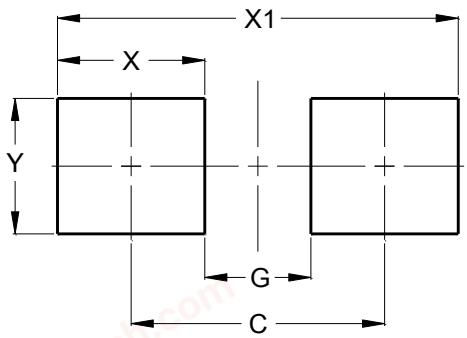



| SMB | | |
|---|---|---|
| **Dim** | **Min** | **Max** |
| **A** | 2.00 | 2.50 |
| **A1** | 0.05 | 0.20 |
| **b** | 1.96 | 2.21 |
| **c** | 0.15 | 0.31 |
| **D** | 3.30 | 3.94 |
| **E** | 5.00 | 5.59 |
| **E1** | 4.06 | 4.57 |
| **L** | 0.76 | 1.52 |
| **All Dimensions in mm** | | |

## Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.

**SMB**




| Dimensions | Value (in mm) |
|---|---|
| **C** | 4.30 |
| **G** | 1.80 |
| **X** | 2.50 |
| **X1** | 6.80 |
| **Y** | 2.30 |


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