

Features

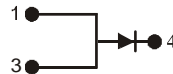
- Ultra-Low Forward Voltage Drop
- Excellent High Temperature Stability
- Patented Super Barrier Rectifier Technology
- Soft, Fast Switching Capability
- **Lead Free Finish, RoHS Compliant (Note 2)**
- **“Green” Molding Compound (No Br, Sb)**



Top View

Mechanical Data

- Case: D Pak (TO-252)
- Case Material: Molded Plastic, UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Matte Tin Finish annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208 ^(E3)
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.4 grams (approximate)



Package Pin Out Configuration

Maximum Ratings @_{T_A} = 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 _{R_{RM}} | 45 | V |
| Working Peak Reverse Voltage | V _{R_{WM}} | | |
| DC Blocking Voltage | V _{RM} | | |
| RMS Reverse Voltage | V _{R(RMS)} | 31 | V |
| Average Rectified Output Current @ _{T_C} = 110°C | I _O | 10 | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load | I _{FSM} | 125 | A |

Thermal Characteristics @_{T_A} = 25°C unless otherwise specified

| Characteristic | Symbol | Value | Unit |
|---|-----------------------------------|-------------|------|
| Typical Thermal Resistance | | | |
| Thermal Resistance Junction to Case | R _{θJC} | 2.0 | °C/W |
| Thermal Resistance Junction to Ambient (Note 3) | R _{θJA} | 34 | |
| Operating and Storage Temperature Range | T _J , T _{STG} | -65 to +150 | °C |

Electrical Characteristics @_{T_A} = 25°C unless otherwise specified

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|--------------------------|----------------|-----|-----|--------------|------|---|
| Forward Voltage Drop | V _F | - | - | 0.57 0.54 | V | I _F = 10A, T _J = 25°C I _F = 10A, T _J = 125°C |
| Leakage Current (Note 1) | I _R | - | - | 0.5 | mA | V _R = 45V, T _J = 25°C |

- Notes:
1. Short duration pulse test used to minimize self-heating effect.
 2. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied, see *EU Directive 2002/95/EC Annex Notes*.
 3. Polyimide PCB 2 oz. Copper, minimum recommended pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.

