**SBR20A300CT**
**SBR20A300CTFP**

**20A SBR®**
**SUPER BARRIER RECTIFIER**

## Features

- Low Forward Voltage Drop
- Excellent High Temperature Stability
- Patented Super Barrier Rectifier Technology
- Soft, Fast Switching Capability
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Also Available in Green Molding Compound**
  - **Halogen and Antimony Free. "Green" Device (Note 3)**

## Mechanical Data

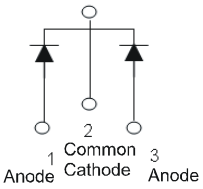
- Case: TO-220AB, ITO-220AB
- Case Material: Molded Plastic, UL Flammability Classification Rating 94V-0
- Terminals: Matte Tin Finish annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208 e3
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: TO-220AB – 1.85 grams (approximate)
  ITO-220AB – 1.65 grams (approximate)

TO-220AB
Top View

TO-220AB
Bottom View

ITO-220AB
Top View

ITO-220AB
Bottom View



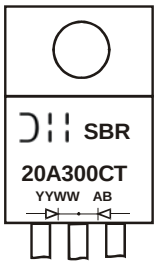

Package Pin Out
Configuration

## Ordering Information (Notes 4 & 5)

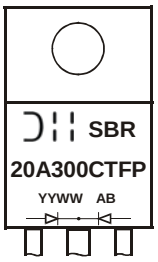
| | Part Number | Case | Packaging |
|---|---|---|---|
| Pb | SBR20A300CT | TO-220AB | 50 pieces/tube |
| Pb Green | SBR20A300CT-G | TO-220AB | 50 pieces/tube |
| Pb | SBR20A300CTFP | ITO-220AB | 50 pieces/tube |
| Pb Green | SBR20A300CTFP-G | ITO-220AB | 50 pieces/tube |
| Pb Green | SBR20A300CTFP-JT-G | ITO-220AB (Alternate) | 50 pieces/tube |

Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
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/datasheets/ap02007.pdf.
5. For Green Molding Compound version part numbers, add "-G" suffix to part number above. Examples: SBR20A300CT-G.

## Marking Information




SBR20A300CT = 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 - 53)




SBR20A300CTFP = 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 - 53)

## Maximum Ratings (Per Leg) @$T_A$ = 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<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | $V_{RRM}$<br>$V_{RWM}$<br>$V_{RM}$ | 300 | V |
| Average Rectified Output Current (Per Leg)<br>(Total) | $I_O$ | 10<br>20 | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms<br>Single Half Sine-Wave Superimposed on Rated Load | $I_{FSM}$ | 180 | A |
| Peak Repetitive Reverse Surge Current (2uS-1Khz) | $I_{RRM}$ | 3 | A |
| Isolation Voltage (ITO-220AB Only)<br>From terminal to heatsink t = 3 sec. | $V_{AC}$ | 2000 | V |

## Thermal Characteristics (Per Leg)

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

## Electrical Characteristics (Per Leg) @$T_A$ = 25°C unless otherwise specified

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|---|---|---|---|---|---|---|
| Forward Voltage Drop | $V_F$ | - | -<br>0.70<br>- | 0.92<br>0.78<br>1.06 | V | $I_F$ = 10A, $T_J$ = 25°C<br>$I_F$ = 10A, $T_J$ = 125°C<br>$I_F$ = 20A, $T_J$ = 25°C |
| Leakage Current (Note 6) | $I_R$ | - | - | 0.1<br>10 | mA | $V_R$ = 300V, $T_J$ = 25°C<br>$V_R$ = 300V, $T_J$ = 125°C |
| Reverse Recovery Time | $t_{rr}$ | - | 25 | 30 | ns | $I_F$ = 0.5A, $I_R$ = 1A, $I_{RR}$ = 0.25A |
| | | - | 28 | 35 | | $I_F$ = 1A, $V_R$ = 30V<br>di/dt = 100A/μs, $T_J$ = 25°C |

Notes: 6. Short duration pulse test used to minimize self-heating effect.
7. Using heatsink (by black Aluminum 45mm * 20mm * 12mm)

