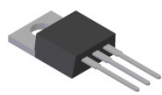


## Features

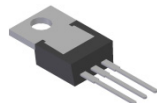
- Ultra Low Forward Voltage Drop
- Excellent High Temperature Stability
- Patented Super Barrier Rectifier Technology
- Soft, Fast Switching Capability
- **Lead Free Finish, RoHS Compliant (Note 2)**
- **Also Available in Green Molding Compound (Note 4)**

## Mechanical Data

- Case: TO-220AB, ITO-220AB, D<sup>2</sup>Pak
- 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 ③
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: TO-220AB – 1.85 grams (approximate)  
 ITO-220AB – 1.65 grams (approximate)  
 D<sup>2</sup>Pak – 2.1 grams (approximate)



TO-220AB  
Top View



TO-220AB  
Bottom View



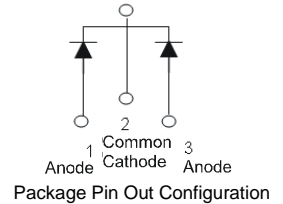
ITO-220AB  
Top View



ITO-220AB  
Bottom View



D<sup>2</sup>Pak  
Top View



## Maximum Ratings (Per Leg) @T<sub>A</sub> = 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 <sub>RRM</sub> | 200     | V    |
| Working Peak Reverse Voltage   | V <sub>RWM</sub> |         |      |
| DC Blocking Voltage  | V <sub>RM</sub>  |         |      |
| Average Rectified Output Current (Per Leg) (Total)   | I <sub>O</sub>   | 5<br>10 | A    |
| Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load | I <sub>FSM</sub> | 150     | A    |
| Peak Repetitive Reverse Surge Current (2µs-1Khz)   | I <sub>RRM</sub> | 3       | A    |
| Isolation Voltage (ITO-220AB Only) From terminal to heatsink t = 3 sec.                          | V <sub>AC</sub>  | 2000    | V    |

