

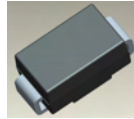
## 2.0A SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER

### Features

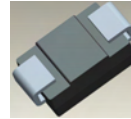
- Guard Ring Die Construction for Transient Protection
- Ideally Suited for Automated Assembly
- Low Power Loss, High Efficiency
- Surge Overload Rating to 50A Peak
- For Use in Low Voltage, High Frequency Inverters, Free Wheeling, and Polarity Protection Application
- High Temperature Soldering: 260°C/10 Second at Terminal
- **Lead Free Finish/RoHS Compliant (Note 1)**
- **Green Molding Compound (No Halogen and Antimony) (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**

### Mechanical Data

- Case: SMA/SMB
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Lead Free Plating (Matte Tin Finish). Solderable per MIL-STD-202, Method 208
- Polarity: Cathode Band or Cathode Notch
- Weight: SMA 0.064 grams (Approximate)  
SMB 0.093 grams (Approximate)



Top View



Bottom View

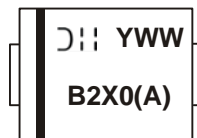
### Ordering Information (Note 3)

Part Number	Qualification	Case	Packaging
B2xxA-13-F	Commercial	SMA	5000/Tape & Reel
B2xx-13-F	Commercial	SMB	3000/Tape & Reel
B250Q-13	Automotive	SMB	3000/Tape & Reel

\* x = Device type, e.g. B260A-13-F (SMA package); B240-13-F (SMB package).

- Notes:
1. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied, see EU Directive 2002/95/EC Annex Notes.
  2. Product manufactured with Data Code 0924 (week 24, 2009) and newer are built with Green Molding Compound.
  3. For packaging details, go to our website at <http://www.diodes.com>.

### Marking Information



B2X0A = Product type marking code, ex: B220A (SMA package)  
 B2X0 = Product type marking code, ex: B230 (SMB package)  
 DII = Manufacturers' code marking  
 YWW = Date code marking  
 Y = Last digit of year (ex: 2 for 2002)  
 WW = Week code (01 to 53)

### Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Single phase, half wave, 60Hz, resistive or inductive load.  
For capacitance load, derate current by 20%.

Characteristic	Symbol	B220/A	B230/A	B240/A	B250/A	B260/A	Unit	
Peak Repetitive Reverse Voltage	$V_{RRM}$							
Working Peak Reverse Voltage	$V_{RWM}$	20	30	40	50	60	V	
DC Blocking Voltage	$V_R$							
RMS Reverse Voltage	$V_{R(RMS)}$	14	21	28	35	42	V	
Average Rectified Output Current @ $T_L = 100^\circ\text{C}$	$I_O$	2.0						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 Lead	SMA	25	$^\circ\text{C/W}$
	SMB	20	
Operating and Storage Temperature Range	$T_J, T_{STG}$	-65 to +150	$^\circ\text{C}$

### Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop B220/A, B230/A, B240/A B250/A, B260/A	$V_F$	-	-	0.50 0.70	V	$I_F = 2.0\text{A}, T_A = 25^\circ\text{C}$
Leakage Current (Note 4)	$I_R$	-	-	0.5 20	mA	@ Rated $V_R, T_A = 25^\circ\text{C}$ @ Rated $V_R, T_A = 100^\circ\text{C}$
Total Capacitance	$C_T$	-	-	200	pF	$V_R = 4\text{V}, f = 1\text{MHz}$

Notes: 4. Short duration pulse test used to minimize self-heating effect.

