

## Features

- Ultra Low Forward Voltage Drop
- Superior Reverse Avalanche Capability
- Patented Super Barrier Rectifier Technology
- Soft, Fast Switching Capability
- +150°C Operating Junction Temperature
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

## Mechanical Data

- Case: X1-DFN1006-2
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: Cathode Dot
- Terminals: Finish - NiPdAu over Copper Leadframe. Solderable per MIL-STD-202, Method 208 Ⓔ4
- Weight: 0.001 grams (Approximate)

**X1-DFN1006-2**


Top View



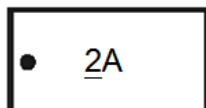
Bottom View

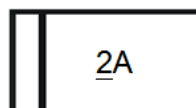
## Ordering Information (Note 4)

| Part Number    | Case         | Packaging          |
|----------------|--------------|--------------------|
| SBR02U100LP-7  | X1-DFN1006-2 | 3,000/Tape & Reel  |
| SBR02U100LP-7B | X1-DFN1006-2 | 10,000/Tape & Reel |

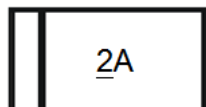
- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
  2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "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

**SBR02U100LP-7**

 Top View  
 Dot Denotes  
 Cathode Side

**SBR02U100LP-7B**

 Top View  
 Bar Denotes  
 Cathode Side

2A = Product Type Marking Code

**OR**

 Top View  
 Bar Denotes  
 Cathode Side

**Maximum Ratings** (@T<sub>A</sub> = +25°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 <sub>RRM</sub>    | 100   | V    |
| Working Peak Reverse Voltage  | V <sub>RWM</sub>    |       |      |
| DC Blocking Voltage   | V <sub>RM</sub>     |       |      |
| RMS Reverse Voltage   | V <sub>R(RMS)</sub> | 70    | V    |
| Average Rectified Output Current (See Figure 1)   | I <sub>O</sub>      | 250   | mA   |
| Non-Repetitive Peak Forward Surge Current 8.3ms<br>Single Half Sine-Wave Superimposed on Rated Load | I <sub>FSM</sub>    | 5     | A    |

**Thermal Characteristics**

| Characteristic  | Symbol                            | Value       | Unit |
|---|-----------------------------------|-------------|------|
| Maximum Thermal Resistance  |                                   |             |      |
| Thermal Resistance, Junction to Ambient (Note 5) T <sub>A</sub> = +25°C | R <sub>θJA</sub>                  | 270         | °C/W |
| Thermal Resistance, Junction to Ambient (Note 6) T <sub>A</sub> = +25°C | R <sub>θJA</sub>                  | 235         |      |
| Operating and Storage Temperature Range                                 | T <sub>J</sub> , T <sub>STG</sub> | -65 to +150 | °C   |

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Characteristic                     | Symbol             | Min | Typ  | Max  | Unit | Test Condition                                  |
|------------------------------------|--------------------|-----|------|------|------|---|
| Reverse Breakdown Voltage (Note 7) | V <sub>(BR)R</sub> | 100 | —    | —    | V    | I <sub>R</sub> = 1mA                            |
| Forward Voltage Drop               | V <sub>F</sub>     | —   | 0.67 | 0.72 | V    | I <sub>F</sub> = 100mA, T <sub>J</sub> = +25°C  |
|                                    |                    |     | 0.76 | 0.80 |      | I <sub>F</sub> = 200mA, T <sub>J</sub> = +25°C  |
|                                    |                    |     | 0.60 | 0.65 |      | I <sub>F</sub> = 200mA, T <sub>J</sub> = +125°C |
| Leakage Current (Note 7)           | I <sub>R</sub>     | —   | 0.04 | 1.0  | μA   | V <sub>R</sub> = 75V, T <sub>J</sub> = +25°C    |
|                                    |                    |     | 6    | 50   |      | V <sub>R</sub> = 75V, T <sub>J</sub> = +85°C    |

- Notes:
5. FR-4 PCB, 2oz. Copper, minimum recommended pad layout per <http://www.diodes.com>.
  6. Polyimide PCB, 2oz. Copper, minimum recommended pad layout per <http://www.diodes.com>.
  7. Short duration pulse test used to minimize self-heating effect.

