

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 and 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)**
- **The B320AQ-B360AQ is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.**

<https://www.diodes.com/quality/product-definitions/>

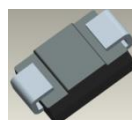
Mechanical Data

- 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
- Polarity: Cathode Band
- Weight: 0.064 grams (Approximate)

SMA



Top View



Bottom View

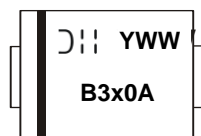
Ordering Information (Note 4)

| Orderable Part Number* | Package | Packing | |
|------------------------|---------|----------|-------------|
| | | Quantity | Carrier |
| B3XXAQ-13-F | 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.
 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/>.

Marking Information (Note 5)



B3x0A = Product Type Marking Code, ex: B320AQ

YWW = Manufacturers' Code Marking

YWW = Date Code Marking

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

WW = Week Code (01 to 53)

Note: 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 | B320AQ | B330AQ | B340AQ | B350AQ | B360AQ | Unit |
|--|-----------|--------|--------|--------|--------|--------|------|
| Peak Repetitive Reverse Voltage | V_{RRM} | | | | | | |
| Working Peak Reverse Voltage | V_{RWM} | 20 | 30 | 40 | 50 | 60 | V |
| DC Blocking Voltage | V_R | | | | | | |
| 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} | 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 | $^\circ\text{C/W}$ |
| Typical Thermal Resistance, Junction to Terminal (Note 7) | $R_{\theta JT}$ | 25 | $^\circ\text{C/W}$ |
| Typical Thermal Resistance, Junction to Ambient (Note 7) | $R_{\theta JA}$ | 100 | $^\circ\text{C/W}$ |
| 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 | $V_R = 4\text{V}$, $f = 1\text{MHz}$ |
| | | | 150 | | | |

- Notes:
- Device mounted on FR-4 PCB, with minimum recommended pad layout.
 - Device mounted on glass epoxy substrate with 2mm x 3mm copper pad.
 - Short duration pulse test used to minimize self-heating effect.

