

**2.0A HIGH VOLTAGE SCHOTTKY BARRIER RECTIFIER**

**Product Summary (@ +25°C)**

| Device     | V <sub>RRM</sub> (V) | I <sub>o</sub> (A) | V <sub>F</sub> Max (V) | I <sub>R</sub> Max (μA) |
|------------|----------------------|--------------------|------------------------|-------------------------|
| B270AE/BE  | 70                   | 2.0                | 0.79                   | 7                       |
| B280AE/BE  | 80                   | 2.0                | 0.79                   | 7                       |
| B290AE/BE  | 90                   | 2.0                | 0.79                   | 7                       |
| B2100AE/BE | 100                  | 2.0                | 0.79                   | 7                       |

**Applications**

- Polarity Protection Diode
- Re-Circulating Diode
- Blocking Diode
- DC-DC
- AC-DC

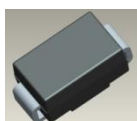
**Features and Benefits**

- Guard Ring Die Construction for Transient Protection
- Ideally Suited for Automated Assembly
- Low Power Loss, High Efficiency
- For Use in Low Voltage Drop, High Frequency Inverters, Free Wheeling, and Polarity Protection Application
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

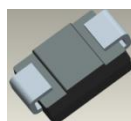
**Mechanical Data**

- Case: SMA and SMB
- Case Material: Molded Plastic. "Green" Molding Compound. 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 **Ⓔ3**
- Polarity: Cathode Band
- Weight: SMA-0.063 grams (Approximate)  
SMB-0.093 grams (Approximate)

**SMA / SMB**



Top View



Bottom View

**Ordering Information (Note 4)**

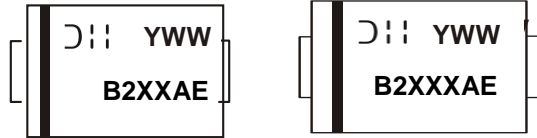
| Part Number | Case | Packaging         |
|-------------|------|-------------------|
| B2XXAE-13   | SMA  | 5,000/Tape & Reel |
| B2XXXAE-13  | SMA  | 5,000/Tape & Reel |
| B2XXBE-13   | SMB  | 3,000/Tape & Reel |
| B2XXXBE-13  | SMB  | 3,000/Tape & Reel |

\*x = Device type, e.g. B280AE-13 (SMA package); B2100BE-13 (SMB package).

- Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
  2. See [http://www.diodes.com/quality/lead\\_free/](http://www.diodes.com/quality/lead_free/) 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/>.

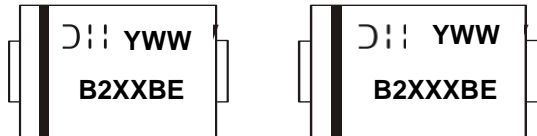
## Marking Information

### SMA



B2XXAE or B2XXXAE = Product Type Marking Code, ex: B270AE (SMA Package)  
 ☺ = Manufacturers' Code Marking  
 YWW = Date Code Marking  
 Y = Last Digit of Year (ex: 8 for 2018)  
 WW = Week Code (01 to 53)

### SMB



B2XXBE or B2XXXBE = Product Type Marking Code, ex: B270BE (SMB Package)  
 ☺ = Manufacturers' Code Marking  
 YWW = Date Code Marking  
 Y = Last Digit of Year (ex: 8 for 2018)  
 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           | B270AE<br>B270BE | B280AE<br>B280BE | B290AE<br>B290BE | B2100AE<br>B2100BE | Unit |
|---|------------------|------------------|------------------|------------------|--------------------|------|
| Peak Repetitive Reverse Voltage   | V <sub>RRM</sub> | 70               | 80               | 90               | 100                | V    |
| Working Peak Reverse Voltage  | V <sub>RWM</sub> |                  |                  |                  |                    |      |
| DC Blocking Voltage   | V <sub>R</sub>   |                  |                  |                  |                    |      |
| Average Rectified Output Current  | I <sub>O</sub>   | 2.0              |                  |                  |                    | A    |
| Non-Repetitive Peak Forward Surge Current 8.3ms<br>Single Half Sine-Wave Superimposed on Rated Load | I <sub>FSM</sub> | 50               |                  |                  |                    | A    |

