

Features

- Low Forward Voltage Drop
- Excellent High Temperature Stability
- Patented Super Barrier Rectifier Technology
- Soft, Fast Switching Capability
- **Lead Free Finish, RoHS Compliant (Note 2)**
- **Also Available in Green Molding Compound (Note 4)**

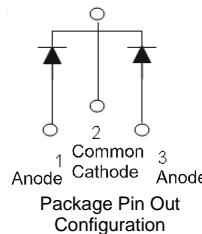
Mechanical Data

- Case: TO-220AB, ITO-220AB
- Case Material: Molded Plastic, UL Flammability Classification Rating 94V-0
- 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: TO-220AB – 1.85 grams (approximate)
ITO-220AB – 1.65 grams (approximate)


TO-220AB
Top View

TO-220AB
Bottom View

ITO-220AB
Top View

ITO-220AB
Bottom View


Maximum Ratings (Per Leg) @ $T_A = 25^\circ\text{C}$ 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} | | |
| Working Peak Reverse Voltage | V_{RWM} | 200 | V |
| DC Blocking Voltage | V_{RM} | | |
| Maximum Voltage Rate of Change (Rated V_R) | dv/dt | 10,000 | $\text{V}/\mu\text{s}$ |
| Average Rectified Output Current (Per Leg) (Total) | I_o | 10 20 | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load | I_{FSM} | 180 | A |
| Peak Repetitive Reverse Surge Current (2 μs -1KHz) | I_{RRM} | 3 | A |
| Isolation Voltage (ITO-220AB Only) From terminal to heatsink $t = 3$ sec. | V_{AC} | 2000 | V |

Thermal Characteristics (Per Leg)

| Characteristic | Symbol | Value | Unit |
|--|-----------------|-------------|---------------------------|
| Typical Thermal Resistance Package = TO-220AB | $R_{\theta JC}$ | 2 | $^\circ\text{C}/\text{W}$ |
| Package = ITO-220AB | | 4 | |
| Operating and Storage Temperature Range | T_J, T_{STG} | -65 to +175 | $^\circ\text{C}$ |

Electrical Characteristics (Per Leg) @ $T_A = 25^\circ\text{C}$ unless otherwise specified

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|--------------------------|----------|-----|------|----------------------|------|--|
| Forward Voltage Drop | V_F | - | 0.66 | 0.86 0.72 0.96 | V | $I_F = 10\text{A}, T_J = 25^\circ\text{C}$ $I_F = 10\text{A}, T_J = 125^\circ\text{C}$ $I_F = 20\text{A}, T_J = 25^\circ\text{C}$ |
| Leakage Current (Note 1) | I_R | - | - | 0.1 10 | mA | $V_R = 200\text{V}, T_J = 25^\circ\text{C}$ $V_R = 200\text{V}, T_J = 125^\circ\text{C}$ |
| Reverse Recovery Time | t_{rr} | - | 24 | 30 | ns | $I_F = 0.5\text{A}, I_R = 1\text{A}, I_{RR} = 0.25\text{A}$ $I_F = 1\text{A}, V_R = 30\text{V},$ $di/dt = 100\text{A}/\mu\text{s}, T_J = 25^\circ\text{C}$ |

Notes:

1. Short duration pulse test used to minimize self-heating effect.
2. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied. Please visit our website at http://www.diodes.com/products/lead_free.html.
3. Using heatsink (by black Aluminum 45mm * 20mm * 12mm)

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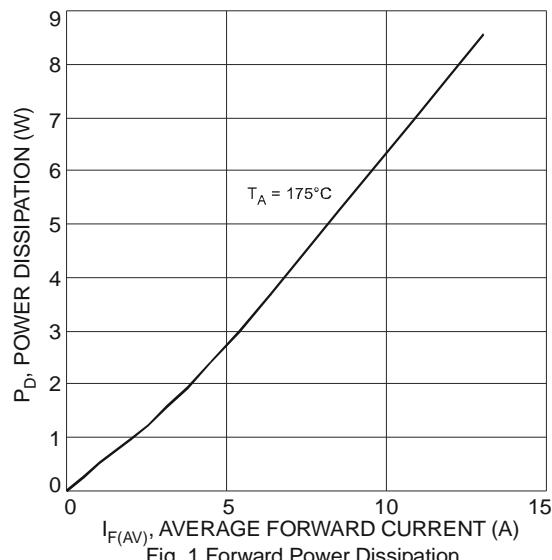


