THE DATASHEET OF

B320-13-F

3.0A SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER

Product Summary

B320/B330/B340

V_{RRM} (V)	I_O (A)	V_F Max (V)	I_R Max (mA)
B320/B330/B340	3.0	0.5	0.1

B350/B360

V_{RRM} (V)	I_O (A)	V_F Max (V)	I_R Max (mA)
B350/B360	3.0	0.7	0.1

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 diodes
- Re-circulating diodes
- Switching diodes

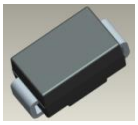
Features and Benefits

- 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)**
- **This part is qualified to JEDEC standards (as references in AEC-Q) for High Reliability. https://www.diodes.com/quality/product-definitions/**
- **An Automotive-Compliant Part is Available Under Separate Datasheet (B320Q–B360Q)**

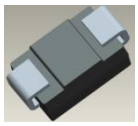
Mechanical Data

- Package: SMC
- 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 e3
- Polarity: Cathode Band
- Weight: 0.21 grams (Approximate)

SMC



Top View



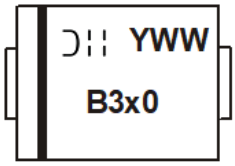
Bottom View

Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
B3x0-13-F	SMC	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 (Note 5)



B3x0 = Product Type Marking Code, ex: B320
= Manufacturer's Code Marking
YWW = Date Code Marking
Y = Last Digit of Year (ex: 2 for 2022)
WW = Week Code (01 to 53)

Note: 5. Device has a cathode band (as shown above) and may also have a cathode notch.

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Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Single phase, half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

Characteristic	Symbol	B320	B330	B340	B350	B360	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	20	30	40	50	60	V
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 6)	$R_{\theta JA}$	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°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 = 3.0A, T_A = +25°C
Leakage Current (Note 7)		I_R	— —	— —	0.1 20	mA	@ Rated V_R, T_A = +25°C @ Rated V_R, T_A = +100°C
Total Capacitance		C_T	—	200	—	pF	V_R = 4V, f = 1MHz

Notes: 6. Thermal resistance: junction to terminal, unit mounted on glass epoxy substrate with 2 x 3mm copper pad.
7. Short duration pulse test used to minimize self-heating effect.

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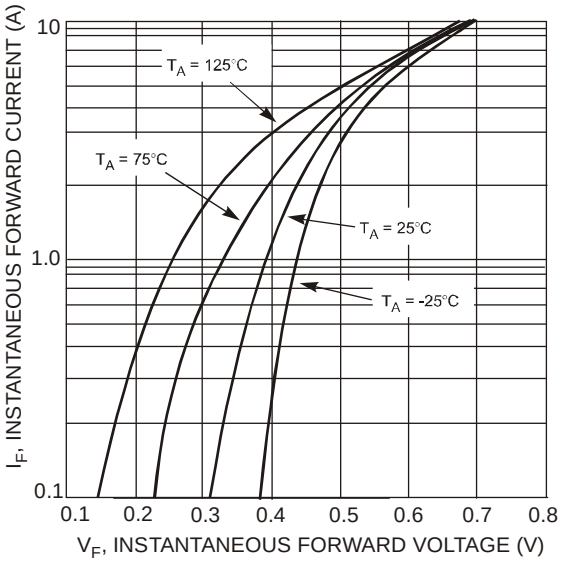

