

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.

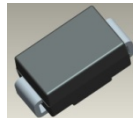
Features

- 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**

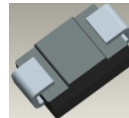
Mechanical Data

- 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



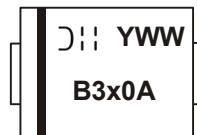
Bottom View

Ordering Information (Note 5)

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

* 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
 ⌋⌋⌋ = 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 (@ $T_A = +25^\circ\text{C}$, 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 @ $T_T = +100^\circ\text{C}$ | 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 7) | P_D | 850 | mW |
| Typical Thermal Resistance, Junction to Ambient (Note 7) | $R_{\theta JA}$ | 140 | $^\circ\text{C}/\text{W}$ |
| Typical Thermal Resistance, Junction to Terminal (Note 8) | $R_{\theta JT}$ | 25 | $^\circ\text{C}/\text{W}$ |
| Typical Thermal Resistance, Junction to Ambient (Note 8) | $R_{\theta JA}$ | 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 9) | 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:
- 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.

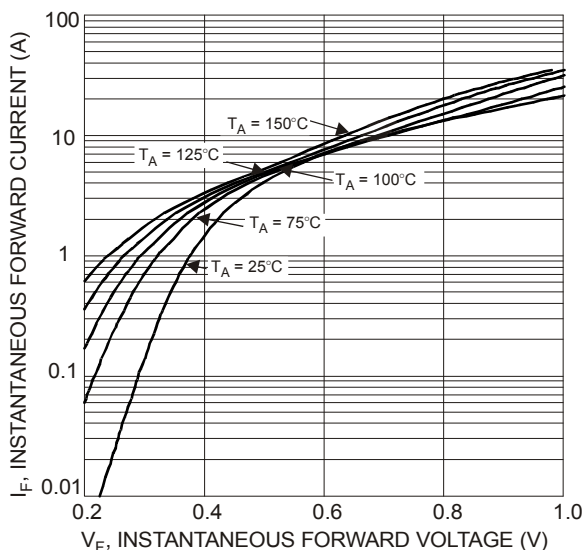


Fig. 1 Typical Forward Characteristics - B320A thru B340A

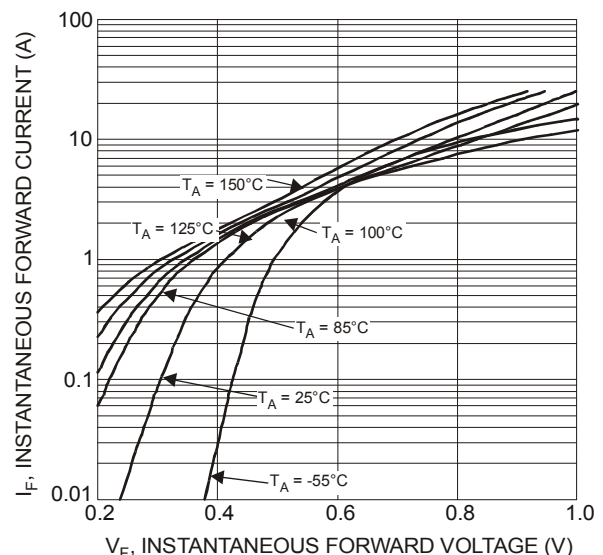


Fig. 2 Typ. Forward Characteristics - B350A thru B360A

