

## Product Summary (@ +25°C)

### B270Q

| $V_{RRM}$ (V) | $I_O$ (A) | $V_F$ Max (V) | $I_R$ Max ( $\mu$ A) |
|---------------|-----------|---------------|----------------------|
| 70            | 2.0       | 0.79          | 7                    |

### B280Q

| $V_{RRM}$ (V) | $I_O$ (A) | $V_F$ Max (V) | $I_R$ Max ( $\mu$ A) |
|---------------|-----------|---------------|----------------------|
| 80            | 2.0       | 0.79          | 7                    |

### B290Q

| $V_{RRM}$ (V) | $I_O$ (A) | $V_F$ Max (V) | $I_R$ Max ( $\mu$ A) |
|---------------|-----------|---------------|----------------------|
| 90            | 2.0       | 0.79          | 7                    |

### B2100Q

| $V_{RRM}$ (V) | $I_O$ (A) | $V_F$ Max (V) | $I_R$ Max ( $\mu$ A) |
|---------------|-----------|---------------|----------------------|
| 100           | 2.0       | 0.79          | 7                    |

## Description and Applications

This Schottky Barrier Rectifier is designed to meet the general requirements of commercial applications. It is ideally suited for use as a:

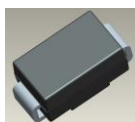
- Polarity Protection Diode
- Re-Circulating Diode
- Switching Diode

## Features and Benefits

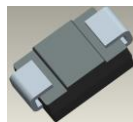
- Schottky Barrier Chip
- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- Surge Overload Rating to 50A Peak
- For Use in Low Voltage, High Frequency Inverters, Free Wheeling, and Polarity Protection Application
- High Temperature Soldering: +260°C/10 second at Terminal
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP Capable (Note 4)**

## Mechanical Data

- Case: 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: 0.093 grams (Approximate)



Top View



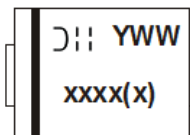
Bottom View

## Ordering Information (Note 5)

| Part Number | Compliance | Case | Packaging         |
|-------------|------------|------|-------------------|
| B2xxxQ-13-F | Automotive | SMB  | 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. Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to [http://www.diodes.com/quality/product\\_compliance\\_definitions/](http://www.diodes.com/quality/product_compliance_definitions/).
  5. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

## Marking Information



XXXX = Product Type Marking Code, ex: B290 (SMB Package)  
 311 = Manufacturers' Code Marking  
 YWW = Date Code Marking  
 Y = Last Digit of Year (ex: 16 for 2016)  
 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 capacitance load, derate current by 20%.

| Characteristic                                             | Symbol              | B270Q | B280Q | B290Q | B2100Q | 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>      |       |       |       |        |      |
| 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            | I <sub>FSM</sub>    | 50    |       |       |        | A    |
| Single Half Sine-Wave Superimposed on Rated Load           |                     |       |       |       |        |      |

## Thermal Characteristics

| Characteristic                                           | Symbol                            | Value       | Unit |
|----------------------------------------------------------|-----------------------------------|-------------|------|
| Typical Thermal Resistance Junction to Terminal (Note 6) | 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 7) | 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: 6. Valid provided that terminals are kept at ambient temperature.  
7. Short duration pulse test used to minimize self-heating effect.

