

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 |

Description

The SBR3M100SAF is a single rectifier packaged in the low profile SMAF package, offering very low forward voltage drop (VF) and excellent low reverse leakage stability at high temperatures.

Applications

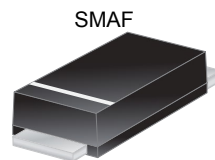
- DC-DC Converter
- AC-DC Rectifier
- Polarity Protection Diode
- Re-Circulating Diode
- Switching Diode
- Blocking Diode

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 refer to the related automotive grade (Q-suffix) part. A listing can be found at <https://www.diodes.com/products/automotive/automotive-products/>.**
- **This part is qualified to JEDEC standards (as references in AEC-Q) for High Reliability. <https://www.diodes.com/quality/product-definitions/>**

Mechanical Data

- Case: SMAF
- 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 **ⓐ3**
- Polarity: Cathode Band
- Weight: 0.035 grams (Approximate)



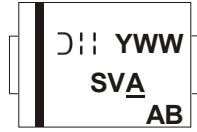
Top View

Ordering Information (Note 4)

| Part Number | Case | Packaging |
|----------------|------|-------------------|
| SBR3M100SAF-13 | SMAF | 10000/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



SVA = Product Type Marking Code
 DII = 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

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 | V _{RRM} | 100 | V |
| Working Peak Reverse Voltage | V _{RWM} | | |
| DC Blocking Voltage | V _{RM} | | |
| Average Rectified Output Current (See Figure 1) | I _O | 3.0 | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load | I _{FSM} | 65 | A |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|-----------------------------------|-------------|------|
| Thermal Resistance Junction to Lead (Note 5) | R _{θJL} | 45 | °C/W |
| Thermal Resistance Junction to Case (Note 5) | R _{θJC} | 50 | |
| Thermal Resistance Junction to Ambient (Note 5) | R _{θJA} | 105 | |
| 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 | — | 0.75 | 0.81 | V | I _F = 3A, T _J = +25°C |
| | | | 0.62 | 0.69 | | I _F = 3A, T _J = +125°C |
| Leakage Current (Note 6) | I _R | — | 0.08 | 1 | μA | V _R = 100V, T _J = +25°C |
| | | | 18 | 500 | | V _R = 100V, T _J = +125°C |

Notes: 5. Device mounted on FR-4 substrate, 0.4"*0.5", 2oz, single-sided, PC boards with 0.2"*0.25" copper pad.
 6. Short duration pulse test used to minimize self-heating effect.

