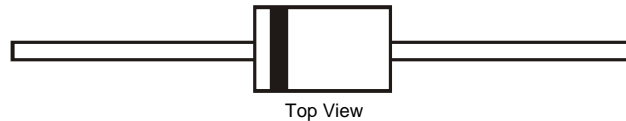


## Features

- Designed as Bypass Diodes for Solar Panels
- Complies with IEC 61730-2 Solar Bypass Diode Standards ( $T_{Jmax} \leq T_J = T_{L/C} + R_{thL/C} * V_F * I_{se}$ , @  $T_A = 75^\circ\text{C}$ , 1hr. Short Circuit)
- Patented Super Barrier Rectifier Technology
- High Forward Surge Capability
- Ultra Low Forward Voltage Drop
- Excellent High Temperature Stability
- **Lead Free Finish, RoHS Compliant (Note 1)**

## Mechanical Data

- Case: DO-201AD
- Case Material: Molded Plastic, UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Tin Plated Leads. Solderable per MIL-STD-202, Method 208
- Weight: 0.121 grams (approximate)



## Ordering Information (Note 2)

| Part Number  | Case     | Packaging                 |
|--------------|----------|---------------------------|
| SBR1045SD1-T | DO-201AD | 1200/Tape & Reel, 13-inch |

- Notes: 1. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied, see EU Directive 2002/95/EC Annex Notes.  
2. For packaging details, go to our website at <http://www.diodes.com>.

## Marking Information



SBR1045 = Product Type Marking Code  
 = Manufacturers' code marking  
 AB = Foundry and Assembly Code (if applicable)  
 YWW = Date Code Marking  
 Y = Last digit of year (ex: 7 for 2007)  
 WW = Week code (01 ~ 53)

**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%.

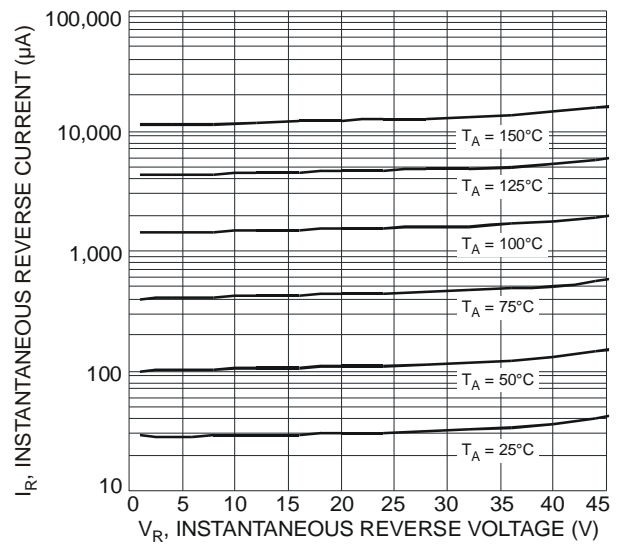
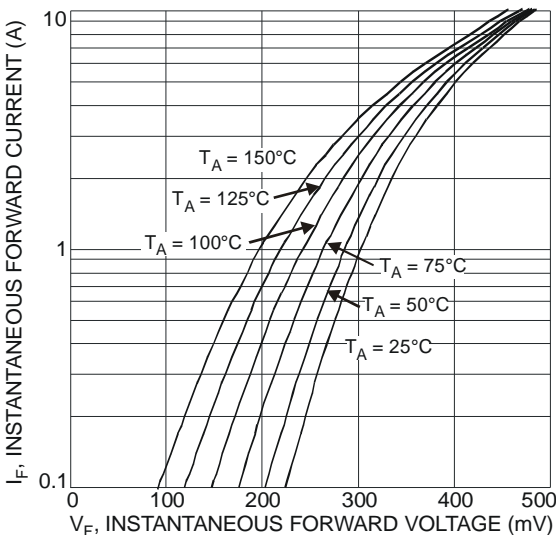
| Characteristic  | Symbol       | Value | Unit |
|---|--------------|-------|------|
| Peak Repetitive Reverse Voltage   | $V_{RRM}$    | 45    | V    |
| Working Peak Reverse Voltage  | $V_{RWM}$    |       |      |
| DC Blocking Voltage   | $V_{RM}$     |       |      |
| RMS Reverse Voltage   | $V_{R(RMS)}$ | 32    | V    |
| Average Rectified Output Current @ $T_C = 110^\circ\text{C}$  | $I_O$        | 10    | A    |
| Non-Repetitive Peak Forward Surge Current 8.3ms<br>Single Half Sine-Wave Superimposed on Rated Load | $I_{FSM}$    | 180   | A    |

