B220AE-B245AE
B220BE-B245BE

2.0A SCHOTTKY BARRIER RECTIFIER

Product Summary

B220AE/B230AE/B240AE/B245AE
B220BE/B230BE/B240BE/B245BE

V_{RRM} (V)	I_O (A)	$V_{F(MAX)}$ (V) @ +25°C	$I_{R(MAX)}$ (mA) @ +25°C
20	2	0.5	0.1
30	2	0.5	0.1
40	2	0.5	0.2
45	2	0.5	0.2

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)**

Description and Applications

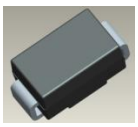
The Schottky rectifier providing low V_F and excellent reverse leakage stability at high temperatures, this device is ideal for use in general rectification applications such as:

- Boost Diode
- Blocking Diode
- Recirculating Diode

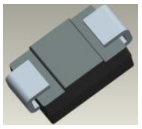
Mechanical Data

- Case: SMA, SMB
- 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 e3
- Polarity: Cathode Band
- Weight: SMA-0.063 grams (Approximate)
  SMB-0.093 grams (Approximate)

SMA/SMB



Top View



Bottom View

Ordering Information (Note 4)

Part Number	Case	Packaging
B2XXAE-13	SMA	5,000/Tape & Reel
B2XXBE-13	SMB	3,000/Tape & Reel

*X = Device type, e.g. B220AE-13 (SMA package); B220BE-13 (SMB package).

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

SMA

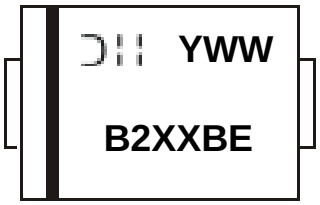


B2XXAE = Product Type Marking Code, ex: B220AE
= Manufacturers' Code Marking
YWW = Date Code Marking
Y = Last Digit of Year (ex: 7 for 2017)
WW = Week Code (01 to 53)

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Marking Information (Cont.)

SMB



B2XXBE = Product Type Marking Code, ex: B220BE
= 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	B220AE B220BE	B230AE B230BE	B240AE B240BE	B245AE B245BE	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_{RM}	20	30	40	45	V
Average Rectified Output Current	I_O	2				A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	50				A

Thermal Characteristics

Characteristic		Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 5)	SMA SMB	$R_{\theta JA}$	95 90	°C/W
Typical Thermal Resistance Junction to Case (Note 5)	SMA SMB	$R_{\theta JC}$	45 40	°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	— —	0.46 0.41	0.50 —	V	I_F = 2A, T_J = +25°C I_F = 2A, T_J = +125°C
Leakage Current (Note 6)	B220AE / B220BE	I_R	—	—	0.1	mA	V_R = 20V, T_J = +25°C
	B230AE/ B230BE		—	—	0.1		V_R = 30V, T_J = +25°C
	B240AE/ B240BE		—	—	0.2		V_R = 40V, T_J = +25°C
	B245AE/ B245BE		—	—	0.2		V_R = 45V, T_J = +25°C
			—	15	—		V_R = 45V, T_J = +125°C
Typical Capacitance		C_T	—	93	—	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.

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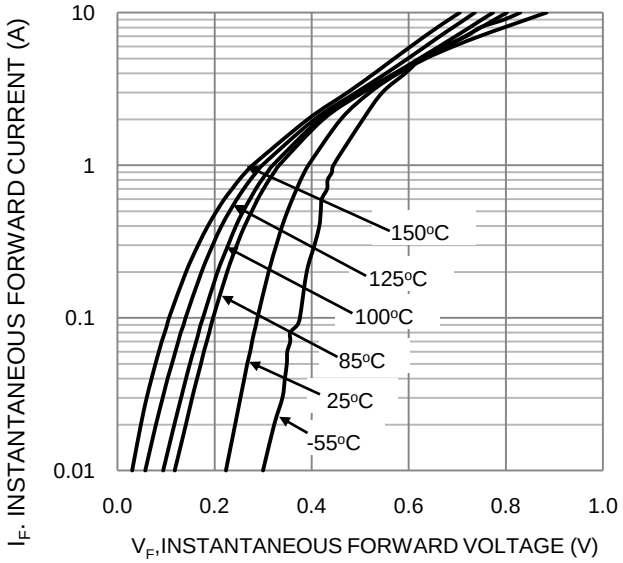


