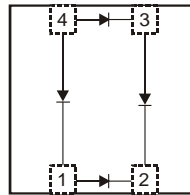


## Features

- Ultra Low Leakage Current
- Excellent High Temperature Stability
- Patented Super Barrier Rectifier Technology
- Soft, Fast Switching Capability
- 150°C Operating Junction Temperature
- **Lead Free Finish, RoHS Compliant (Note 1)**
- **“Green” Device (Note 4)**

## Mechanical Data

- Case: DFN3030-4
- Case Material: Molded Plastic “Green” Molding Compound, UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Finish – NiPdAu Over Copper Lead Frame, Solderable per MIL-STD-202, Method 208 **(e3)**
- Polarity: See Diagram
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.02 grams (approximate)



Top View  
Device Schematic

## 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   | $V_{RRM}$    | 100   | V    |
| Working Peak Reverse Voltage  | $V_{RWM}$    |       |      |
| DC Blocking Voltage   | $V_{RM}$     |       |      |
| RMS Reverse Voltage   | $V_{R(RMS)}$ | 70    | V    |
| Average Rectified Output Current  | $I_O$        | 500   | mA   |
| Non-Repetitive Peak Forward Surge Current 8.3ms<br>Single Half Sine-Wave Superimposed on Rated Load (Per Diode) | $I_{FSM}$    | 8     | A    |

## Thermal Characteristics

| Characteristic                                      | Symbol          | Typ         | Max  | Unit                      |
|---|-----------------|-------------|------|---------------------------|
| Power Dissipation (Note 2)                          | $P_D$           | -           | 0.56 | W                         |
| Thermal Resistance Junction to Ambient Air (Note 2) | $R_{\theta JA}$ | -           | 222  | $^\circ\text{C}/\text{W}$ |
| Thermal Resistance Junction to Ambient Air (Note 3) | $R_{\theta JA}$ | -           | 149  | $^\circ\text{C}/\text{W}$ |
| Operating and Storage Temperature Range             | $T_J, T_{STG}$  | -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                               |
|--------------------------------------|-------------|-----|------|------|---------------|--|
| Reverse Breakdown Voltage (Note 4)   | $V_{(BR)R}$ | 100 | -    | -    | V             | $I_R = 250 \mu\text{A}$                      |
| Forward Voltage (Per Diode)          | $V_F$       | -   | 0.54 | 0.60 | V             | $I_F = 0.25\text{A}, T_J = 25^\circ\text{C}$ |
|                                      |             |     | 0.67 | 0.73 |               | $I_F = 0.5\text{A}, T_J = 25^\circ\text{C}$  |
|                                      |             |     | 0.56 | 0.63 |               | $I_F = 0.5\text{A}, T_J = 125^\circ\text{C}$ |
| Reverse Current (Note 4) (Per Diode) | $I_R$       | -   | 0.3  | 25   | $\mu\text{A}$ | $V_R = 100\text{V}, T_J = 25^\circ\text{C}$  |
|                                      |             |     | 32   | 250  |               | $V_R = 100\text{V}, T_J = 125^\circ\text{C}$ |

- Notes:
1. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied, see *EU Directive 2002/95/EC Annex Notes*.
  2. FR-4 PCB, 2 oz. Copper, minimum recommended pad layout per <http://www.diodes.com/datasheets/ap02001.pdf>.
  3. Polyimide PCB, 2 oz. copper; minimum recommended pad layout per <http://www.diodes.com/datasheets/ap02001.pdf>.
  4. Diodes Inc.'s “Green” policy can be found on our website at [http://www.diodes.com/products/lead\\_free/index.php](http://www.diodes.com/products/lead_free/index.php)
  5. Short duration pulse test used to minimize self-heating effect.