Fig. 1 Forward Power Dissipation

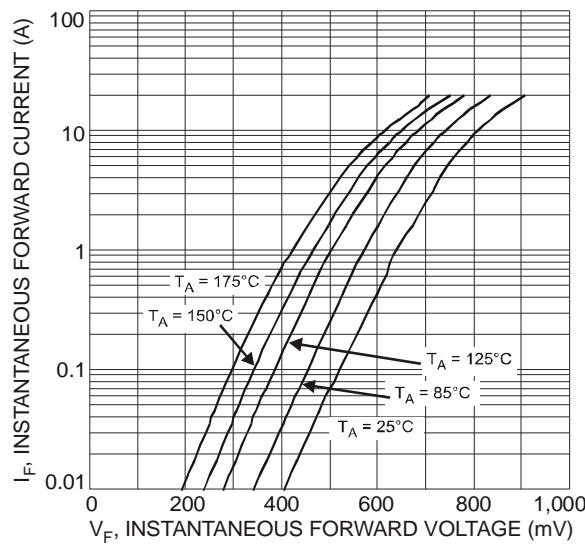


Fig. 2 Typical Forward Characteristics

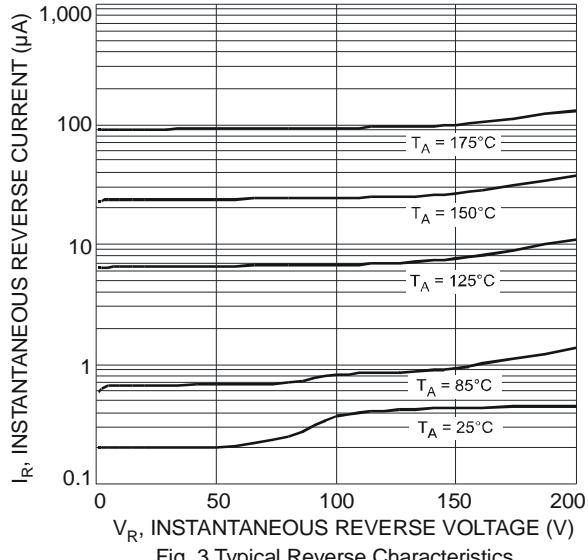


Fig. 3 Typical Reverse Characteristics

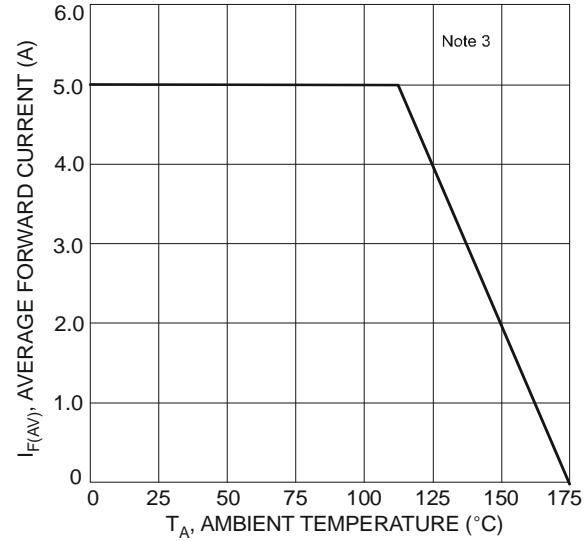


Fig. 4 Forward Current Derating Curve

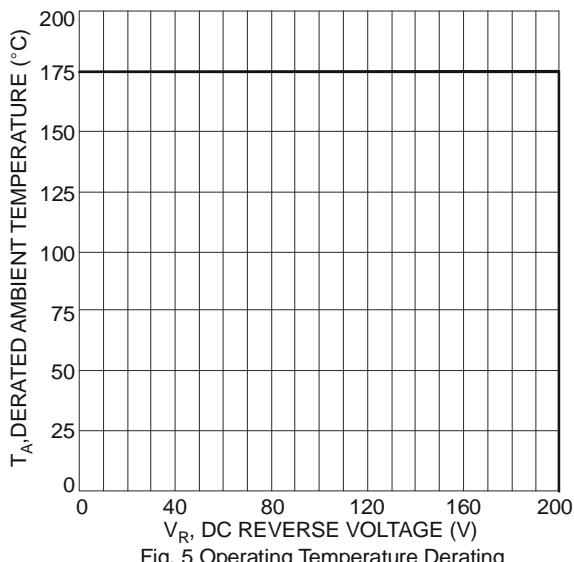


Fig. 5 Operating Temperature Derating

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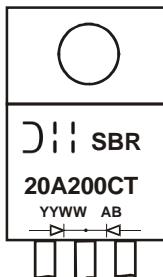
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Ordering Information (Notes 4 & 5)

| Part Number | Case | Packaging |
|-----------------|-----------|----------------|
| SBR20A200CT | TO-220AB | 50 pieces/tube |
| SBR20A200CT-G | TO-220AB | 50 pieces/tube |
| SBR20A200CTFP | ITO-220AB | 50 pieces/tube |
| SBR20A200CTFP-G | ITO-220AB | 50 pieces/tube |

Notes: 4. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.
 5. For Green Molding Compound version part numbers, add "-G" suffix to part number above. Examples: SBR20A200CT-G.

