

3.0A SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER

Product Summary

B320A-B340A:

V_{RRM} (V)	I_O (A)	$V_{F(MAX)}$ @ 3A (V)	$I_{R(MAX)}$ @ V_{RRM} (mA)
20, 30, 40	3.0	0.50	0.5

B350-B360A:

V_{RRM} (V)	I_O (A)	$V_{F(typ)}$ @ 125°C (V)	$I_{R(MAX)}$ @ V_{RRM} (mA)
50, 60	3.0	0.70	0.5

Description and Applications

For use in low voltage, high frequency inverters, freewheeling, DC/DC converters, and polarity protection applications.

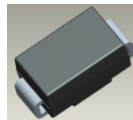
Features

- Guard Ring Die Construction for Transient Protection
- Ideally Suited for Automated Assembly
- Low Power Loss, High Efficiency
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Notes 3 & 4)**
- **Qualified to AEC-Q101 Standards for High Reliability**

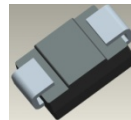
Mechanical Data

- Case: SMA
- Case Material: Molded Plastic. "Green" Molding compound. UL Flammability Classification 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: 0.064 grams (approximate)

SMA



Top View



Bottom View

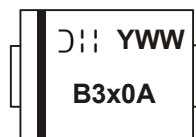
Ordering Information (Note 5)

Part Number*	Compliance	Case	Packaging
B3XXA-13-F	Standard	SMA	5000/Tape & Reel
B3XXAQ-13-F	Automotive	SMA	5000/Tape & Reel

* xx = Device type, e.g. B320A-13-F (SMA package).

- 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 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. Product manufactured with Date Code 0924 (week 24, 2009) and newer are built with Green Molding Compound.
 5. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>

Marking Information (Note 6)



B3x0A = Product type marking code, ex: B320A
 DII = 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°C, unless otherwise specified.)

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

Characteristic	Symbol	B320A	B330A	B340A	B350A	B360A	Unit
Peak Repetitive Reverse Voltage	V _{RRM}	20	30	40	50	60	V
Working Peak Reverse Voltage	V _{RWM}						
DC Blocking Voltage	V _R						
Average Rectified Output Current @ T _T = +100°C	I _O	3.0					A
Non-Repetitive Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load	I _{FSM}	80					A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Maximum Total Power Dissipation - Steady State, T _A = +25°C (Note 7)	P _D	850	mW
Typical Thermal Resistance, Junction to Ambient (Note 7)	R _{θJA}	140	°C/W
Typical Thermal Resistance, Junction to Terminal (Note 8)	R _{θJT}	25	°C/W
Typical Thermal Resistance, Junction to Ambient (Note 8)	R _{θJA}	100	°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	V _F	—	—	0.50	V	I _F = 3.0A, T _A = +25°C
		—	—	0.70		
Leakage Current (Note 9)	I _R	—	—	0.5	mA	@ Rated V _R , T _A = +25°C
		—	—	20		@ Rated V _R , T _A = +100°C
Total Capacitance	C _T	—	200	—	pF	V _R = 4V, f = 1MHz

Notes: 7. Device mounted on FR-4 PCB, with minimum recommended pad layout
 8. Device mounted on glass epoxy substrate with 2x3mm copper pad.
 9. Short duration pulse test used to minimize self-heating effect.