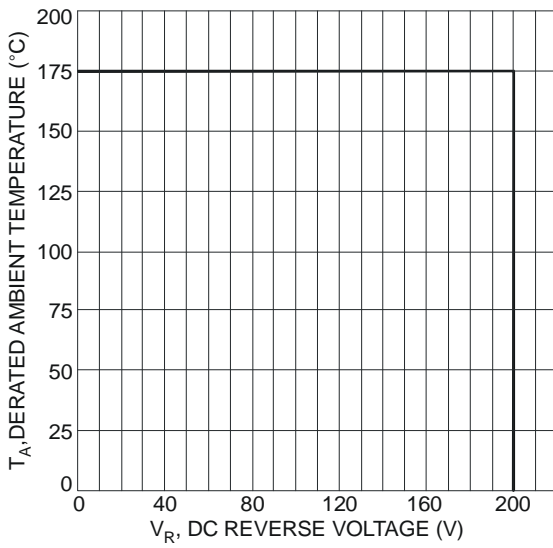
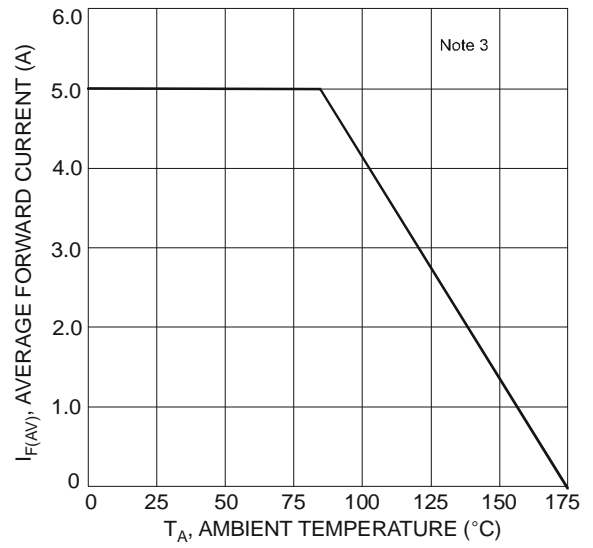
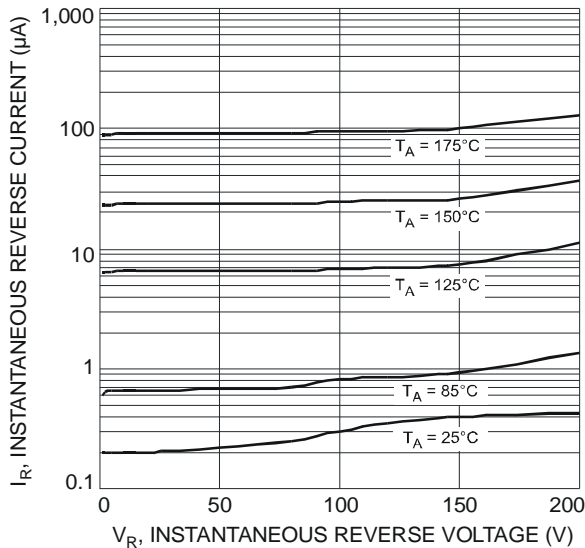
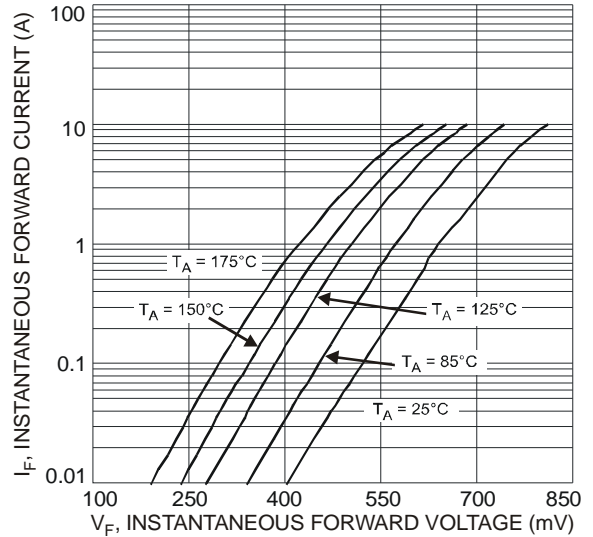
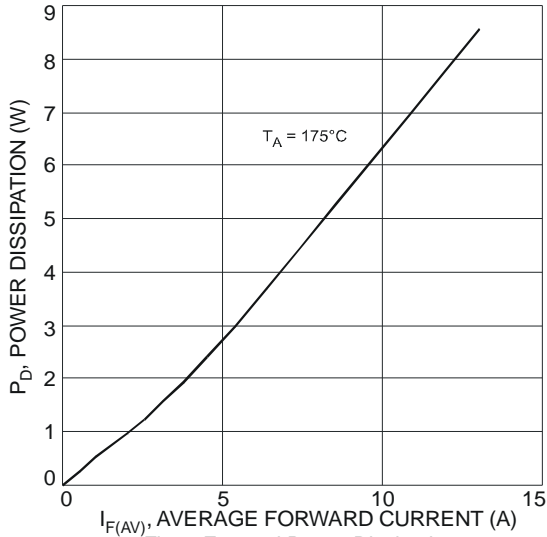
## Thermal Characteristics (Per Leg)

| Characteristic   | Symbol                            | Value       | Unit |
|--|-----------------------------------|-------------|------|
| Typical Thermal Resistance Package = TO-220AB & D <sup>2</sup> Pak | R <sub>θJC</sub>                  | 2           | °C/W |
| Package = ITO-220AB  |                                   | 4           |      |
| Operating and Storage Temperature Range                            | T <sub>J</sub> , T <sub>STG</sub> | -65 to +175 | °C   |