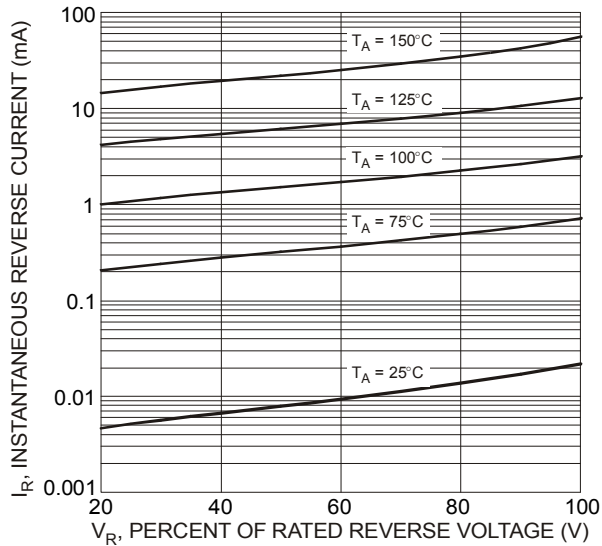


Fig. 3 Typical Reverse Characteristics, B320A thru B340A

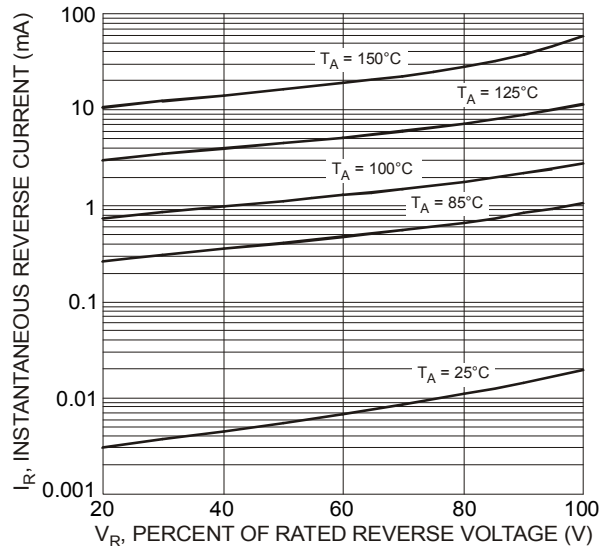


Fig. 4 Typical Reverse Characteristics, B350A thru B360A

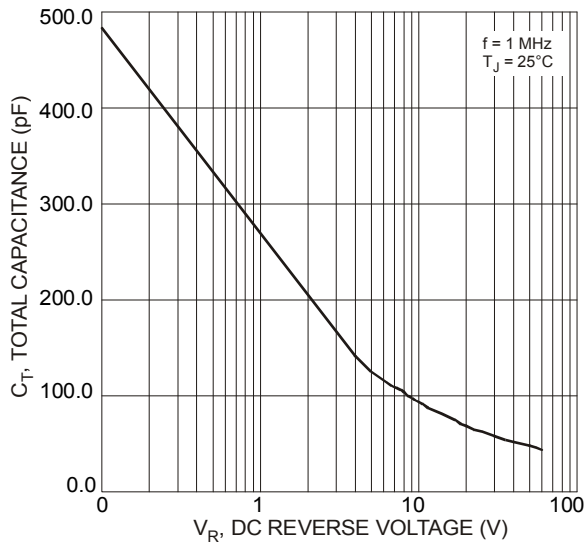


Fig. 5 Total Capacitance vs. Reverse Voltage

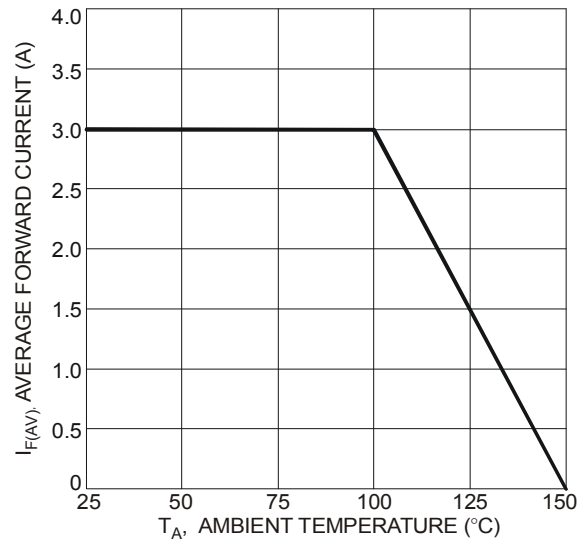


Fig. 6 Forward Current Derating Curve

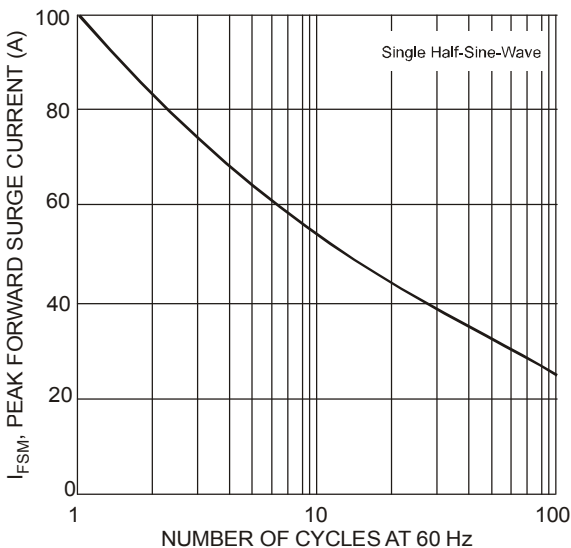


Fig. 7 Max Non-Repetitive Peak Fwd Surge Current

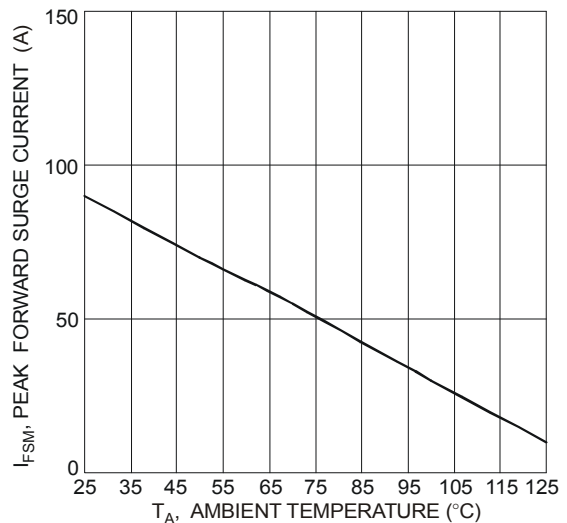


Fig. 8 Non-Repetitive Forward Surge Current Derating Curve

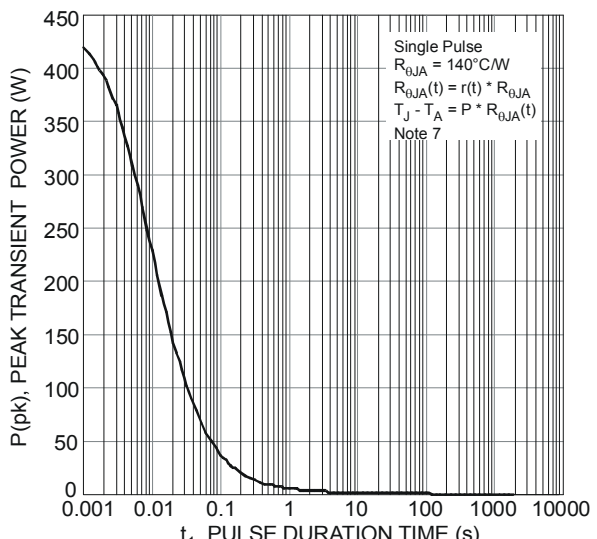
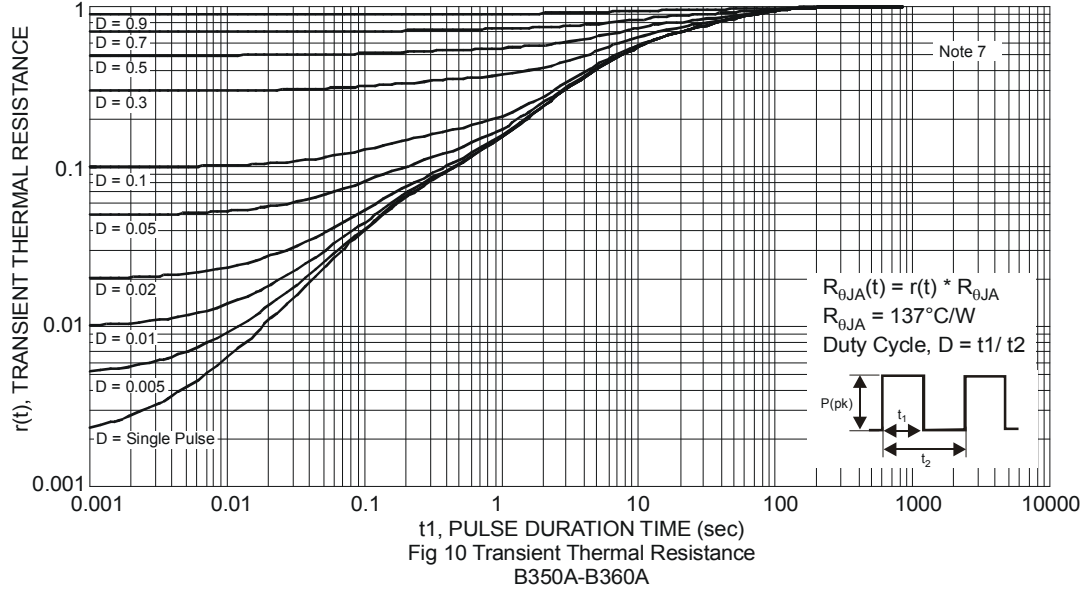
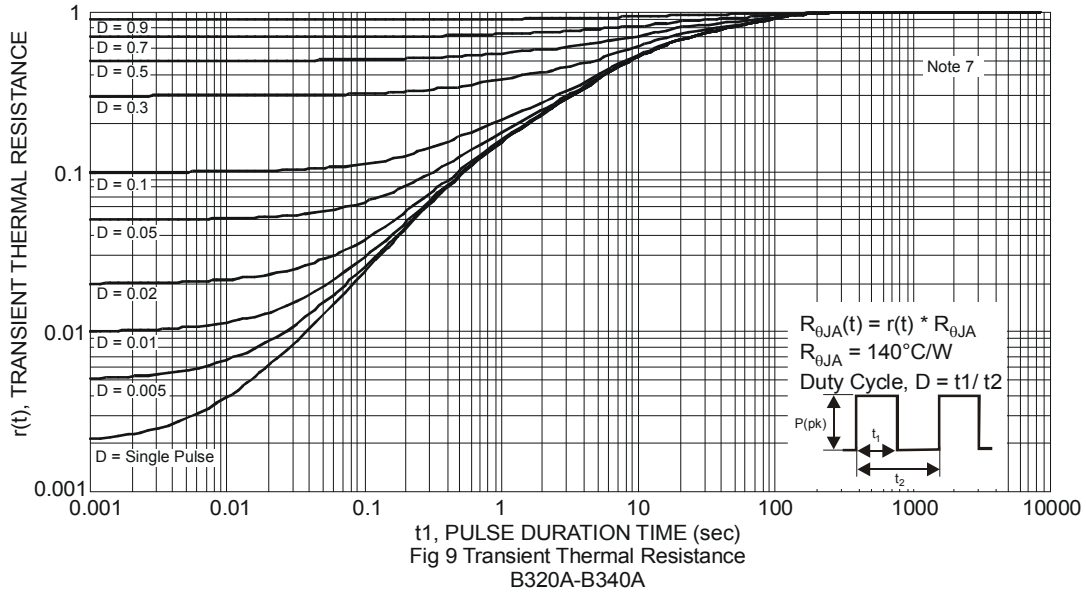


