


**3.0A SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER**

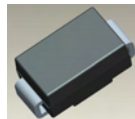
**Features**

- Guard Ring Die Construction for Transient Protection
- Ideally Suited for Automated Assembly
- Low Power Loss, High Efficiency
- Surge Overload Rating to 100A Peak
- For Use in Low Voltage, High Frequency Inverters, Free Wheeling, and Polarity Protection Application
- **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**

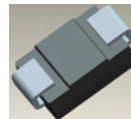
**Mechanical Data**

- Case: SMA
- Case Material: Molded Plastic. 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

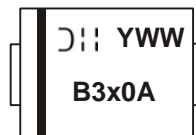
**Ordering Information** (Note 5)

| Part Number* | Case | Packaging        |
|--------------|------|------------------|
| B3XXA-13-F   | 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> 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>.

**Marking Information** (Note 6)



B3x0A = Product type marking code, ex: B320A  
 D = Manufacturers' code marking  
 YWW = Date code marking  
 Y = Last digit of year (ex: 2 for 2002)  
 WW = Week code (01 to 53)

- Notes:
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  | $V_{RRM}$ |       |       |       |       |       |      |
| Working Peak Reverse Voltage   | $V_{RWM}$ | 20    | 30    | 40    | 50    | 60    | V    |
| 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                      |
|--|-----------------|-------------|---------------------------|
| Typical Thermal Resistance, Junction to Terminal         | $R_{\theta JT}$ | 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: 7. Thermal Resistance: Junction to terminal, unit mounted on glass epoxy substrate with 2x3mm copper pad.  
8. Short duration pulse test used to minimize self-heating effect.

