

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 125A Peak
- For Use in Low Voltage, High Frequency Inverters, Free Wheeling, and Polarity Protection Application
- **Lead Free Finish, RoHS Compliant (Note 1)**
- **Green Molding Compound (No Halogen and Antimony) (Note 2)**

Mechanical Data

- Case: SMC
- Case Material: Molded Plastic. UL Flammability Classification Rating 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: 0.21 grams (approximate)

Top View

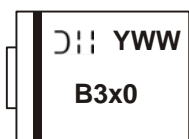
Bottom View

Ordering Information (Note 3)

| Part Number | Case | Packaging |
|-------------|------|------------------|
| B3x0-13-F | SMC | 3000/Tape & Reel |

- Notes:
1. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied, see EU Directive 2002/95/EC Annex Notes.
 2. Product manufactured with Data Code 0924 (week 24, 2009) and newer are built with Green Molding Compound.
 3. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information (Note 4)



- B3x0 = Product type marking code, ex: B320
 DII = Manufacturers' code marking
 YWW = Date code marking
 Y = Last digit of year (ex: 2 for 2002)
 WW = Week code (01 to 53)

- Notes:
4. 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 | B320 | B330 | B340 | B350 | B360 | 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} | | | 100 | | | A |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|--|-----------------|-------------|---------------------------|
| Typical Thermal Resistance, Junction to Terminal | $R_{\theta JT}$ | 20 | $^\circ\text{C}/\text{W}$ |
| Typical Thermal Resistance, Junction to Ambient (Note 5) | $R_{\theta JA}$ | 90 | $^\circ\text{C}/\text{W}$ |
| Operating Temperature Range | T_J | -55 to +125 | $^\circ\text{C}$ |
| 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 B320, B330, B340 B350, B360 | V_F | - | - | 0.50 0.70 | V | $I_F = 3.0\text{A}, T_A = 25^\circ\text{C}$ |
| Leakage Current (Note 6) | I_R | - | - | 0.5 20 | mA | @ Rated $V_R, T_A = 25^\circ\text{C}$ @ 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: 5. Thermal Resistance: Junction to terminal, unit mounted on glass epoxy substrate with 2x3mm copper pad
6. Short duration pulse test used to minimize self-heating effect.

