

## 3.0A SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER

### Product Summary

B320Q/B330Q/B340Q

$V_{RRM}$ (V)	$I_O$ (A)	$V_F$ max (V)	$I_R$ max (mA)
20/30/40	3.0	0.5	0.5

B350Q/B360Q

$V_{RRM}$ (V)	$I_O$ (A)	$V_F$ max (V)	$I_R$ max (mA)
50/60	3.0	0.7	0.5

### Description and Applications

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

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

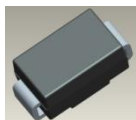
### Features and Benefits

- 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)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP Capable (Note 4)**

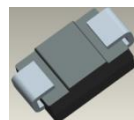
### Mechanical Data

- 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 @3
- Polarity: Cathode Band
- Weight: 0.21 grams (Approximate)

SMC



Top View



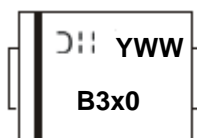
Bottom View

### Ordering Information (Note 5)

Part Number	Compliance	Case	Packaging
B320Q-13-F	Automotive	SMC	3,000/Tape & Reel
B330Q-13-F	Automotive	SMC	3,000/Tape & Reel
B340Q-13-F	Automotive	SMC	3,000/Tape & Reel
B350Q-13-F	Automotive	SMC	3,000/Tape & Reel
B360Q-13-F	Automotive	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. Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to [http://www.diodes.com/product\\_compliance\\_definitions.html](http://www.diodes.com/product_compliance_definitions.html).
  5. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

### Marking Information (Note 6)



B3x0 = Product Type Marking Code, ex: B340  
 311 = Manufacturers' Code Marking  
 YWW = Date Code Marking  
 Y = Last Digit of Year (ex: 15 for 2015)  
 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<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	B320Q	B330Q	B340Q	B350Q	B360Q	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub> V <sub>RWM</sub> V <sub>R</sub>	20	30	40	50	60	V
Average Rectified Output Current	I <sub>O</sub>	3.0					A
Non-Repetitive Peak Forward Surge Current 8.3ms 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 Terminal	R <sub>θJT</sub>	20	°C/W
Typical Thermal Resistance, Junction to Ambient (Note 7)	R <sub>θJA</sub>	90	°C/W
Operating Temperature Range	T <sub>J</sub>	-55 to +150	°C
Storage Temperature Range	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 B320Q-B340Q B350Q-B360Q	V <sub>F</sub>	—	—	0.50 0.70	V	I <sub>F</sub> = 3.0A, T <sub>A</sub> = +25°C
Leakage Current (Note 8)	I <sub>R</sub>	—	—	0.5 20	mA	@ Rated V <sub>R</sub> , T <sub>A</sub> = +25°C @ Rated V <sub>R</sub> , T <sub>A</sub> = +100°C
Total Capacitance	C <sub>T</sub>	—	—	200	pF	V <sub>R</sub> = 4V, f = 1MHz

Notes: 7. Thermal Resistance: Junction to terminal, unit mounted on glass epoxy substrate with 2 x 3mm copper pad.  
8. Short duration pulse test used to minimize self-heating effect.