## Electrical Characteristics (Per Leg) @T<sub>A</sub> = 25°C unless otherwise specified

| Characteristic           | Symbol          | Min | Typ  | Max                  | Unit | Test Condition   |
|--------------------------|-----------------|-----|------|----------------------|------|--|
| Forward Voltage Drop     | V <sub>F</sub>  | -   | 0.60 | 0.82<br>0.65<br>0.88 | V    | I <sub>F</sub> = 5A, T <sub>J</sub> = 25°C<br>I <sub>F</sub> = 5A, T <sub>J</sub> = 125°C<br>I <sub>F</sub> = 10A, T <sub>J</sub> = 25°C |
| Leakage Current (Note 1) | I <sub>R</sub>  | -   | -    | 0.2<br>25            | mA   | V <sub>R</sub> = 200V, T <sub>J</sub> = 25°C<br>V <sub>R</sub> = 200V, T <sub>J</sub> = 125°C  |
| Reverse Recovery Time    | t <sub>rr</sub> | -   | 24   | 30                   | ns   | I <sub>F</sub> = 0.5A, I <sub>R</sub> = 1A, I <sub>RR</sub> = 0.25A  |
|                          |                 | -   | 20   | 25                   |      | I <sub>F</sub> = 1A, V <sub>R</sub> = 30V, di/dt = 100A/µs, T <sub>J</sub> = 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. Using heatsink (by Black Aluminum 45mm \* 20mm \* 12mm)

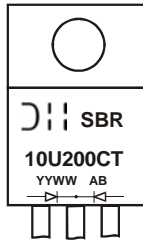


## Ordering Information (Notes 4 and 5)

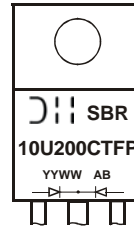
| Part Number       | Case                  | Packaging       |
|-------------------|-----------------------|-----------------|
| SBR10U200CT       | TO-220AB              | 50 pieces/tube  |
| SBR10U200CT-G     | TO-220AB              | 50 pieces/tube  |
| SBR10U200CTFP     | ITO-220AB             | 50 pieces/tube  |
| SBR10U200CTFP-G   | ITO-220AB             | 50 pieces/tube  |
| SBR10U200CTFP-JT  | ITO-220AB (Alternate) | 50 pieces/tube  |
| SBR10U200CTB      | D <sup>2</sup> Pak    | 50 pieces/tube  |
| SBR10U200CTB-G    | D <sup>2</sup> Pak    | 50 pieces/tube  |
| SBR10U200CTB-13   | D <sup>2</sup> Pak    | 800/Tape & Reel |
| SBR10U200CTB-13-G | D <sup>2</sup> Pak    | 800/Tape & Reel |

- Notes:
- For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.
  - For Green Molding Compound version part numbers, add "-G" suffix to part number above. Examples: SBR10U200CT-G.

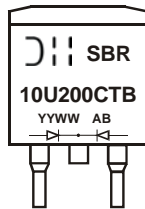
## Marking Information



SBR10U200CT = 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)

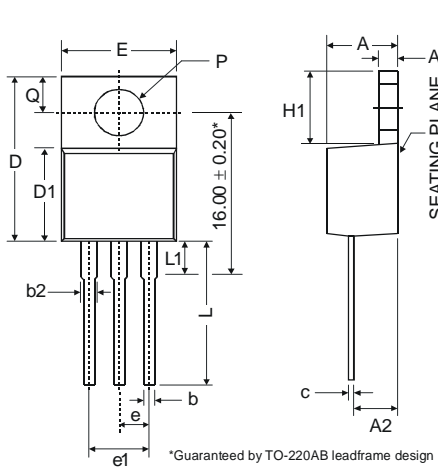


SBR10U200CTFP = Product Type Marking Code  
 AB = Foundry and Assembly Code  
 YYWW = Date Code Marking  
 YY = Last two digits of year (ex: 06 = 2006)  
 WW = Week (01 - 53)



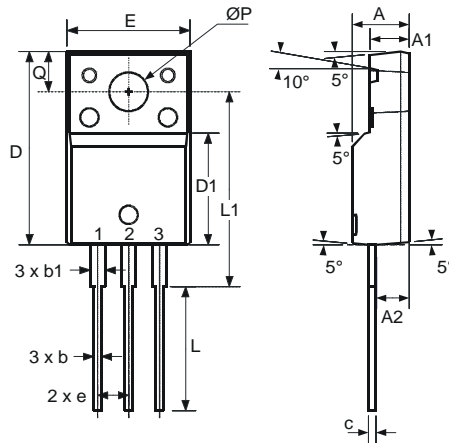
SBR10U200CTB = Product Type Marking Code  
 AB = Foundry and Assembly Code  
 YYWW = Date Code Marking  
 YY = Last two digits of year (ex: 06 = 2006)  
 WW = Week (01 - 53)