## Thermal Characteristics

| Characteristic  | Symbol                            | Unit           |
|---|-----------------------------------|----------------|
| Typical Thermal Resistance Junction to Ambient (Note 5) | SMA                               | 110            |
|   | SMB                               | 100            |
| Typical Thermal Resistance Junction to Case (Note 5)    | SMA                               | 65             |
|   | SMB                               | 50             |
| 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> | —   | 0.74 | 0.79 | V        | I <sub>F</sub> = 2.0A, T <sub>A</sub> = +25°C    |
|                          |                | —   | 0.60 | —    |          | I <sub>F</sub> = 2.0A, T <sub>A</sub> = +125°C   |
| Leakage Current (Note 6) | I <sub>R</sub> | —   | —    | 7    | μA<br>mA | @ Rated V <sub>R</sub> , T <sub>A</sub> = +25°C  |
|                          |                | —   | 0.4  | —    |          | @ Rated V <sub>R</sub> , T <sub>A</sub> = +125°C |
| Typical Capacitance      | C <sub>T</sub> | —   | 70   | —    | 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.

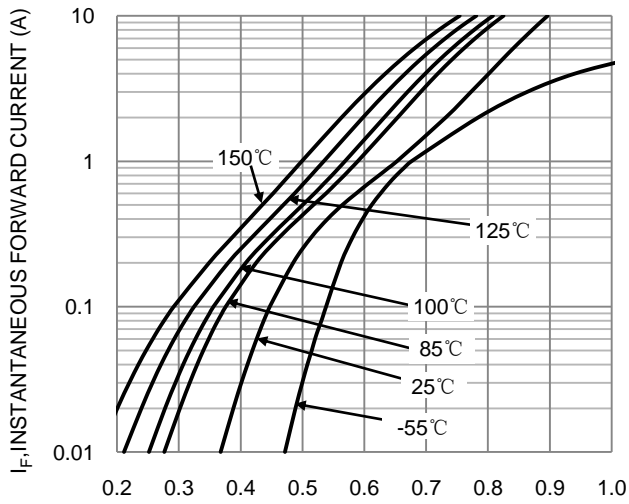


