

**2.0A HIGH-VOLTAGE SCHOTTKY BARRIER RECTIFIER**

**Product Summary** (@ T<sub>A</sub> = +25°C)

B270Q

V <sub>RRM</sub> (V)	I <sub>O</sub> (A)	V <sub>F</sub> Max (V)	I <sub>R</sub> Max (μA)
70	2.0	0.79	7

B280Q

V <sub>RRM</sub> (V)	I <sub>O</sub> (A)	V <sub>F</sub> Max (V)	I <sub>R</sub> Max (μA)
80	2.0	0.79	7

B290Q

V <sub>RRM</sub> (V)	I <sub>O</sub> (A)	V <sub>F</sub> Max (V)	I <sub>R</sub> Max (μA)
90	2.0	0.79	7

B2100Q

V <sub>RRM</sub> (V)	I <sub>O</sub> (A)	V <sub>F</sub> Max (V)	I <sub>R</sub> Max (μA)
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 diodes
- Re-circulating diodes
- Switching diodes

**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)**
- **The B270Q - B2100Q are suitable for automotive applications requiring specific change control; these parts are AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.**

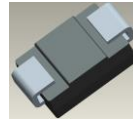
<https://www.diodes.com/quality/product-definitions/>

**Mechanical Data**

- Package: SMB
- Package 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



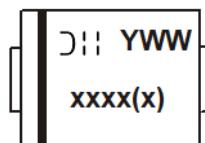
Bottom View

**Ordering Information** (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
B2xxQ-13-F	SMB	3,000	Tape & Reel
B2xxQ-13-F	SMB	3,000	Tape & Reel

- 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 <https://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**



- DII = Manufacturer's Code Marking
- YWW = Date Code Marking
- XXXX(X) = Product Type Marking Code, ex: B290 (SMB Package)
- Y = Last Digit of Year (ex: 3 for 2023)
- 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 capacitive load, derate current by 20%.

Characteristic	Symbol	B270Q	B280Q	B290Q	B2100Q	Unit
Peak Repetitive Reverse Voltage	$V_{RRM}$					
Working Peak Reverse Voltage	$V_{RWM}$	70	80	90	100	V
DC Blocking Voltage	$V_R$					
RMS Reverse Voltage	$V_{R(RMS)}$	49	56	63	70	V
Average Rectified Output Current @ $T_T = +125^\circ\text{C}$	$I_O$	2.0				A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	$I_{FSM}$	50				A

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Terminal (Note 5)	$R_{\theta JT}$	15	$^\circ\text{C/W}$
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	$V_F$	—	—	0.79 0.69	V	$I_F = 2.0\text{A}, T_A = +25^\circ\text{C}$ $I_F = 2.0\text{A}, T_A = +100^\circ\text{C}$
Leakage Current (Note 6)	$I_R$	—	—	7.0 2.0	$\mu\text{A}$ mA	@ Rated $V_R, T_A = +25^\circ\text{C}$ @ Rated $V_R, T_A = +100^\circ\text{C}$
Total Capacitance	$C_T$	—	75	—	pF	$V_R = 4\text{V}, f = 1\text{MHz}$

Notes: 5. Valid provided that terminals are kept at ambient temperature.  
6. Short duration pulse test used to minimize self-heating effect.

