

## Product Summary

B320/B330/B340

<b>V<sub>RRM</sub> (V)</b>	<b>I<sub>o</sub> (A)</b>	<b>V<sub>F</sub> max (V)</b>	<b>I<sub>R</sub> max (mA)</b>
20/30/40	3.0	0.5	0.5

B350/B360

<b>V<sub>RRM</sub> (V)</b>	<b>I<sub>o</sub> (A)</b>	<b>V<sub>F</sub> max (V)</b>	<b>I<sub>R</sub> max (mA)</b>
50/60	3.0	0.7	0.5

## Description and Applications

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

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

## Features and Benefits

- Guard Ring Die Construction for Transient Protection
- Ideally Suited for Automated Assembly
- Low Power Loss, High Efficiency
- Surge Overload Rating to 125A Peak
- For Use in Low Voltage, 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)**
- **B340Q-13-F Qualified to AEC-Q101 standards for High Reliability**

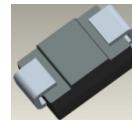
## Mechanical Data

- Case: SMC
- 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<sup>(e3)</sup>
- Polarity: Cathode Band
- Weight: 0.21 grams (approximate)

SMC



Top View



Bottom View

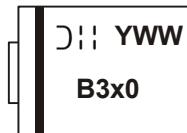
## Ordering Information (Notes 4 & 5)

<b>Part Number</b>	<b>Compliance</b>	<b>Case</b>	<b>Packaging</b>
B3x0-13-F	Commercial	SMC	3000/Tape & Reel
B340Q-13-F (Note 5)	Automotive	SMC	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 <http://www.diodes.com/products/packages.html>
5. Other automotive grade 'Q' parts evaluated upon request.

## Marking Information (Note 6)



B3x0 = Product type marking code, ex: B320  
 J|| = Manufacturers' code marking  
 YWW = Date code marking  
 Y = Last digit of year (ex: 13 for 2013)  
 WW = Week code (01 to 53)

Note: 6. Device has a cathode band (as shown above) and may also have a cathode notch.

**Maximum Ratings** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Single phase, half wave, 60Hz, resistive or inductive load.

For capacitance load, derate current by 20%.

Characteristic	Symbol	B320	B330	B340	B350	B360	Unit
Peak Repetitive Reverse Voltage	$V_{RRM}$						
Working Peak Reverse Voltage	$V_{RWM}$	20	30	40	50	60	V
DC Blocking Voltage	$V_R$						
Average Rectified Output Current	$I_O$			3.0			A
Non-Repetitive Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load	$I_{FSM}$			100			A

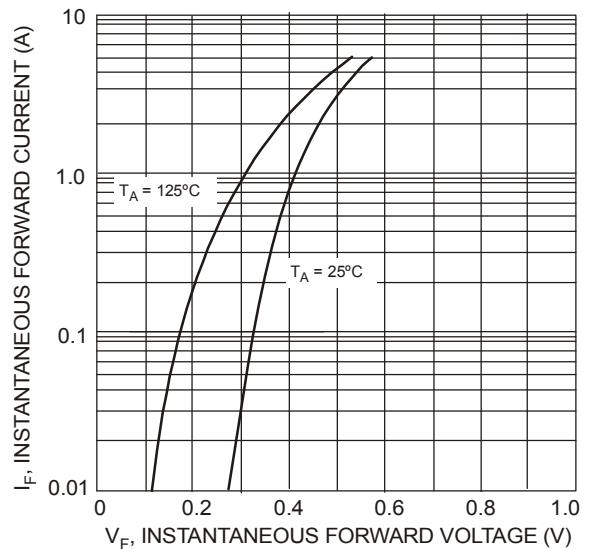
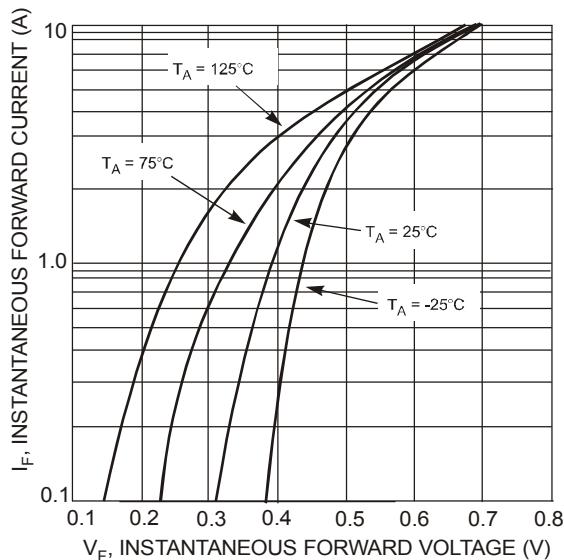
**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Terminal	$R_{\theta JT}$	20	°C/W
Typical Thermal Resistance, Junction to Ambient (Note 7)	$R_{\theta JA}$	90	°C/W
Operating Temperature Range	$T_J$	-55 to +150	°C
Storage Temperature Range	$T_{STG}$	-55 to +150	°C

