

Product Summary

B320A-B340A:

V _R (V)	I _o (A)	V _F (MAX) @ 3A (V)	I _R (MAX) @ V _R (mA)
20, 30, 40	3.0	0.50	0.5

B350A-B360A:

V _R (V)	I _o (A)	V _F (TYP) @ +125°C (V)	I _R (MAX) @ V _R (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.

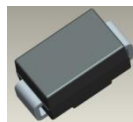
Features

- 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 (Note 3)**
- **For automotive applications requiring specific change control (i.e.: parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please refer to the related automotive grade (Q-suffix) part. A listing can be found at <https://www.diodes.com/products/automotive/automotive-products/>.**
- **This part is qualified to JEDEC standards (as references in AEC-Q) for High Reliability. <https://www.diodes.com/quality/product-definitions/>**

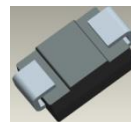
Mechanical Data

- Package: SMA
- Package 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



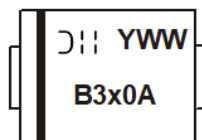
Bottom View

Ordering Information (Note 4)

Orderable Part Number	Package	Packing	
		Qty.	Carrier
B3XXA-13-F	SMA	5,000	Tape & Reel

* XX = Device Type, e.g. B320A-13-F (SMA Package).

Marking Information (Note 5)



B3x0A = Product Type Marking Code, ex: B320A
 DII = Manufacturers' Code Marking
 YWW = Date Code Marking
 A Bar or Underline around the Date Code or Product Type Marking Code Denotes Assembly Site if Marked
 Y = Last Digit of Year (ex: 6 for 2026)
 WW = Week Code (01 to 53)

- 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 http://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/>.
 5. 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 capacitive 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 @ $T_T = +100^\circ\text{C}$	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, $T_A = +25^\circ\text{C}$ (Note 6)	P_D	850	mW
Typical Thermal Resistance, Junction to Ambient (Note 6)	$R_{\theta JA}$	140	$^\circ\text{C}/\text{W}$
Typical Thermal Resistance, Junction to Terminal (Note 7)	$R_{\theta JT}$	25	$^\circ\text{C}/\text{W}$
Typical Thermal Resistance, Junction to Ambient (Note 7)	$R_{\theta JA}$	100	$^\circ\text{C}/\text{W}$
Operating Temperature Range	T_J	-55 to +150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 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	—	—	0.50	V	$I_F = 3.0\text{A}, T_A = +25^\circ\text{C}$
				0.70		
Leakage Current (Note 8)	I_R	—	—	0.5	mA	@ Rated $V_R, T_A = +25^\circ\text{C}$
				20		@ 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: 6. Device mounted on FR-4 PCB, with minimum recommended pad layout.
7. Device mounted on glass epoxy substrate with 2mm x 3mm copper pad.
8. Short duration pulse test used to minimize self-heating effect.

