

## Product Summary

| Device     | V <sub>RRM</sub> (V) | I <sub>o</sub> (A) | V <sub>F</sub> Max (V)<br>@ +25°C | I <sub>R</sub> Max (mA)<br>@ +25°C |
|------------|----------------------|--------------------|-----------------------------------|------------------------------------|
| B370BE/CE  | 70                   | 3.0                | 0.79                              | 0.10                               |
| B380BE/CE  | 80                   | 3.0                | 0.79                              | 0.15                               |
| B390BE/CE  | 90                   | 3.0                | 0.79                              | 0.20                               |
| B3100BE/CE | 100                  | 3.0                | 0.79                              | 0.30                               |

## Description and Applications

The Schottky rectifier providing low V<sub>F</sub> and excellent reverse leakage stability at high temperatures, this device is ideal for use in general rectification applications such as:

- Boost Diode
- Blocking Diode
- Recirculating Diode

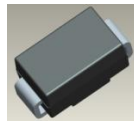
## Features and Benefits

- Reduced Low Forward Voltage Drop (V<sub>F</sub>); Better Efficiency and Cooler Operation
- Reduced High-temperature Reverse Leakage; Increased Reliability against Thermal Runaway Failure in High Temperature Operation.
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

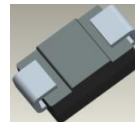
## Mechanical Data

- Case: SMB, SMC
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208
- Polarity: Cathode Band
- Weight: SMB- 0.093 grams (Approximate)  
SMC- 0.21 grams (Approximate)

SMB, SMC



Top View



Bottom View

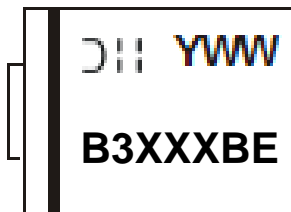
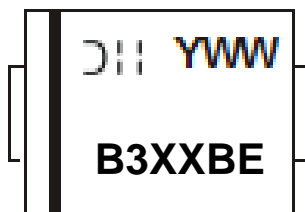
## Ordering Information (Note 4)

| Part Number | Case | Packaging         |
|-------------|------|-------------------|
| B3XXBE-13   | SMB  | 3,000/Tape & Reel |
| B3XXCE-13   | SMC  | 3,000/Tape & Reel |
| B3XXXBE-13  | SMB  | 3,000/Tape & Reel |
| B3XXXCE-13  | SMC  | 3,000/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 <http://www.diodes.com/products/packages.html>.

## Marking Information

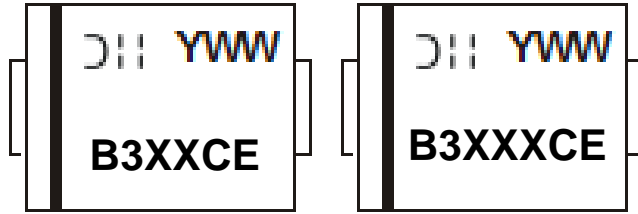
SMB



B3XXBE or B3XXXBE = Product Type Marking Code, ex: B370BE  
 = Manufacturers' Code Marking  
 YWW = Date Code Marking  
 Y = Last Digit of Year (ex: 7 for 2017)  
 WW = Week Code (01 to 53)

## Marking Information (Cont.)

SMC



B3XXCE or B3XXXCE = Product Type Marking Code, ex: B370CE  
 DII = 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           | B370BE<br>B370CE | B380BE<br>B380CE | B390BE<br>B390CE | B3100BE<br>B3100CE | 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>RM</sub>  |                  |                  |                  |                    |      |
| Average Rectified Output Current  | I <sub>O</sub>   | 3                |                  |                  |                    | A    |
| Non-Repetitive Peak Forward Surge Current 8.3ms<br>Single Half Sine-Wave Superimposed on Rated Load | I <sub>FSM</sub> | 100              |                  |                  |                    | A    |

