

Product Summary (@ T_A = +25°C)

| V _{RRM} (V) | I _O (A) | V _{F(MAX)} (V) | I _{R(MAX)} (μA) |
|----------------------|--------------------|-------------------------|--------------------------|
| 40 | 1 | 0.5 | 500 |

Applications

- SMPS
- DC-DC Converter
- Freewheeling Diodes

Features and Benefits

- Low Leakage Current
- Patented Super Barrier Rectifier Technology
- Soft, Fast Switching Capability
- +150°C Operating Junction Temperature
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

Mechanical Data

- Case: SMA
- Case Material: Molded Plastic, "Green" Molding Compound. 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 Indicator: Cathode Band
- Weight: 0.064 grams (Approximate)



Top View

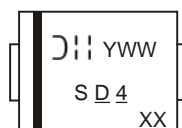


Bottom View

Ordering Information (Note 4)

| Part Number | Case | Packaging |
|--------------|------|------------------|
| SBR1A40SA-13 | SMA | 5000/Tape & Reel |

- 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. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

Marking Information


- S D 4 = Product Type Marking Code
 YWW = Manufacturers' code marking
 YWW = Date Code Marking
 Y = Last digit of year (ex: 9 for 2009)
 WW = Week code (01 - 53)
 XX = Foundry and Assembly

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 | Value | Unit |
|--|-----------|-------|------|
| Peak Repetitive Reverse Voltage | V_{RRM} | 40 | V |
| Working Peak Reverse Voltage | V_{RWM} | | |
| DC Blocking Voltage | V_{RM} | | |
| Average Rectified Output Current (See Figure 1) | I_O | 1 | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load | I_{FSM} | 15 | A |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|--|-----------------|-------------|--------------------|
| Typical Thermal Resistance, Junction to Ambient (Note 5) | $R_{\theta JA}$ | 116 | $^\circ\text{C/W}$ |
| Operating and Storage Temperature Range | T_J, T_{STG} | -65 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 | - | - | 0.5 | V | $I_F = 1.0\text{A}, T_J = +25^\circ\text{C}$ |
| | | | | 0.45 | | $I_F = 1.0\text{A}, T_J = +125^\circ\text{C}$ |
| Leakage Current (Note 6) | I_R | - | - | 500 | μA mA | $V_R = 40\text{V}, T_J = +25^\circ\text{C}$ |
| | | | | 100 | | $V_R = 40\text{V}, T_J = +100^\circ\text{C}$ |

Notes: 5. Device mounted on Polyimide substrate, with 1" x 1", 2 oz. Copper, double-sided PCB board.
6. Short duration pulse test used to minimize self-heating effect.