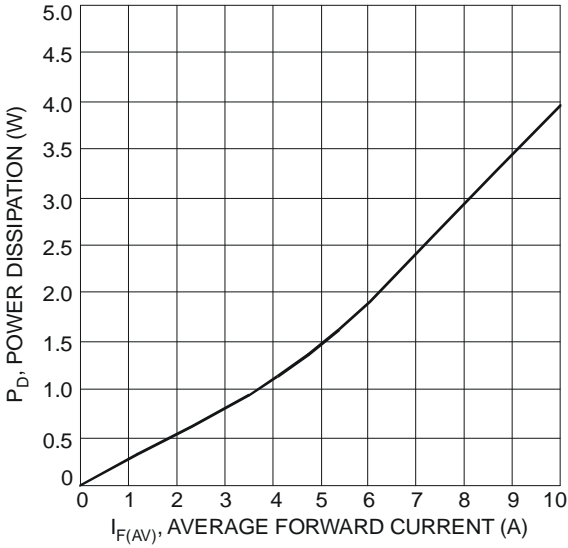


Fig. 1 Forward Power Dissipation

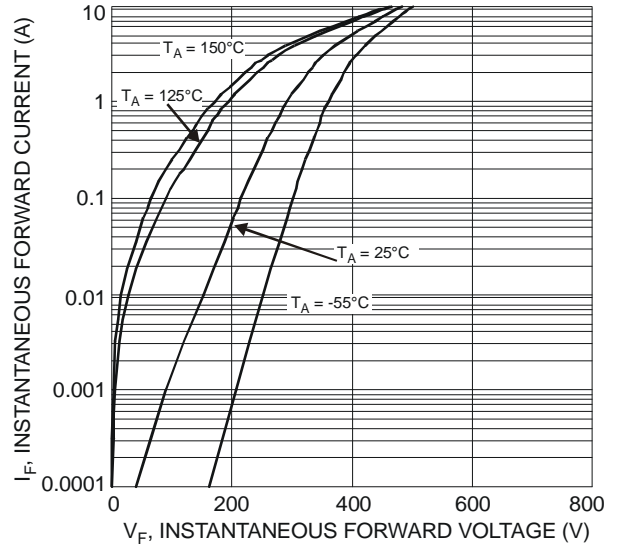


Fig. 2 Typical Forward Characteristics

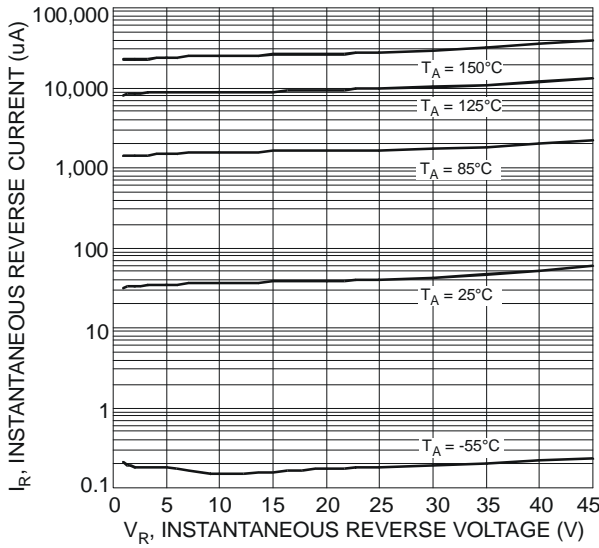


Fig. 3 Typical Reverse Characteristics

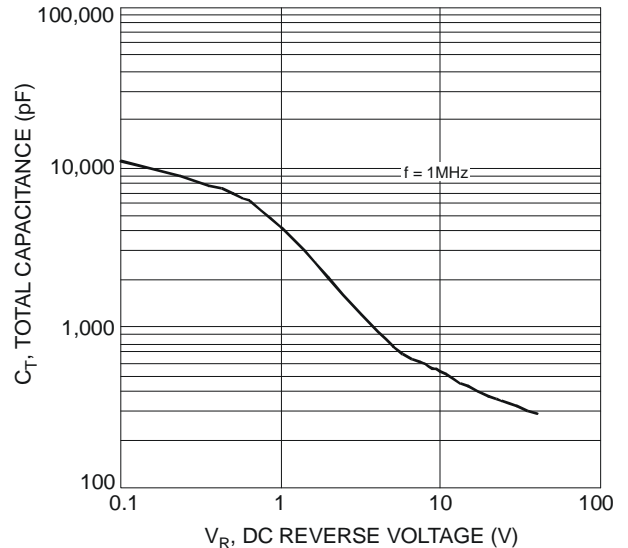


Fig. 4 Total Capacitance vs. Reverse Voltage

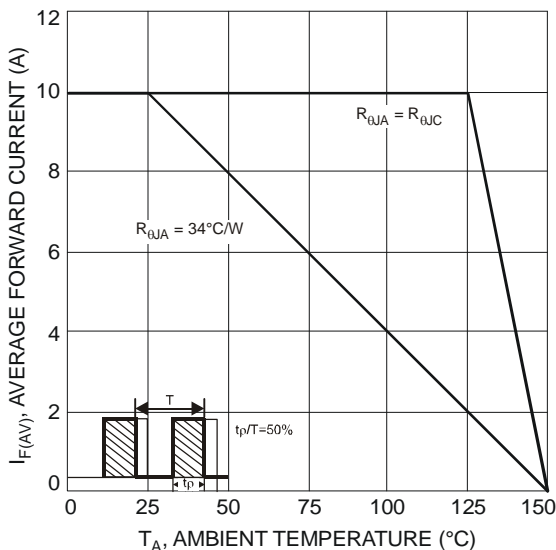


Fig. 5 Forward Current Derating Curve

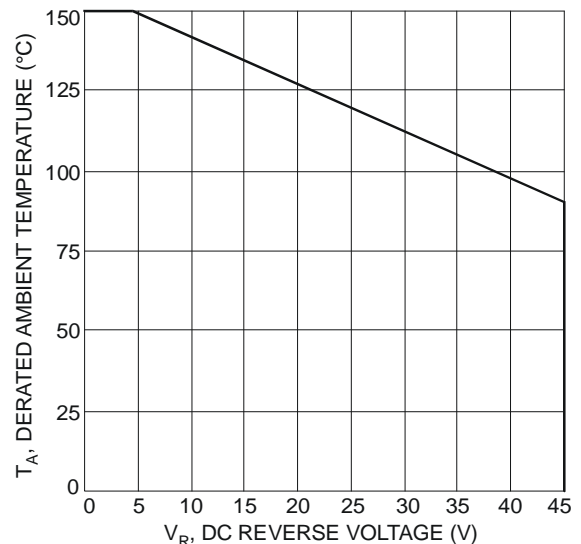
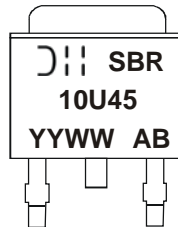


Fig. 6 Operating Temperature Derating

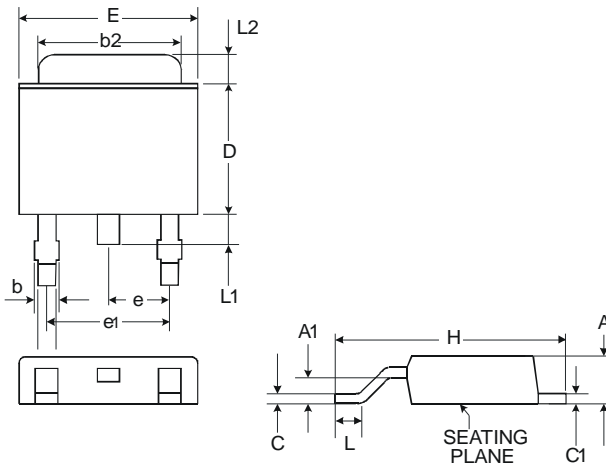
Ordering Information (Note 4)

| Part Number | Case | Packaging |
|---------------|----------------|------------------------------------|
| SBR10U45D1-13 | D Pak (TO-252) | 80 pieces/tube 2500 pieces/reel |

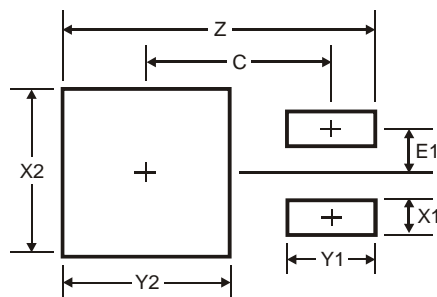
Notes: 4. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information


SBR10U45 = Product Type Marking Code
 AB = Foundry and Assembly Code
 YYWW = Date Code Marking
 YY = Last two digits of year, (ex: 07 = 2007)
 WW = Week (01-52)

Package Outline Dimensions


| DPAK | | |
|----------------------|-----------|-------|
| Dim | Min | Max |
| A | 2.18 | 2.40 |
| A1 | 0.89 | 1.14 |
| b | 0.61 Typ. | |
| b2 | 5.20 | 5.50 |
| C | 0.45 | 0.58 |
| C1 | 0.45 | 0.58 |
| D | 5.40 | 6.20 |
| E | 6.35 | 6.80 |
| e | 2.28 Typ. | |
| e1 | 4.57 Typ. | |
| H | 9.00 | 10.40 |
| L | 0.51 | — |
| L1 | 0.64 | 1.02 |
| L2 | 0.88 | 1.27 |
| All Dimensions in mm | | |

Suggested Pad Layout


| Dimensions | Value (in mm) |
|------------|---------------|
| Z | 11.6 |
| X1 | 1.5 |
| X2 | 7.0 |
| Y1 | 2.5 |
| Y2 | 7.0 |
| C | 6.9 |
| E1 | 2.3 |

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