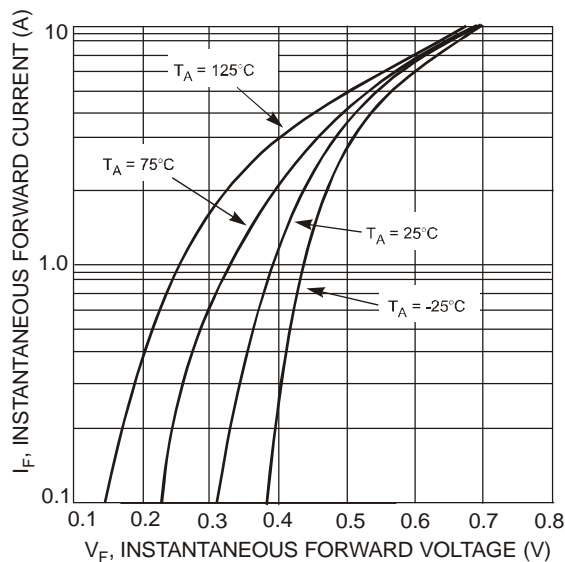


Fig. 1 Typical Forward Characteristics - B320B thru B340B

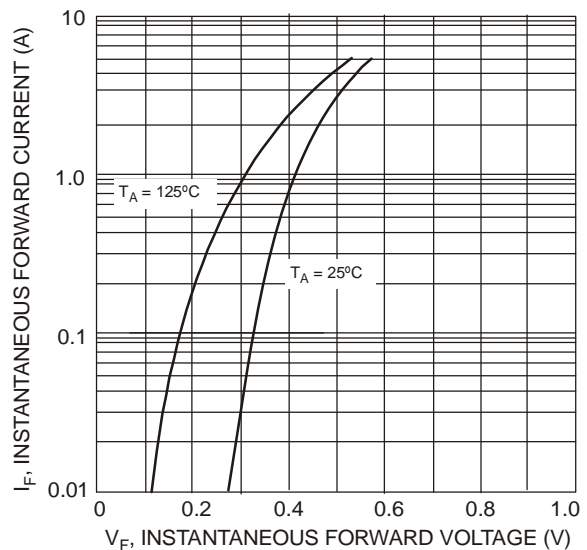


Fig. 2 Typical Forward Characteristics - B350B thru B360B

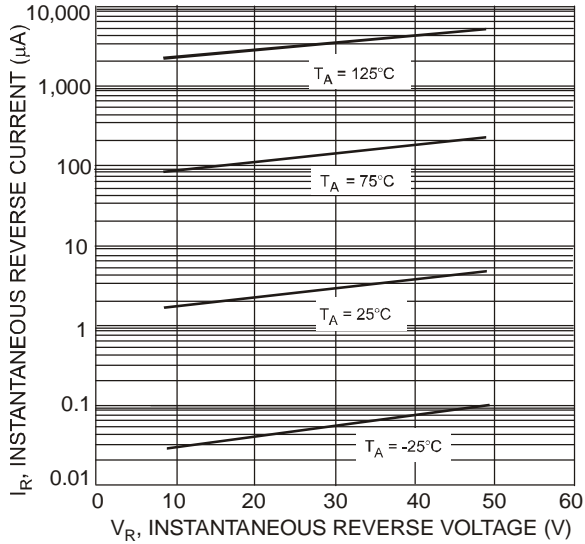


Fig. 3 Typical Reverse Characteristics, B320B thru B340B

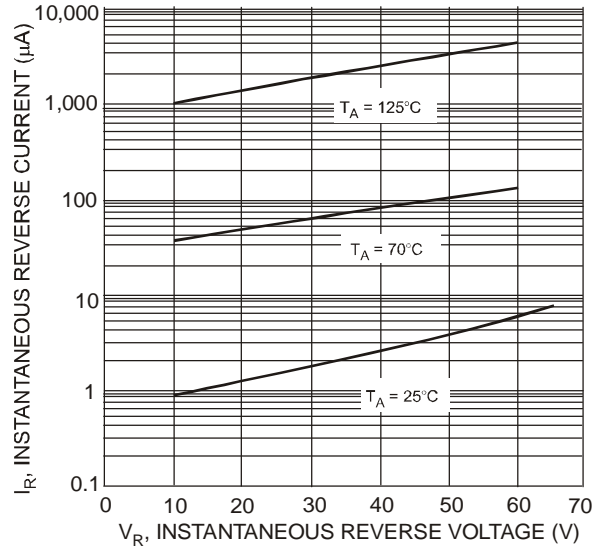


Fig. 4 Typical Reverse Characteristics, B350B thru B360B

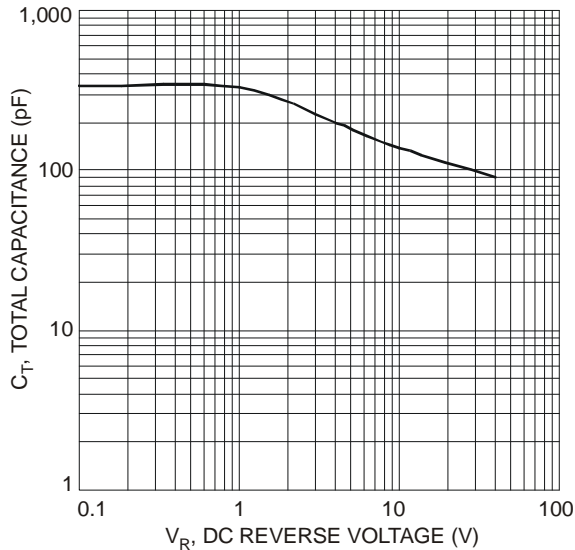


Fig. 5 Total Capacitance vs. Reverse Voltage

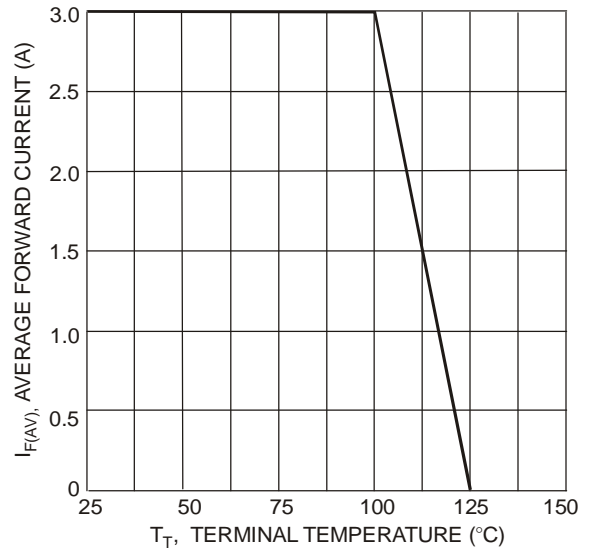


Fig. 6 Forward Current Derating Curve

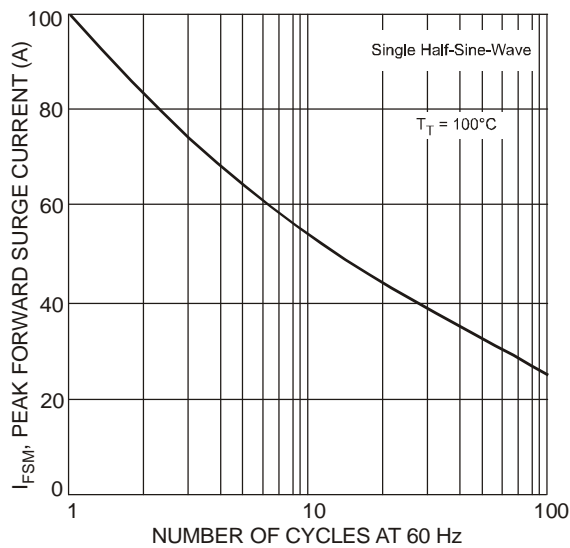