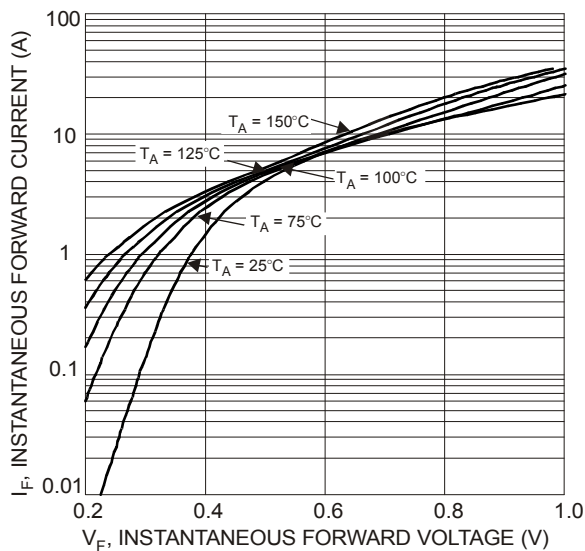


Fig. 1 Typical Forward Characteristics - B320A thru B340A

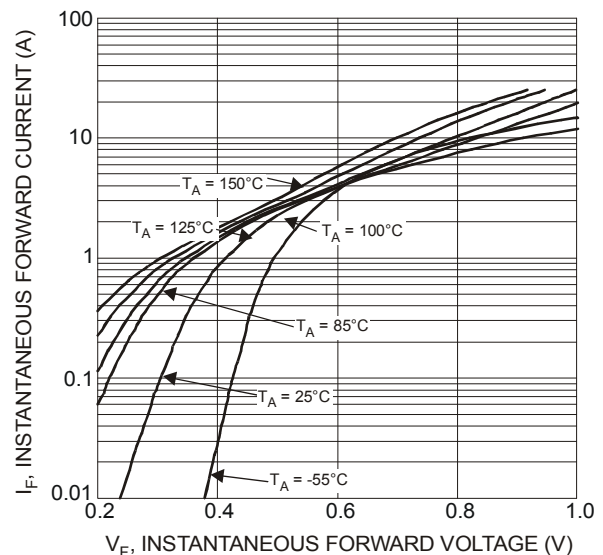


Fig. 2 Typ. Forward Characteristics - B350A thru B360A

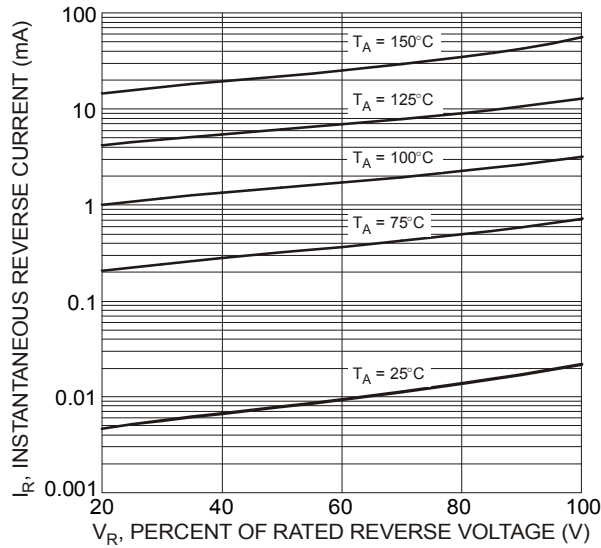


Fig. 3 Typical Reverse Characteristics, B320A thru B340A

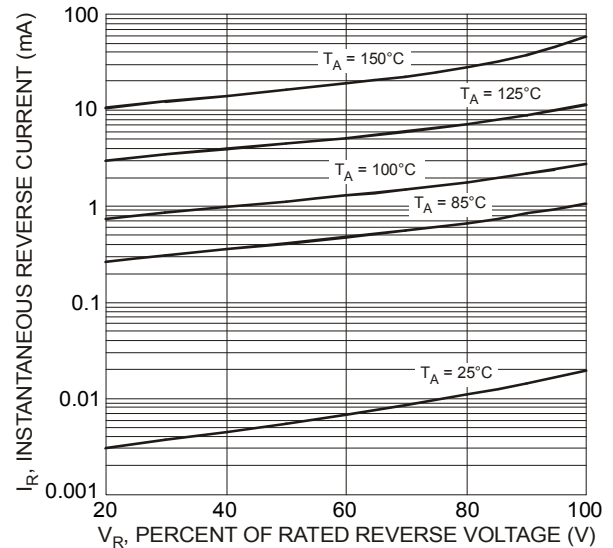


