

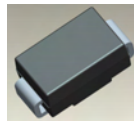
## 2.0A SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER

### Features

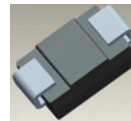
- Guard Ring Die Construction for Transient Protection
- Ideally Suited for Automated Assembly
- Low Power Loss, High Efficiency
- Surge Overload Rating to 50A Peak
- For Use in Low Voltage, High Frequency Inverters, Free Wheeling, and Polarity Protection Application
- High Temperature Soldering: 260°C/10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

### 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)



Top View



Bottom View

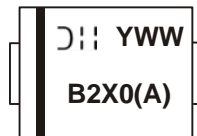
### Ordering Information (Note 3)

| Part Number | Case | Packaging        |
|-------------|------|------------------|
| B2xxA-13-F  | SMA  | 5000/Tape & Reel |
| B2xx-13-F   | 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             |              | 50     |        |        |        |        |      | A |
| Single Half Sine-Wave Superimposed on Rated Load             | $I_{FSM}$    |        |        |        |        |        |      | 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<br>B220/A, B230/A, B240/A<br>B250/A, B260/A | $V_F$  | -   | -   | 0.50<br>0.70 | V    | $I_F = 2.0\text{A}, T_A = 25^\circ\text{C}$                                     |
| Leakage Current (Note 4)   | $I_R$  | -   | -   | 0.5<br>20    | mA   | @ Rated $V_R, T_A = 25^\circ\text{C}$<br>@ 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.

