

Product Summary (@ $T_A = +25^\circ\text{C}$)

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 (V_F) and excellent low reverse leakage stability at high temperatures.

Applications

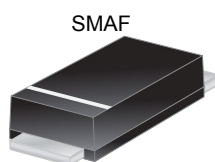
- DC-DC Converter
- AC-DC Rectifier
- Polarity Protection Diode
- Re-Circulating Diode
- Switching Diode
- Blocking Diode

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)



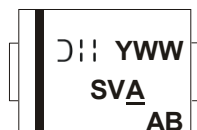
Top View

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
 SVA = 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	μA	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.

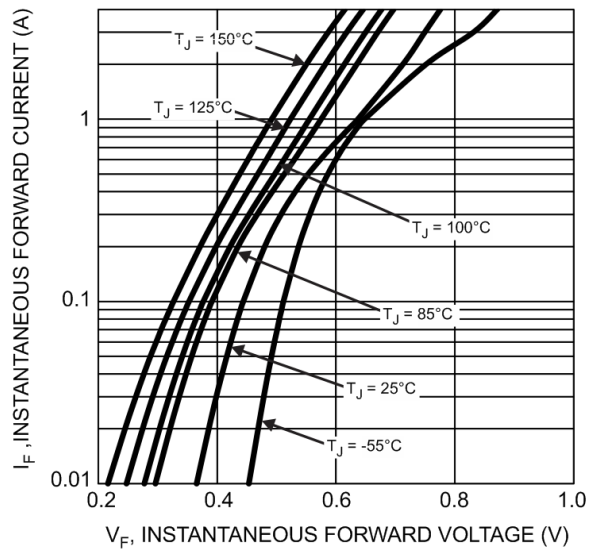


Fig. 1 Typical Forward Characteristics

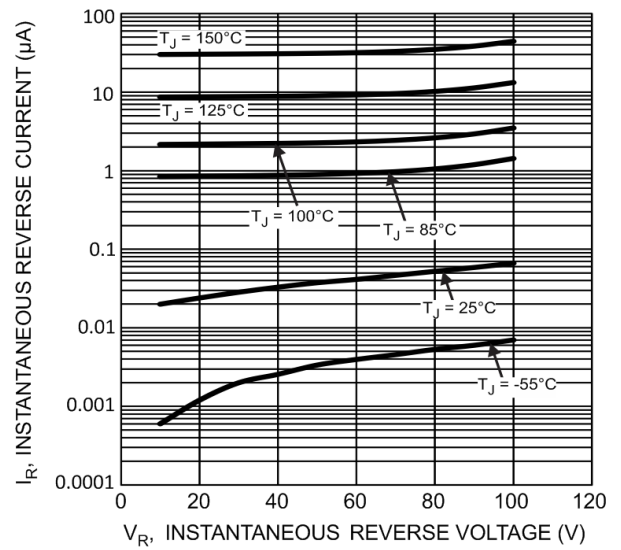


Fig. 2 Typical Reverse Characteristics

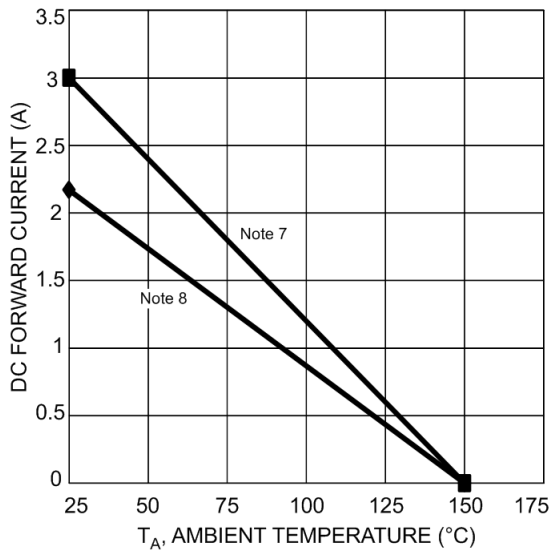


Fig. 3 Forward Current Derating Curve

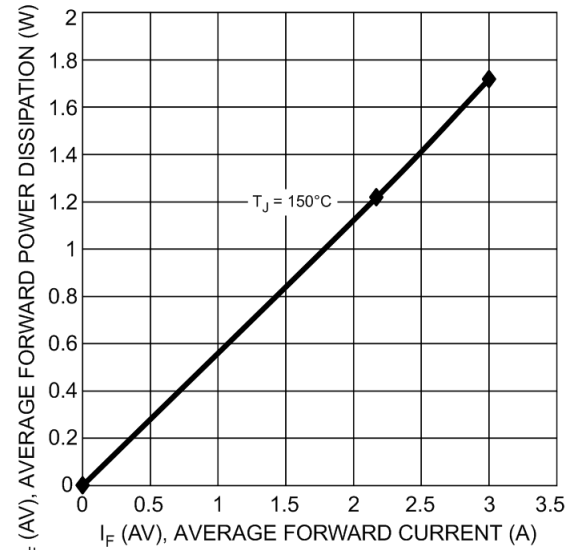


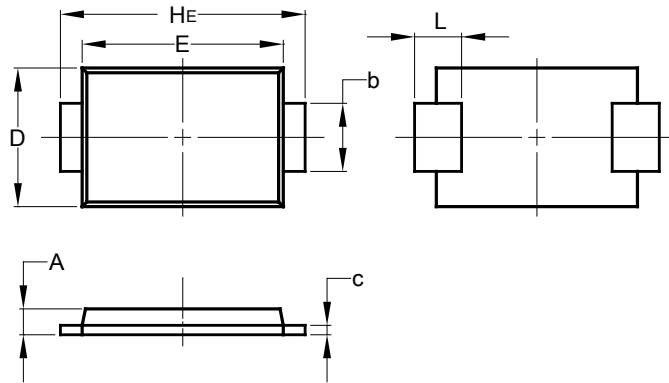
Fig. 4 Forward Power Dissipation

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

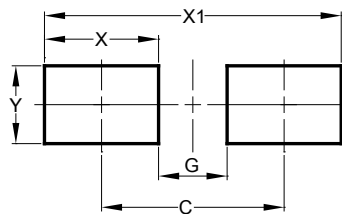


SMAF		
Dim	Min	Max
A	0.90	1.10
b	1.25	1.65
c	0.10	0.40
D	2.25	2.95
E	3.95	4.60
HE	4.80	5.60
L	0.50	1.50
All Dimensions in mm		

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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