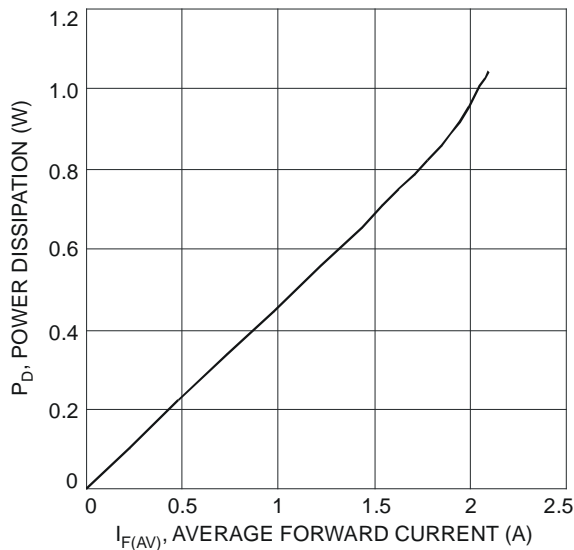


Fig. 1 Forward Power Dissipation

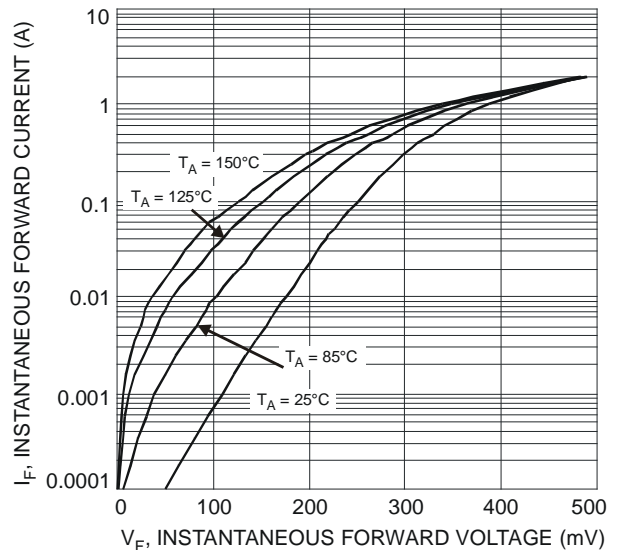


Fig. 2 Typical Forward Characteristics

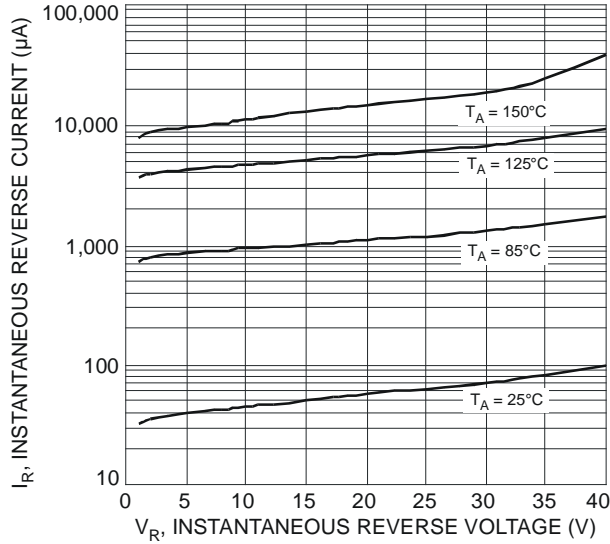


Fig. 3 Typical Reverse Characteristics

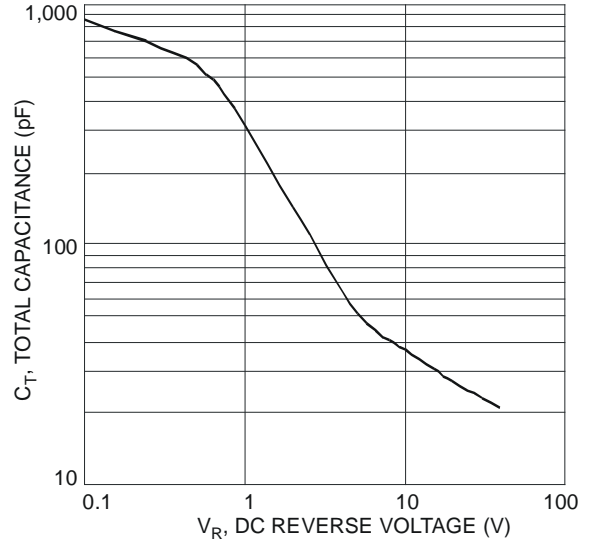


Fig. 4 Total Capacitance vs. Reverse Voltage

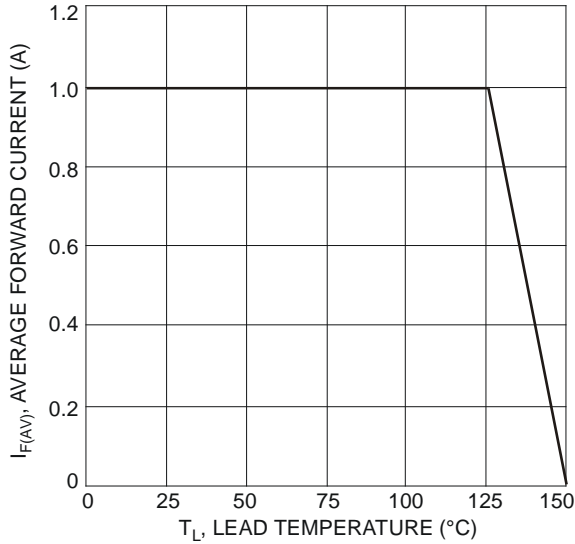


Fig. 5 Forward Current Derating Curve

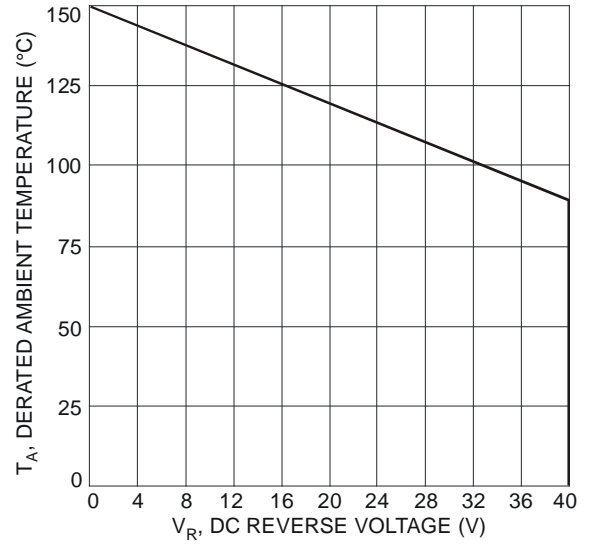
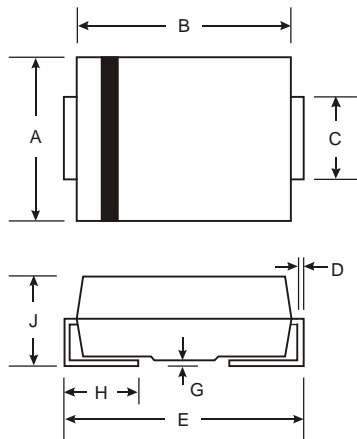


Fig. 6 Operating Temperature Derating

Package Outline Dimensions

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

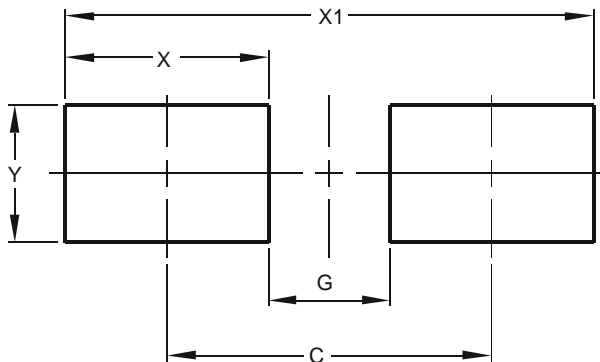


| SMA | | |
|-----|------|------|
| Dim | Min | Max |
| A | 2.29 | 2.92 |
| B | 4.00 | 4.60 |
| C | 1.27 | 1.63 |
| D | 0.15 | 0.31 |
| E | 4.80 | 5.59 |
| G | 0.05 | 0.20 |
| H | 0.76 | 1.52 |
| J | 2.01 | 2.30 |

All Dimensions in mm

Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for 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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