



**THE DATASHEET OF  
B2100-13-F**



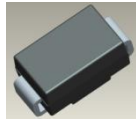
## 2.0A HIGH VOLTAGE SCHOTTKY BARRIER RECTIFIER

### Features

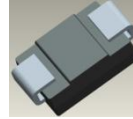
- Schottky Barrier Chip
- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- Surge Overload Rating to 50A Peak
- For Use in Low Voltage, High Frequency Inverters, Free Wheeling, and Polarity Protection Application
- High Temperature Soldering: +260°C/10 Second at Terminal
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

### Mechanical Data

- Case: 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 208③
- Polarity: Cathode Band or Cathode Notch
- Weight: 0.093 grams (Approximate)



Top View



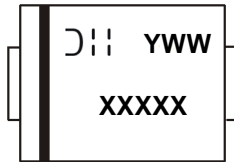
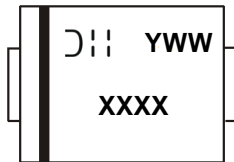
Bottom View

### Ordering Information (Note 4)

| Part Number | Case | Packaging        |
|-------------|------|------------------|
| B2xx-13-F   | SMB  | 3000/Tape & Reel |
| B2xxx-13-F  | SMB  | 3000/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](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 <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

### Marking Information



XXXX/XXXXX = Product Type Marking Code, ex: B290 (SMB Package)  
 ⏏ = 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<sub>A</sub> = +25°C, unless otherwise specified.)

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

| Characteristic   | Symbol              | B270 | B280 | B290 | B2100 | Unit |
|--|---------------------|------|------|------|-------|------|
| Peak Repetitive Reverse Voltage  | V <sub>RRM</sub>    |      |      |      |       |      |
| Working Peak Reverse Voltage   | V <sub>RWM</sub>    | 70   | 80   | 90   | 100   | V    |
| DC Blocking Voltage  | V <sub>R</sub>      |      |      |      |       |      |
| RMS Reverse Voltage  | V <sub>R(RMS)</sub> | 49   | 56   | 63   | 70    | V    |
| Average Rectified Output Current @ T <sub>T</sub> = +125°C                                       | I <sub>O</sub>      | 2.0  |      |      |       | A    |
| Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load | I <sub>FSM</sub>    | 50   |      |      |       | A    |

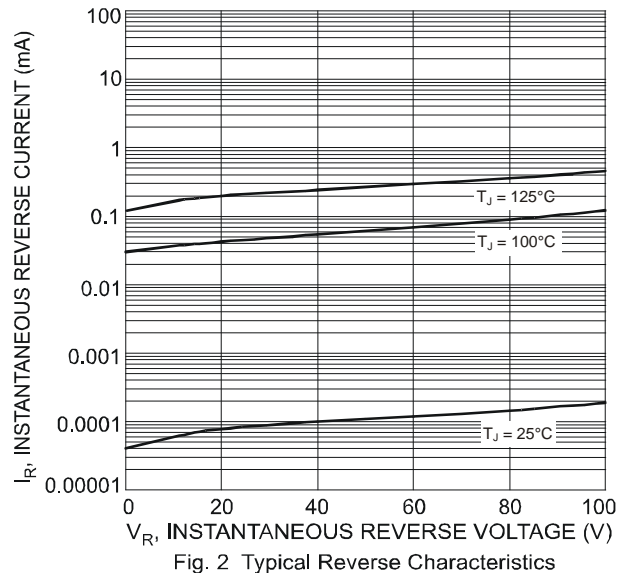
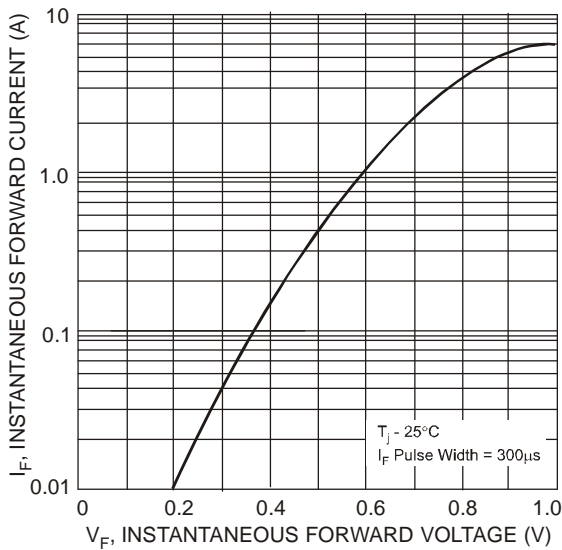
**Thermal Characteristics**

| Characteristic   | Symbol                            | Value       | Unit |
|--|-----------------------------------|-------------|------|
| Typical Thermal Resistance Junction to Terminal (Note 5) | R <sub>θJT</sub>                  | 15          | °C/W |
| Operating and Storage Temperature Range                  | T <sub>J</sub> , T <sub>STG</sub> | -65 to +150 | °C   |

