THE DATASHEET OF

B220A-13

2.0A SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER

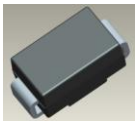
Features

- 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 (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

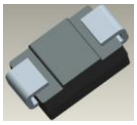
Mechanical Data

- 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 e3
- Polarity: Cathode Band or Cathode Notch
- Weight: SMA 0.064 grams (Approximate)
  SMB 0.093 grams (Approximate)

SMA/SMB



Top View



Bottom View

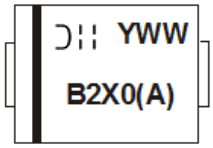
Ordering Information (Note 4)

Part Number	Qualification	Case	Packaging
B2xxA-13-F	Standard	SMA	5,000/Tape & Reel
B2xx-13-F	Standard	SMB	3,000/Tape & Reel
B250Q-13	Automotive	SMB	3,000/Tape & Reel
B240AQ-13-F	Automotive	SMA	5,000/Tape & Reel
B240Q-13-F	Automotive	SMB	3,000/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) & 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.
5. Automotive products are AEC-Q101 qualified and are PPAP capable. Automotive, AEC-Q101 and standard products are electrically and thermally the same, except where specified. For more information, please refer to http://www.diodes.com/quality/product_compliance_definitions/.

Marking Information



B2X0A = Product type marking code, ex: B220A (SMA package)
B2X0 = Product type marking code, ex: B230 (SMB package)
= Manufacturers' code marking
YWW = Date code marking
Y = Last digit of year (ex: 5 for 2015)
WW = Week code (01 to 53)

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Maximum Ratings (@T_A = +25°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 Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	20	30	40	50	60	V
RMS Reverse Voltage	$V_{R(RMS)}$	14	21	28	35	42	V
Average Rectified Output Current	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 SMB	$R_{\theta JL}$	25 20	°C/W
Operating and Storage Temperature Range		T_J, T_{STG}	-65 to +150	°C

Electrical Characteristics (@T_A = +25°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 = 2.0A, T_A = +25°C
Leakage Current (Note 6)		I_R	—	—	0.5 20	mA	@ Rated V_R, T_A = +25°C @ Rated V_R, T_A = +100°C
Total Capacitance		C_T	—	—	200	pF	V_R = 40V, f = 1MHz

Note: 6. Short duration pulse test used to minimize self-heating effect.

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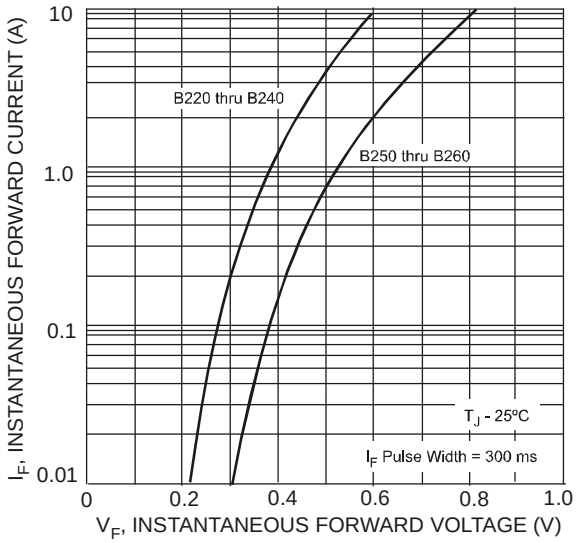