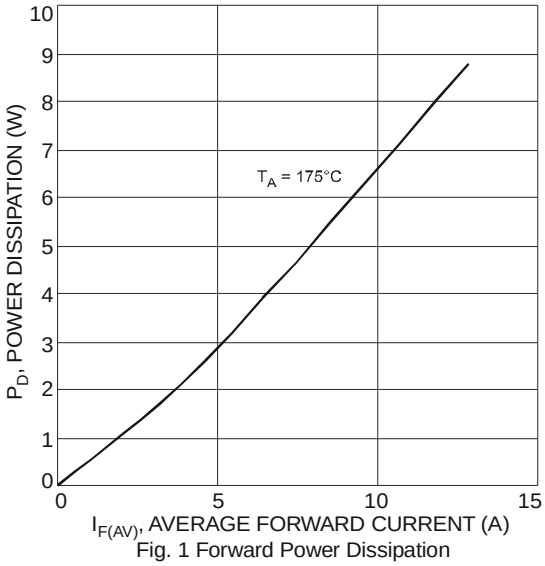


Fig. 1 Forward Power Dissipation

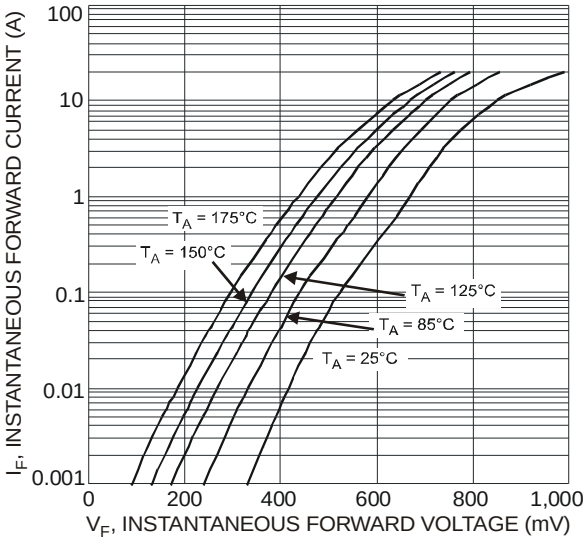


Fig. 2 Typical Forward Characteristics

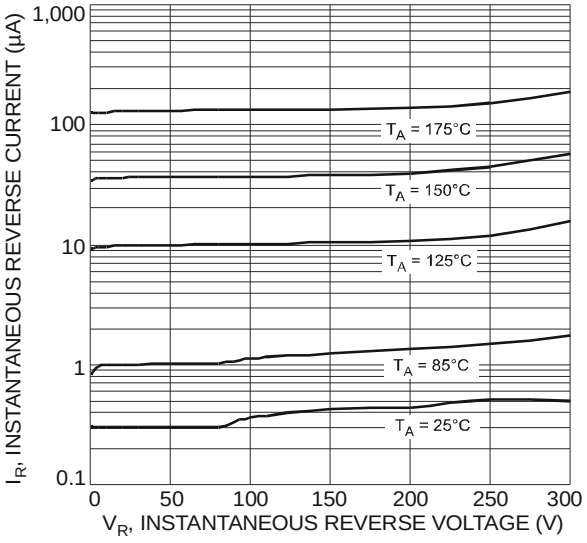


Fig. 3 Typical Reverse Characteristics

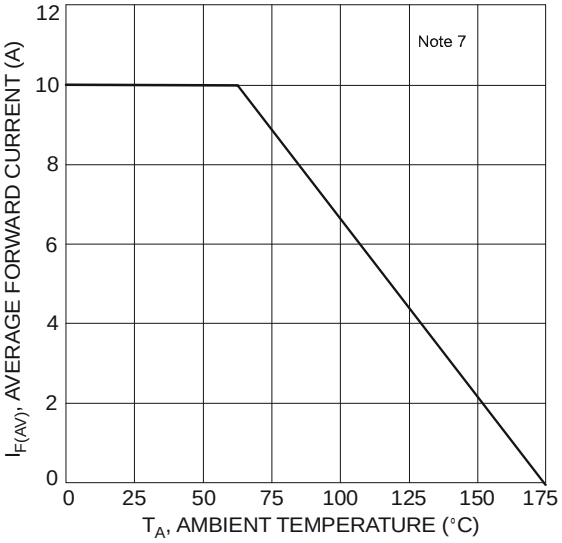


Fig. 4 Forward Current Derating Curve

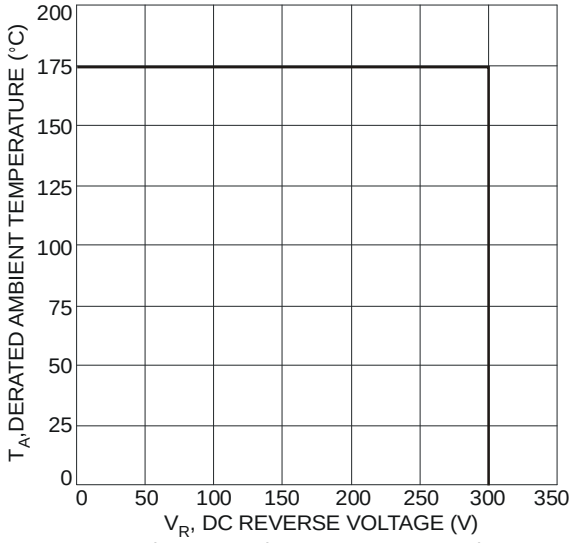
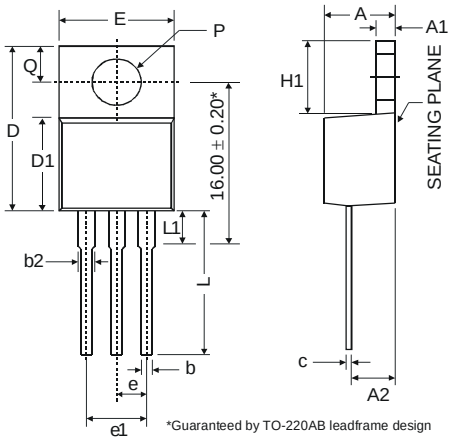
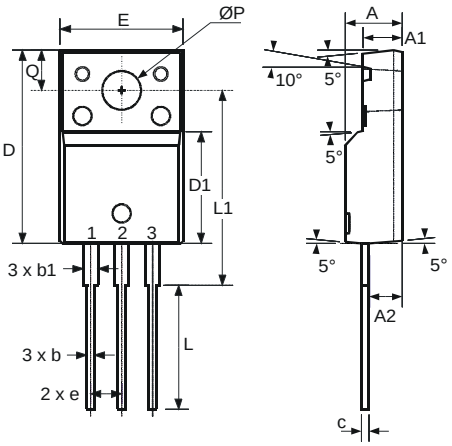


Fig. 5 Operating Temperature Derating

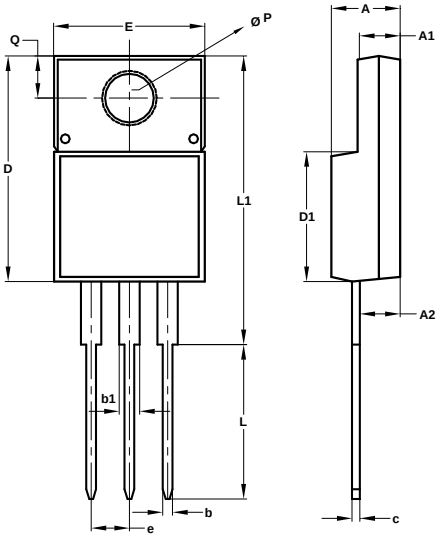
## Package Outline Dimensions




| 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 | | | |
|---|---|---|---|
| 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 | | | |




| ITO220AB | | |
|---|---|---|
| Dim | Min | Max |
| A | 4.36 | 4.77 |
| A1 | 2.54 | 3.10 |
| A2 | 2.54 | 2.80 |
| b | 0.55 | 0.75 |
| b1 | 1.20 | 1.50 |
| c | 0.38 | 0.68 |
| D | 14.50 | 15.50 |
| D1 | 8.38 | 8.89 |
| e | 2.41 | 2.67 |
| E | 9.72 | 10.27 |
| L | 9.87 | 10.67 |
| L1 | 15.8 | 17.00 |
| P | 3.08 | 3.39 |
| Q | 2.60 | 3.00 |
| All Dimensions in mm | | |

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**www.diodes.com**

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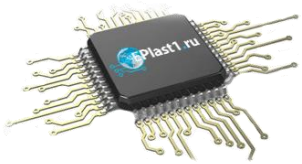
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.

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