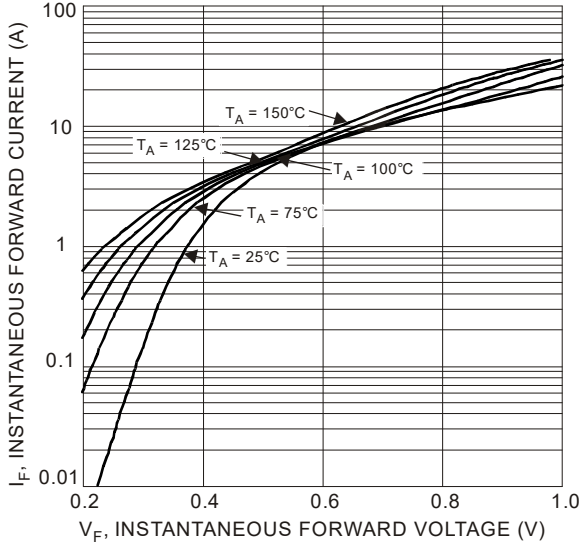


Fig. 1 Typical Forward Characteristics - B320A thru B340A

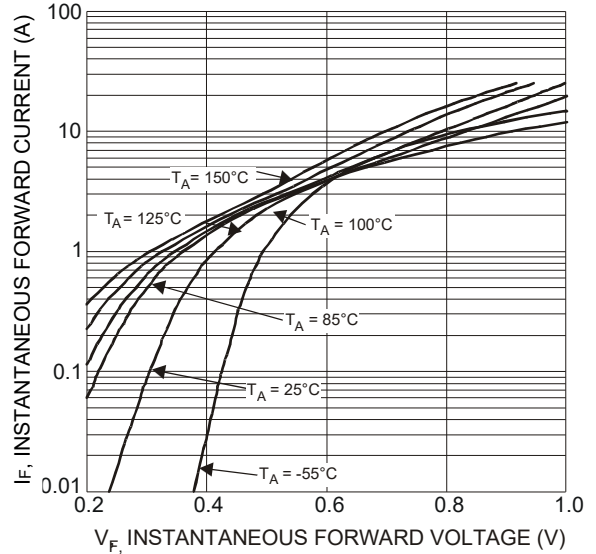


Fig. 2 Typical Forward Characteristics - B350A thru B360A

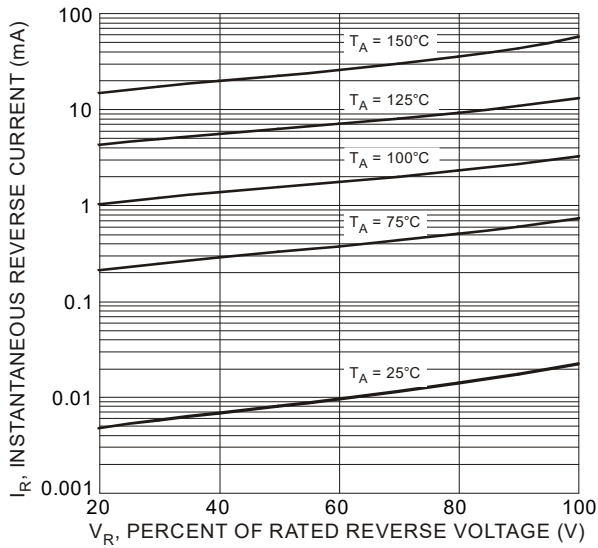


Fig. 3 Typical Reverse Characteristics, B320A thru B340A

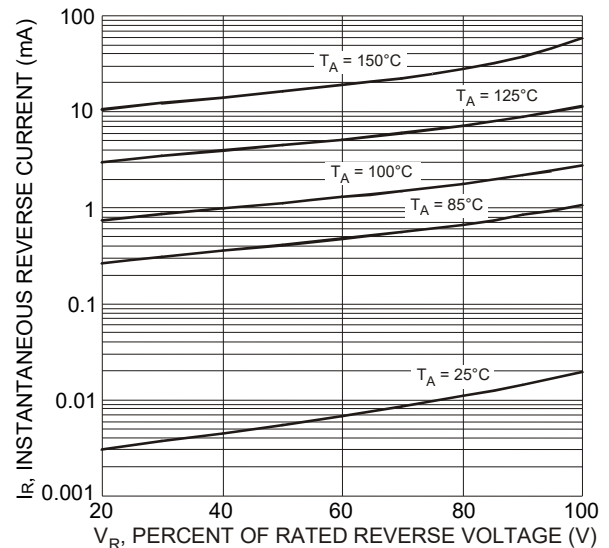


Fig. 4 Typical Reverse Characteristics, B350A thru B360A