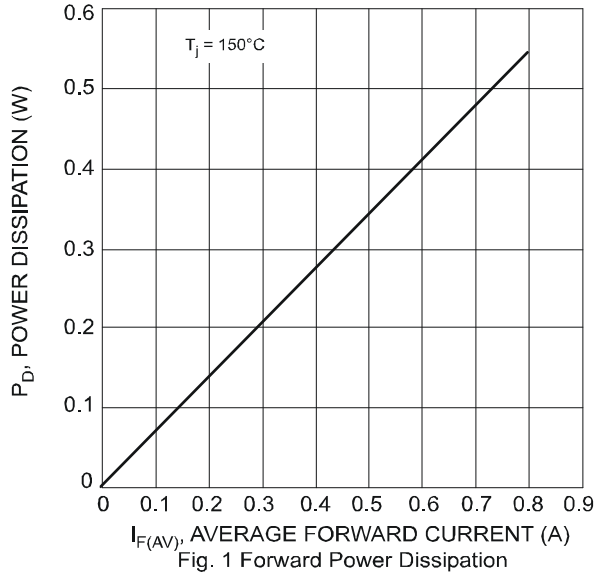


Fig. 1 Forward Power Dissipation

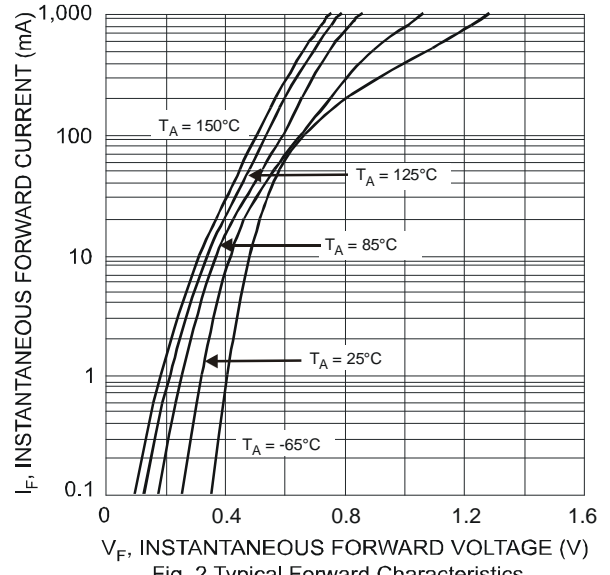


Fig. 2 Typical Forward Characteristics

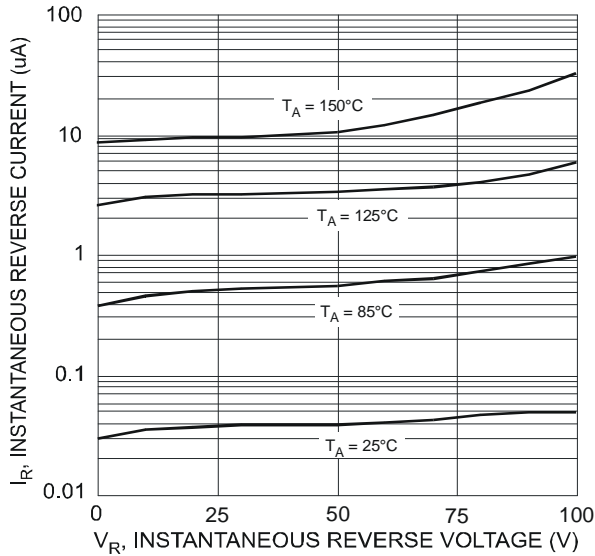


Fig. 3 Typical Reverse Characteristics

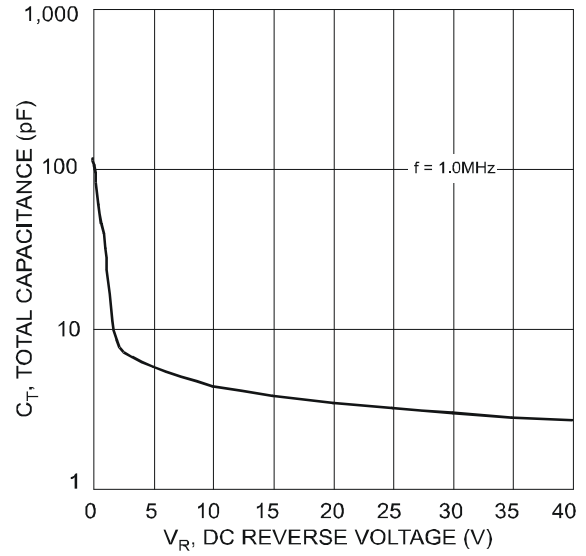


Fig. 4 Typical Capacitance vs. Reverse Voltage

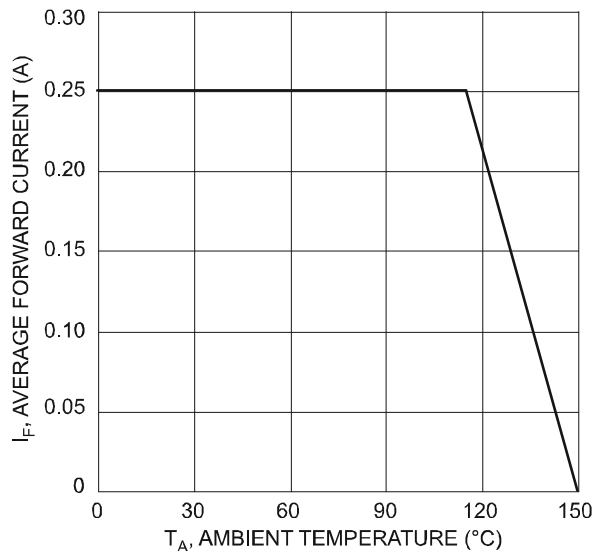


Fig. 5 Forward Current Derating Curve

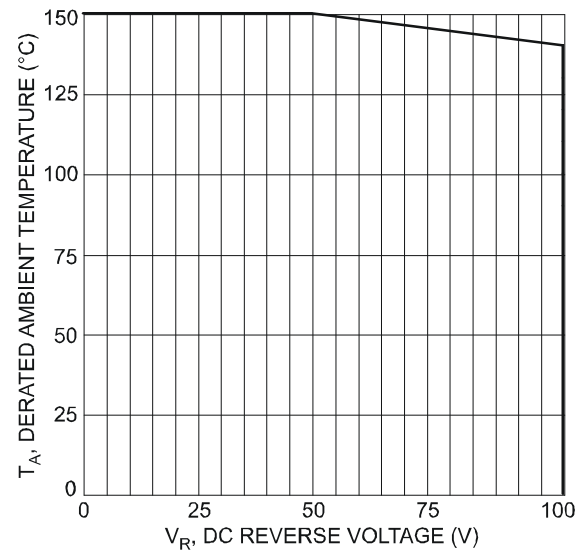
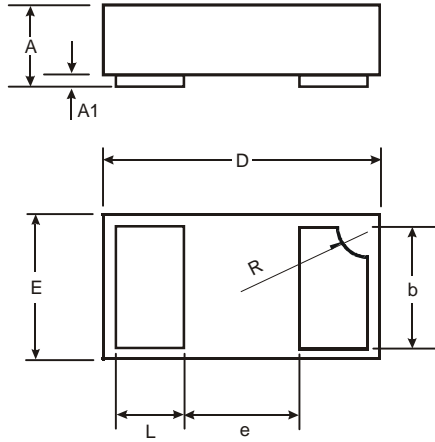


Fig. 6 Operating Temperature Derating

**Package Outline Dimensions**

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

**X1-DFN1006-2**

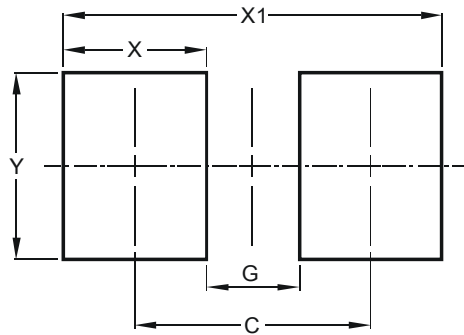


| X1-DFN1006-2         |      |       |      |
|----------------------|------|-------|------|
| Dim                  | Min  | Max   | Typ  |
| A                    | 0.47 | 0.53  | 0.50 |
| A1                   | 0    | 0.05  | 0.03 |
| b                    | 0.45 | 0.55  | 0.50 |
| D                    | 0.95 | 1.075 | 1.00 |
| E                    | 0.55 | 0.675 | 0.60 |
| e                    | -    | -     | 0.40 |
| L                    | 0.20 | 0.30  | 0.25 |
| R                    | 0.05 | 0.15  | 0.10 |
| All Dimensions in mm |      |       |      |

**Suggested Pad Layout**

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

**X1-DFN1006-2**



| Dimensions | Value (in mm) |
|------------|---------------|
| C          | 0.70          |
| G          | 0.30          |
| X          | 0.40          |
| X1         | 1.10          |
| Y          | 0.70          |

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