SBR3M100SAF

3.0A SBR
SURFACE MOUNT SUPER BARRIER RECTIFIER

Product Summary (@ T_A = +25°C)

V_{RRM} (V)	I_O (A)	$V_{F\ (MAX)}$ (V)	$I_{R\ (MAX)}$ (uA)
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 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/**

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.

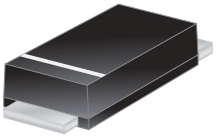
Applications

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

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 e3
- Polarity: Cathode Band
- Weight: 0.035 grams (Approximate)

SMAF



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/.

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Marking Information



SVA = 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

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 Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_{RM}	100	V
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)	$R_{\theta JL}$	45	°C/W
Thermal Resistance Junction to Case (Note 5)	$R_{\theta JC}$	50	
Thermal Resistance Junction to Ambient (Note 5)	$R_{\theta JA}$	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 0.62	0.81 0.69	V	I_F = 3A, T_J = +25°C I_F = 3A, T_J = +125°C
Leakage Current (Note 6)	I_R	— —	0.08 18	1 500	µA µA	V_R = 100V , T_J = +25°C 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.

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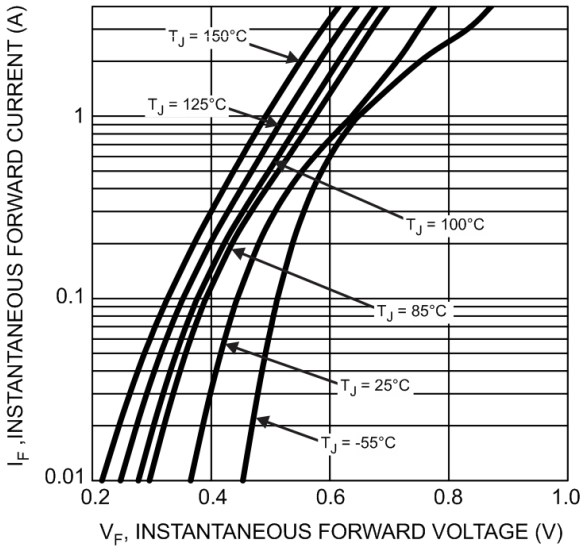


Fig. 1 Typical Forward Characteristics

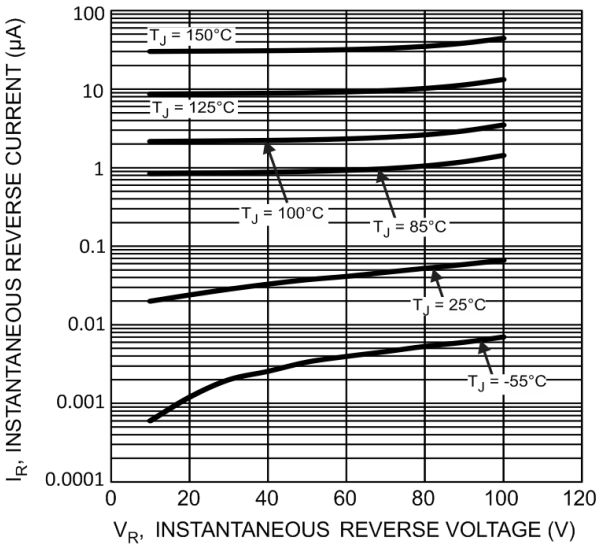


Fig. 2 Typical Forward Characteristics

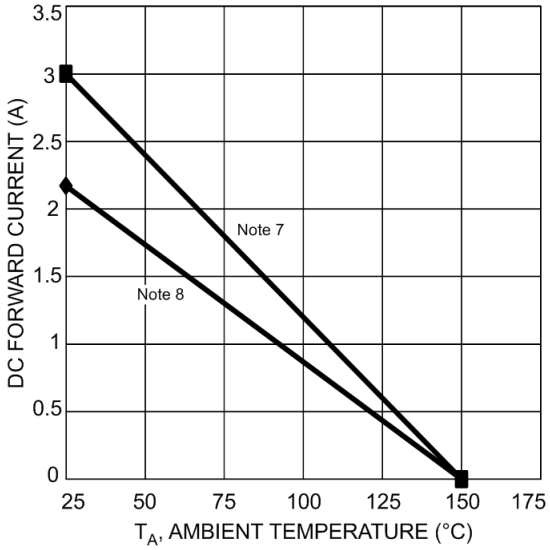


Fig. 3 Forward Current Derating Curve

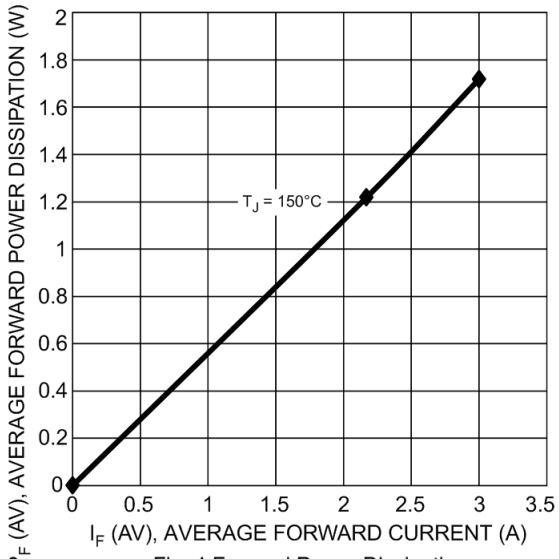


Fig. 4 Forward Power Dissipation

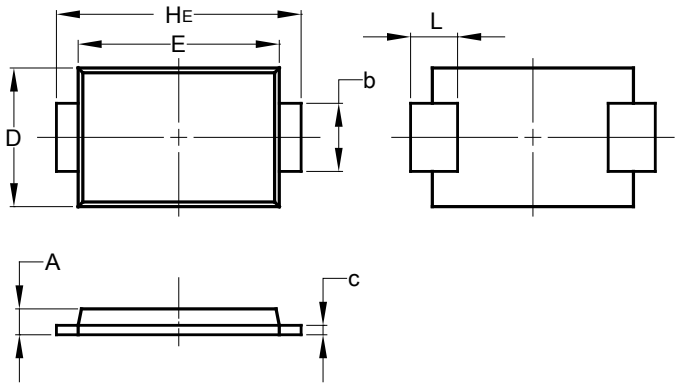
Notes: 7. Device mounted on FR-4 substrate, 0.4"*0.5", 2oz, single-sided, PC boards with 0.2"*0.25" copper pad.
8. Device mounted on FR-4 substrate, 1"*1", 2oz, single-sided, PC boards with 0.06"*0.09" copper pad.

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Package Outline Dimensions

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

SMAF

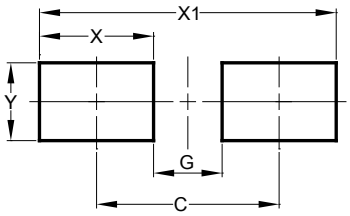


SMAF		
Dim	**Min**	**Max**
A	0.90	1.10
b	1.25	1.65
c	0.10	0.40
D	2.25	2.95
E	3.95	4.60
H_E	4.80	5.60
L	0.50	1.50
All Dimensions in mm		

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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