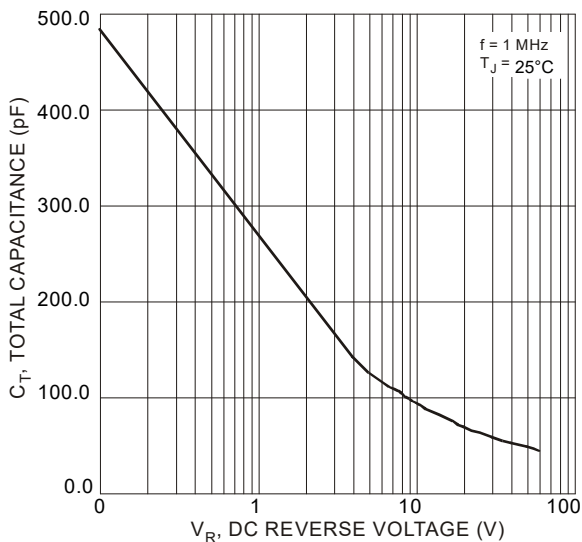


Fig. 5 Total Capacitance vs. Reverse Voltage

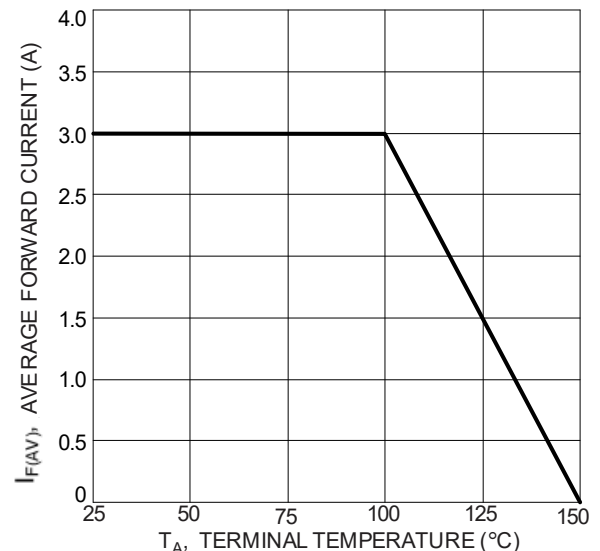


Fig. 6 Forward Current Derating Curve

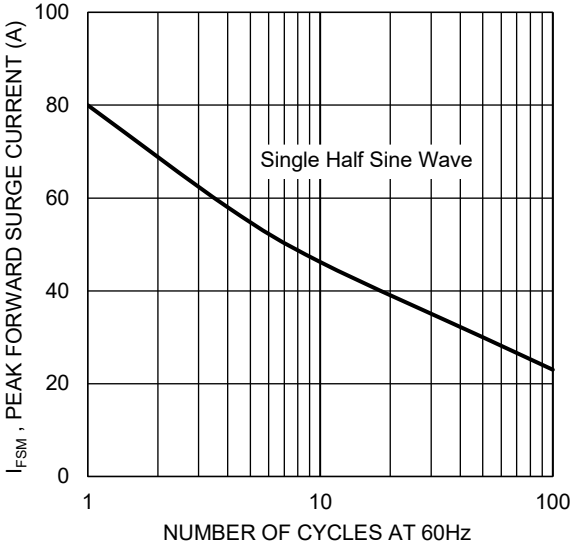


Fig. 7 Max Non-Repetitive Peak Forward Surge Current

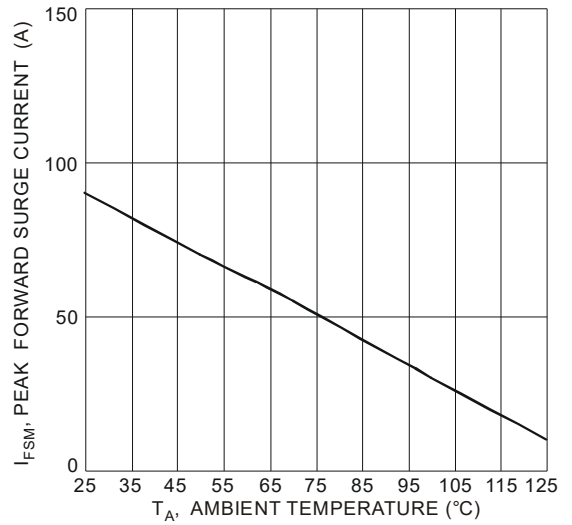


Fig. 8 Non-Repetitive Forward Surge Current Derating Curve

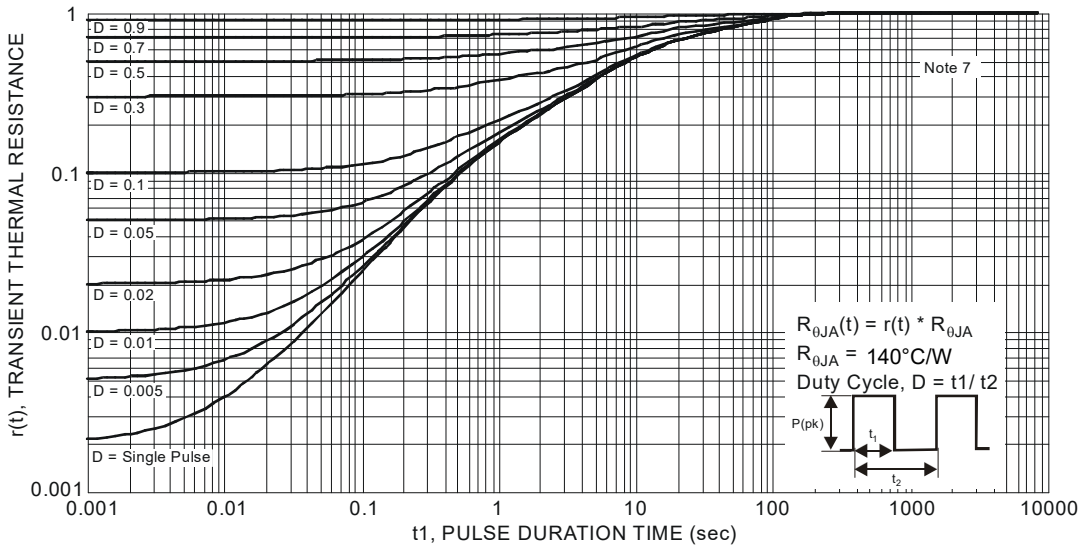


