



3.0A SCHOTTKY BARRIER RECTIFIER

Product Summary

B320AE/B330AE/B340AE/B345AE

V _{RRM} (V)	I _O (A)	V _{F(MAX)} (V) @ +25°C	I _{R(MAX)} (mA) @ +25°C	
20	3	0.5	0.10	
30	3	0.5	0.15	
40	3	0.5	0.20	
45	3	0.5	0.30	

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: SMA
- 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 (3)
- Polarity: Cathode Band
- Weight: 0.063 grams (Approximate)

SMA



Top View



Bottom View

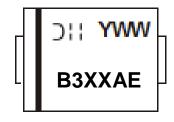
Ordering Information (Note 4)

Part Number	Case	Packaging
B320AE-13	SMA	5,000/Tape & Reel
B330AE-13	SMA	5,000/Tape & Reel
B340AE-13	SMA	5,000/Tape & Reel
B345AE-13	SMA	5,000/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 http://www.diodes.com/products/packages.html.

Marking Information





Single phase, half wave, 60Hz, resistive or inductive load.

For capacitive load, derate current by 20%.

Characteristic	Symbol	B320AE	B330AE	B340AE	B345AE	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V _{RRM} V _{RWM} V _{RM}	20	30	40	45	>
Average Rectified Output Current	Io	3				Α
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I _{FSM}	80			А	

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 5)	$R_{\theta JA}$	60	°C/W
Typical Thermal Resistance Junction to Case (Note 5)	$R_{\theta JC}$	30	°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	Тур	Max	Unit	Test Condition
Forward Voltage Drop	\/		0.45	0.50	V	$I_F = 3A, T_J = +25^{\circ}C$	
		V _F	_	0.40	_	V	I _F = 3A, T _J = +125°C
	B320AE		_	_	0.10		V _R = 20V, T _J = +25°C
Leakage Current (Note 6) B3	B330AE		_	_	0.15	mA	$V_R = 30V, T_J = +25^{\circ}C$
	B340AE		_	_	0.20		$V_R = 40V, T_J = +25^{\circ}C$
	B345AE		_	_	0.30		$V_R = 45V, T_J = +25^{\circ}C$
			_	35	_		V _R = 45V, T _J = +125°C
Typical Capacitance		CT	1	140	_	pF	$V_R = 4.0V$, $f = 1MHz$

Notes:

- $5.\ Device\ mounted\ on\ FR-4\ substrate,\ 1"*1",\ 2oz,\ single-sided,\ PC\ boards\ with\ 0.56"*0.73"\ copper\ pad.$
- $\hbox{6. Short duration pulse test used to minimize self-heating effect.}\\$



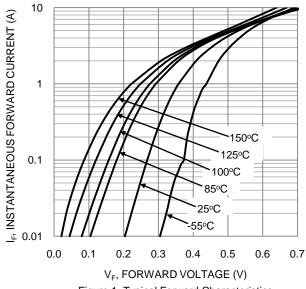
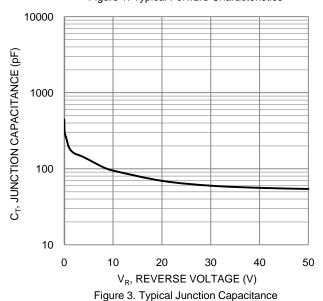


Figure 1. Typical Forward Characteristics



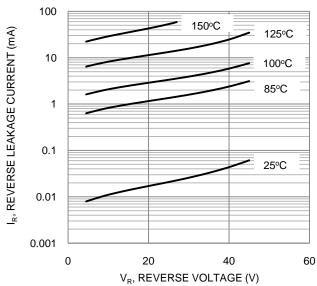


Figure 2. Typical Reverse Characteristics

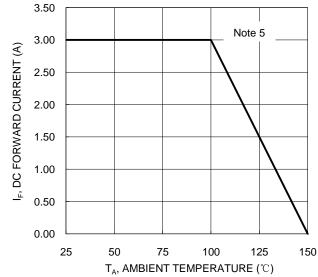


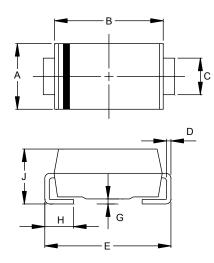
Figure 4. DC Forward Current Derating



Package Outline Dimensions

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

SMA

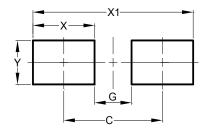


SMA					
Dim	Min	Max			
Α	2.29	2.92			
В	4.00	4.60			
С	1.27	1.63			
D	0.15	0.31			
Е	4.80	5.59			
G	0.05	0.20			
Н	0.76	1.52			
J	1.96	2.40			
All Dimensions in mm					

Suggested Pad Layout

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

SMA



Dimensions	Value (in mm)
C	4.00
G	1.50
Х	2.50
X1	6.50
Υ	1.70



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