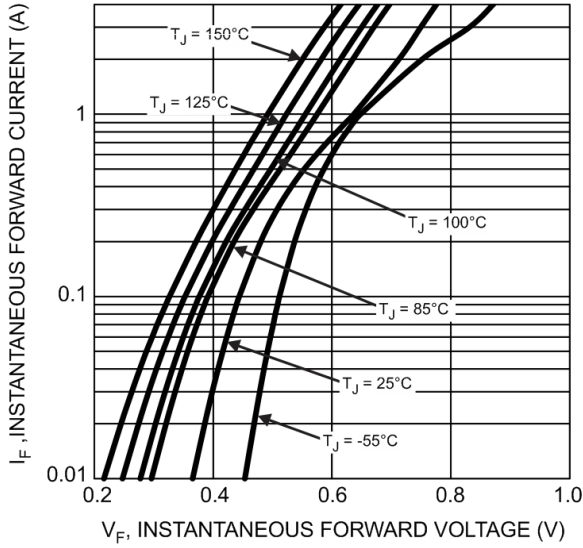


Fig. 1 Typical Forward Characteristics

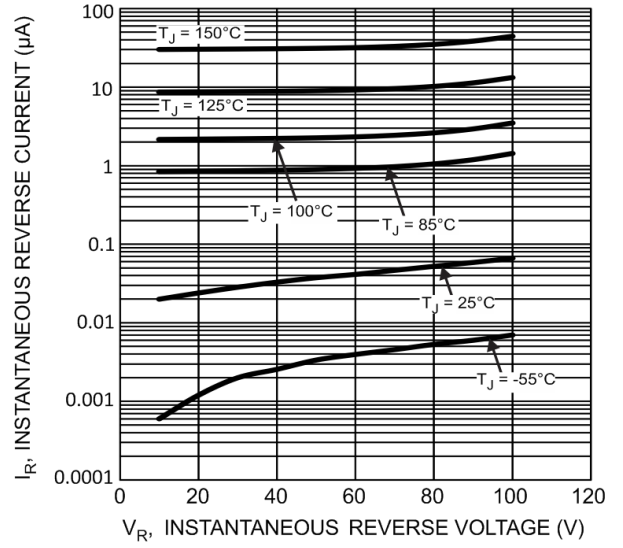


Fig. 2 Typical Reverse Characteristics

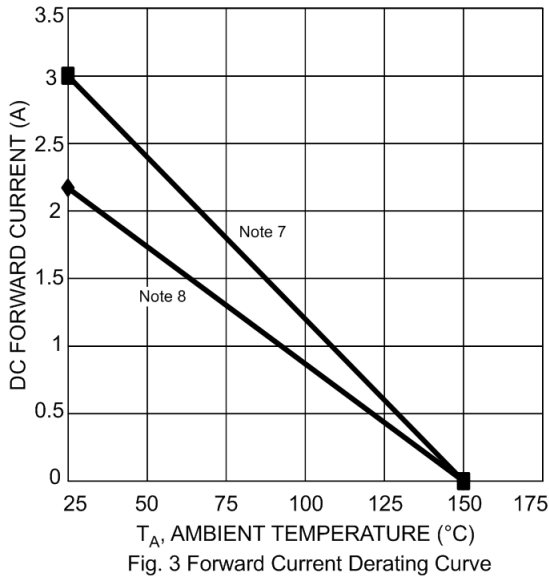


Fig. 3 Forward Current Derating Curve

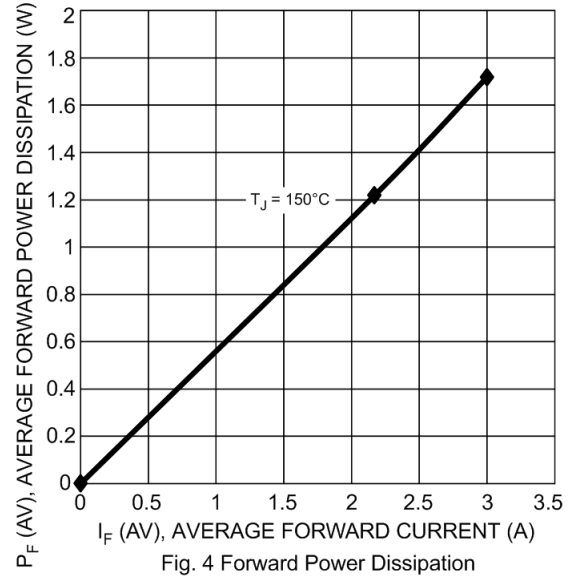


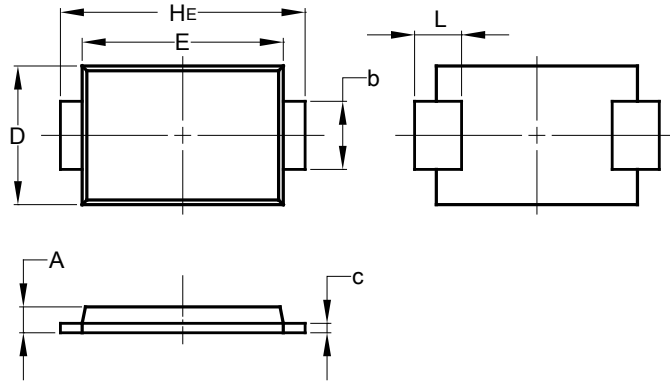
Fig. 4 Forward Power Dissipation

Notes: 7. Device mounted on FR-4 substrate, 0.4**0.5", 2oz, single-sided, PC boards with 0.2**0.25" copper pad.
8. Device mounted on FR-4 substrate, 1**1", 2oz, single-sided, PC boards with 0.06**0.09" copper pad.

Package Outline Dimensions

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

SMAF

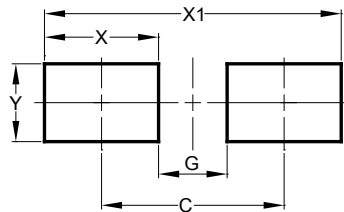


| SMAF | | |
|----------------------|------|------|
| Dim | Min | Max |
| A | 0.90 | 1.10 |
| b | 1.25 | 1.65 |
| c | 0.10 | 0.40 |
| D | 2.25 | 2.95 |
| E | 3.95 | 4.60 |
| HE | 4.80 | 5.60 |
| L | 0.50 | 1.50 |
| All Dimensions in mm | | |

Suggested Pad Layout

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

SMAF



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

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