Fig. 1 Typical Forward Characteristics, B320B–B340B

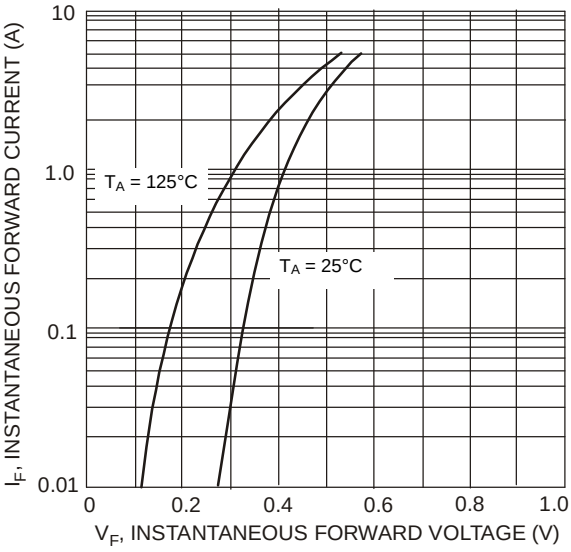

Fig. 2 Typical Forward Characteristics, B350B–B360B

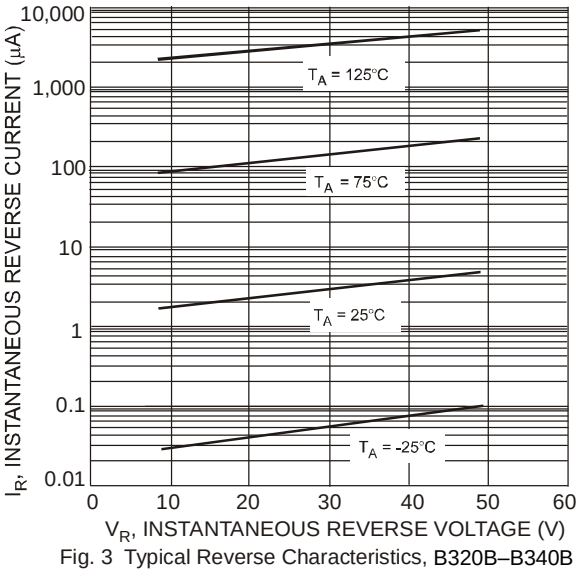

Fig. 3 Typical Reverse Characteristics, B320B–B340B

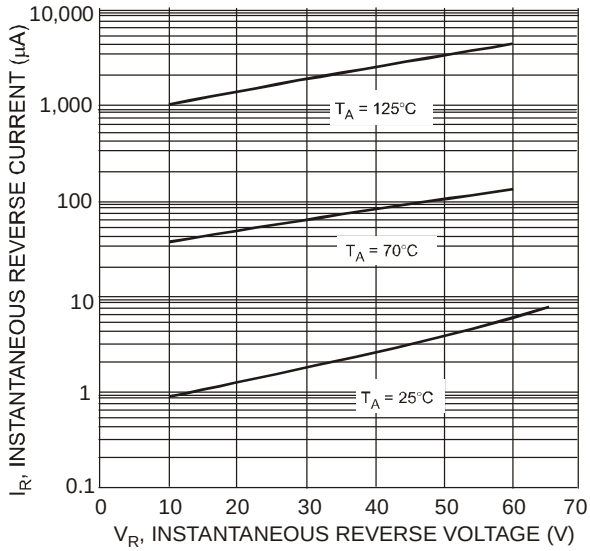

Fig. 4 Typical Reverse Characteristics, B350B–B360B

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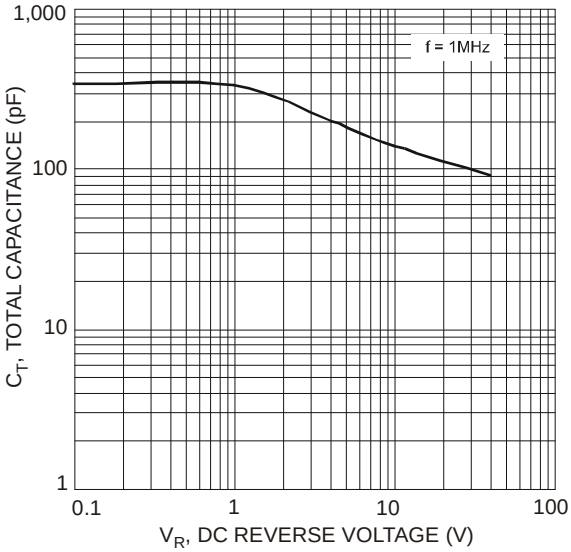

Fig. 5 Total Capacitance vs. Reverse Voltage

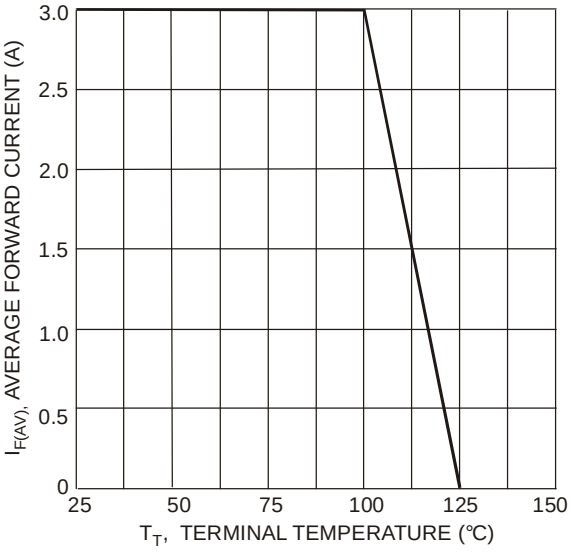

Fig. 6 Forward Current Derating Curve

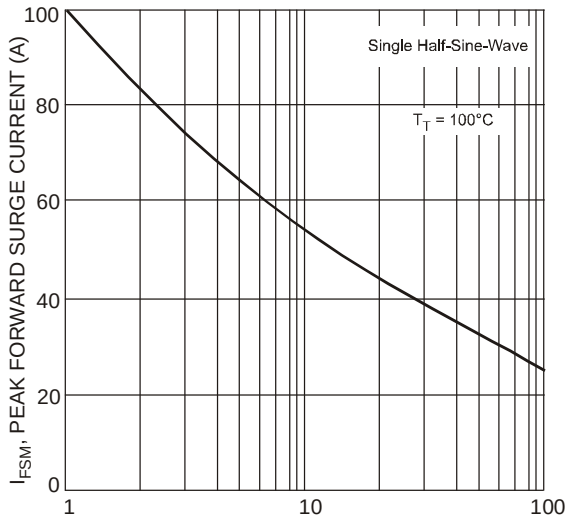

Fig. 7 Max Non-Repetitive Peak Forward Surge Current

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Package Outline Dimensions

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

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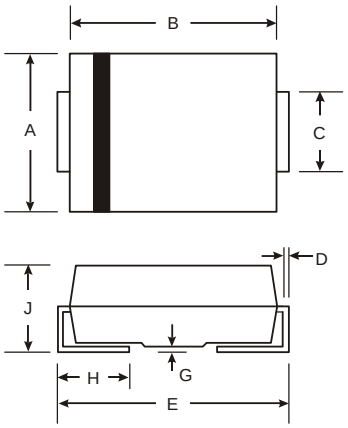
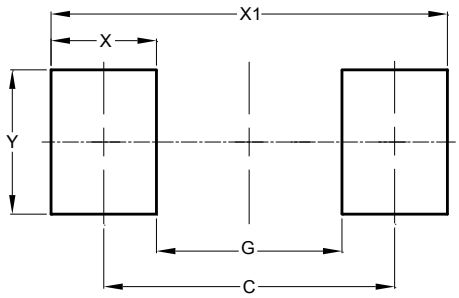


SMC		
Dim	**Min**	**Max**
A	5.59	6.22
B	6.60	7.11
C	2.75	3.18
D	0.15	0.31
E	7.75	8.13
G	0.10	0.20
H	0.76	1.52
J	2.00	2.50
All Dimensions in mm		

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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