Fig. 4 Typical Reverse Characteristics, B350A thru B360A

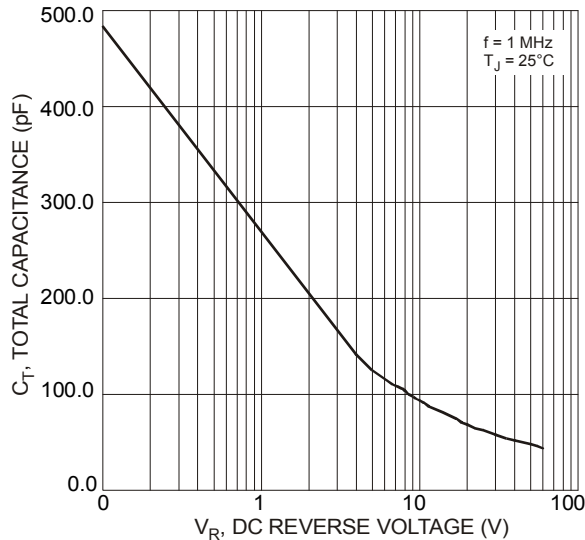


Fig. 5 Total Capacitance vs. Reverse Voltage

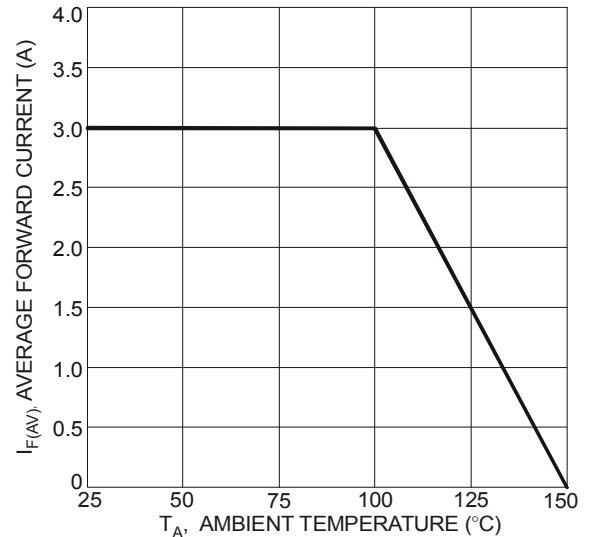


Fig. 6 Forward Current Derating Curve

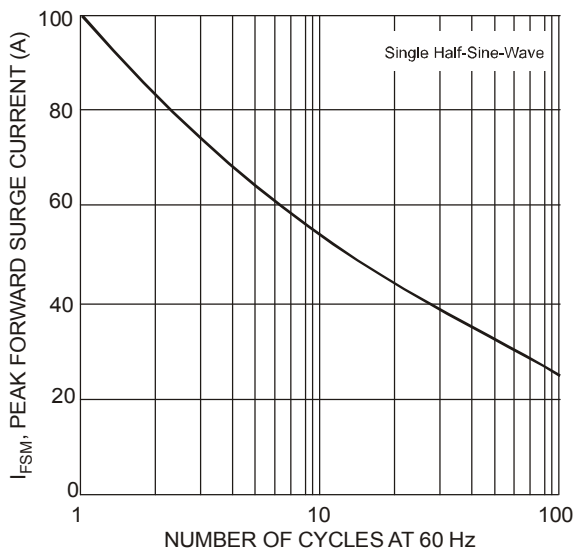


Fig. 7 Max Non-Repetitive Peak Fwd Surge Current

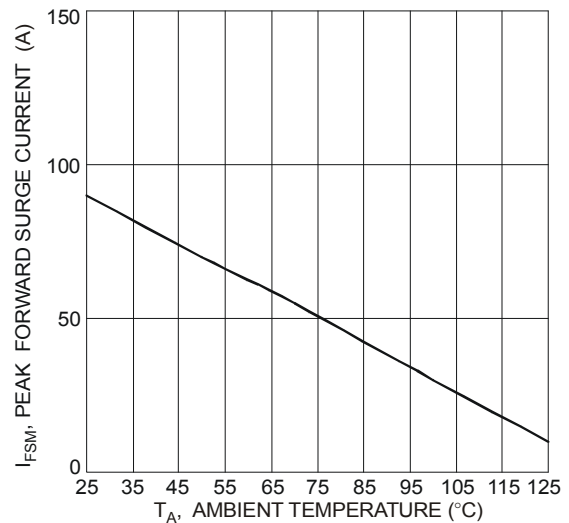