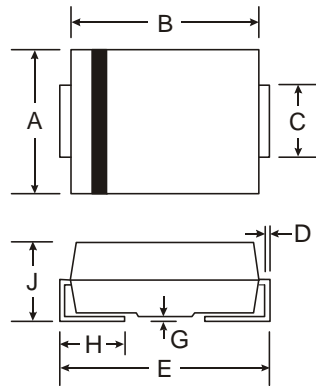


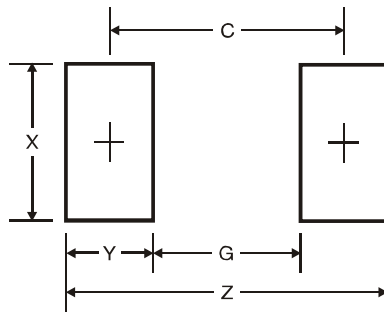
Fig. 7 Max Non-Repetitive Peak Forward Surge Current

Package Outline Dimensions



| SMC | | |
|----------------------|------|------|
| Dim | Min | Max |
| A | 5.59 | 6.22 |
| B | 6.60 | 7.11 |
| C | 2.75 | 3.18 |
| D | 0.15 | 0.31 |
| E | 7.75 | 8.13 |
| G | 0.10 | 0.20 |
| H | 0.76 | 1.52 |
| J | 2.00 | 2.50 |
| All Dimensions in mm | | |

Suggested Pad Layout



| Dimensions | Value (in mm) |
|------------|---------------|
| Z | 9.3 |
| G | 4.4 |
| X | 3.3 |
| Y | 2.5 |
| C | 6.8 |

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