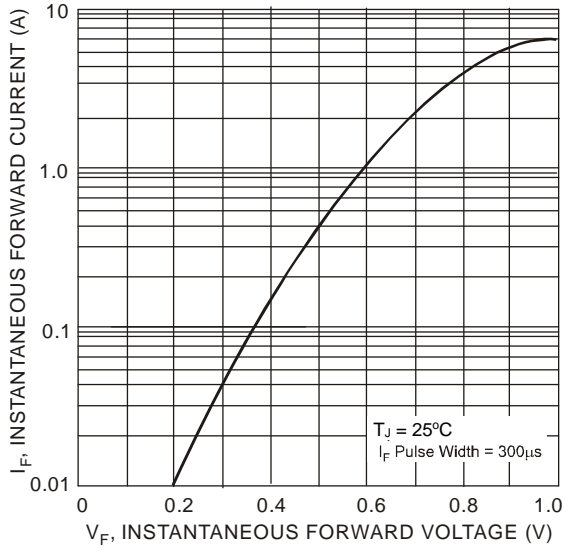


Fig. 1 Typical Forward Characteristics

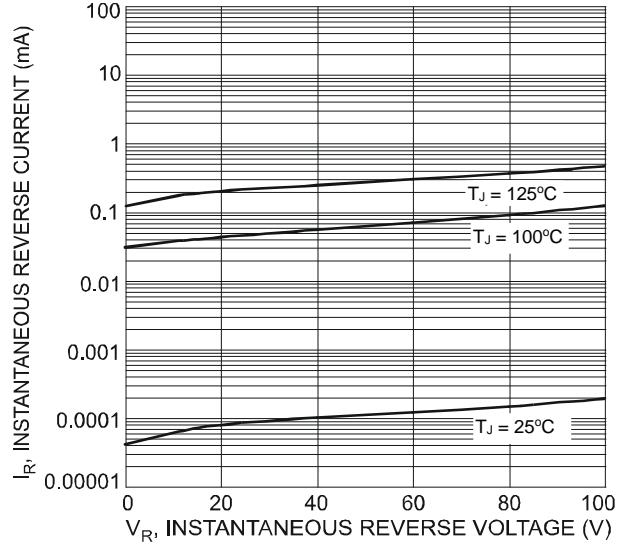


Fig. 2 Typical Reverse Characteristics

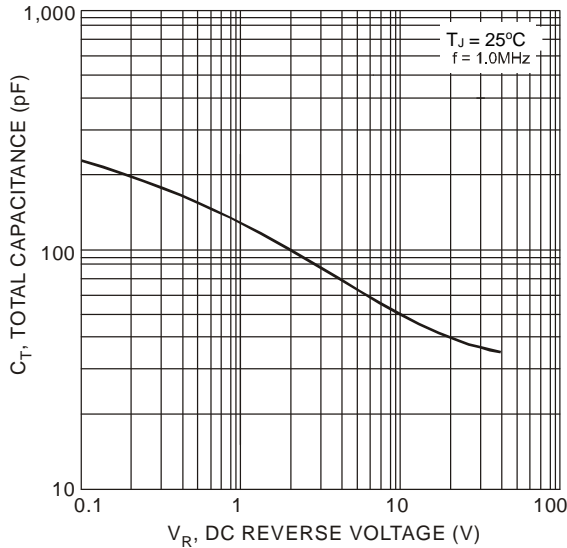


Fig. 3 Total Capacitance vs. Reverse Voltage

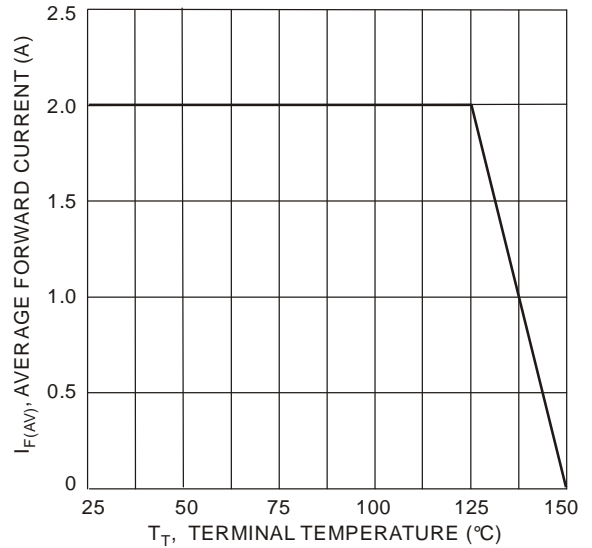


Fig. 4 Forward Current Derating Curve

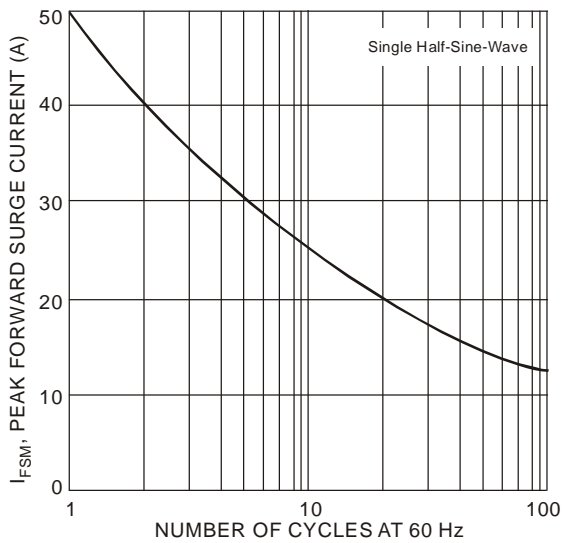
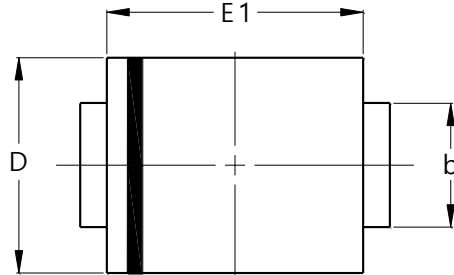


Fig. 5 Max Non-Repetitive Peak Forward Surge Current

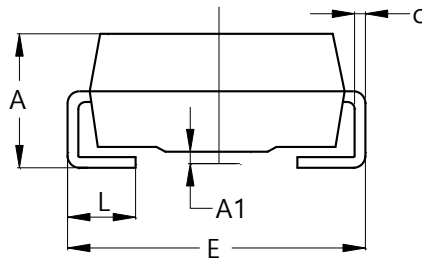
**Package Outline Dimensions**

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

**SMB**



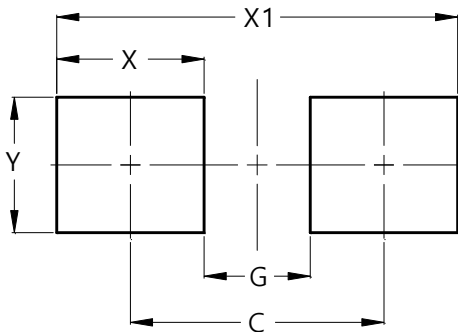
SMB		
Dim	Min	Max
A	2.00	2.50
A1	0.05	0.20
b	1.96	2.21
c	0.15	0.31
D	3.30	3.94
E	5.00	5.59
E1	4.06	4.57
L	0.76	1.52
<b>All Dimensions in mm</b>		



**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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