



3.0A SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER

Product Summary

B320AQ-B340AQ:

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

B350AQ-B360AQ:

V _{RRM} (V)	I _O (A)	V _{F(MAX)} @ 3A (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 (Note 3)
- Qualified to AEC-Q101 Standards for High Reliability
- PPAP Capable (Note 4)

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







Bottom View

Ordering Information (Note 5)

Ī	Part Number*	Compliance	Case	Packaging
	B3XXAQ-13-F	Automotive	SMA	5,000/Tape & Reel

^{*} XX = Device Type, e.g. B320AQ-13-F (SMA Package).

Notes:

- 1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
- 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. Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to https://www.diodes.com/quality/.
- 5. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/.

Marking Information (Note 6)



B3x0A = Product Type Marking Code, ex: B320AQ

);; = Manufacturers' Code Marking

YWW = Date Code Marking

Y = Last Digit of Year (ex: 8 for 2018)

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 capacitive load, derate current by 20%.

Characteristic	Symbol	B320AQ	B330AQ	B340AQ	B350AQ	B360AQ	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V _{RRM} V _{RWM} V _R	20	30	40	50	60	٧
Average Rectified Output Current	lo	3.0					Α
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I _{FSM}			80			А

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 _θ JT	25	°C/W
Typical Thermal Resistance, Junction to Ambient (Note 8)	R _{0JA}	100	°C/W
Operating Temperature Range	TJ	-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	Тур	Max	Unit	Test Condition	
Forward Voltage Drop	B320AQ, B330AQ, B340AQ	V _F	_	_	0.50	V	I _F = 3.0A, T _A = +25°C	
Forward Voltage Drop	B350AQ, B360AQ		1	_	0.70			
Leakage Current (Note 9)		I _R		_	0.5	mA	@ Rated V _R , T _A = +25°C	
			1	_	20		@ Rated V _R , T _A = +100°C	
Total Capacitance		Ст	_	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 $2\text{mm x}\ 3\text{mm}$ copper pad.
- 9. Short duration pulse test used to minimize self-heating effect.

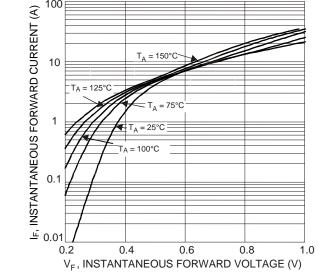
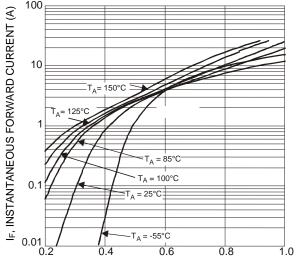


Fig. 1 Typical Forward Characteristics - B320AQ thru B340AQ



 $\rm V_F$, INSTANTANEOUS FORWARD VOLTAGE (V) Fig. 2 Typ. Forward Characteristics - B350AQ thru B360AQ



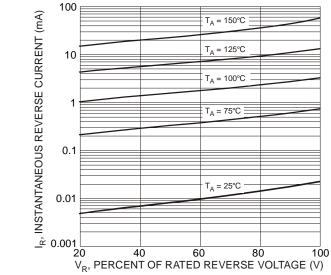
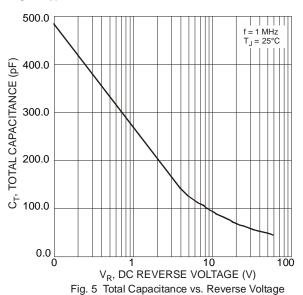