Marking Information

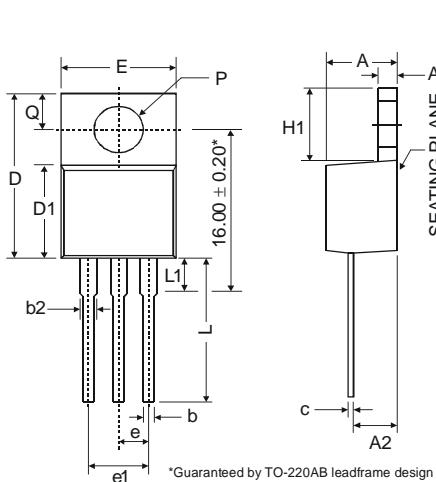


SBR20A200CT = Product Type Marking Code
 AB = Foundry and Assembly Code
 YYWW = Date Code Marking
 YY = Last two digits of year (ex: 06 = 2006)
 WW = Week (01-52)



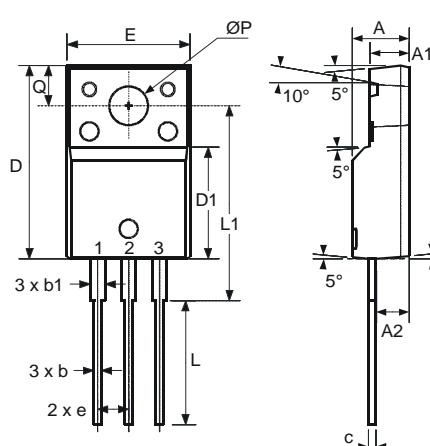
SBR20A200CTFP = Product Type Marking Code
 AB = Foundry and Assembly Code
 YYWW = Date Code Marking
 YY = Last two digits of year (ex: 06 = 2006)
 WW = Week (01-52)

Package Outline Dimensions



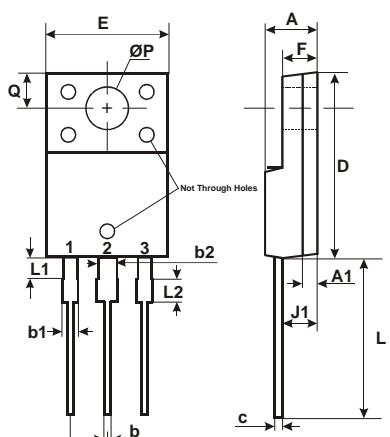
| TO-220AB | | | |
|-----------|-------|------|-------|
| Dim | Min | Typ | Max |
| A | 3.56 | - | 4.82 |
| A1 | 0.51 | - | 1.39 |
| A2 | 2.04 | - | 2.92 |
| b | 0.39 | 0.81 | 1.01 |
| b2 | 1.15 | 1.24 | 1.77 |
| c | 0.356 | - | 0.61 |
| D | 14.22 | - | 16.51 |
| D1 | 8.39 | - | 9.01 |
| e | 2.54 | | |
| e1 | 5.08 | | |
| E | 9.66 | - | 10.66 |
| H1 | 5.85 | - | 6.85 |
| L | 12.70 | - | 14.73 |
| L1 | - | - | 6.35 |
| P | 3.54 | - | 4.08 |
| Q | 2.54 | - | 3.42 |

All Dimensions in mm



| ITO-220AB (Note 6) | | | |
|-----------------------|-------|-------|-------|
| Dim | Min | Typ | Max |
| A | 4.50 | 4.70 | 4.90 |
| A1 | 3.04 | 3.24 | 3.44 |
| A2 | 2.56 | 2.76 | 2.96 |
| b | 0.50 | 0.60 | 0.75 |
| b1 | 1.10 | 1.20 | 1.35 |
| c | 0.50 | 0.60 | 0.70 |
| D | 15.67 | 15.87 | 16.07 |
| D1 | 8.99 | 9.19 | 9.39 |
| e | 2.54 | | |
| E | 9.91 | 10.11 | 10.31 |
| L | 9.45 | 9.75 | 10.05 |
| L1 | 15.80 | 16.00 | 16.20 |
| P | 2.98 | 3.18 | 3.38 |
| Q | 3.10 | 3.30 | 3.50 |

All Dimensions in mm



| ITO-220AB ALTERNATE (Note 6) | | |
|------------------------------------|----------|-------|
| DIM. | MIN. | MAX. |
| A | 4.30 | 4.70 |
| A1 | 1.3 | |
| b | 0.50 | 0.75 |
| b1 | 1.10 | 1.35 |
| b2 | 1.50 | 1.75 |
| c | 0.50 | 0.75 |
| D | 14.80 | 15.20 |
| E | 9.96 | 10.36 |
| e | 2.54 typ | |
| F | 2.80 | 3.20 |
| J1 | 2.50 | 2.90 |
| L | 12.80 | 13.60 |
| L1 | 1.70 | 1.90 |
| L2 | 1.90 | 2.10 |
| ØP | 3.50 typ | |
| Q | 2.70 typ | |

All Dimensions in mm

Notes: 6. For product manufactured with Date Code 0733 (week 33, 2007) and newer, please refer to ITO-220AB dimensions. For product manufactured prior to Date Code 0733, please refer to ITO-220AB ALTERNATE dimensions.

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