**2.0A SBR®**

**SURFACE MOUNT SUPER BARRIER RECTIFIER**

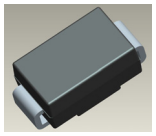
## Features

- Ultra Low Forward Voltage Drop
- Excellent High Temperature Capability
- Patented Super Barrier Rectifier Technology
- Soft, Fast Switching Capability
- 175°C Operating Junction Temperature
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

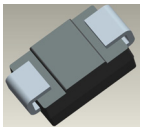
## Mechanical Data

- Case: SMA
- Case Material: Molded Plastic, UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: Lead Free Plating (Matte Tin Finish.) Solderable per MIL-STD-202, Method 208 e3
- Polarity Indicator: Cathode Band
- Weight: 0.064 grams (approximate)

SMA



Top View



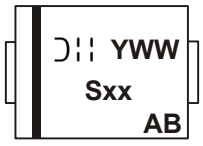
Bottom View

## Ordering Information (Note 4)

| Part Number | Case | Packaging |
|---|---|---|
| SBR2U150SA-13 | SMA | 5000/Tape & Reel |

Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
2. See 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




S D B or S Q B = Product Type Marking Code
= Manufacturers' code marking
YWW = Date Code Marking
Y = Last digit of year (ex: 9 for 2009)
WW = Week code (01 – 53)
AB = Foundry and Assembly Code

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

Single phase, half wave, 60Hz, resistive or inductive load.
For capacitance 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>$V_{RM}$ | 150 | V |
| Average Rectified Output Current (See Figure 1) | $I_O$ | 2.0 | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms<br>Single Half Sine-Wave Superimposed on Rated Load | $I_{FSM}$ | 42 | A |
| Maximum Voltage Rate of Change (Rated $V_R$) | dv/dt | 10,000 | V/μs |

## Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Thermal Resistance Junction to Soldering (Note 4) | $R_{\theta JS}$ | 3 | °C/W |
| Thermal Resistance Junction to Ambient (Note 5) | $R_{\theta JA}$ | 119 | |
| Thermal Resistance Junction to Ambient (Note 6) | $R_{\theta JA}$ | 88 | |
| Operating and Storage Temperature Range | $T_J$, $T_{STG}$ | -65 to +175 | °C |

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

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|---|---|---|---|---|---|---|
| Reverse Breakdown Voltage (Note 7) | $V_{(BR)R}$ | 150 | — | — | V | $I_R$ = 100μA |
| Forward Voltage Drop | $V_F$ | — | — | 0.8 | V | $I_F$ = 2.0A, $T_J$ = +25C |
| | | — | — | 0.65 | | $I_F$ = 2.0A, $T_J$ = +125°C |
| Leakage Current (Note 6) | $I_R$ | — | — | 75 | μA | $V_R$ = 150V, $T_J$ = +25°C |
| | | — | — | 10 | mA | $V_R$ = 150V, $T_J$ = +125°C |

Notes:
4. Theoretical $R_{\theta JS}$ calculated from the top center of the die straight down to the PCB cathode tab solder junction.
5. FR-4 PCB, 2 oz. Copper, minimum recommended pad layout per http://www.diodes.com. $T_A$ = 25ºC
6. Polymide PCB, 2 oz. Copper, minimum recommended pad layout per http://www.diodes.com
7. Short duration pulse test used to minimize self-heating effect.