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SBR05M100BLP  
Document number: DS31109 Rev. 6 - 2

1 of 3  
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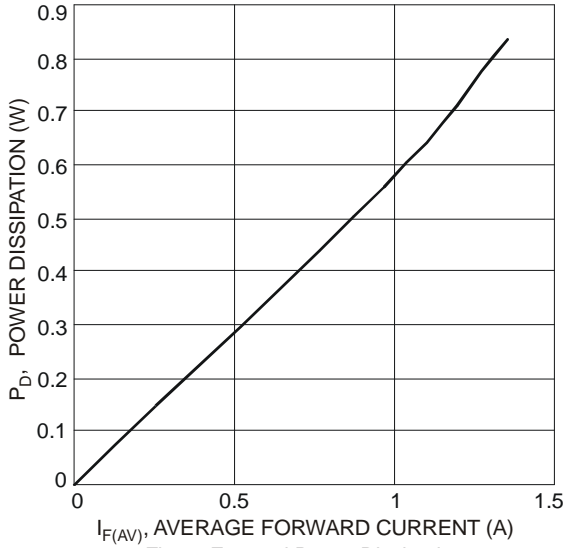


Fig. 1 Forward Power Dissipation

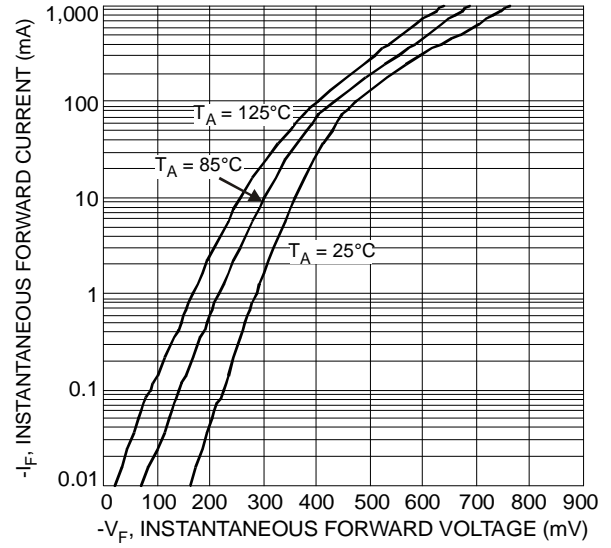


Fig. 2 Typical Forward Characteristics

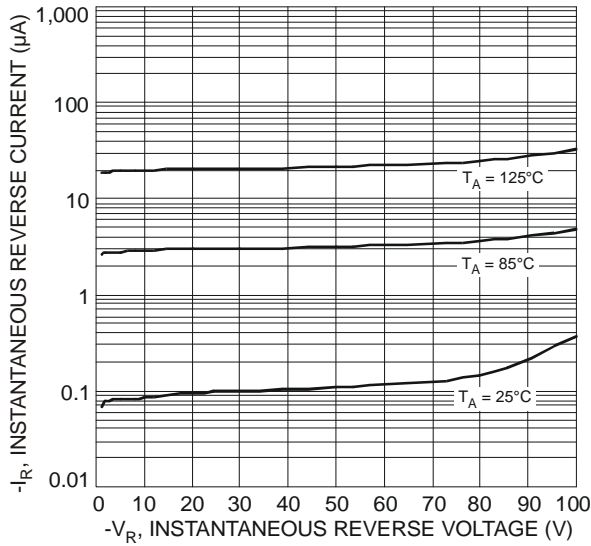


Fig. 3 Typical Reverse Characteristics

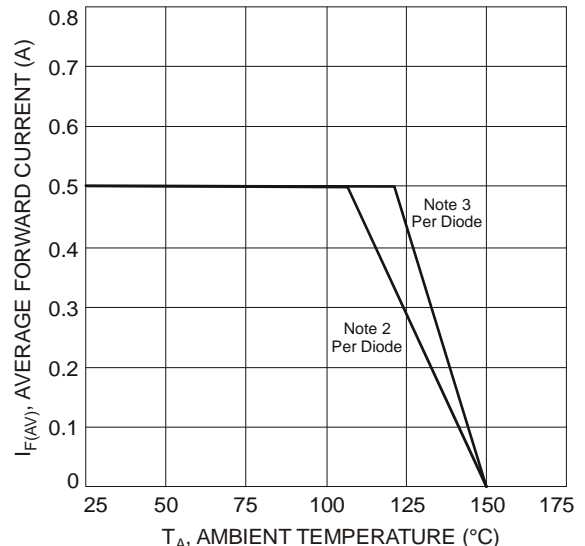


Fig. 4 Forward Current Derating Curve

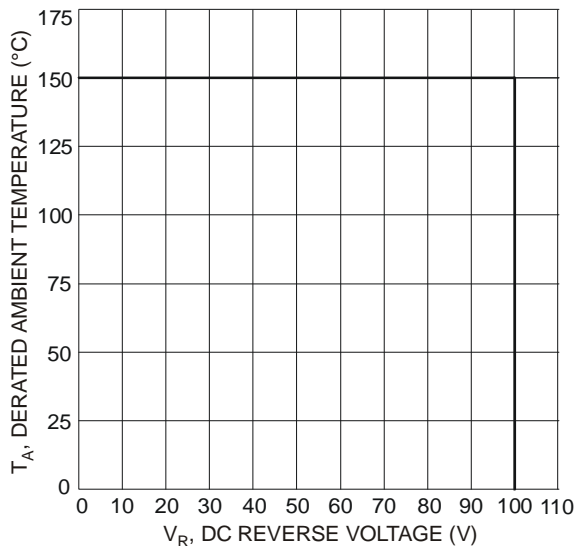


Fig. 5 Operating Temperature Derating

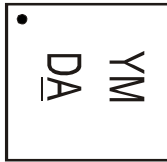
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**Ordering Information** (Note 6)

| Part Number    | Case      | Packaging        |
|----------------|-----------|------------------|
| SBR05M100BLP-7 | DFN3030-4 | 3000/Tape & Reel |

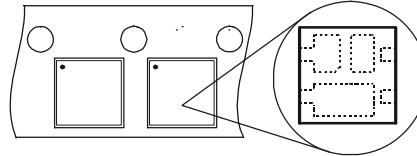
Notes: 6. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

**Marking Information**



DA = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: U = 2007)  
 M = Month (ex: 9 = September)

DFN3030-4



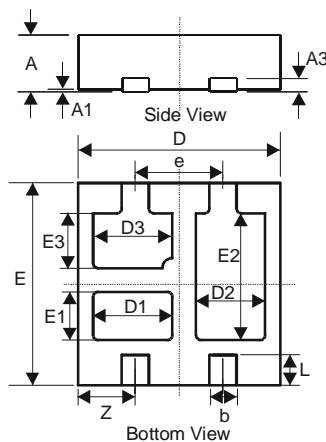
Date Code Key

| Year Code | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|-----------|------|------|------|------|------|------|------|------|------|
| Code      | U    | V    | W    | X    | Y    | Z    | A    | B    | C    |

| Month Code | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Code       | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | O   | N   | D   |

**Package Outline Dimensions**



| DFN3030-4                   |       |       |       |
|-----------------------------|-------|-------|-------|
| Dim                         | Min   | Max   | Typ   |
| D                           | 2.90  | 3.10  | 3.00  |
| E                           | 2.90  | 3.10  | 3.00  |
| D1                          | 1.075 | 1.275 | 1.175 |
| E1                          | 0.615 | 0.815 | 0.715 |
| D3                          | 1.075 | 1.275 | 1.175 |
| E3                          | 0.715 | 0.915 | 0.815 |
| D2                          | 0.925 | 1.125 | 1.025 |
| E2                          | 1.78  | 1.98  | 1.88  |
| A                           | 0.57  | 0.63  | 0.60  |
| A1                          | 0     | 0.05  | 0.02  |
| A3                          | -     | -     | 0.15  |
| b                           | 0.35  | 0.45  | 0.40  |
| L                           | 0.30  | 0.60  | 0.45  |
| e                           | -     | -     | 1.30  |
| Z                           | -     | -     | 0.65  |
| <b>All Dimensions in mm</b> |       |       |       |

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