Fig. 1 Typical Forward Characteristics

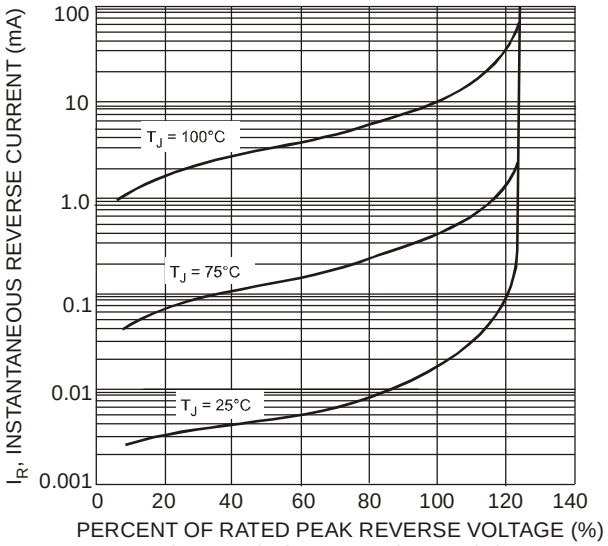


Fig. 2 Typical Reverse Characteristics

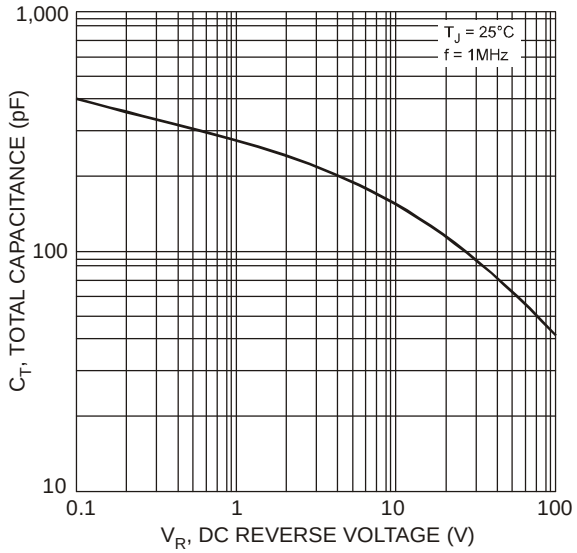


Fig. 3 Total Capacitance vs. Reverse Voltage

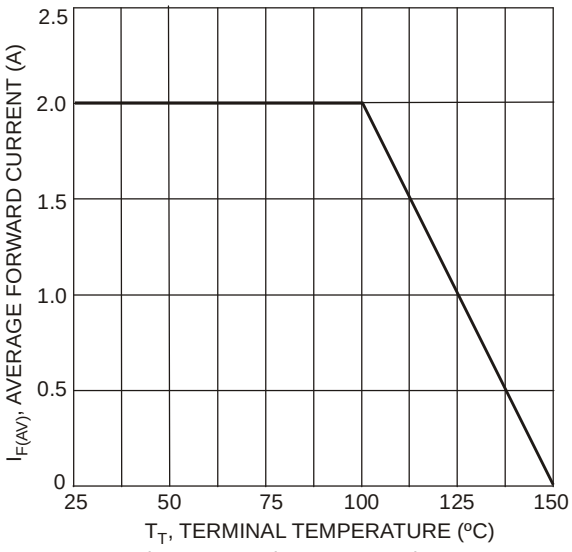


Fig. 4 Forward Current Derating Curve

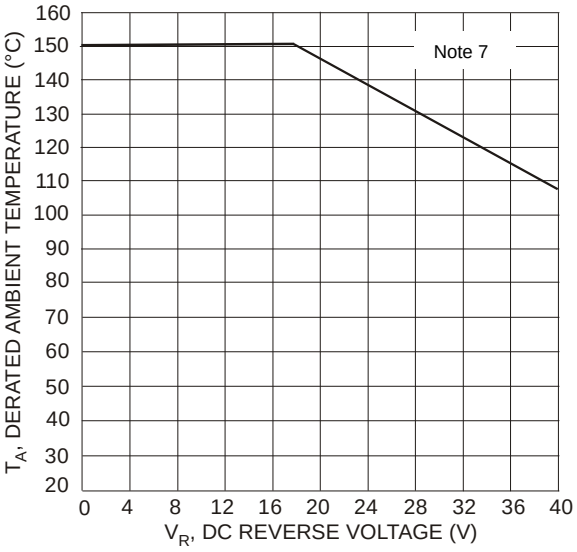


Fig. 5 Operating Temperature Derating (B240)

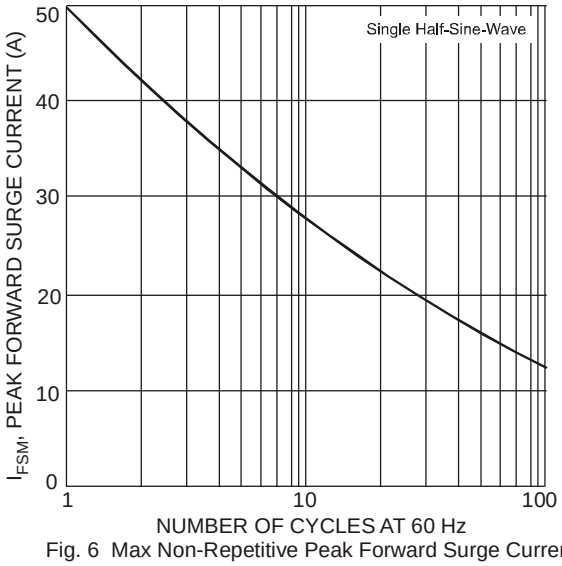


Fig. 6 Max Non-Repetitive Peak Forward Surge Current

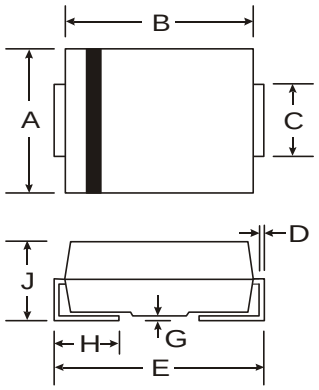
Note: 7. Device mounted on FR-4 PC board with minimum recommended pad layout pattern as per http://www.diodes.com.

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Package Outline Dimensions

Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for the latest version.

SMA/SMB



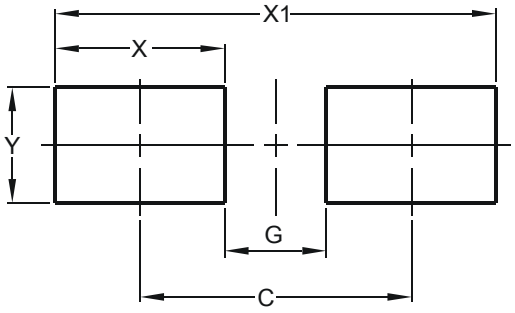
SMA		
Dim	**Min**	**Max**
A	2.29	2.92
B	4.00	4.60
C	1.27	1.63
D	0.15	0.31
E	4.80	5.59
G	0.05	0.20
H	0.76	1.52
J	2.01	2.30
All Dimensions in mm		

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

Please see AP02001 at http://www.diodes.com/datasheets/ap02001.pdf for the latest version.

SMA/SMB



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

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

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