Fig. 11 Single Pulse Maximum Power Dissipation (B320A-B340A)

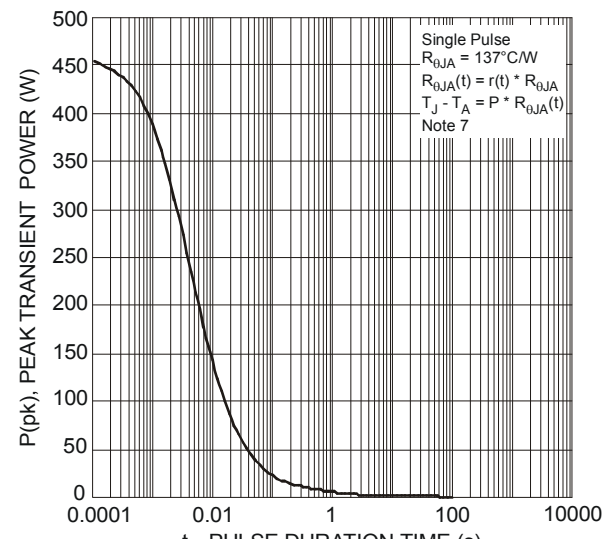
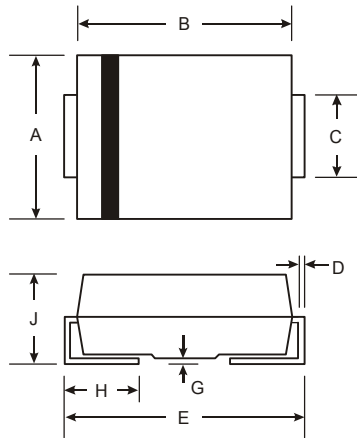


Fig. 12 Single Pulse Maximum Power Dissipation (B350A-B360A)

Package Outline Dimensions

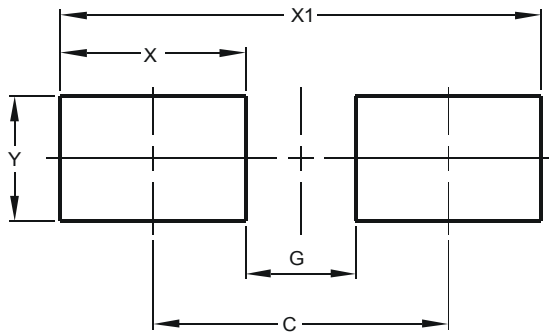
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



| 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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