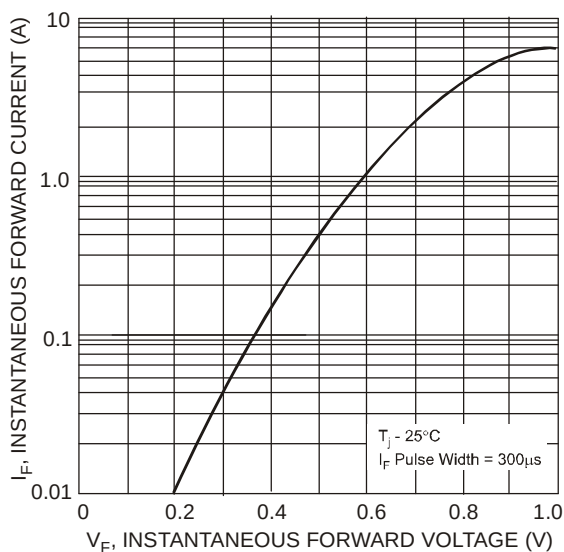


Fig. 1 Typical Forward Characteristics

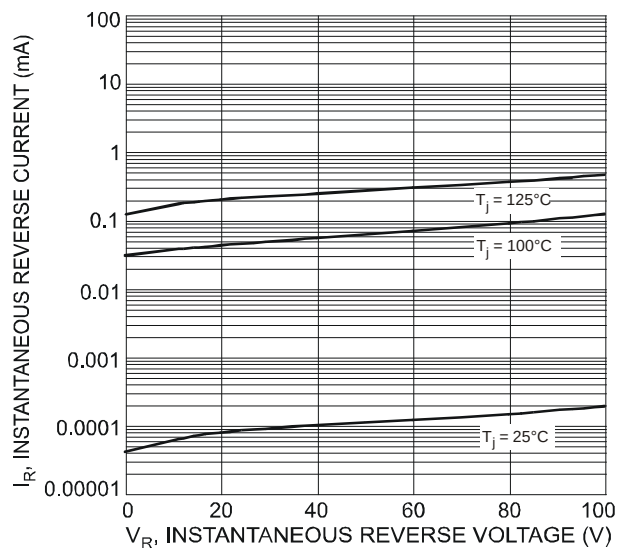


Fig. 2 Typical Reverse Characteristics

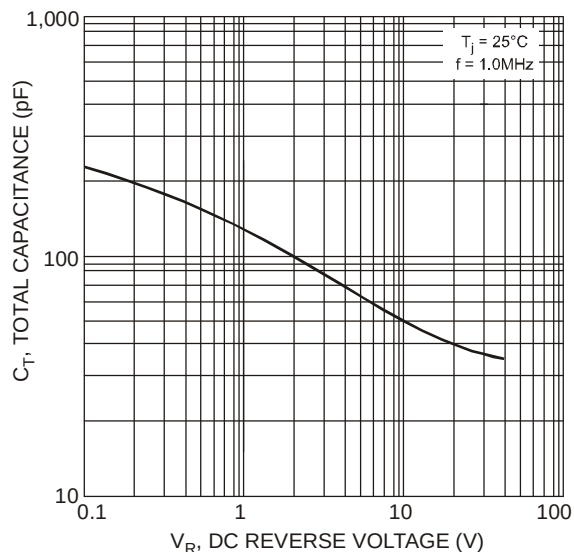


Fig. 3 Total Capacitance vs. Reverse Voltage

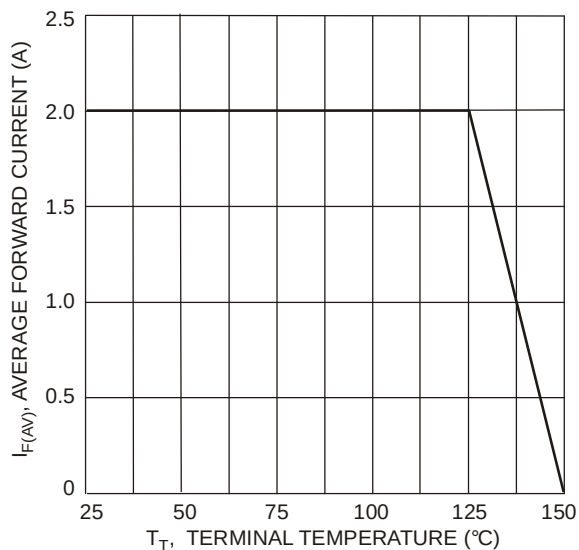


Fig. 4 Forward Current Derating Curve

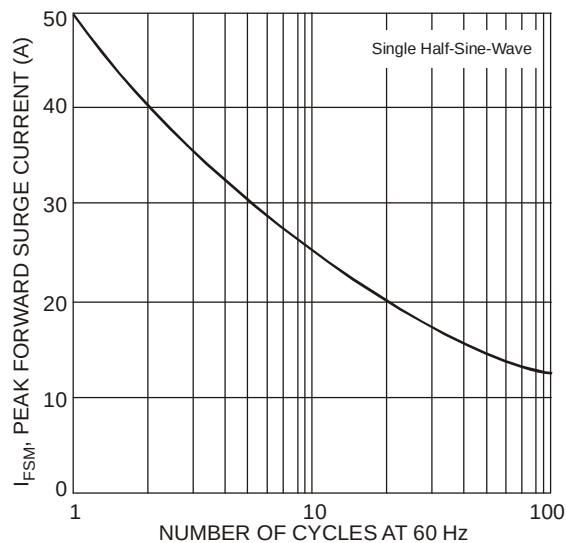
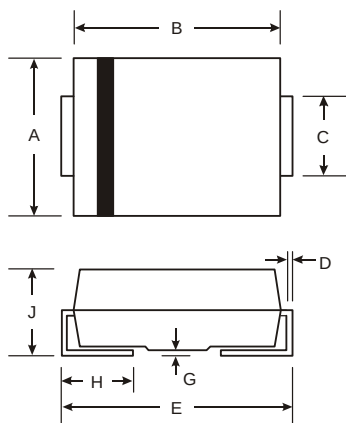


Fig. 5 Max Non-Repetitive Peak Forward Surge Current

## Package Outline Dimensions

Please see AP02001 at [http://www.diodes.com/\\_files/datasheets/ap02001.pdf](http://www.diodes.com/_files/datasheets/ap02001.pdf) for the latest version.

### SMB

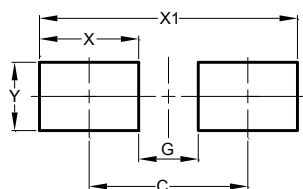


| SMB                  |      |      |
|----------------------|------|------|
| Dim                  | Min  | Max  |
| A                    | 3.30 | 3.94 |
| B                    | 4.06 | 4.57 |
| C                    | 1.96 | 2.21 |
| D                    | 0.15 | 0.31 |
| E                    | 5.00 | 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 AP02001 at [http://www.diodes.com/\\_files/datasheets/ap02001.pdf](http://www.diodes.com/_files/datasheets/ap02001.pdf) 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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