**Electrical Characteristics** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop B320, B330, B340 B350, B360	$V_F$	—	—	0.50 0.70	V	$I_F = 3.0\text{A}$ , $T_A = +25^\circ\text{C}$
Leakage Current (Note 8)	$I_R$	—	—	0.5 20	mA	@ Rated $V_R$ , $T_A = +25^\circ\text{C}$ @ Rated $V_R$ , $T_A = +100^\circ\text{C}$
Total Capacitance	$C_T$	—	—	200	pF	$V_R = 4\text{V}$ , $f = 1\text{MHz}$

Notes: 7. Thermal Resistance: Junction to terminal, unit mounted on glass epoxy substrate with 2x3mm copper pad  
8. Short duration pulse test used to minimize self-heating effect.



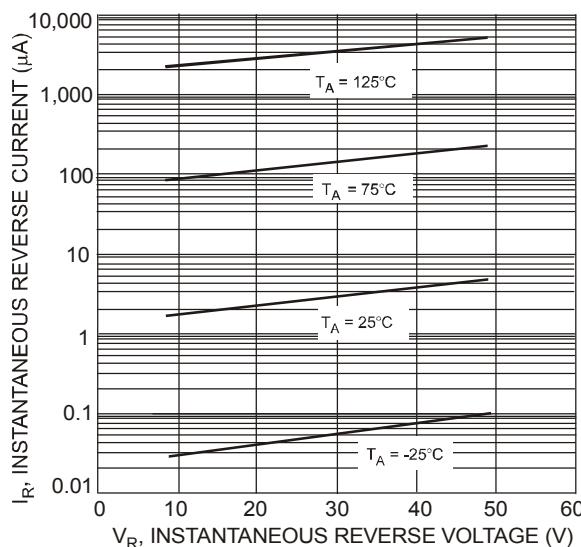


Fig. 3 Typical Reverse Characteristics, B320B thru B340B