## Thermal Characteristics

| Characteristic  | Symbol                            | Value       | Unit |
|---|-----------------------------------|-------------|------|
| Typical Thermal Resistance Junction to Ambient (Note 5) | SMB                               | 90          | °C/W |
|   | SMC                               | 70          |      |
| Typical Thermal Resistance Junction to Case (Note 5)    | SMB                               | 50          | °C/W |
|   | SMC                               | 30          |      |
| Operating and Storage Temperature Range                 | T <sub>J</sub> , T <sub>STG</sub> | -55 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> = 3A, T <sub>A</sub> = +25°C    |
|                          |                | —   | 0.60 | —    |      | I <sub>F</sub> = 3A, T <sub>A</sub> = +125°C   |
| Leakage Current (Note 6) | I <sub>R</sub> | —   | —    | 0.10 | mA   | V <sub>R</sub> = 70V, T <sub>A</sub> = +25°C   |
|                          |                | —   | —    | 0.15 |      | V <sub>R</sub> = 80V, T <sub>A</sub> = +25°C   |
|                          |                | —   | —    | 0.20 |      | V <sub>R</sub> = 90V, T <sub>A</sub> = +25°C   |
|                          |                | —   | —    | 0.30 |      | V <sub>R</sub> = 100V, T <sub>A</sub> = +25°C  |
|                          |                | —   | 0.7  | —    |      | V <sub>R</sub> = 100V, T <sub>A</sub> = +125°C |
| Typical Capacitance      | C <sub>T</sub> | —   | 105  | —    | pF   | V <sub>R</sub> = 4.0V, f = 1MHz                |

Notes: 5. Device mounted on FR-4 substrate, 1"×1", 2oz, single-sided, PC boards with 0.56"×0.73" copper pad.  
 6. Short duration pulse test used to minimize self-heating effect.

