



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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Product Summary

B120AF/B130AF/B140AF

V _{RRM} (V)	I _O (A)	V _{F(MAX)} (V) @ +25°C	I _{R(MAX)} (mA) @ +25°C
20	1	0.5	0.1
30	1	0.5	0.1
40	1	0.5	0.2

Description and Applications

The Schottky rectifier providing low V_F and excellent reverse leakage stability at high temperatures, this device is ideal for use in general rectification applications such as:

- Boost Diode
- Blocking Diode
- Recirculating Diode

Features and Benefits

- Reduced Low Forward Voltage Drop (V_F); Better Efficiency and Cooler Operation
- Reduced High-Temperature Reverse Leakage; Increased Reliability against Thermal Runaway Failure in High Temperature Operation
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

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 Leadframe. Solderable per MIL-STD-202, Method 208 
- Polarity: Cathode Band
- Weight: 0.036 grams (Approximate)

SMAF



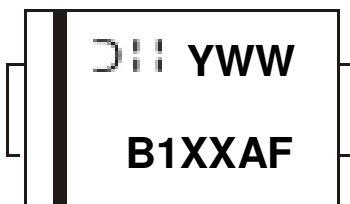
Top View

Ordering Information (Note 4)

Part Number	Case	Packaging
B120AF-13	SMAF	10,000/Tape & Reel
B130AF-13	SMAF	10,000/Tape & Reel
B140AF-13	SMAF	10,000/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 <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information



B1XXAF = Product Type Marking Code, ex: B120AF

311 = Manufacturers' Code Marking

YWW = Date Code Marking

Y = Last Digit of Year (ex: 7 for 2017)

WW = Week Code (01 to 53)

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	B120AF	B130AF	B140AF	Unit
Peak Repetitive Reverse Voltage	V _{RRM}	20	30	40	V
Working Peak Reverse Voltage	V _{RWM}				
DC Blocking Voltage	V _{RM}				
Average Rectified Output Current	I _O	1			A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I _{FSM}	30			A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 5)	R _{θJA}	95	°C/W
Typical Thermal Resistance Junction to Case (Note 5)	R _{θJC}	45	°C/W
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	—	0.455 0.40	0.50 —	V	I _F = 1A, T _J = +25°C I _F = 1A, T _J = +125°C
Leakage Current (Note 6)	I _R	—	0.005 0.006 0.010 6.0	0.10 0.10 0.20 —	mA	V _R = 20V, T _J = +25°C V _R = 30V, T _J = +25°C V _R = 40V, T _J = +25°C V _R = 40V, T _J = +125°C
Typical Capacitance	C _T	—	50	—	pF	V _R = 4.0V, f = 1MHz