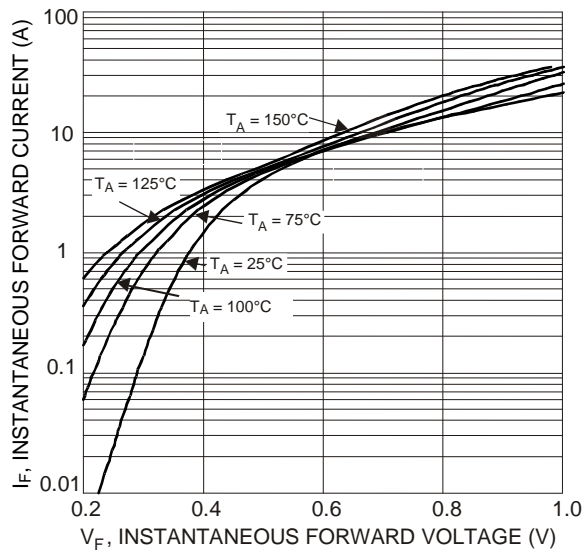


Fig. 1 Typical Forward Characteristics - B320AQ thru B340AQ

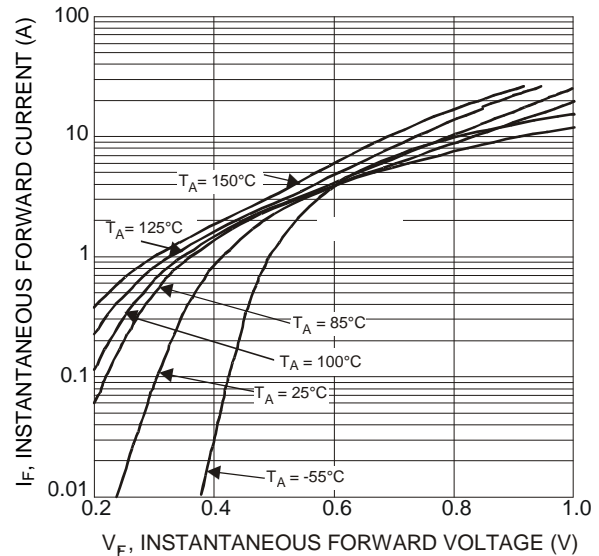


Fig. 2 Typ. Forward Characteristics - B350AQ thru B360AQ

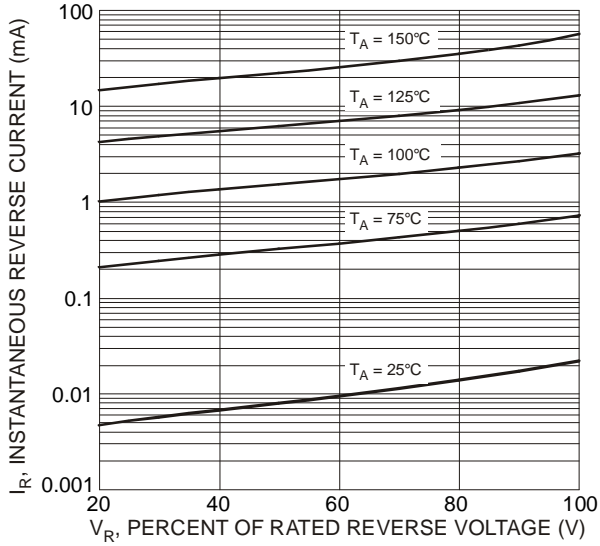


Fig. 3 Typical Reverse Characteristics, B320AQ thru B340AQ