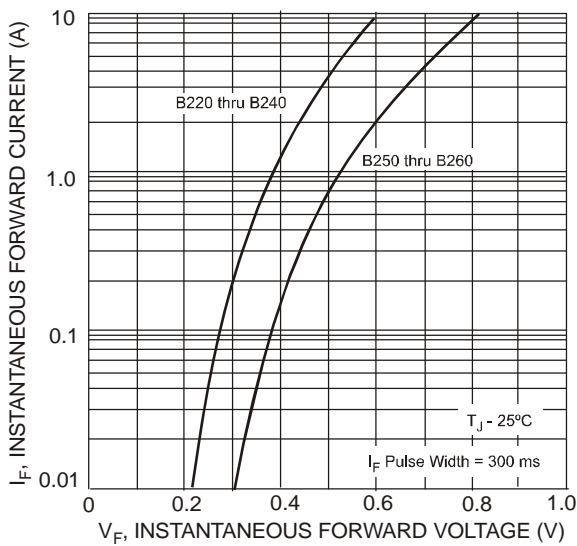


Fig. 1 Typical Forward Characteristics

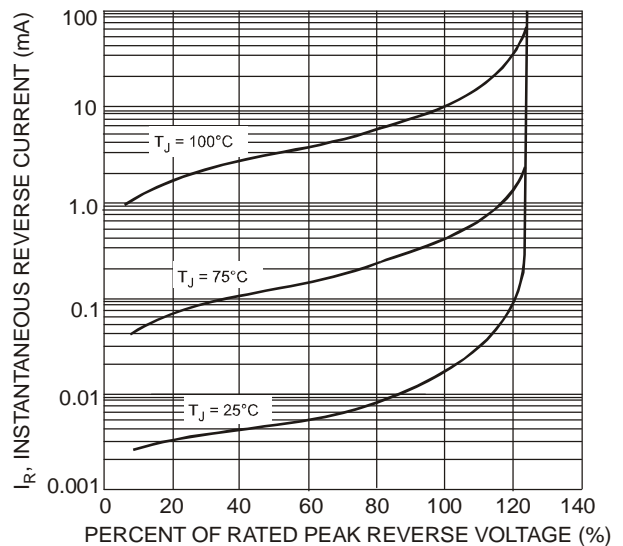


Fig. 2 Typical Reverse Characteristics

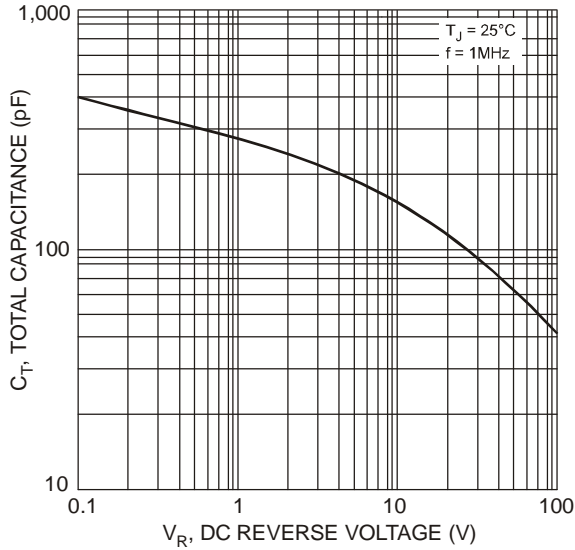


Fig. 3 Total Capacitance vs. Reverse Voltage

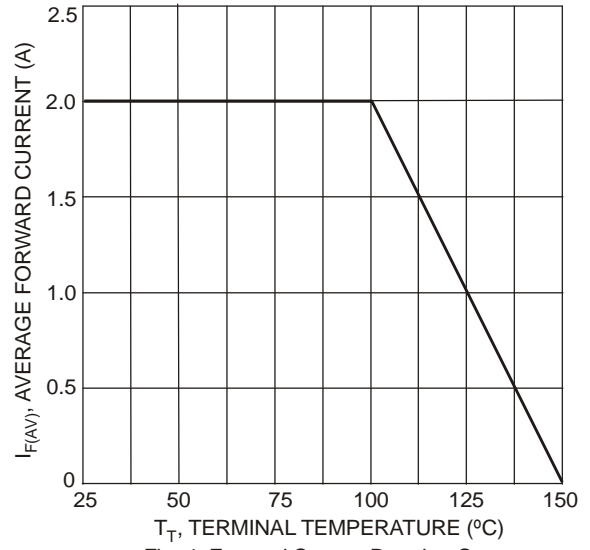


Fig. 4 Forward Current Derating Curve

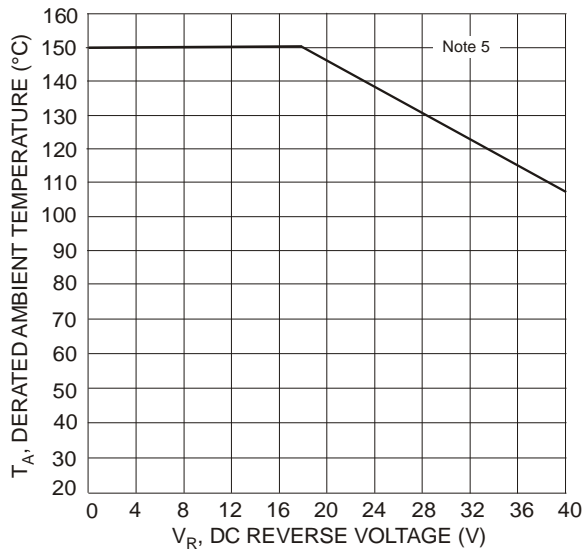


Fig. 5 Operating Temperature Derating (B240)

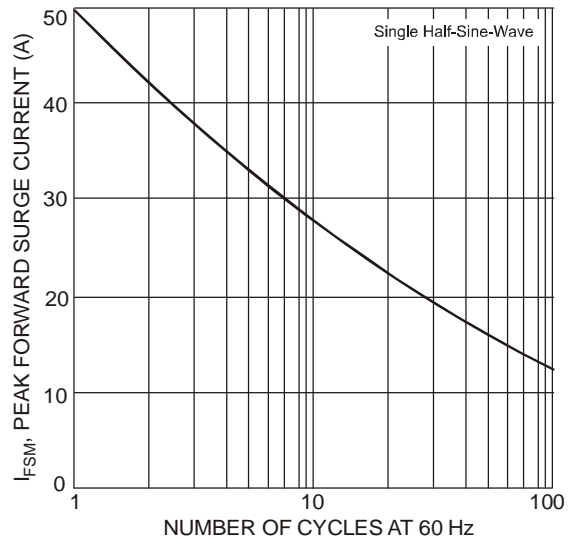
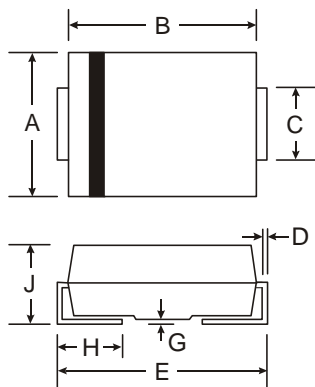


Fig. 6 Max Non-Repetitive Peak Forward Surge Current

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

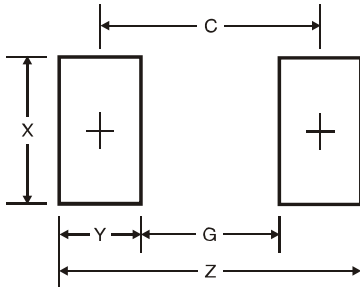
**Package Outline Dimensions**



| 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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