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Characteristic           | Symbol         | Min | Typ | Max          | Unit     | Test Condition  |
|--------------------------|----------------|-----|-----|--------------|----------|---|
| Forward Voltage Drop     | V <sub>F</sub> | —   | —   | 0.79<br>0.69 | V        | I <sub>F</sub> = 2.0A, T <sub>A</sub> = +25°C<br>I <sub>F</sub> = 2.0A, T <sub>A</sub> = +100°C     |
| Leakage Current (Note 6) | I <sub>R</sub> | —   | —   | 7.0<br>2.0   | μA<br>mA | @ Rated V <sub>R</sub> , T <sub>A</sub> = +25°C<br>@ Rated V <sub>R</sub> , T <sub>A</sub> = +100°C |
| Total Capacitance        | C <sub>T</sub> | —   | —   | 75           | pF       | V <sub>R</sub> = 4V, f = 1MHz   |

Notes: 5. Valid provided that terminals are kept at ambient temperature.  
6. Short duration pulse test used to minimize self-heating effect.  
7. DUT mounted on 1\*MRP FR-4 PC board, 2oz.



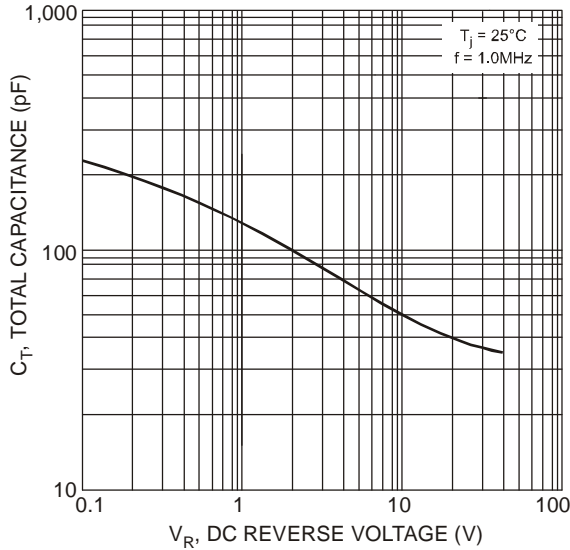


Fig. 3 Total Capacitance vs. Reverse Voltage

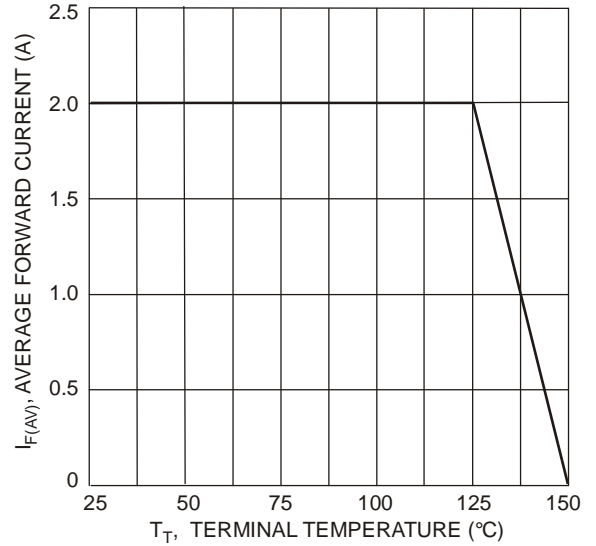