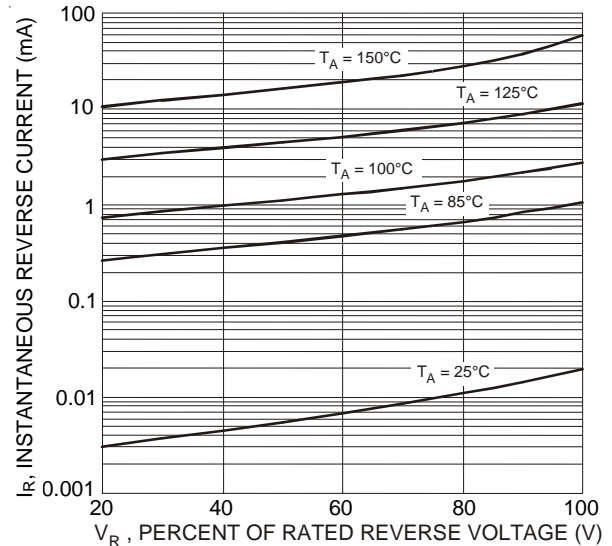


Fig. 4 Typical Reverse Characteristics, B350AQ thru B360AQ

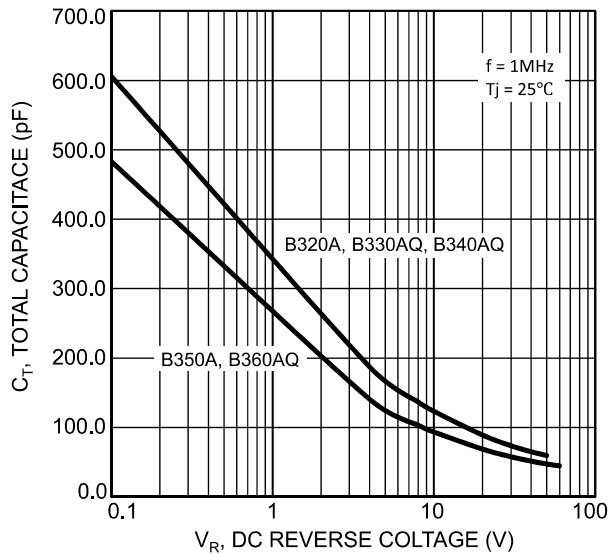


Fig. 5 Total Capacitance vs. Reverse Voltage

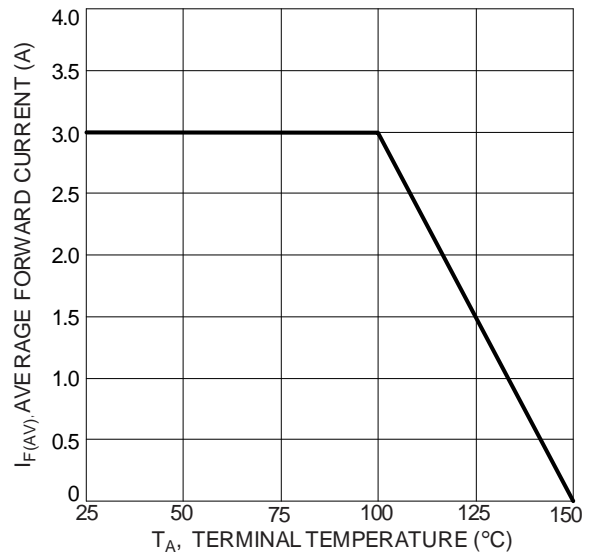


Fig. 6 Forward Current Derating Curve