Fig. 3 Typical Reverse Characteristics, B320AQ thru B340AQ



I_{FSM}, PEAK FORWARD SURGE CURRENT (A) 60 40 20 10 100 NUMBER OF CYCLES AT 60 Hz

Fig. 7 Max Non-Repetitive Peak Fwd Surge Current

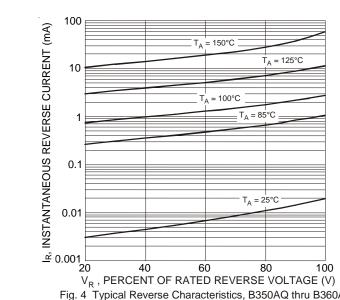
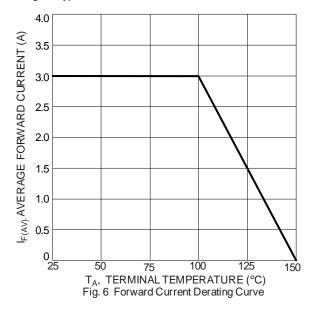


Fig. 4 Typical Reverse Characteristics, B350AQ thru B360AQ



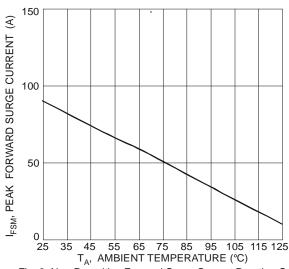
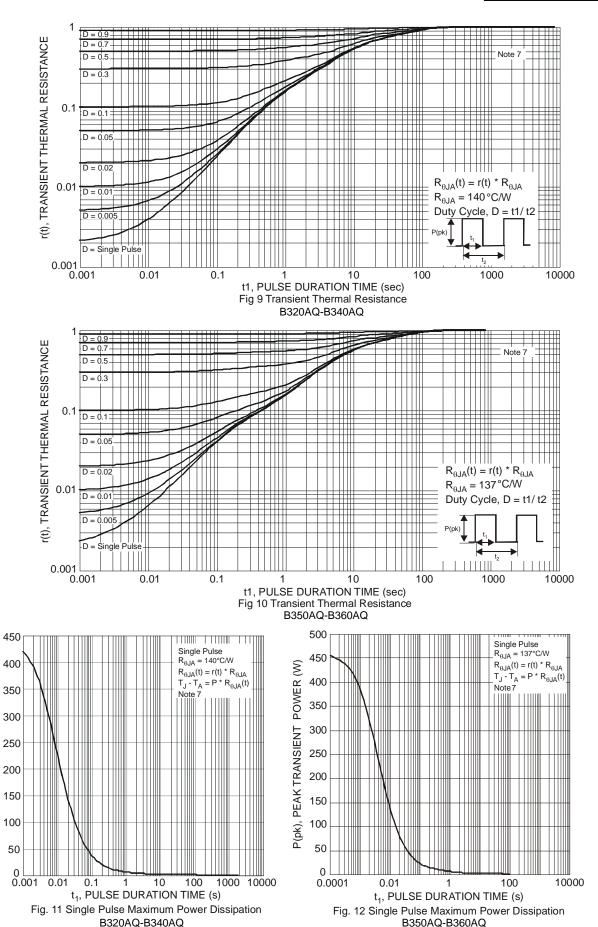


Fig. 8 Non-Repetitive Forward Surge Current Derating Curve





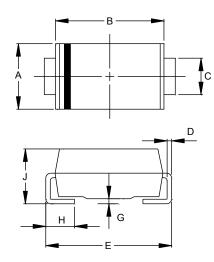
P(pk), PEAK TRANSIENT POWER (W)



Package Outline Dimensions

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

SMA

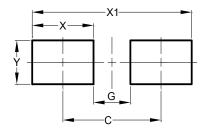


SMA					
Dim	Min	Max			
Α	2.29	2.92			
В	4.00	4.60			
С	1.27	1.63			
D	0.15	0.31			
Е	4.80	5.59			
G	0.05	0.20			
Н	0.76	1.52			
J	1.96	2.40			
All Dimensions in mm					

Suggested Pad Layout

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

SMA



Dimensions	Value (in mm)
С	4.00
G	1.50
Х	2.50
X1	6.50
Υ	1.70



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