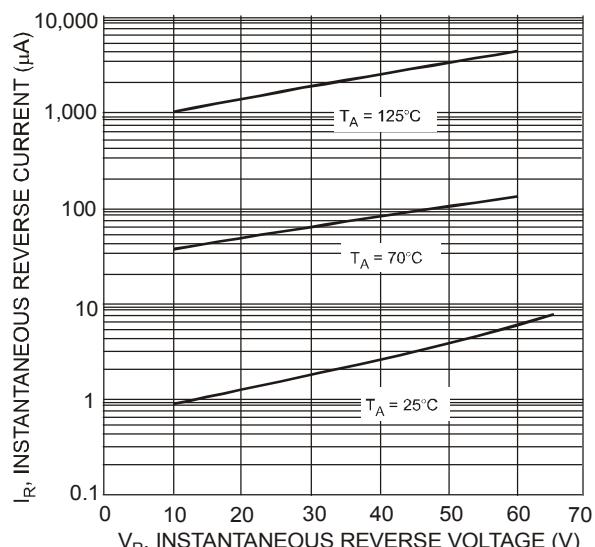


Fig. 4 Typical Reverse Characteristics, B350B thru B360B

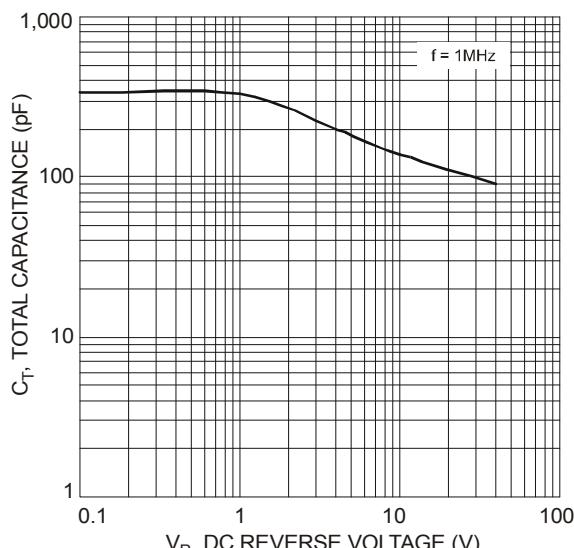


Fig. 5 Total Capacitance vs. Reverse Voltage

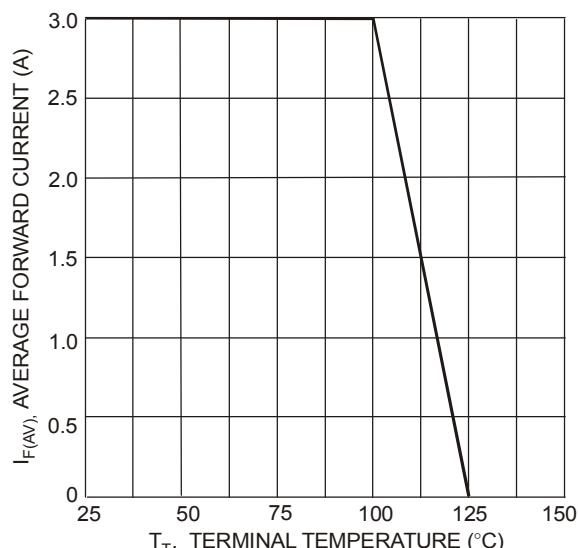


Fig. 6 Forward Current Derating Curve

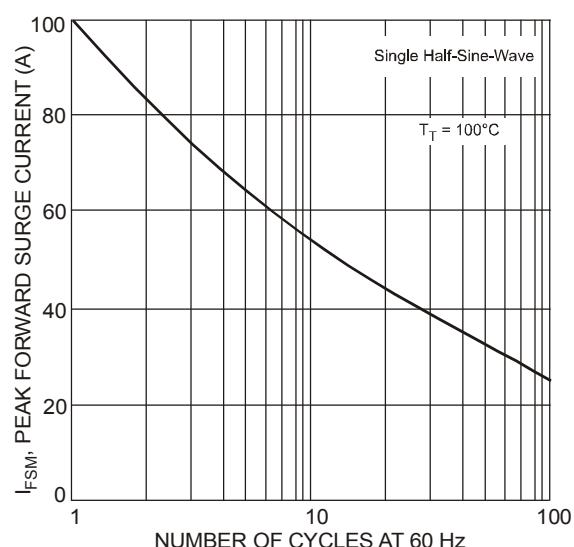
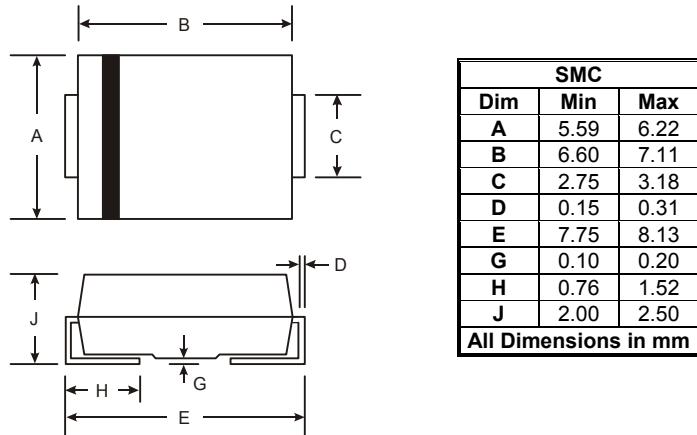


Fig. 7 Max Non-Repetitive Peak Forward Surge Current

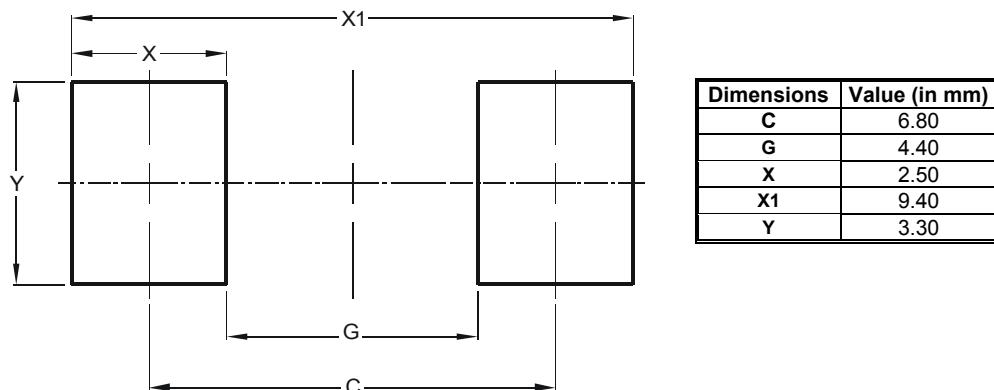
## Package Outline Dimensions

Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



## Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



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