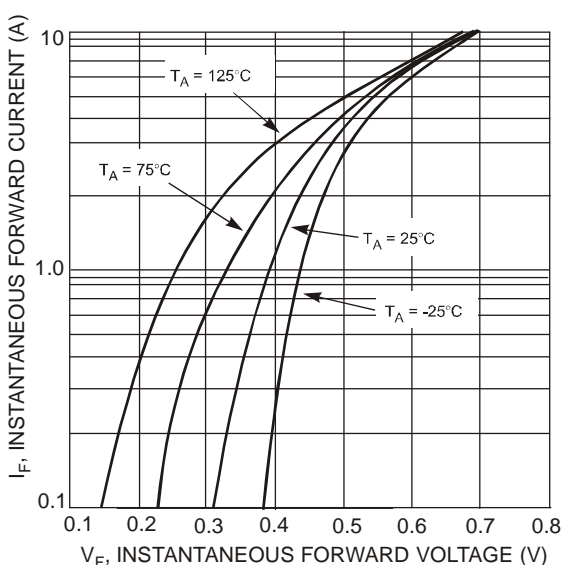


Fig. 1 Typical Forward Characteristics – B320Q thru B340Q

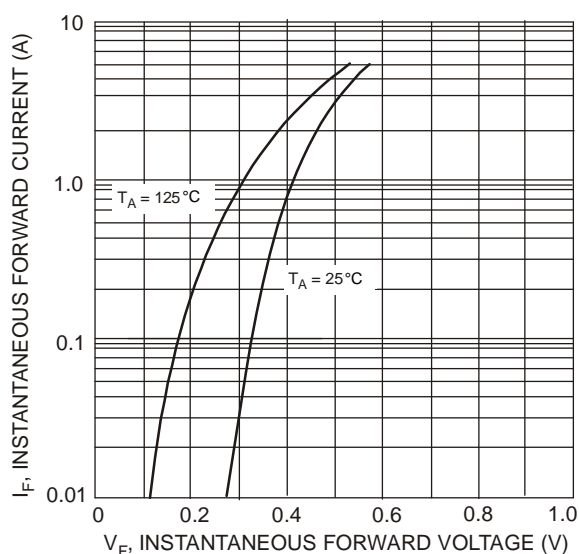


Fig. 2 Typical Forward Characteristics – B350Q thru B360Q

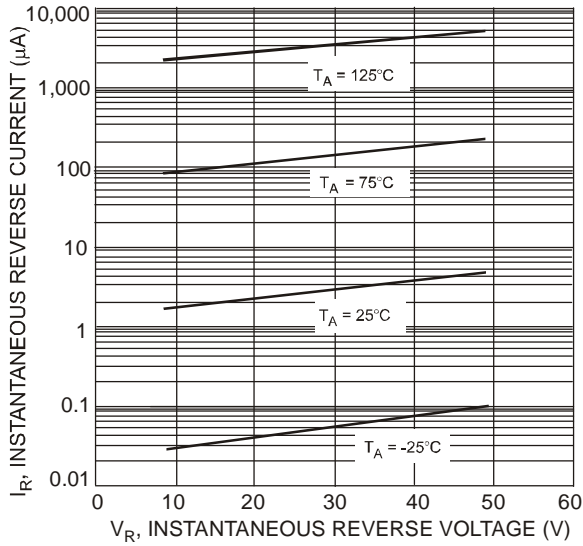


Fig. 3 Typical Reverse Characteristics – B320Q thru B340Q

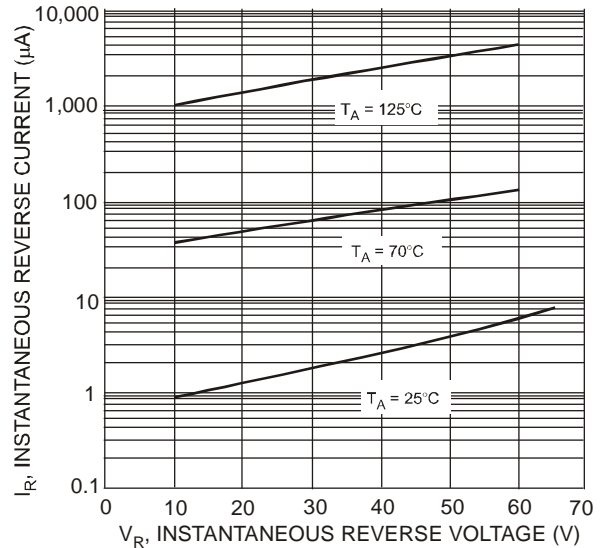


Fig. 4 Typical Reverse Characteristics – B350Q thru B360Q

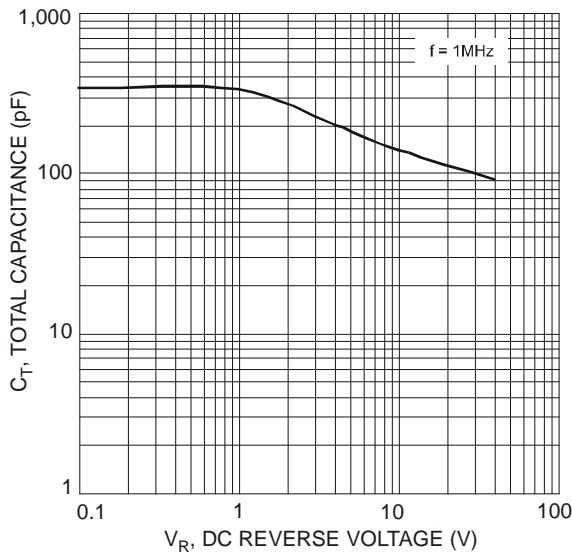


Fig. 5 Total Capacitance vs. Reverse Voltage

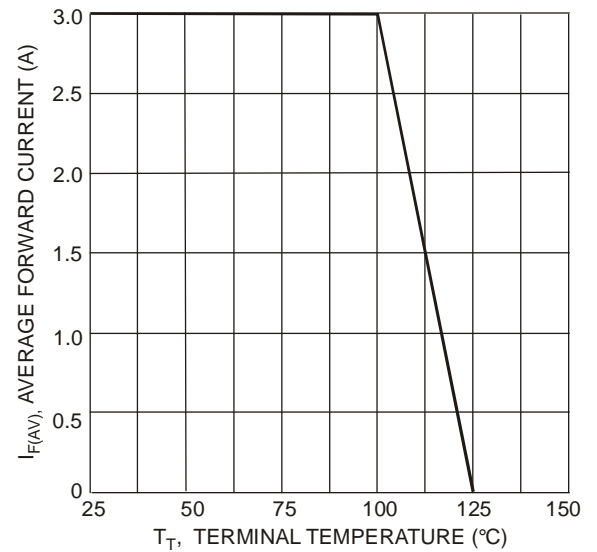


Fig. 6 Forward Current Derating Curve