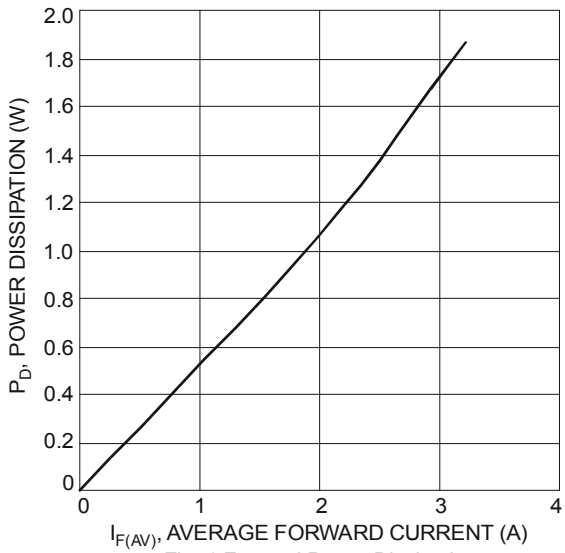


Fig. 1 Forward Power Dissipation

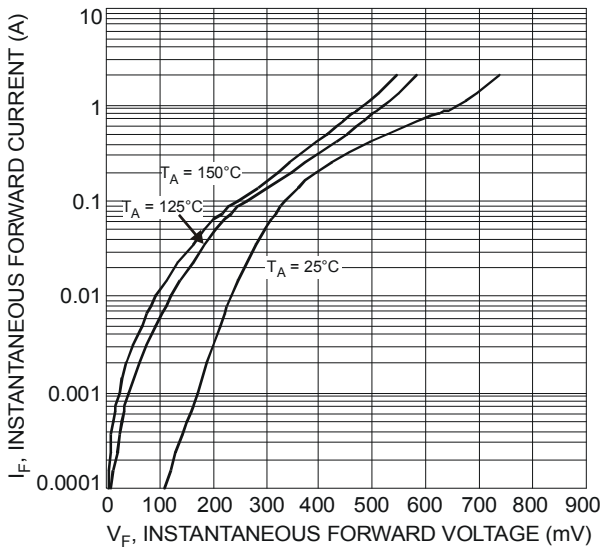


Fig. 2 Typical Forward Characteristics

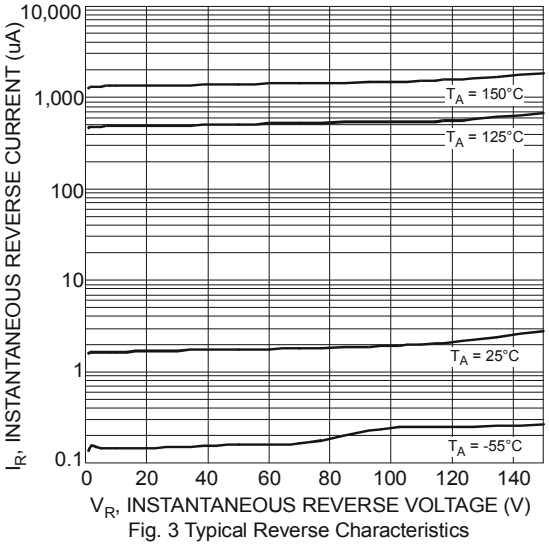


Fig. 3 Typical Reverse Characteristics

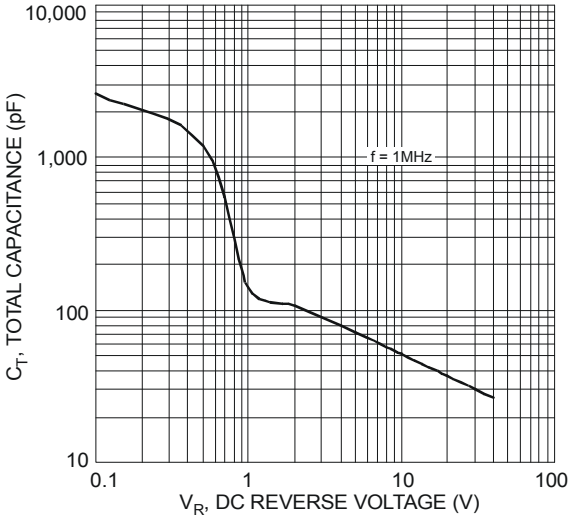


Fig. 4 Total Capacitance vs. Reverse Voltage

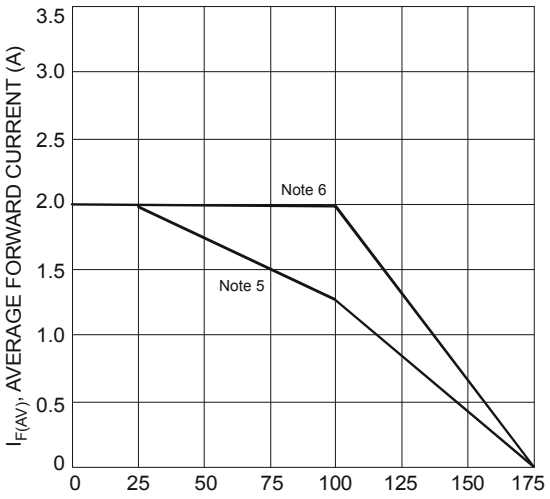


Fig. 5 DC Forward Current Derating Curve

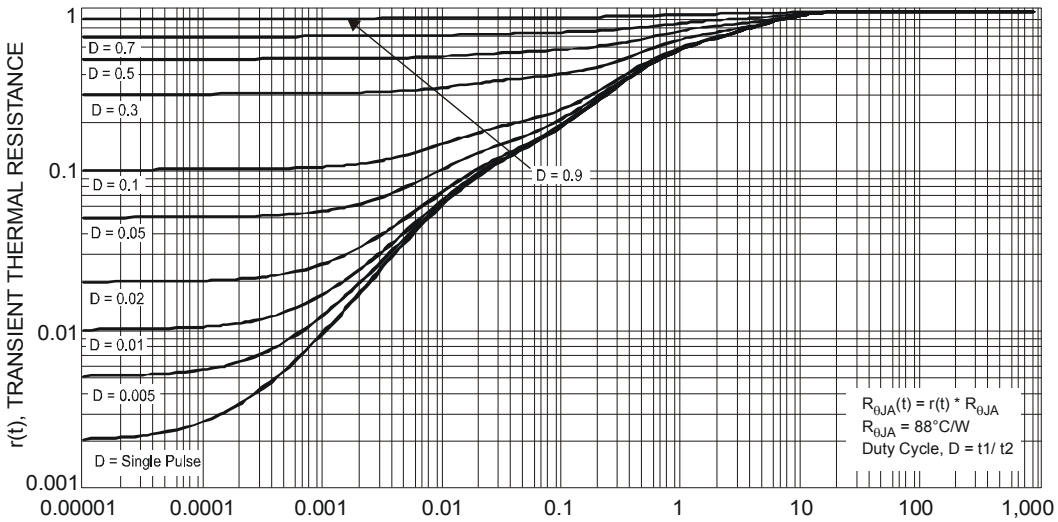
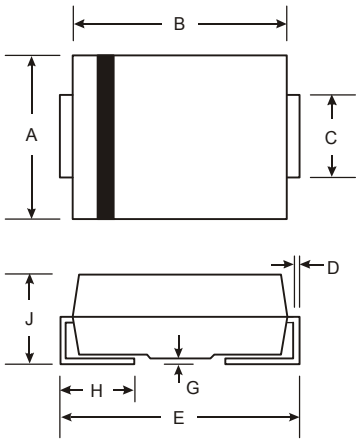


Fig. 6 Transient Thermal Resistance

## Package Outline Dimensions

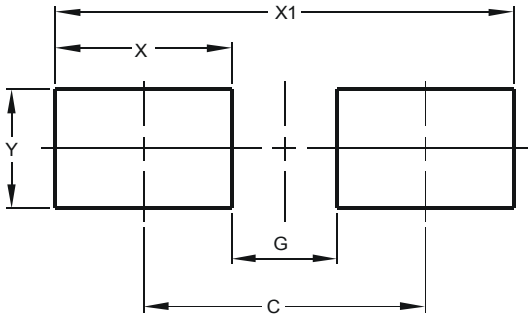
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.




| SMA | | |
|---|---|---|
| Dim | Min | Max |
| A | 2.29 | 2.92 |
| B | 4.00 | 4.60 |
| C | 1.27 | 1.63 |
| D | 0.15 | 0.31 |
| E | 4.80 | 5.59 |
| G | 0.05 | 0.20 |
| H | 0.76 | 1.52 |
| J | 2.01 | 2.30 |
| All Dimensions in mm | | |

## Suggested Pad Layout

Please see AP02001 at http://www.diodes.com/datasheets/ap02001.pdf for the latest version.




| Dimensions | Value (in mm) |
|---|---|
| C | 4.00 |
| G | 1.50 |
| X | 2.50 |
| X1 | 6.50 |
| Y | 1.70 |

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