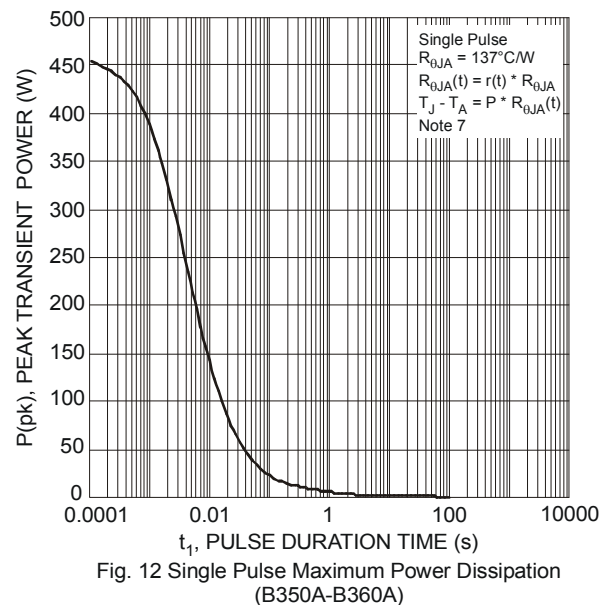
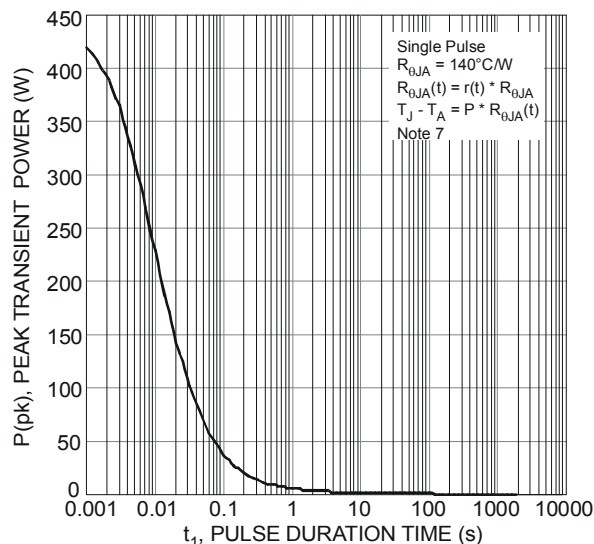
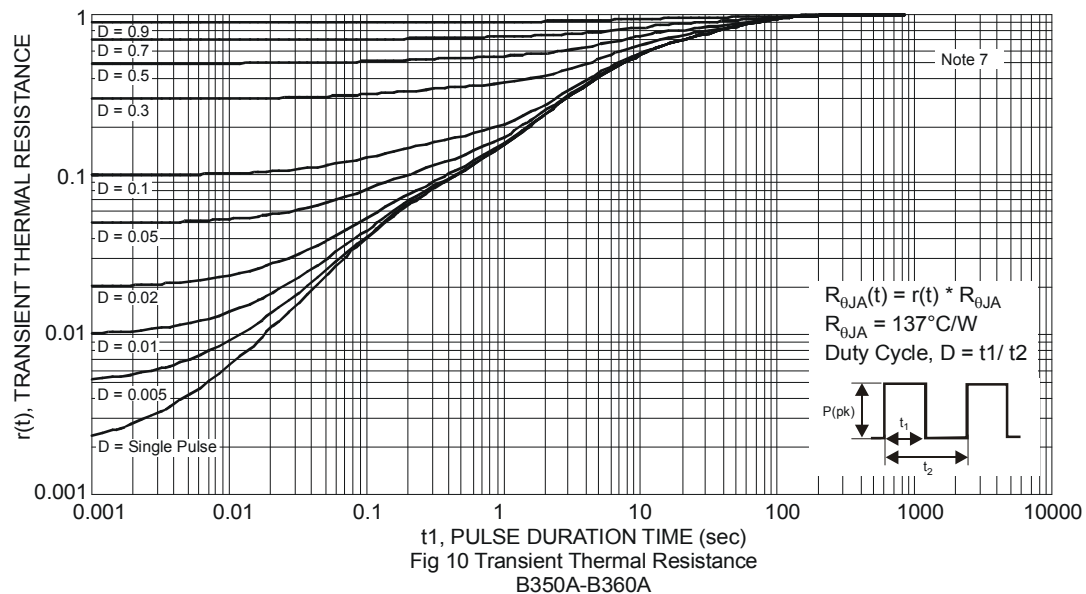
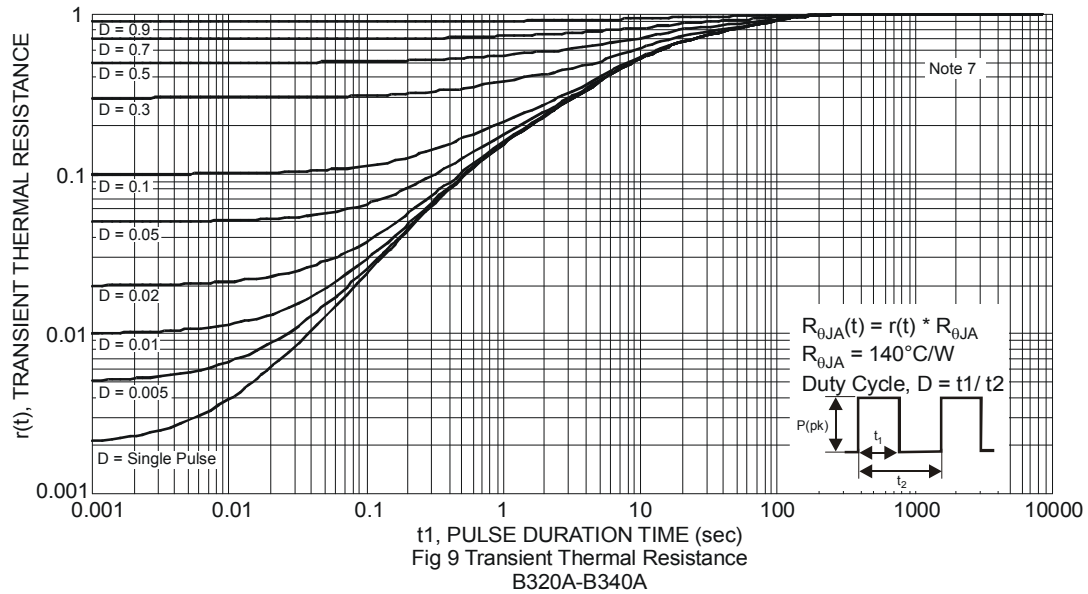
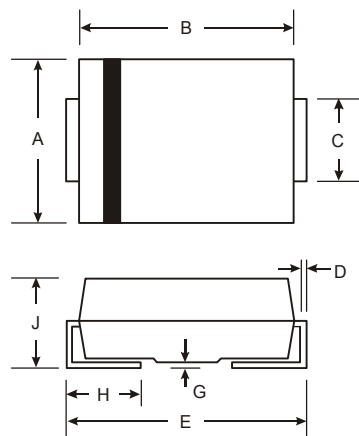


Fig. 8 Non-Repetitive Forward Surge Current Derating Curve



Package Outline Dimensions

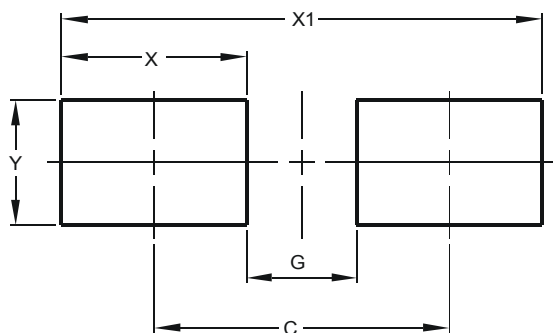
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



SMA		
Dim	Min	Max
A	2.29	2.92
B	4.00	4.60
C	1.27	1.63
D	0.15	0.31
E	4.80	5.59
G	0.05	0.20
H	0.76	1.52
J	2.01	2.30
All Dimensions in mm		

Suggested Pad Layout

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



Dimensions	Value (in mm)
C	4.00
G	1.50
X	2.50
X1	6.50
Y	1.70

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