Figure 1. Typical Forward Characteristics

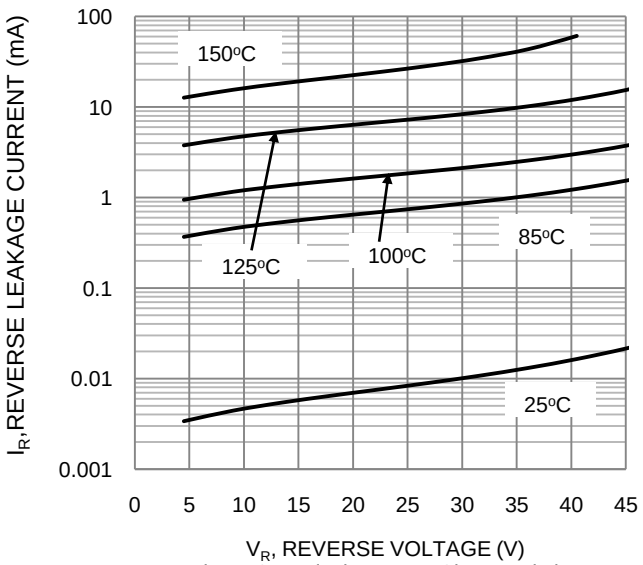


Figure 2. Typical Reverse Characteristics

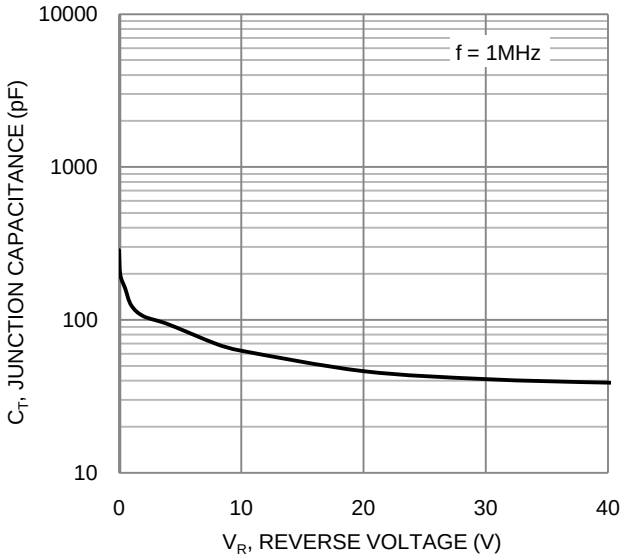


Figure 3. Typical Junction Capacitance

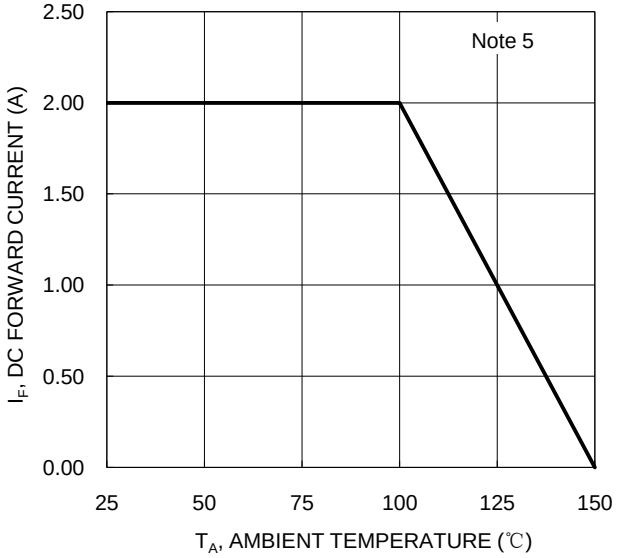


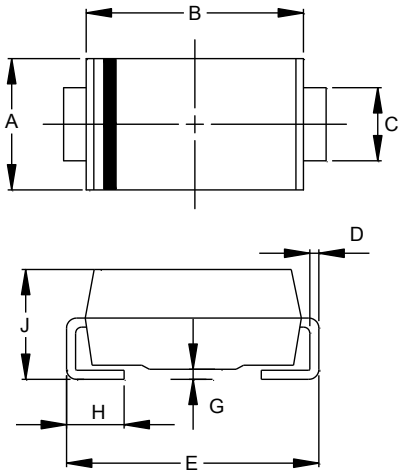
Figure 4. DC Forward Current Derating

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Package Outline Dimensions

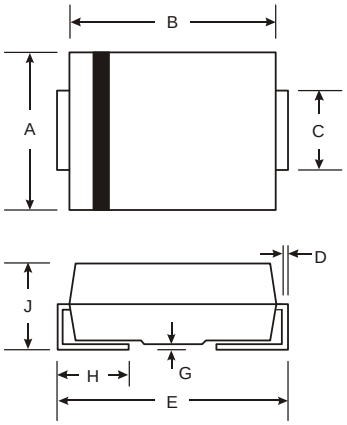
Please see http://www.diodes.com/package-outlines.html for the latest version.

(1) Package Type: SMA



SMA		
Dim	**Min**	**Max**
A	2.29	2.92
B	4.00	4.60
C	1.27	1.63
D	0.15	0.31
E	4.80	5.59
G	0.05	0.20
H	0.76	1.52
J	1.96	2.40
All Dimensions in mm		

(2) Package Type: SMB



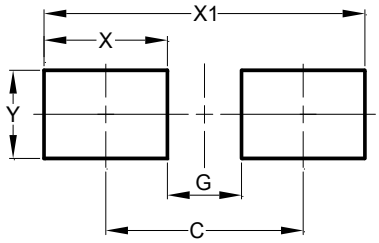
SMB		
Dim	**Min**	**Max**
A	3.30	3.94
B	4.06	4.57
C	1.96	2.21
D	0.15	0.31
E	5.00	5.59
G	0.05	0.20
H	0.76	1.52
J	2.00	2.50
All Dimensions in mm		

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Suggested Pad Layout

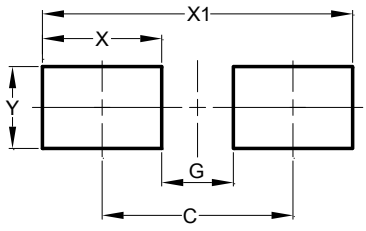
Please see http://www.diodes.com/package-outlines.html for the latest version.

(1) Package Type: SMA



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

(2) Package Type: SMB



Dimensions	Value (in mm)
C	4.30
G	1.80
X	2.50
X1	6.80
Y	2.30

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