Fig. 9 Transient Thermal Resistance B320A-B340A

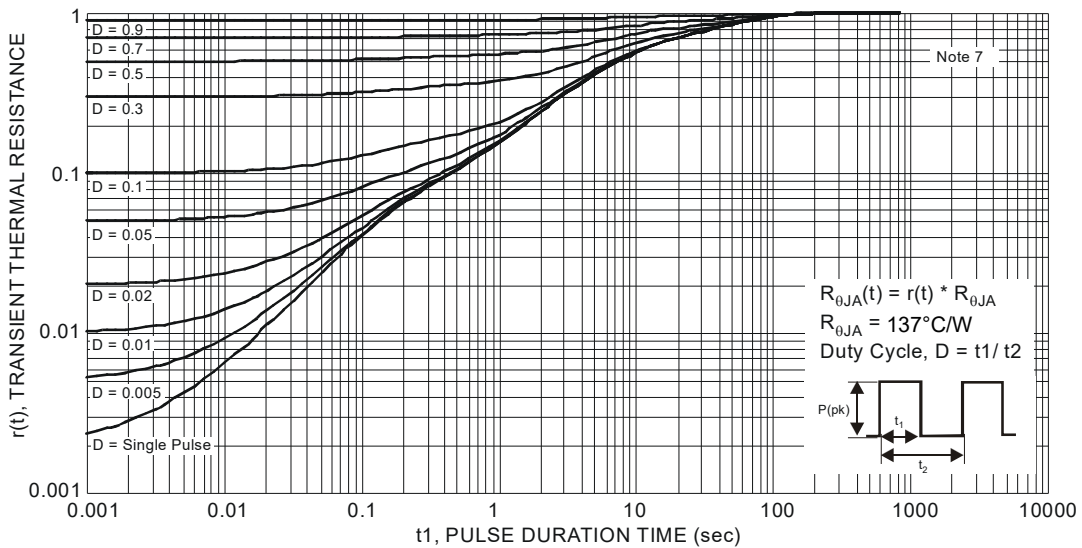


Fig. 10 Transient Thermal Resistance B350A-B360A

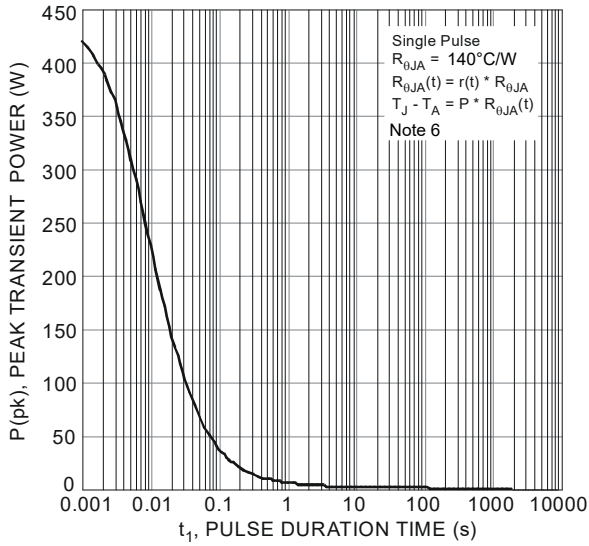


Fig. 11 Single Pulse Maximum Power Dissipation (B320A-B340A)

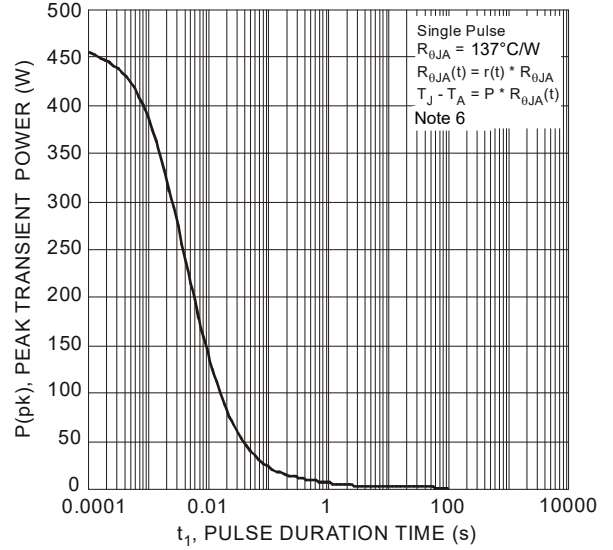
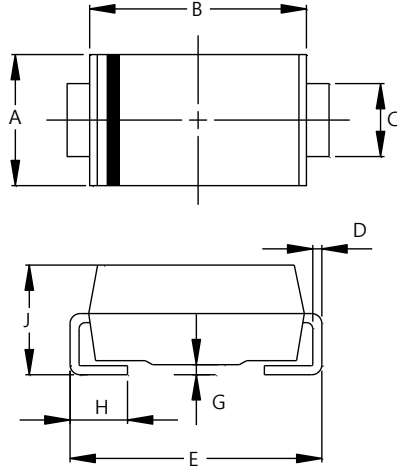


Fig. 12 Single Pulse Maximum Power Dissipation (B350A-B360A)

Package Outline Dimensions

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

SMA

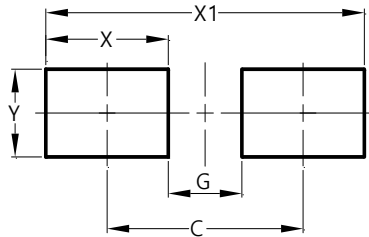


SMA		
Dim	Min	Max
A	2.29	2.92
B	4.00	4.60
C	1.27	1.63
D	0.15	0.31
E	4.80	5.59
G	0.05	0.20
H	0.76	1.52
J	1.96	2.40
All Dimensions in mm		

Suggested Pad Layout

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

SMA



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

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