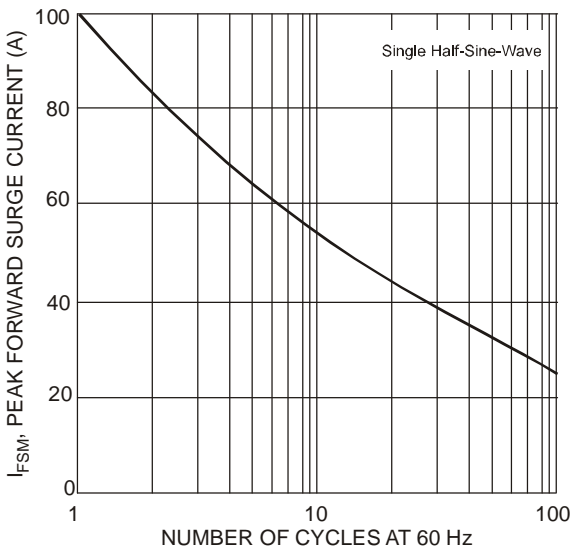


Fig. 7 Max Non-Repetitive Peak Fwd Surge Current

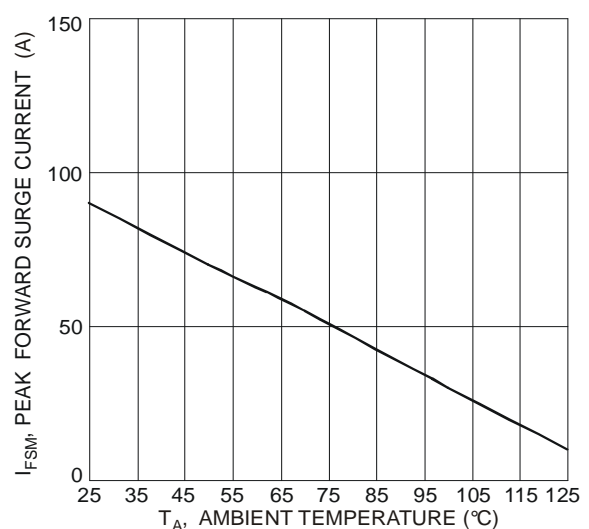
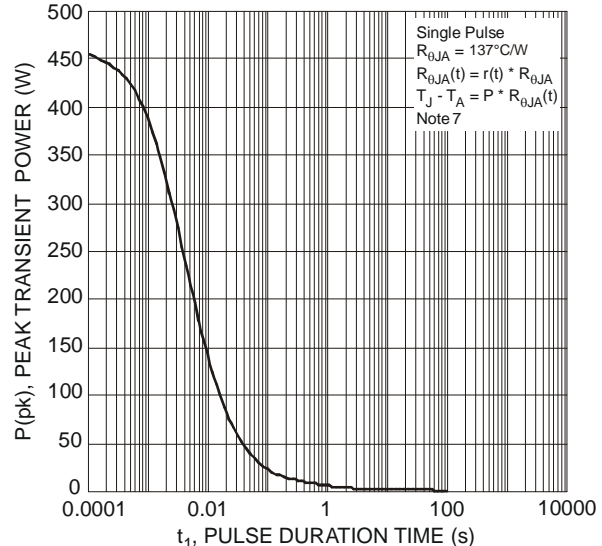
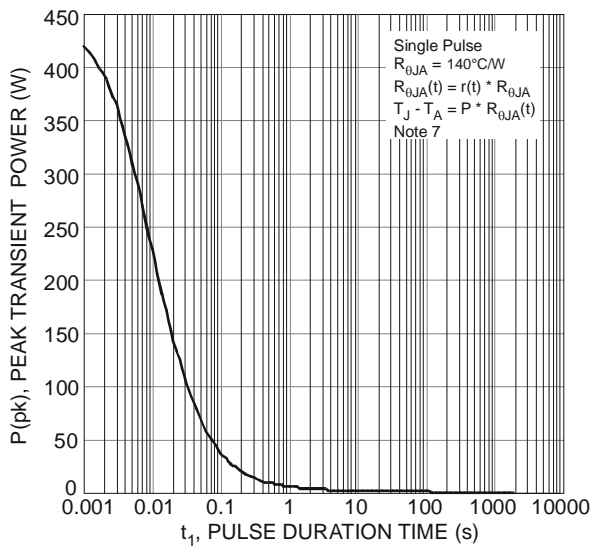
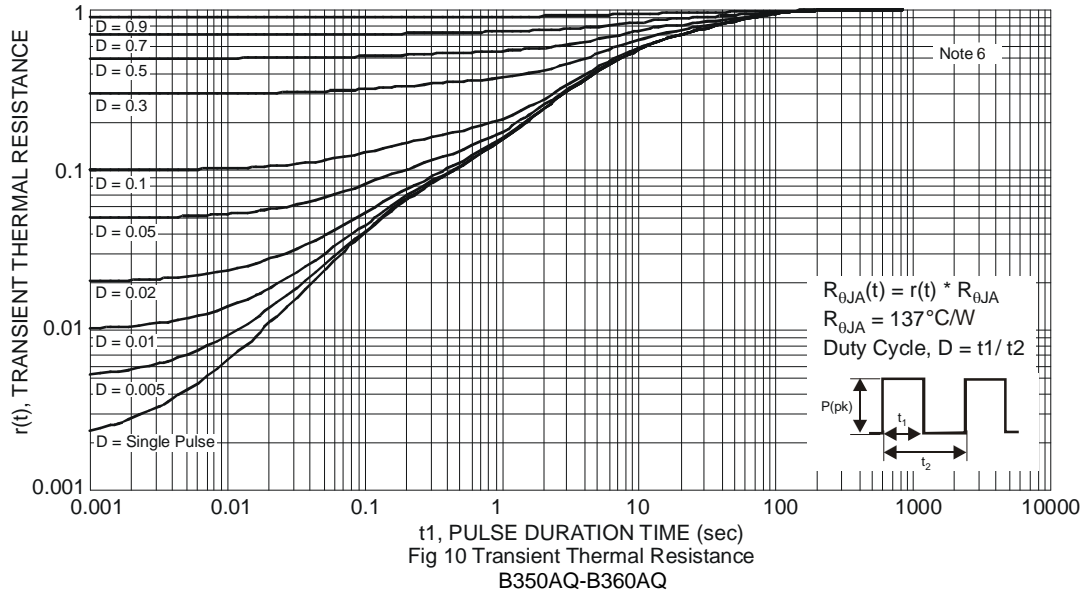
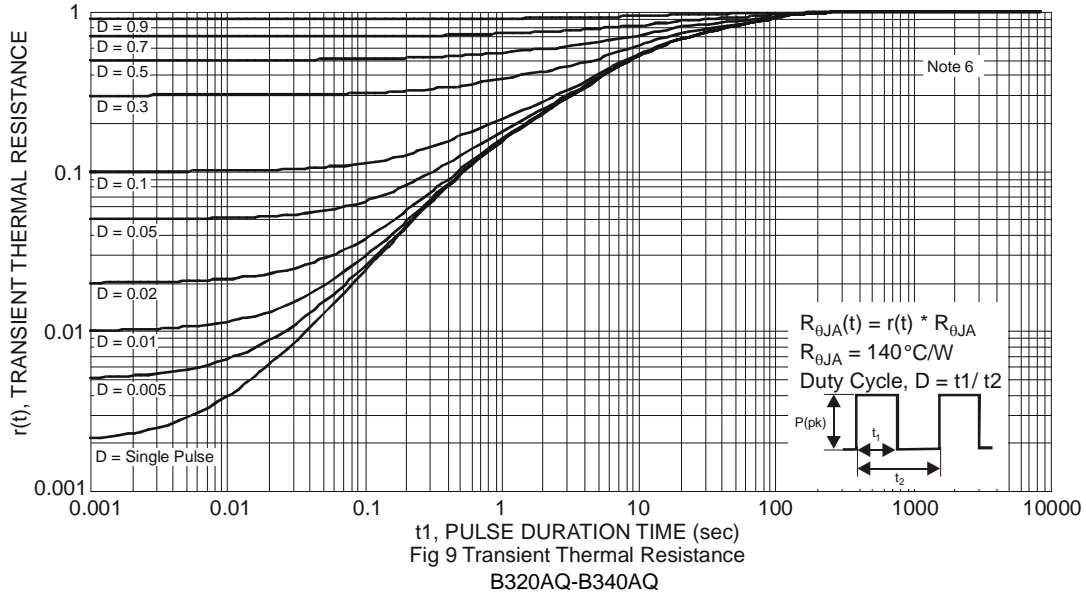