**Thermal Characteristics**

| Characteristic                                | Symbol          | Value                   | Unit               |
|---|-----------------|-------------------------|--------------------|
| Maximum Thermal Resistance (per leg) (Note 3) | $R_{\theta JA}$ | 54                      | $^\circ\text{C/W}$ |
|   | $R_{\theta JL}$ | 9                       |                    |
| Operating Temperature Range                   | $T_J$           | $V_R \leq 80\% V_{RRM}$ | -65 to +150        |
|   |                 | $V_R \leq 50\% V_{RRM}$ | $\leq 180$         |
|   |                 | DC Forward Mode         | $\leq 200$         |
| Storage Temperature Range                     | $T_{STG}$       | -65 to +175             | $^\circ\text{C}$   |

**Electrical Characteristics** @ $T_A = 25^\circ\text{C}$  unless otherwise specified

| Characteristic                     | Symbol      | Min | Typ  | Max  | Unit | Test Condition                              |
|------------------------------------|-------------|-----|------|------|------|---|
| Reverse Breakdown Voltage (Note 4) | $V_{(BR)R}$ | 45  | -    | -    | V    | $I_R = 0.5\text{mA}$                        |
| Forward Voltage Drop               | $V_F$       | -   | 0.46 | 0.51 | V    | $I_F = 8\text{A}, T_J = 25^\circ\text{C}$   |
|                                    |             | -   | 0.50 | 0.55 |      | $I_F = 10\text{A}, T_J = 25^\circ\text{C}$  |
|                                    |             | -   | 0.48 | 0.53 |      | $I_F = 10\text{A}, T_J = 125^\circ\text{C}$ |
| Leakage Current (Note 4)           | $I_R$       | -   | 0.05 | 0.45 | mA   | $V_R = 45\text{V}, T_J = 25^\circ\text{C}$  |
|                                    |             | -   | -    | 18   |      | $V_R = 45\text{V}, T_J = 100^\circ\text{C}$ |
|                                    |             | -   | 18   | 100  |      | $V_R = 45\text{V}, T_J = 150^\circ\text{C}$ |

 Notes: 3. FR-4 PCB, 2oz. Copper, with minimum recommended pad layout as show on Diodes, Inc. suggest pad layout AP02001 at <http://www.diodes.com>.  
 4. Short duration pulse test used to minimize self-heating effect.


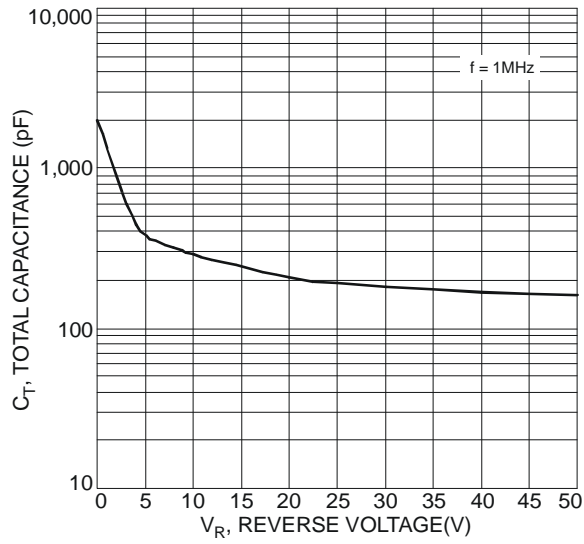
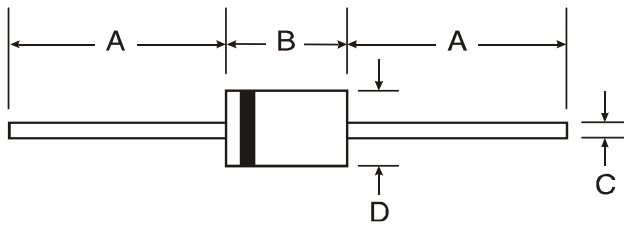


Fig 3. Typical Total Capacitance

**Package Outline Dimensions**



| DO-201AD             |       |      |
|----------------------|-------|------|
| Dim                  | Min   | Max  |
| A                    | 25.40 | —    |
| B                    | 7.20  | 9.50 |
| C                    | 1.20  | 1.30 |
| D                    | 4.80  | 5.30 |
| All Dimensions in mm |       |      |

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