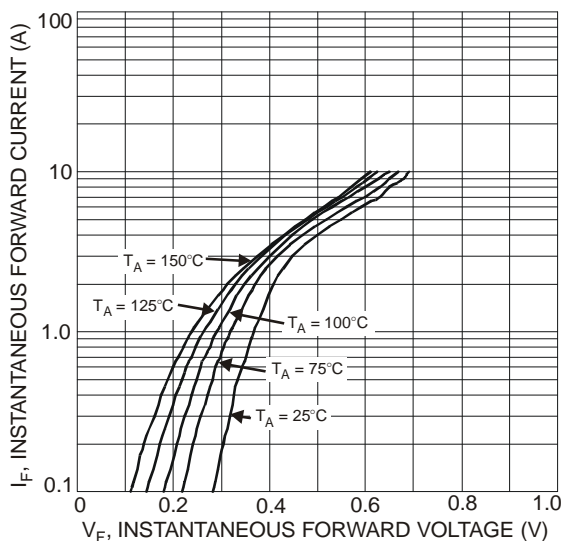


Fig. 1 Typical Forward Characteristics - B320A thru B340A

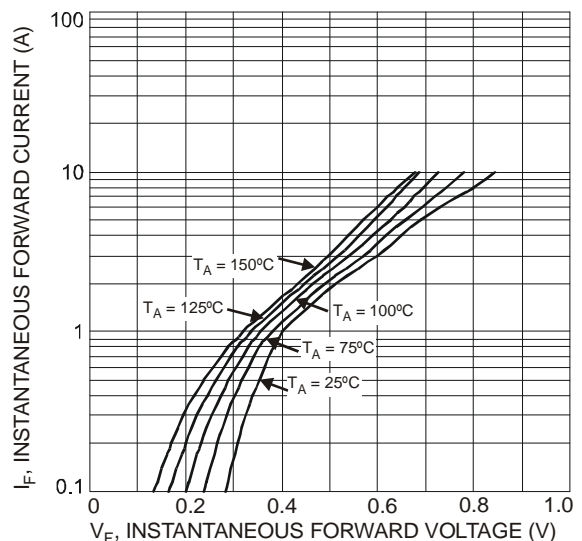


Fig. 2 Typ. Forward Characteristics - B350A thru B360A

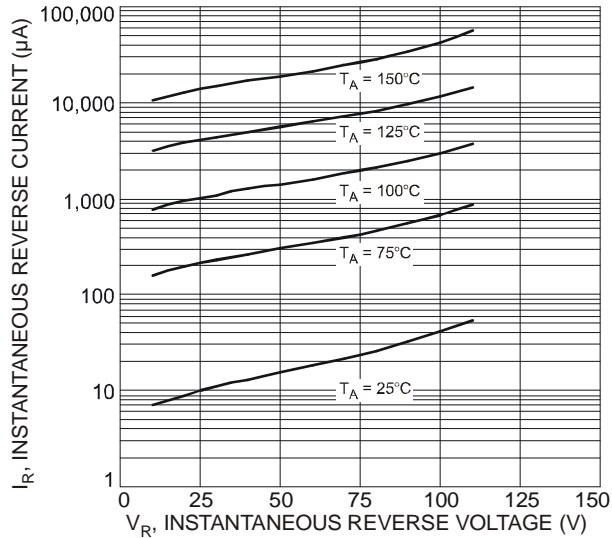


Fig. 3 Typical Reverse Characteristics, B320A thru B340A

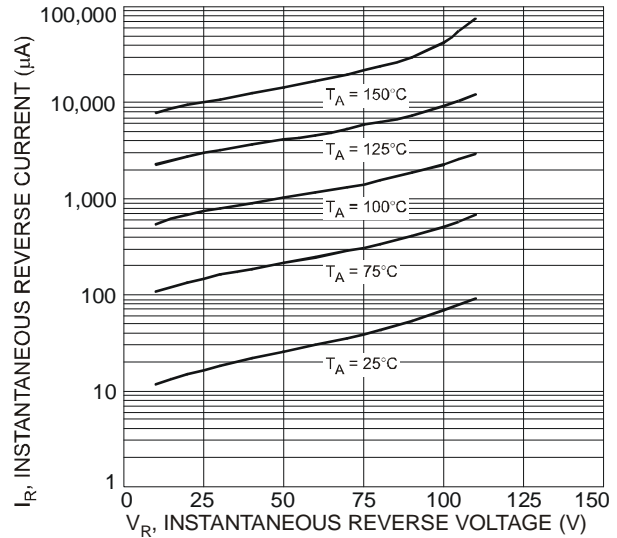


Fig. 4 Typical Reverse Characteristics, B350A thru B360A

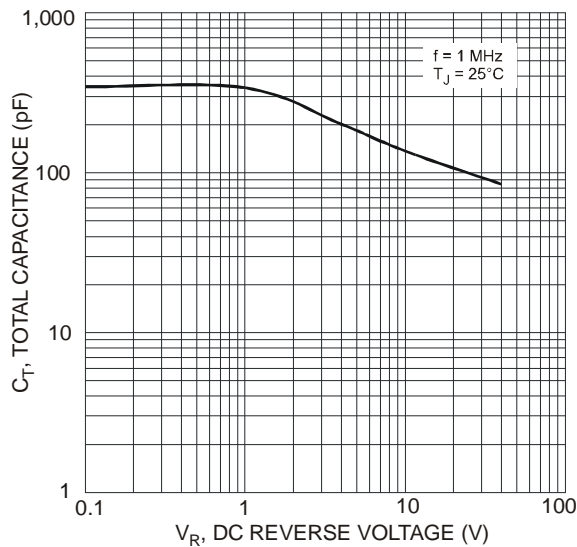


Fig. 5 Total Capacitance vs. Reverse Voltage

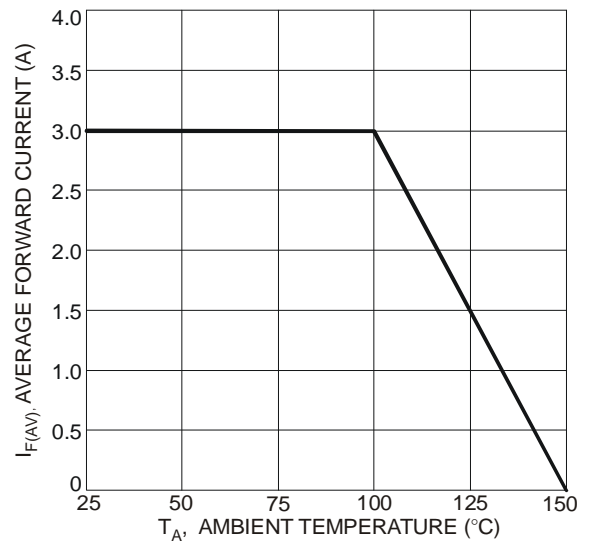