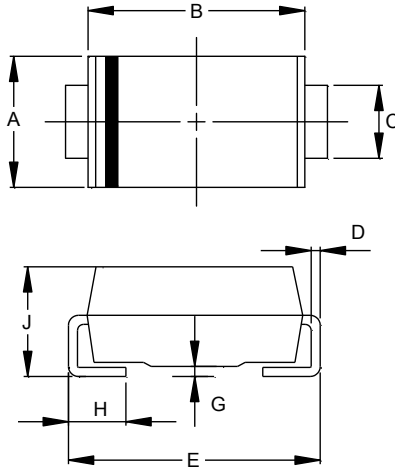
Fig. 8 Non-Repetitive Forward Surge Current Derating Curve



Package Outline Dimensions

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

SMA

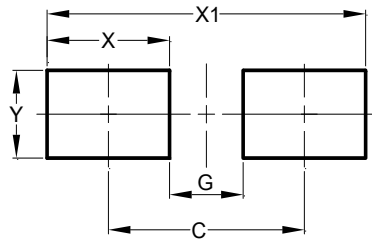


| SMA | | |
|----------------------|------|------|
| Dim | Min | Max |
| A | 2.29 | 2.92 |
| B | 4.00 | 4.60 |
| C | 1.27 | 1.63 |
| D | 0.15 | 0.31 |
| E | 4.80 | 5.59 |
| G | 0.05 | 0.20 |
| H | 0.76 | 1.52 |
| J | 1.96 | 2.40 |
| All Dimensions in mm | | |

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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