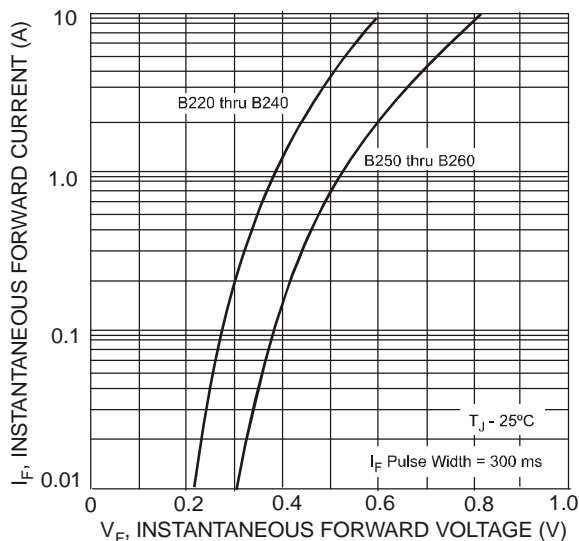


Fig. 1 Typical Forward Characteristics

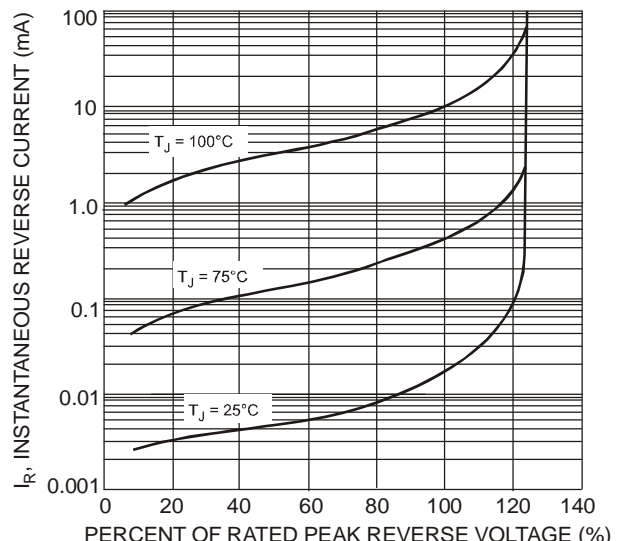


Fig. 2 Typical Reverse Characteristics

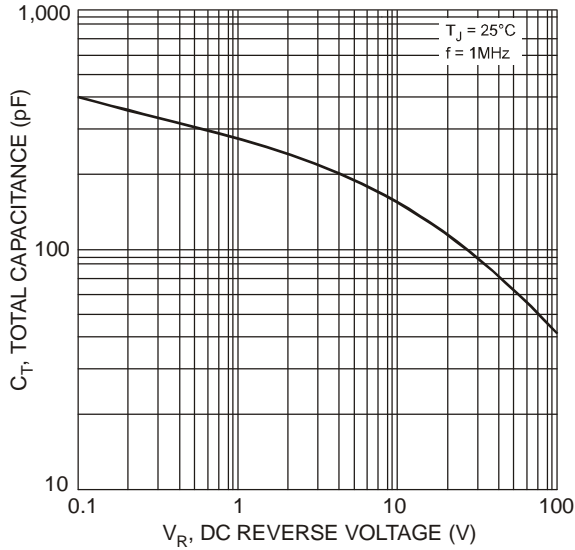


Fig. 3 Total Capacitance vs. Reverse Voltage

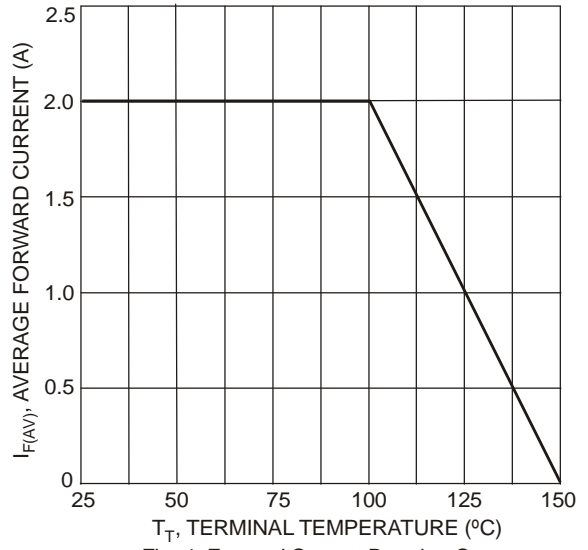


Fig. 4 Forward Current Derating Curve

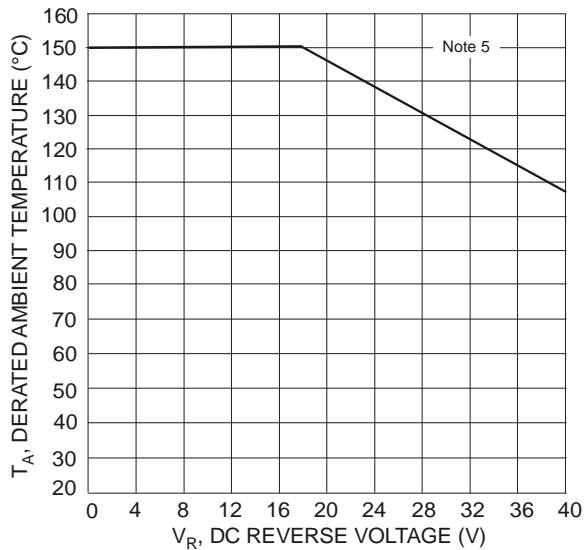


Fig. 5 Operating Temperature Derating (B240)

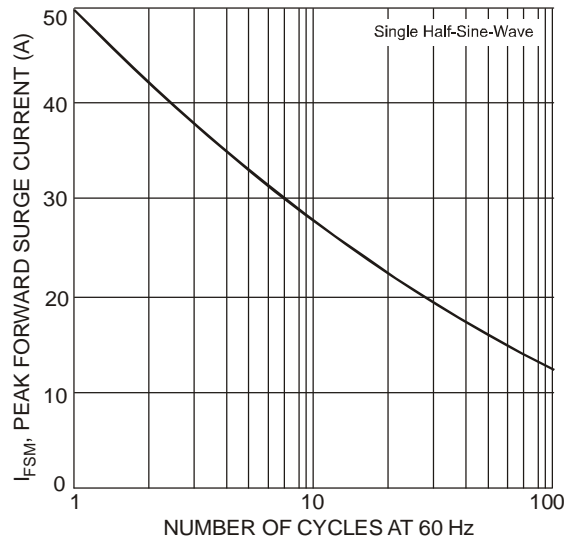
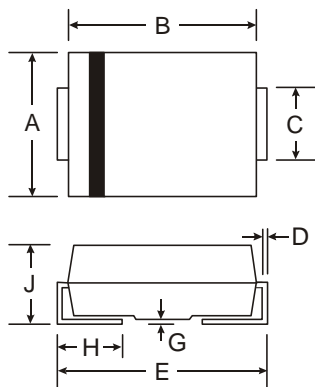


Fig. 6 Max Non-Repetitive Peak Forward Surge Current

5. Device mounted on FR-4 PC board with minimum recommended pad layout pattern as per <http://www.diodes.com/datasheets/ap02001.pdf>.

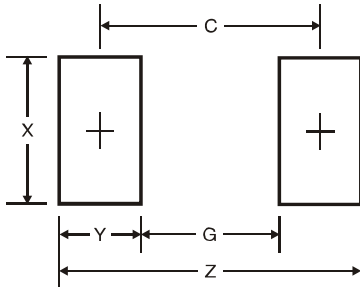
**Package Outline Dimensions**



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	2.01	2.30
All Dimensions in mm		

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		

## Suggested Pad Layout



SMA Dimensions	Value (in mm)
<b>Z</b>	6.5
<b>G</b>	1.5
<b>X</b>	1.7
<b>Y</b>	2.5
<b>C</b>	4.0

SMB Dimensions	Value (in mm)
<b>Z</b>	6.7
<b>G</b>	1.8
<b>X</b>	2.3
<b>Y</b>	2.5
<b>C</b>	4.3

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