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

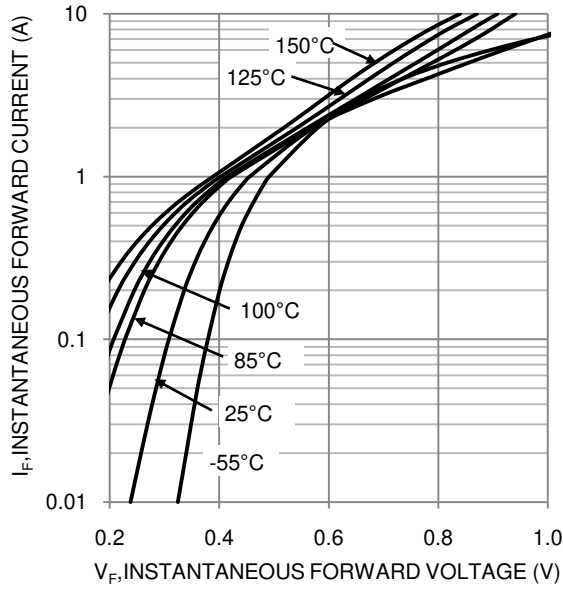


Figure 1. Typical Forward Characteristics

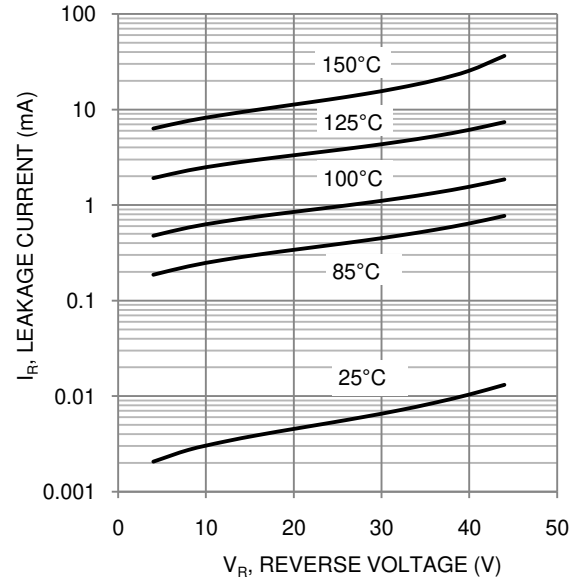


Figure 2. Typical Reverse Characteristics

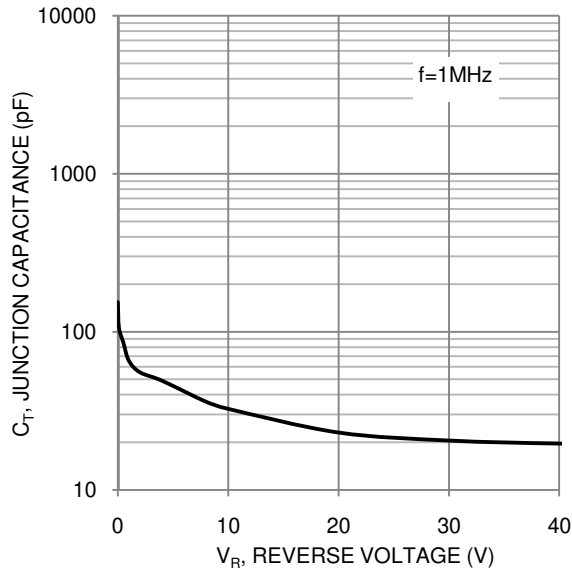


Figure 3. Typical Junction Capacitance

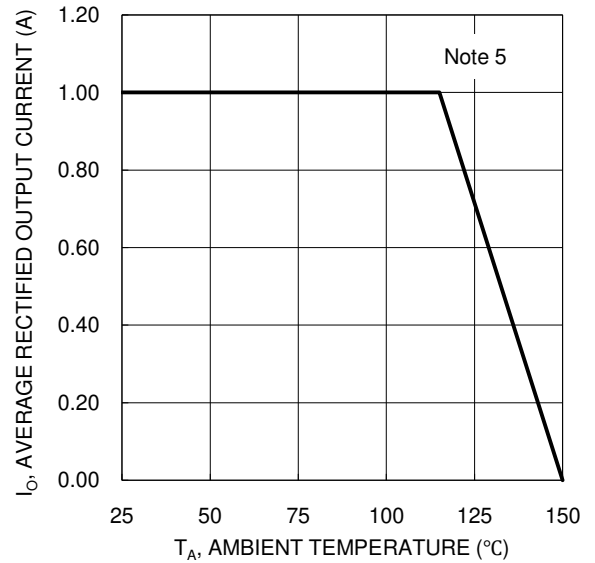
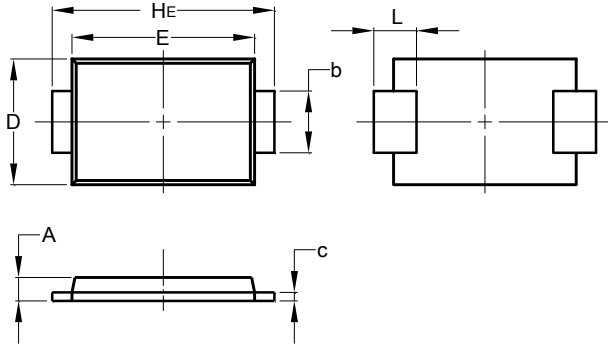


Figure 4. DC Forward Current Derating

Package Outline Dimensions

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

SMAF

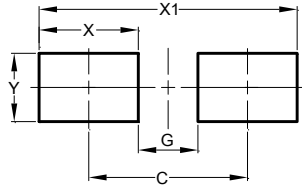


SMAF		
Dim	Min	Max
A	0.90	1.10
b	1.25	1.65
c	0.10	0.40
D	2.25	2.95
E	3.95	4.60
HE	4.80	5.60
L	0.50	1.50
All Dimensions in mm		

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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