Fig. 6 Forward Current Derating Curve

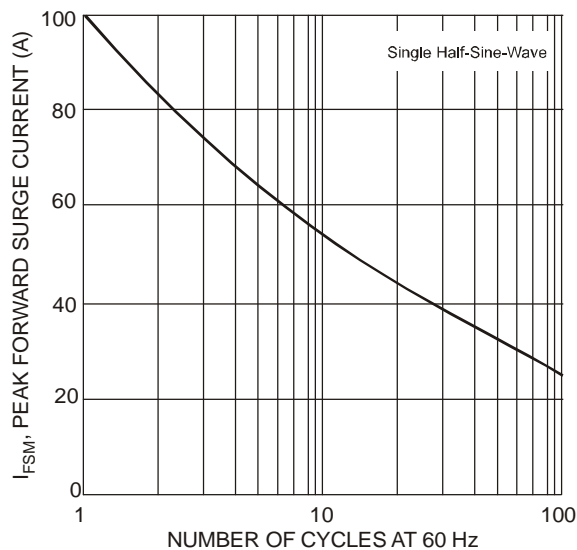


Fig. 7 Max Non-Repetitive Peak Fwd Surge Current

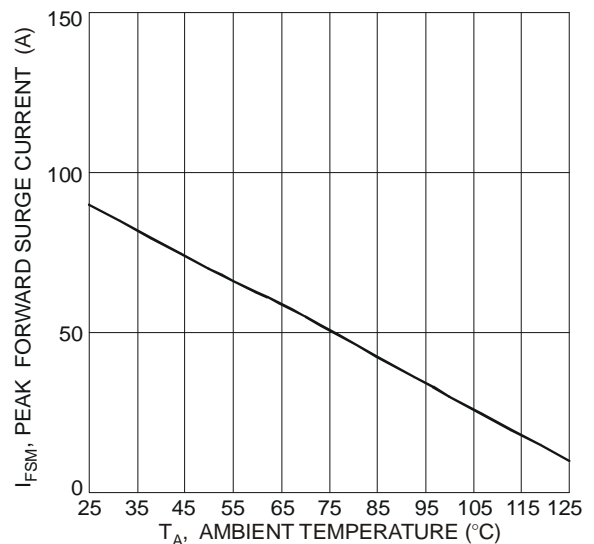
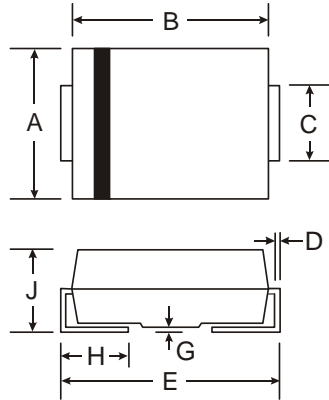


Fig. 8 Non-Repetitive Forward Surge Current Derating Curve

## Package Outline Dimensions

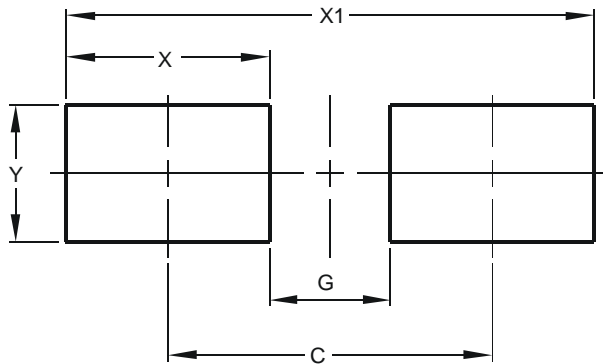
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



| 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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