### Package Outline Dimensions



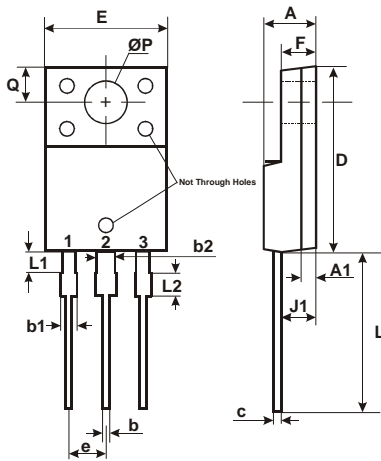
| TO-220AB |       |      |       |
|----------|-------|------|-------|
| Dim      | Min   | Typ  | Max   |
| A        | 3.56  | -    | 4.82  |
| A1       | 0.51  | -    | 1.39  |
| A2       | 2.04  | -    | 2.92  |
| b        | 0.39  | 0.81 | 1.01  |
| b2       | 1.15  | 1.24 | 1.77  |
| c        | 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



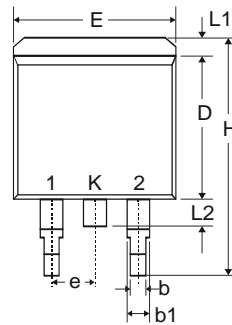
| ITO-220AB |       |       |       |
|-----------|-------|-------|-------|
| Dim       | Min   | Typ   | Max   |
| A         | 4.50  | 4.70  | 4.90  |
| A1        | 3.04  | 3.24  | 3.44  |
| A2        | 2.56  | 2.76  | 2.96  |
| b         | 0.50  | 0.60  | 0.75  |
| b1        | 1.10  | 1.20  | 1.35  |
| 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



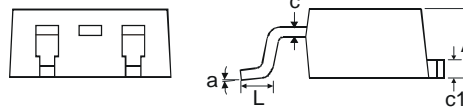
| ITO-220AB ALTERNATE |          |       |
|---------------------|----------|-------|
| DIM.                | MIN.     | MAX.  |
| A                   | 4.30     | 4.70  |
| A1                  | 1.3      |       |
| b                   | 0.50     | 0.75  |
| b1                  | 1.10     | 1.35  |
| 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

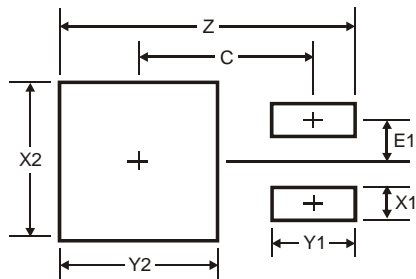


| D <sup>2</sup> PAK |          |       |
|--------------------|----------|-------|
| Dim                | Min      | Max   |
| A                  | 4.07     | 4.82  |
| b                  | 0.51     | 0.99  |
| b1                 | 1.15     | 1.77  |
| c                  | 0.356    | 0.58  |
| c1                 | 1.143    | 1.65  |
| D                  | 8.39     | 9.65  |
| E                  | 9.66     | 10.66 |
| e                  | 2.54 Typ |       |
| H                  | 14.61    | 15.87 |
| L                  | 1.78     | 2.79  |
| L1                 | —        | 1.67  |
| L2                 | —        | 1.77  |
| a                  | 0°       | 8°    |

All Dimensions in mm



### Suggested Pad Layout



| D <sup>2</sup> Pak |               |
|--------------------|---------------|
| Dimensions         | Value (in mm) |
| Z                  | 16.9          |
| X1                 | 1.1           |
| X2                 | 10.8          |
| Y1                 | 3.5           |
| Y2                 | 11.4          |
| C                  | 9.5           |
| E1                 | 2.5           |

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