

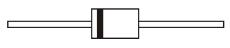
12A SBR[®] SUPER BARRIER RECTIFIER

Features

- Designed as Bypass Diodes for Solar Panels
- Selectively Rated for +200°C Maximum Junction Temperature for High Thermal Reliability
- Patented Super Barrier Rectifier Technology
- High Forward Surge Capability
- Ultra Low Forward Voltage Drop
- Excellent High Temperature Stability
- Lead-Free Finish; RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)

Mechanical Data

- Case: DO-201AD
- Case Material: Molded Plastic, UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Weight: 1.21 grams (approximate)



Top View

Ordering Information (Notes 4 & 5)

| Part Number | | Case | Packaging | | |
|-------------|-----------------|----------|---------------------------|--|--|
| Pb | SBR12A45SD1-T | DO-201AD | 1200/Tape & Reel, 13-inch | | |
| Green | SBR12A45SD1-T-G | DO-201AD | 1200/Tape & Reel, 13-inch | | |

1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.

2. See http://www.diodes.com for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.

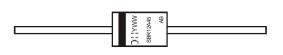
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

4. For packaging details, go to our website at http://www.diodes.com.

5. For Green Molding version, add '-G' to part number (ex. SBR12A45SD1-T-G)

Marking Information

Notes:



SBR12A45 = Product Type Marking Code AB = Foundry and Assembly Code D11 = Manufacturers' code marking YWW = Date Code Marking Y = Last digit of year (ex: 8 for 2008) WW = Week code (01 to 53)



Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Single phase, half wave, 60Hz, resistive or inductive load.

| Characteristic | Symbol | Value | Unit |
|---|---------------------|-------|------|
| Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage | Vrrm Vrwm Vrm | 45 | V |
| RMS Reverse Voltage | V _{R(RMS)} | 32 | V |
| Average Rectified Output Current | lo | 12 | A |
| Non-Repetitive Avalanche Energy ($T_J = +25^{\circ}C$, IAS = 20A , L = 8.5mH) | Eas | 20 | mJ |
| Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load | IFSM | 200 | A |
| Peak Repetitive Reverse Surge Current (2µS – 1KHz) | I _{RRM} | 2 | А |

Thermal Characteristics

| Characteristic | | Symbol | Value | Unit |
|---|---|---------------------------------------|-----------------------------|------|
| Typical Thermal Resistance Thermal Resistance Junction to Ambient (Note 6 Thermal Resistance Junction to Lead (Note 6) T _L | | R _θ JA R _{θJL} | 31 7.2 | °C/W |
| Operating Temperature Range | $V_R \le 80\% V_{RRM}$ $V_R \le 50\% V_{RRM}$ DC Forward Mode | TJ | -65 to +150 ≤180 ≤200 | °C |
| Storage Temperature Range | | T _{STG} | -65 to +175 | °C |

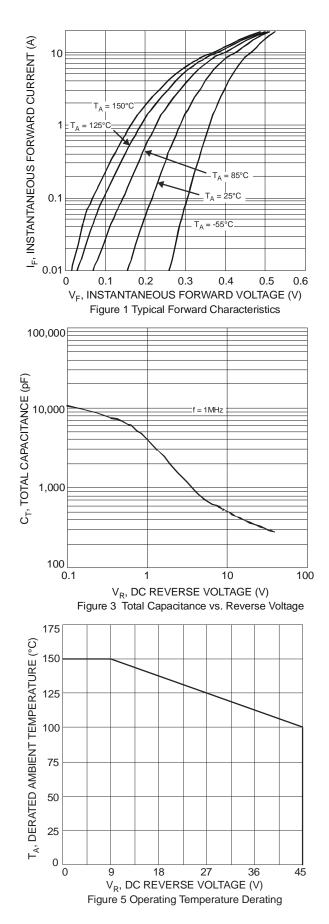
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

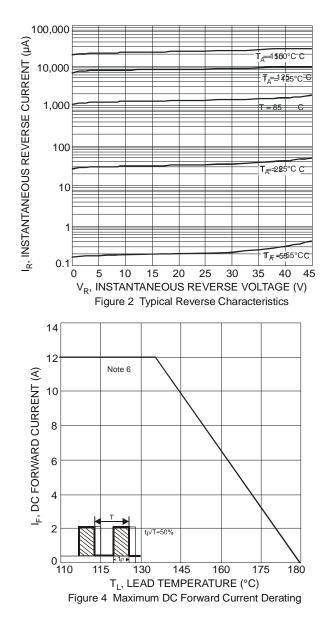
| Characteristic | Symbol | Min | Тур | Max | Unit | Test Condition |
|------------------------------------|--------------------|-----|--------------|------------------|------|---|
| Reverse Breakdown Voltage (Note 7) | V _{(BR)R} | 45 | _ | - | V | $I_R = 0.5 mA$ |
| Forward Voltage Drop | VF | | 0.43 0.40 | 0.48 0.44 | V | I _F = 12A, T _J = +25°C I _F = 12A, T _J = +125°C |
| Leakage Current (Note 7) | I _R | | 50 27 | 500 40 100 | mA | $V_R = 45V, T_J = +25^{\circ}C$ $V_R = 45V, T_J = +125^{\circ}C$ $V_R = 45V, T_J = +150^{\circ}C$ |

Notes: 6. Device mounted on 2" x 2" (50mm x 50mm) copper pad, with lead length 0.5".

7. Short duration pulse test used to minimize self-heating effect.



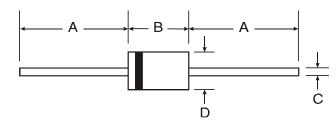






Package Outline Dimensions

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



| DO-201AD | | | | | |
|----------------------|-------|------|--|--|--|
| Dim | Min | Max | | | |
| Α | 25.40 | _ | | | |
| В | 7.20 | 9.50 | | | |
| С | 1.20 | 1.30 | | | |
| D | 4.80 | 5.30 | | | |
| All Dimensions in mm | | | | | |

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