Fig. 4 Forward Current Derating Curve

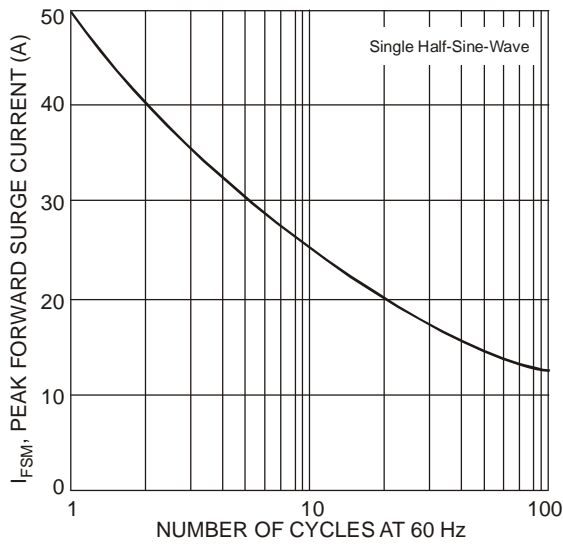


Fig. 5 Max Non-Repetitive Peak Forward Surge Current

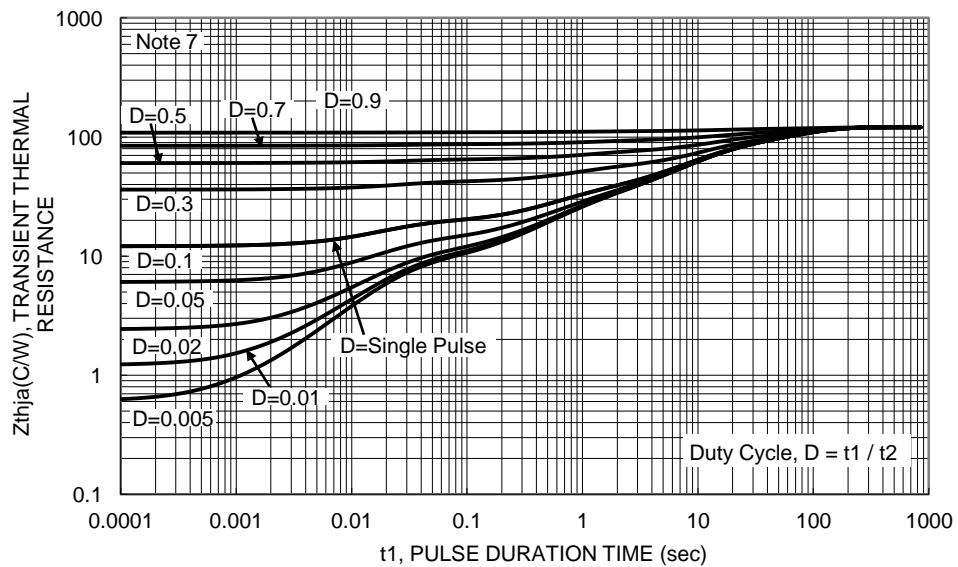


Figure 6. Transient Thermal Resistance

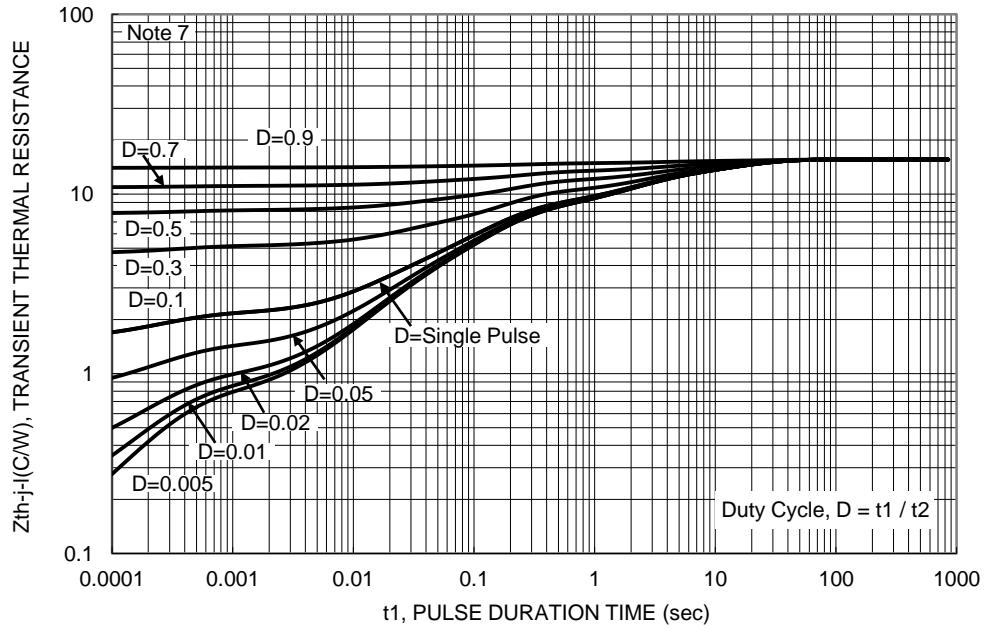
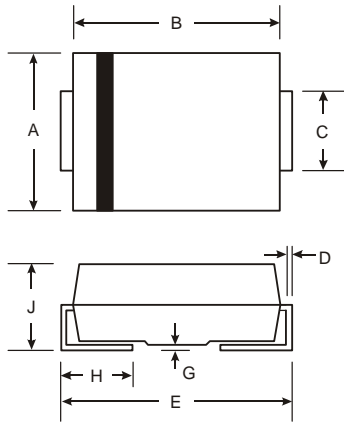


Figure 7. Transient Thermal Resistance

## Package Outline Dimensions

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

### SMB

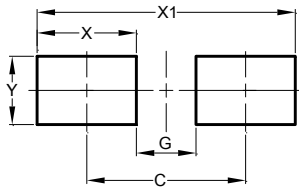


| SMB                  |      |      |
|----------------------|------|------|
| Dim                  | Min  | Max  |
| A                    | 3.30 | 3.94 |
| B                    | 4.06 | 4.57 |
| C                    | 1.96 | 2.21 |
| D                    | 0.15 | 0.31 |
| E                    | 5.00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

## Suggested Pad Layout

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

### SMB



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

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