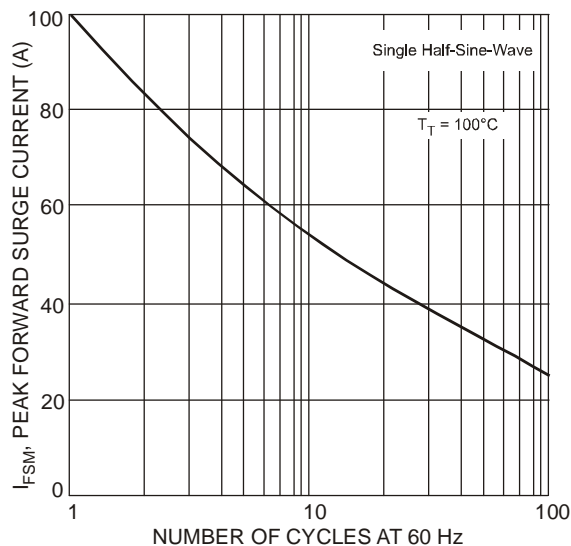
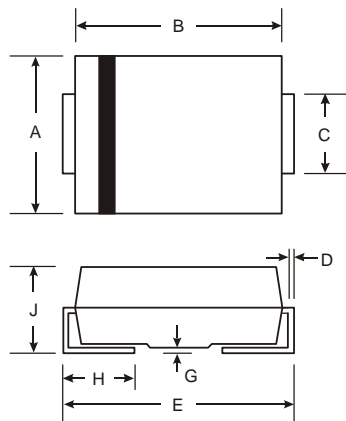


Fig. 7 Max Non-Repetitive Peak Forward Surge Current

## Package Outline Dimensions

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

### SMC

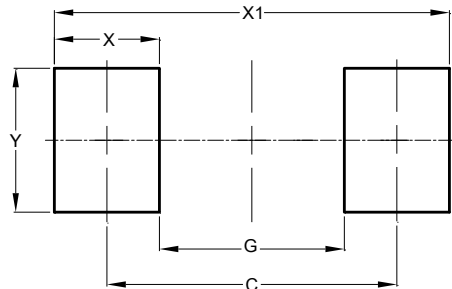


SMC		
Dim	Min	Max
A	5.59	6.22
B	6.60	7.11
C	2.75	3.18
D	0.15	0.31
E	7.75	8.13
G	0.10	0.20
H	0.76	1.52
J	2.00	2.50
All Dimensions in mm		

## Suggested Pad Layout

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

### SMC



Dimensions	Value (in mm)
C	6.90
G	4.40
X	2.50
X1	9.40
Y	3.30

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