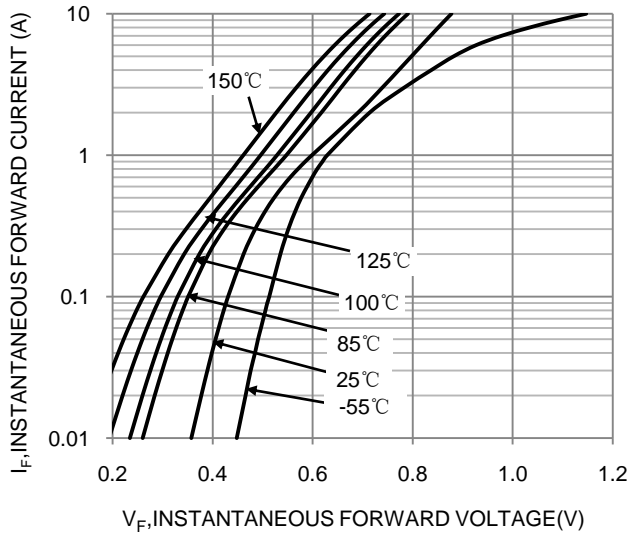


Figure 1. Typical Forward Characteristics

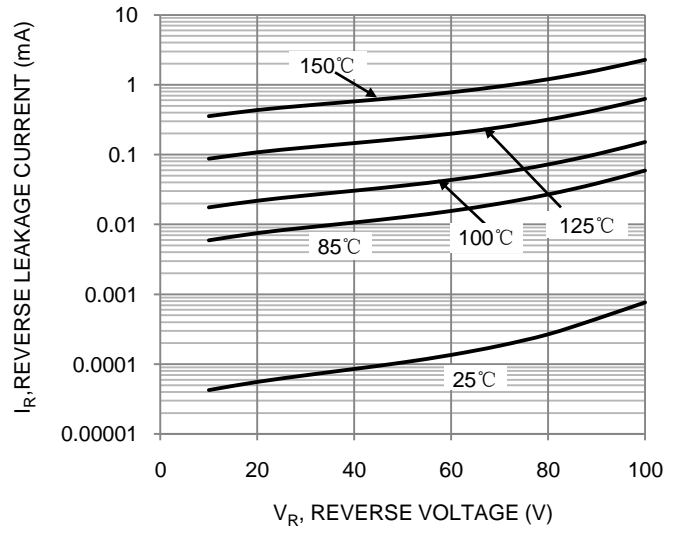


Figure 2. Typical Reverse Characteristics

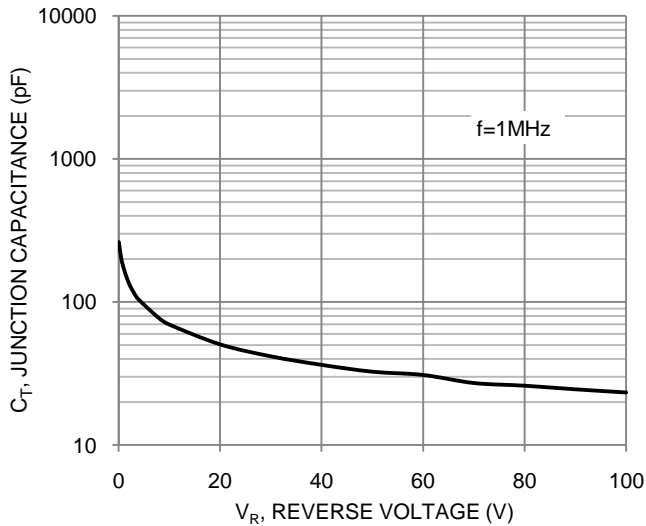


Figure 3. Typical Junction Capacitance

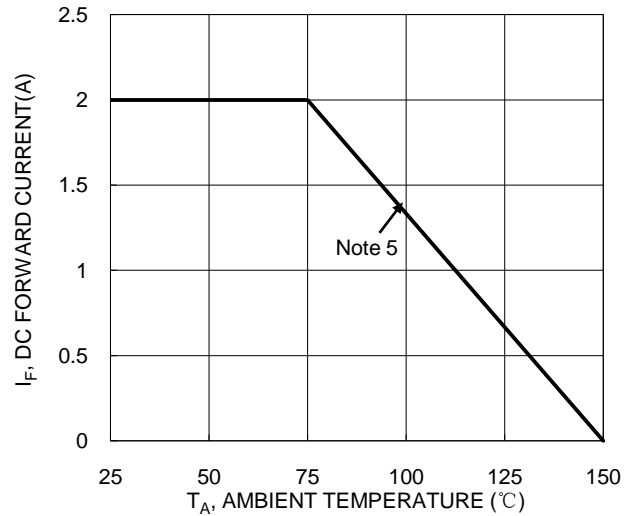
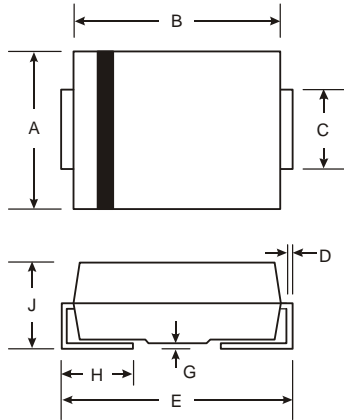


Figure 4. DC Forward Current Derating

**Package Outline Dimensions**

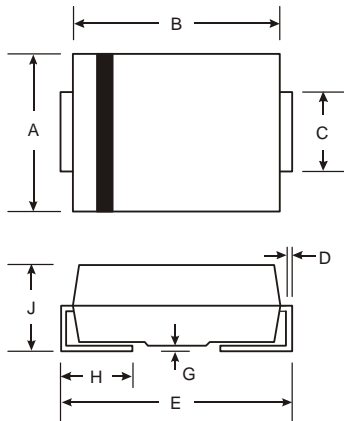
Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**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 |
| <b>All Dimensions in mm</b> |      |      |

**SMC**

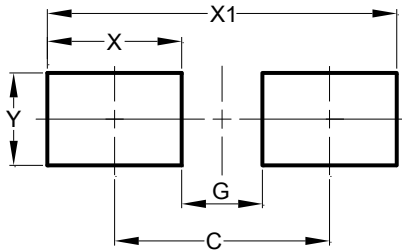


| SMC                         |      |      |
|-----------------------------|------|------|
| Dim                         | Min  | Max  |
| A                           | 5.59 | 6.22 |
| B                           | 6.60 | 7.11 |
| C                           | 2.75 | 3.18 |
| D                           | 0.15 | 0.31 |
| E                           | 7.75 | 8.13 |
| G                           | 0.10 | 0.20 |
| H                           | 0.76 | 1.52 |
| J                           | 2.00 | 2.50 |
| <b>All Dimensions in mm</b> |      |      |

## Suggested Pad Layout

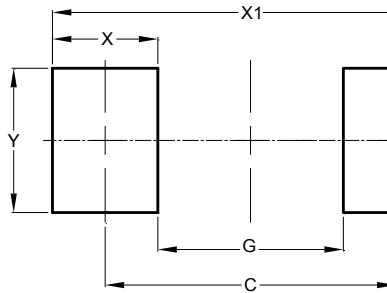
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### SMB



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

### SMC



| Dimensions | Value (in mm) |
|------------|---------------|
| <b>C</b>   | 6.90          |
| <b>G</b>   | 4.40          |
| <b>X</b>   | 2.50          |
| <b>X1</b>  | 9.40          |
| <b>Y</b>   | 3.30          |

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