Figure 1. Typical Forward Characteristics

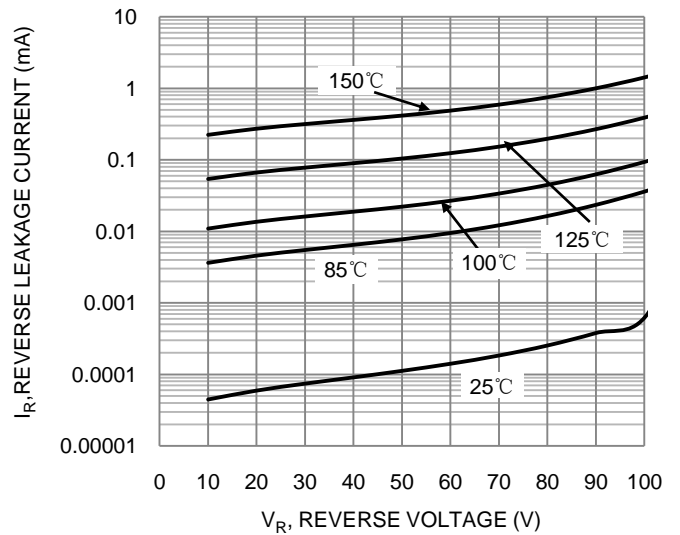


Figure 2. Typical Reverse Characteristics

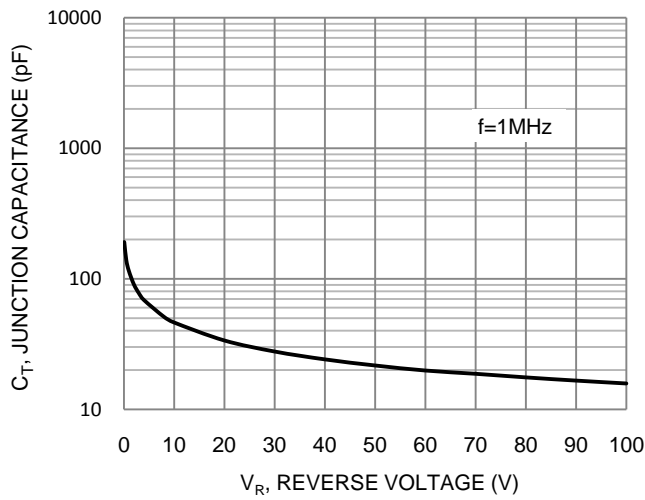


Figure 3. Typical Junction Capacitance

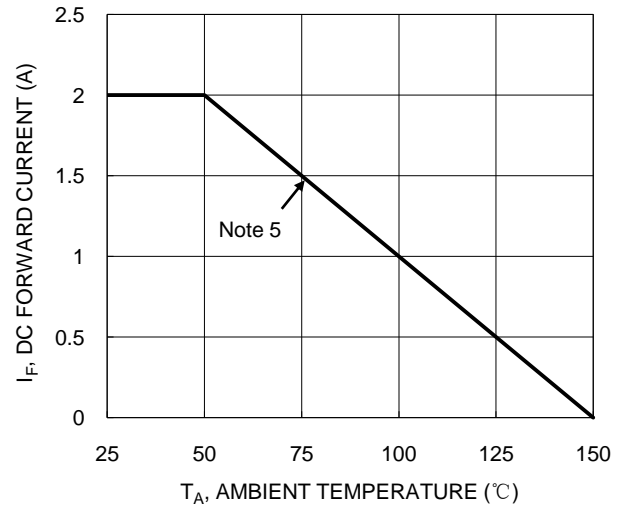
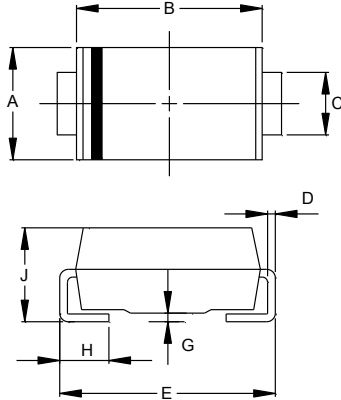


Figure 4. DC Forward Current Derating

## Package Outline Dimensions

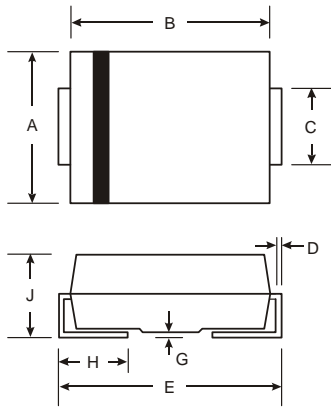
Please see <http://www.diodes.com/package-outlines.html> for the latest version.

### 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 |      |      |

### SMB

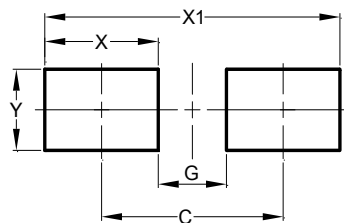


| SMB                  |      |      |
|----------------------|------|------|
| Dim                  | Min  | Max  |
| A                    | 3.30 | 3.94 |
| B                    | 4.06 | 4.57 |
| C                    | 1.96 | 2.21 |
| D                    | 0.15 | 0.31 |
| E                    | 5.00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

## Suggested Pad Layout

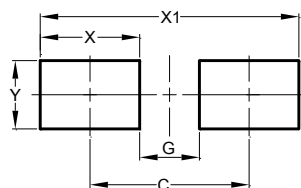
Please see <http://www.diodes.com/package-outlines.html> for the latest version.

### 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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